

# Contents

1		
2		<b>Page</b>
3	List of Figures.....	xii
4	List of Tables .....	xix
5	Acronym and Abbreviations .....	lvi
6	<b>Executive Summary .....</b>	<b>ES-1</b>
7	ES.1 Introduction .....	ES-1
8	ES.1.1 Background and Context.....	ES-1
9	ES.1.2 Overview of Key Revisions .....	ES-4
10	ES.1.3 Areas of Known Controversy .....	ES-9
11	ES.1.4 Readers Guide to the RDEIR/SDEIS.....	ES-11
12	ES.1.5 Key RDEIR/SDEIS Terms .....	ES-13
13	ES.1.6 Public Review Process.....	ES-14
14	ES.2 Description of Alternatives .....	ES-14
15	ES.2.1 Alternative 4 .....	ES-15
16	ES.2.2 Alternative 4A .....	ES-16
17	ES.2.3 Other RDEIR/SDEIS Alternatives .....	ES-19
18	ES.3 Summary of Substantive Revisions.....	ES-21
19	ES.3.1 Improved Fish and Aquatic Habitat Analyses .....	ES-21
20	ES.3.2 Water Quality Revisions.....	ES-25
21	ES.3.3 Air Quality, Health Risk Assessment, Traffic and Noise Revisions .....	ES-29
22	ES.3.4 Terrestrial Resources Revisions .....	ES-30
23	ES.3.5 Revised Project Descriptions and Enhanced Level of Detail (Alt 4) .....	ES-33
24	ES.3.6 Analysis of Geotechnical Investigations.....	ES-33
25	ES.3.7 Revisions to Cumulative Impact Analyses.....	ES-34
26	ES.4 Mitigation and Adaptive Management.....	ES-35
27	ES.4.1 Mitigation Measures, Avoidance and Minimization Measures, and	
28	Environmental Commitments.....	ES-35
29	ES.4.2 Collaborative Science and Adaptive Management Program .....	ES-37
30	ES.5 Summary of Impacts .....	ES-40
31	<b>Section 1 Introduction .....</b>	<b>1-1</b>
32	1.1 Background and Context for the RDEIR/SDEIS .....	1-1
33	1.1.1 Addition of New Alternatives 4A, 2D, and 5A.....	1-4
34	1.1.2 Legal Basis for Recirculation .....	1-5
35	1.1.3 Identification of a Preferred Alternative .....	1-6
36	1.1.4 Project Objectives and Purpose and Need .....	1-7

1	1.1.5	Roles and Responsibilities of Key Federal and State Agencies .....	1-12
2	1.2	Purpose of Recirculated/Supplemental Documents .....	1-29
3	1.3	Contents of the RDEIR/SDEIS .....	1-30
4	1.4	Revisions to be Included in the Final EIR/EIS .....	1-34
5	1.5	Format of the RDEIR/SDEIS .....	1-35
6	1.6	Public Review Process for RDEIR/SDEIS .....	1-36
7	1.7	References .....	1-37
8	<b>Section 2</b>	<b>Substantive Draft EIR/EIS Revisions .....</b>	<b>2-1</b>
9	2.1	Fish and Aquatic Habitat Analyses .....	2-1
10	2.1.1	Methods Used.....	2-1
11	2.1.2	Effects Downstream of the Plan Area.....	2-2
12	2.1.3	Selenium and Mercury.....	2-3
13	2.1.4	NEPA Determinations .....	2-3
14	2.1.5	Clifton Court Forebay Modification, Head of Old River Operable Barrier Construction, and Pile Driving Effects.....	2-4
16	2.1.6	Non-Covered Fish Entrainment at the North Delta Diversion .....	2-5
17	2.2	Water Quality Revisions.....	2-5
18	2.2.1	Electrical Conductivity and Chloride .....	2-6
19	2.2.2	Selenium .....	2-11
20	2.2.3	Bromide.....	2-12
21	2.2.4	Mercury.....	2-13
22	2.2.5	Microcystis .....	2-14
23	2.2.6	Potential Seaward Effects of the BDCP .....	2-14
24	2.2.7	Modeling and Methods Descriptions.....	2-15
25	2.2.8	Dissolved Oxygen .....	2-15
26	2.2.9	Miscellaneous Revisions and Updates.....	2-16
27	2.3	Air Quality, Health Risk Assessment, Traffic, and Noise Revisions .....	2-16
28	2.3.1	Mass Emissions Modeling for Construction of the Water Conveyance Facility .....	2-17
29	2.3.2	Health Risk Assessment for Construction of the Water Conveyance Facility.....	2-18
30	2.3.3	Mass Emissions Modeling for Operations and Maintenance of the Water Conveyance Facility.....	2-18
32	2.3.4	Air District Thresholds and Localized Health Analysis .....	2-19
33	2.3.5	Odor Analysis .....	2-19
34	2.3.6	General Conformity Determination.....	2-20
35	2.3.7	Transportation and Noise Analysis for Construction of the Water Conveyance Facilities.....	2-20
37	2.4	Revised Project Descriptions and Enhanced Level of Detail.....	2-21
38	2.4.1	Analysis of Water Conveyance Facility Impacts.....	2-21

1	2.4.2	Updates to Conservation Measures, Environmental Commitments, and	
2		Avoidance and Minimization Measures .....	2-21
3	2.5	Analysis of Geotechnical Investigations.....	2-22
4	2.5.1	Draft Geotechnical Exploration Plan.....	2-23
5	2.5.2	Methods for Environmental Analysis.....	2-26
6	2.5.3	Applicability to Other Alternatives .....	2-27
7	2.6	References .....	2-27
8	<b>Section 3</b>	<b>Conveyance Facility Modifications to Alternative 4.....</b>	<b>3-1</b>
9	3.1	Background and Description of Facility Modifications .....	3-1
10	3.2	Revised Description of Water Conveyance Facility Components under	
11		Alternative 4 .....	3-2
12	3.3	Impacts of Alternative 4 Modifications .....	3-5
13	3.3.1	Draft EIR/EIS Chapters Not Revised .....	3-6
14	3.3.2	Description of Alternatives .....	3-6
15	3.3.3	Surface Water .....	3-6
16	3.3.4	Groundwater.....	3-6
17	3.3.5	Water Quality.....	3-7
18	3.3.6	Geology and Seismicity .....	3-7
19	3.3.7	Soils .....	3-7
20	3.3.8	Fish and Aquatic Resources .....	3-7
21	3.3.9	Terrestrial Biological Resources.....	3-7
22	3.3.10	Land Use.....	3-8
23	3.3.11	Agricultural Resources .....	3-8
24	3.3.12	Recreation.....	3-8
25	3.3.13	Socioeconomics .....	3-8
26	3.3.14	Aesthetics and Visual Resources.....	3-9
27	3.3.15	Cultural Resources .....	3-9
28	3.3.16	Transportation .....	3-9
29	3.3.17	Public Services and Utilities .....	3-9
30	3.3.18	Energy .....	3-10
31	3.3.19	Air Quality and Greenhouse Gases .....	3-10
32	3.3.20	Noise .....	3-10
33	3.3.21	Hazards and Hazardous Materials .....	3-10
34	3.3.22	Public Health .....	3-11
35	3.3.23	Minerals .....	3-11
36	3.3.24	Paleontological Resources .....	3-11
37	3.3.25	Environmental Justice .....	3-11

1	<b>Section 4</b>	<b>New Alternatives: Alternatives 4A, 2D, and 5A .....</b>	<b>4.1-1</b>
2	4.1	Introduction .....	4.1-1
3	4.1.1	Rationale for Revisions to the Proposed Project .....	4.1-2
4	4.1.2	Description of Alternative 4A.....	4.1-4
5	4.1.3	Description of Alternative 2D .....	4.1-21
6	4.1.4	Description of Alternative 5A.....	4.1-29
7	4.1.5	Approach to Environmental Analysis for Alternatives 4A, 2D, and 5A.....	4.1-37
8	4.1.6	Assumptions for the Purposes of Analysis.....	4.1-42
9	4.1.7	References .....	4.1-43
10	4.2	Impacts of No Action Alternative Early Long-Term .....	4.2-1
11	4.2.1	No Action Alternative (ELT) Assumptions for State Water Project and Central	
12		Valley Project .....	4.2-2
13	4.2.2	No Action Alternative (ELT) Assumptions for Ongoing Programs and Policies .....	4.2-2
14	4.2.3	No Action Alternative (ELT) Assumptions for Biological Opinions.....	4.2-2
15	4.2.4	Water Supply .....	4.2-3
16	4.2.5	Surface Water .....	4.2-12
17	4.2.6	Groundwater.....	4.2-16
18	4.2.7	Water Quality.....	4.2-18
19	4.2.8	Geology and Seismicity .....	4.2-46
20	4.2.9	Soils .....	4.2-48
21	4.2.10	Fish and Aquatic Resources .....	4.2-49
22	4.2.11	Terrestrial Biological Resources.....	4.2-55
23	4.2.12	Land Use.....	4.2-56
24	4.2.13	Agricultural Resources .....	4.2-57
25	4.2.14	Recreation.....	4.2-57
26	4.2.15	Socioeconomics .....	4.2-59
27	4.2.16	Aesthetics and Visual Resources.....	4.2-61
28	4.2.17	Cultural Resources .....	4.2-62
29	4.2.18	Transportation .....	4.2-62
30	4.2.19	Public Services and Utilities .....	4.2-63
31	4.2.20	Energy .....	4.2-64
32	4.2.21	Air Quality and Greenhouse Gases .....	4.2-64
33	4.2.22	Noise .....	4.2-66
34	4.2.23	Hazards and Hazardous Materials .....	4.2-66
35	4.2.24	Public Health .....	4.2-67
36	4.2.25	Minerals .....	4.2-70
37	4.2.26	Paleontological Resources .....	4.2-71

1 4.2.27 Environmental Justice .....4.2-71

2 4.2.28 Climate Change .....4.2-72

3 4.2.29 Growth Inducement and Other Indirect Effects .....4.2-72

4 4.2.30 References .....4.2-74

5 4.3 Impacts of Alternative 4A .....4.3.1-1

6 4.3.1 Water Supply .....4.3.1-1

7 4.3.2 Surface Water .....4.3.2-1

8 4.3.3 Groundwater.....4.3.3-1

9 4.3.4 Water Quality.....4.3.4-1

10 4.3.5 Geology and Seismicity .....4.3.5-1

11 4.3.6 Soils .....4.3.6-1

12 4.3.7 Fish and Aquatic Resources .....4.3.7-1

13 Delta Smelt.....4.3.7-2

14 Longfin Smelt .....4.3.7-33

15 Winter-Run Chinook Salmon .....4.3.7-44

16 Spring-Run Chinook Salmon .....4.3.7-77

17 Fall-/Late Fall–Run Chinook Salmon .....4.3.7-124

18 Steelhead .....4.3.7-196

19 Sacramento Splittail.....4.3.7-257

20 Green Sturgeon.....4.3.7-277

21 White Sturgeon.....4.3.7-307

22 Pacific Lamprey .....4.3.7-330

23 River Lamprey .....4.3.7-351

24 Non-Covered Aquatic Species of Primary Management Concern .....4.3.7-370

25 4.3.8 Terrestrial Biological Resources .....4.3.8-1

26 4.3.8.1 Natural Communities.....4.3.8-1

27 Tidal Perennial Aquatic .....4.3.8-1

28 Tidal Brackish Emergent Wetland.....4.3.8-7

29 Tidal Freshwater Emergent Wetland.....4.3.8-10

30 Valley/Foothill Riparian .....4.3.8-16

31 Nontidal Perennial Aquatic.....4.3.8-23

32 Nontidal Freshwater Perennial Emergent Wetland .....4.3.8-28

33 Alkali Seasonal Wetland Complex.....4.3.8-33

34 Vernal Pool Complex.....4.3.8-38

35 Managed Wetland .....4.3.8-44

36 Other Natural Seasonal Wetland .....4.3.8-50

37 Grassland .....4.3.8-53

1	Inland Dune Scrub.....	4.3.8-59
2	Cultivated Lands.....	4.3.8-60
3	Developed Lands.....	4.3.8-60
4	4.3.8.2 Wildlife Species.....	4.3.8-60
5	Vernal Pool Crustaceans .....	4.3.8-60
6	Valley Elderberry Longhorn Beetle .....	4.3.8-66
7	Nonlisted Vernal Pool Invertebrates .....	4.3.8-70
8	Sacramento and Antioch Dunes Anthicid Beetles .....	4.3.8-76
9	Delta Green Ground Beetle .....	4.3.8-78
10	Callippe Silverspot Butterfly .....	4.3.8-81
11	California Red-Legged Frog.....	4.3.8-83
12	California Tiger Salamander.....	4.3.8-88
13	Giant Garter Snake.....	4.3.8-94
14	Western Pond Turtle.....	4.3.8-101
15	Silvery Legless Lizard, San Joaquin Coachwhip, and Blainville's	
16	Horned Lizard.....	4.3.8-106
17	California Black Rail.....	4.3.8-111
18	California Clapper Rail .....	4.3.8-121
19	California Least Tern .....	4.3.8-123
20	Greater Sandhill Crane.....	4.3.8-132
21	Lesser Sandhill Crane .....	4.3.8-146
22	Least Bell's Vireo and Yellow Warbler .....	4.3.8-159
23	Suisun Song Sparrow and Saltmarsh Common Yellowthroat.....	4.3.8-168
24	Swainson's Hawk .....	4.3.8-170
25	Tricolored Blackbird.....	4.3.8-177
26	Western Burrowing Owl .....	4.3.8-188
27	Western Yellow-Billed Cuckoo.....	4.3.8-194
28	White-Tailed Kite .....	4.3.8-201
29	Yellow-Breasted Chat.....	4.3.8-211
30	Cooper's Hawk and Osprey.....	4.3.8-217
31	Golden Eagle and Ferruginous Hawk.....	4.3.8-224
32	Cormorants, Herons and Egrets.....	4.3.8-229
33	Short-Eared Owl and Northern Harrier .....	4.3.8-237
34	Redhead and Tule Greater White-Fronted Goose.....	4.3.8-246
35	Mountain Plover .....	4.3.8-246
36	Black Tern .....	4.3.8-251
37	California Horned Lark and Grasshopper Sparrow .....	4.3.8-252

1	Least Bittern and White-Faced Ibis.....	4.3.8-257
2	Loggerhead Shrike .....	4.3.8-264
3	Song Sparrow “Modesto” Population.....	4.3.8-271
4	Bank Swallow .....	4.3.8-277
5	Yellow-Headed Blackbird .....	4.3.8-281
6	Riparian Brush Rabbit .....	4.3.8-288
7	Riparian Woodrat.....	4.3.8-293
8	Salt Marsh Harvest Mouse.....	4.3.8-294
9	Suisun Shrew.....	4.3.8-295
10	San Joaquin Kit Fox and American Badger.....	4.3.8-296
11	San Joaquin Pocket Mouse .....	4.3.8-301
12	Special-Status Bat Species .....	4.3.8-305
13	4.3.1.2 Plant Species .....	4.3.8-314
14	Vernal Pool Species.....	4.3.8-314
15	Alkali Seasonal Wetland Species.....	4.3.8-317
16	Grassland Species .....	4.3.8-323
17	Valley/Foothill Riparian Species.....	4.3.8-325
18	Tidal Wetland Species.....	4.3.8-327
19	Inland Dune Species.....	4.3.8-331
20	Nontidal Wetland Species.....	4.3.8-331
21	4.3.1.3 General Terrestrial Biology .....	4.3.8-334
22	Wetlands and Other Waters of the United States.....	4.3.8-334
23	Shorebirds and Waterfowl.....	4.3.8-342
24	Common Wildlife and Plants .....	4.3.8-352
25	Wildlife Corridors.....	4.3.8-354
26	Invasive Plant Species .....	4.3.8-355
27	Compatibility with Plans and Policies .....	4.3.8-359
28	4.3.9 Land Use.....	4.3.9-1
29	4.3.10 Agricultural Resources .....	4.3.10-1
30	4.3.11 Recreation.....	4.3.11-1
31	4.3.12 Socioeconomics .....	4.3.12-1
32	4.3.13 Aesthetics and Visual Resources.....	4.3.13-1
33	4.3.14 Cultural Resources .....	4.3.14-1
34	4.3.15 Transportation .....	4.3.15-1
35	4.3.16 Public Services and Utilities .....	4.3.16-1
36	4.3.17 Energy .....	4.3.17-1
37	4.3.18 Air Quality and Greenhouse Gases .....	4.3.18-1

1	4.3.19	Noise .....	4.3.19-1
2	4.3.20	Hazards and Hazardous Materials .....	4.3.20-1
3	4.3.21	Public Health .....	4.3.21-1
4	4.3.22	Minerals .....	4.3.22-1
5	4.3.23	Paleontological Resources .....	4.3.23-1
6	4.3.24	Environmental Justice .....	4.3.24-1
7	4.3.25	Climate Change .....	4.3.25-8
8	4.3.26	Growth Inducement and Other Indirect Effects .....	4.3.26-1
9	4.3.27	References .....	4.3.27-1
10	4.4	Impacts of Alternative 2D .....	4.4.1-1
11	4.4.1	Water Supply .....	4.4.1-1
12	4.4.2	Surface Water .....	4.4.2-1
13	4.4.3	Groundwater.....	4.4.2-1
14	4.4.4	Water Quality.....	4.4.4-1
15	4.4.5	Geology and Seismicity .....	4.4.5-1
16	4.4.6	Soils .....	4.4.6-1
17	4.4.7	Fish and Aquatic Resources .....	4.4.7-1
18		Delta Smelt.....	4.4.7-1
19		Longfin Smelt .....	4.4.7-7
20		Winter-Run Chinook Salmon .....	4.4.7-13
21		Spring-Run Chinook Salmon .....	4.4.7-32
22		Fall-/Late Fall–Run Chinook Salmon .....	4.4.7-59
23		Steelhead .....	4.4.7-99
24		Sacramento Splittail.....	4.4.7-136
25		Green Sturgeon.....	4.4.7-149
26		White Sturgeon.....	4.4.7-165
27		Pacific Lamprey .....	4.4.7-179
28		River Lamprey .....	4.4.7-195
29		Non-Covered Aquatic Species of Primary Management Concern .....	4.4.7-211
30	4.8.8	Terrestrial Biological Resources.....	4.8.8-1
31	4.4.9	Land Use.....	4.4.9-1
32	4.4.10	Agricultural Resources .....	4.4.10-1
33	4.4.11	Recreation.....	4.4.11-1
34	4.4.12	Socioeconomics .....	4.4.12-1
35	4.4.13	Aesthetics and Visual Resources.....	4.4.13-1
36	4.4.14	Cultural Resources .....	4.4.14-1
37	4.4.15	Transportation .....	4.4.15-1



1	4.4.16	Public Services and Utilities .....	4.4.16-1
2	4.4.17	Energy .....	4.4.17-1
3	4.4.18	Air Quality and Greenhouse Gases .....	4.4.18-1
4	4.4.19	Noise .....	4.4.19-1
5	4.4.20	Hazards and Hazardous Materials .....	4.4.20-1
6	4.4.21	Public Health .....	4.4.21-1
7	4.4.22	Minerals .....	4.4.22-1
8	4.4.23	Paleontological Resources .....	4.4.23-1
9	4.4.24	Environmental Justice .....	4.4.24-1
10	4.4.25	Climate Change .....	4.4.25-1
11	4.4.26	Growth Inducement and Other Indirect Effects .....	4.4.26-1
12	4.4.27	References .....	4.4.27-1
13	4.5	Impacts of Alternative 5A .....	4.5.1-1
14	4.5.1	Water Supply .....	4.5.1-1
15	4.5.2	Surface Water .....	4.5.2-1
16	4.5.3	Groundwater.....	4.5.3-1
17	4.5.4	Water Quality.....	4.5.3-1
18	4.5.5	Geology and Seismicity .....	4.5.5-1
19	4.5.6	Soils .....	4.5.6-1
20	4.5.7	Fish and Aquatic Resources .....	4.5.7-1
21		Delta Smelt.....	4.5.7-1
22		Longfin Smelt .....	4.5.7-8
23		Chinook Salmon .....	4.5.7-13
24		Winter-Run Chinook Salmon .....	4.5.7-13
25		Spring-Run Chinook Salmon .....	4.5.7-30
26		Fall-/Late Fall–Run Chinook Salmon .....	4.5.7-55
27		Steelhead .....	4.5.7-96
28		Sacramento Splittail.....	4.5.7-132
29		Green Sturgeon.....	4.5.7-145
30		White Sturgeon.....	4.5.7-161
31		Pacific Lamprey .....	4.5.7-175
32		River Lamprey .....	4.5.7-192
33		Non-Covered Aquatic Species of Primary Management Concern .....	4.5.7-206
34	4.5.8	Terrestrial Biological Resources.....	4.5.8-1
35	4.5.9	Land Use.....	4.5.9-1
36	4.5.10	Agricultural Resources .....	4.5.10-1
37	4.5.11	Recreation.....	4.5.11-1

1	4.5.12	Socioeconomics .....	4.5.12-1
2	4.5.13	Aesthetics and Visual Resources.....	4.5.13-1
3	4.5.14	Cultural Resources .....	4.5.14-1
4	4.5.15	Transportation .....	4.5.15-1
5	4.5.16	Public Services and Utilities .....	4.5.16-1
6	4.5.17	Energy .....	4.5.17-1
7	4.5.18	Air Quality and Greenhouse Gases .....	4.5.18-1
8	4.5.19	Noise .....	4.5.19-1
9	4.5.20	Hazards and Hazardous Materials .....	4.5.20-1
10	4.5.21	Public Health .....	4.5.21-1
11	4.5.22	Minerals .....	4.5.22-1
12	4.5.23	Paleontological Resources .....	4.5.23-1
13	4.5.24	Environmental Justice .....	4.5.24-1
14	4.5.25	Climate Change .....	4.5.25-1
15	4.5.26	Growth Inducement and Other Indirect Effects .....	4.5.26-1
16	4.5.27	References .....	4.5.27-1
17	<b>Section 5</b>	<b>Revisions to Cumulative Impact Analyses .....</b>	<b>5-1</b>
18	5.1	Summary and Purpose of Revisions.....	5-1
19	5.1.1	Methodology and Format .....	5-1
20	5.1.2	Updated Analysis .....	5-2
21	5.2	Revisions to Cumulative Impacts Analyses .....	5-5
22	5.2.1	Concurrent Project Effects.....	5-5
23	5.2.2	Cumulative Impacts .....	5-36
24	5.3	References .....	5-233
25	<b>Section 6</b>	<b>List of Preparers .....</b>	<b>6-1</b>
26	6.1	Preparers by Affiliation .....	6-1
27	6.1.1	Lead Agencies .....	6-1
28	6.1.2	Responsible and Cooperating Agencies.....	6-5
29	6.1.3	Consultant Teams (Post Public Draft) .....	6-8
30	6.2	Preparers by Resource .....	6-16
31			
32			

1	<b>Appendices</b>	
2	Figures	
3	Appendix A	Revisions to the Draft EIR/EIS
4	Appendix B	Supplemental Modeling for New Alternatives
5	Appendix C	Supplemental Modeling Requested by the State Water Resources Control
6		Board Related to Increased Delta Outflows
7	Appendix D	Substantive BDCP Revisions
8	Appendix E	Supplemental Information for U.S. Army Corps of Engineers
9	Appendix F	Supplemental Modeling Results at ELT for Alternative 4 at H1 and H2
10	Appendix G	Alternative 4A (Proposed Project) Compatibility with the Delta Plan
11		

# List of Figures

---

1

2	ES-1	Location of Conveyance Facility Alignment for Alternatives 4, 4A, 2D,
3		and 5A
4	1-1	The Sacramento-San Joaquin Delta
5	4.1-1	Location of Conveyance Facility Alignment for Alternatives 4, 4A, 2D,
6		and 5A
7	4.2.3-1	Typical Forecasted Peak Groundwater Level Changes in the San
8		Joaquin and Tulare Export Service Areas for the No Action
9		Alternative (ELT) as Compared to Existing Conditions
10	4.3.1-1	Sacramento/San Joaquin River Monthly Average Delta Outflow for
11		Alternative 4A
12	4.3.1-2	Sacramento/San Joaquin River Monthly Average Wet year Delta
13		Outflow for Alternative 4A
14	4.3.1-3	Sacramento/San Joaquin River Dry Year Monthly Average Delta
15		Outflow for Alternative 4A
16	4.3.1-4	Trinity Lake End of September Storage for Alternative 4A
17	4.3.1-5	Shasta Lake End of May Storage for Alternative 4A
18	4.3.1-6	Shasta Lake End of September Storage for Alternative 4A
19	4.3.1-7	Lake Oroville End of May Storage for Alternative 4A
20	4.3.1-8	Lake Oroville End of September Storage for Alternative 4A
21	4.3.1-9	Folsom Lake End of May Storage for Alternative 4A
22	4.3.1-10	Folsom Lake End of September Storage for Alternative 4A
23	4.3.1-11	SWP San Luis Reservoir End of May Storage for Alternative 4A
24	4.3.1-12	SWP San Luis Reservoir End of September Storage for Alternative 4A
25	4.3.1-13	CVP San Luis Reservoir End of May Storage for Alternative 4A
26	4.3.1-14	CVP San Luis Reservoir End of September Storage for Alternative 4A
27	4.3.1-15	North and South Delta Exports for Alternative 4A, Long-Term
28		Average
29	4.3.1-16	North and South Delta Exports for Alternative 4A, Wet Year Average

1	4.3.1-17	North and South Delta Exports for Alternative 4A, Dry and Critical
2		Year Average
3	4.3.1-18	Total Delta Exports for Alternative 4A
4	4.3.1-19	Total Delta Exports for Alternative 4A Long-Term Average Monthly
5	4.3.1-20	Total Delta Exports for Alternative 4A Wet Year Average Monthly
6	4.3.1-21	Total Delta Exports for Alternative 4A Dry Year Average Monthly
7	4.3.1-22	Annual CVP North of Delta Agricultural Water Service Contract
8		Deliveries for Alternative 4A
9	4.3.1-23	Annual CVP South of Delta Agricultural Water Service Contract
10		Deliveries for Alternative 4A
11	4.3.1-24	Annual CVP North of Delta Municipal and Industrial Water Service
12		Contract Deliveries for Alternative 4A
13	4.3.1-25	Annual CVP South of Delta Municipal and Industrial Water Service
14		Contract Deliveries for Alternative 4A
15	4.3.1-26	Total Annual SWP South of Delta Deliveries Including Table A and
16		Articles 21 and 56 Waters for Alternative 4A
17	4.3.1-27	Annual SWP Table A Deliveries with Article 56 Waters for
18		Alternative 4A
19	4.3.1-28	Annual SWP Article 21 Deliveries for Alternative 4A
20	4.3.1-29	SWP and CVP North Delta Exports for Alternative 4A Average
21		Monthly
22	4.3.1-30	SWP and CVP North Delta Exports for Alternative 4A Wet Year
23		Average Monthly
24	4.3.1-31	SWP and CVP South Delta Exports for Alternative 4A Average
25		Monthly
26	4.3.1-32	SWP and CVP South Delta Exports for Alternative 4A Average
27		Monthly
28	4.3.1-33	SWP and CVP South Delta Exports for Alternative 4A Wet Year
29		Average Monthly
30	4.3.1-34	SWP and CVP South Delta Exports for Alternative 4A Dry Year
31		Average Monthly
32	4.3.2-1	Sacramento River at Bend Bridge for Alternative 4A, Average Wet
33		Years

1	4.3.2-2	Sacramento River Flow at Bend Bridge for Alternative 4A, Long-
2		Term Average
3	4.3.2-3	Sacramento River Flow at Freeport for Alternative 4A, Average Wet
4		Years
5	4.3.2-4	Sacramento River Flow at Freeport for Alternative 4A, Long-Term
6		Average
7	4.3.2-5	San Joaquin River Flow at Vernalis for Alternative 4A, Average Wet
8		Years
9	4.3.2-6	San Joaquin River Flow at Vernalis for Alternative 4A, Long-Term
10		Average
11	4.3.2-7	Sacramento River Flow downstream of North Delta Intakes for
12		Alternative 4A, Average Wet Years
13	4.3.2-8	Sacramento River Flow downstream of North Delta Intakes for
14		Alternative 4A, Long-Term Average
15	4.3.2-9	Trinity River Flow below Lewiston Dam for Alternative 4A, Average
16		Wet Years
17	4.3.2-10	Trinity River Flow below Lewiston Dam for Alternative 4A, Long-
18		Term Average
19	4.3.2-11	American River Flow below Nimbus Dam for Alternative 4A, Average
20		Wet Years
21	4.3.2-12	American River Flow below Nimbus Dam for Alternative 4A, Long-
22		Term Average
23	4.3.2-13	Feather River Flow at Thermalito Dam for Alternative 4A, Average
24		Wet Years
25	4.3.2-14	Feather River Flow at Thermalito Dam for Alternative 4A, Long-Term
26		Average
27	4.3.2-15	Flow Spills into Yolo Bypass at Fremont Weir for Alternative 4A,
28		Average Wet Years
29	4.3.2-16	Old and Middle River Flows for Alternative 4A, Long-Term Average
30	11-4A-1	Average Annual Estimated Proportion of the Larval/Juvenile Delta
31		Smelt Population Lost to Entrainment at the SWP/CVP South Delta
32		Facilities for Alternative 4A (Scenarios H3_ELT and H4_ELT), Based
33		on the Proportional Entrainment Regression..... 4.3.7-22

1	11-4A-2	Average Annual Estimated Proportion of the Adult Delta Smelt	
2		Population Lost to Entrainment at the SWP/CVP South Delta	
3		Facilities for Alternative 4A (Scenarios H3_ELT and H4_ELT), Based	
4		on the Proportional Entrainment Regression.....	4.3.7-22
5	11-4A-3	Delta Smelt Fall Abiotic Habitat Index, Averaged By Water Year	
6		Type, without Restoration under Alternative 4A (Scenarios H3_ELT	
7		and H4_ELT) .....	4.3.7-28
8	4.4.1-1	Sacramento/San Joaquin River Monthly Average Delta Outflow for	
9		Alternative 2D and Alternative 5A	
10	4.4.1-2	Sacramento/San Joaquin River Monthly Average Wet Year Delta	
11		Outflow for Alternative 2D and Alternative 5A	
12	4.4.1-3	Sacramento/San Joaquin River Dry Year Monthly Average Delta	
13		Outflow for Alternative 2D and Alternative 5A	
14	4.4.1-4	Trinity Lake End of September Storage for Alternative 2D and	
15		Alternative 5A	
16	4.4.1-5	Shasta Lake End of May Storage for Alternative 2D and Alternative	
17		5A	
18	4.4.1-6	Shasta Lake End of September Storage for Alternative 2D and	
19		Alternative 5A	
20	4.4.1-7	Lake Oroville End of May Storage for Alternative 2D and Alternative	
21		5A	
22	4.4.1-8	Lake Oroville End of September Storage for Alternative 2D and	
23		Alternative 5A	
24	4.4.1-9	Folsom Lake End of May Storage for Alternative 2D and Alternative	
25		5A	
26	4.4.1-10	Folsom Lake End of September Storage for Alternative 2D and	
27		Alternative 5A	
28	4.4.1-11	SWP San Luis Reservoir End of May Storage for Alternative 2D and	
29		Alternative 5A	
30	4.4.1-12	SWP San Luis Reservoir End of September Storage for Alternative 2D	
31		and Alternative 5A	
32	4.4.1-13	CVP San Luis Reservoir End of May Storage for Alternative 2D and	
33		Alternative 5A	
34	4.4.1-14	CVP San Luis Reservoir End of September Storage for Alternative 2D	
35		and Alternative 5A	

1	4.4.1-15	North and South Delta Exports for Alternative 2D and Alternative
2		5A,
3		Long-Term Average
4	4.4.1-16	North and South Delta Exports for Alternative 2D and Alternative
5		5A,
6		Wet Year Average
7	4.4.1-17	North and South Delta Exports for Alternative 2D and Alternative
8		5A,
9		Dry and Critical Year Average
10	4.4.1-18	Total Delta Exports for Alternative 2D and Alternative 5A
11	4.4.1-19	Total Delta Exports for Alternative 2D and Alternative 5A Long-Term
12		Average Monthly
13	4.4.1-20	Total Delta Exports for Alternative 2D and Alternative 5A Wet Year
14		Average Monthly
15	4.4.1-21	Total Delta Exports for Alternative 2D and Alternative 5A Dry Year
16		Average Monthly
17	4.4.1-22	Annual CVP North of Delta Agricultural Water Service Contract
18		Deliveries for Alternative 2D and Alternative 5A
19	4.4.1-23	Annual CVP South of Delta Agricultural Water Service Contract
20		Deliveries for Alternative 2D and Alternative 5A
21	4.4.1-24	Annual CVP North of Delta Municipal and Industrial Water Service
22		Contract Deliveries for Alternative 2D and Alternative 5A
23	4.4.1-25	Annual CVP South of Delta Municipal and Industrial Water Service
24		Contract Deliveries for Alternative 2D and Alternative 5A
25	4.4.1-26	Total Annual SWP South of Delta Deliveries Including Table A and
26		Articles 21 and 56 Waters for Alternative 2D and Alternative 5A
27	4.4.1-27	Annual SWP Table A Deliveries with Article 56 Waters for
28		Alternative 2D and Alternative 5A
29	4.4.1-28	Annual SWP Article 21 Deliveries for Alternative 2D and Alternative
30		5A
31	4.4.1-29	SWP and CVP North Delta Exports for Alternative 2D and Alternative
32		5A Average Monthly
33	4.4.1-30	SWP and CVP North Delta Exports for Alternative 2D and Alternative
34		5A Wet Year Average Monthly



1	4.4.1-31	SWP and CVP North Delta Exports for Alternative 2D and Alternative
2		5A Dry Year Average Monthly
3	4.4.1-32	SWP and CVP South Delta Exports for Alternative 2D and Alternative
4		5A Average Monthly
5	4.4.1-33	SWP and CVP South Delta Exports for Alternative 2D and Alternative
6		5A Wet Year Average Monthly
7	4.4.1-34	SWP and CVP South Delta Exports for Alternative 2D and Alternative
8		5A Dry Year Average Monthly
9	4.4.2-1	Sacramento River at Bend Bridge for Alternative 2D and Alternative
10		5A, Average Wet Years
11	4.4.2-2	Sacramento River at Bend Bridge for Alternative 2D and Alternative
12		5A, Long-Term Average
13	4.4.2-3	Sacramento River flow at Freeport for Alternative 2D and
14		Alternative 5A, Average Wet Years
15	4.4.2-4	Sacramento River flow at Freeport for Alternative 2D and
16		Alternative 5A, Long-Term Average
17	4.4.2-5	San Joaquin River Flow at Vernalis for Alternative 2D and Alternative
18		5A, Average Wet Years
19	4.4.2-6	San Joaquin River Flow at Vernalis for Alternative 2D and Alternative
20		5A, Long-Term Average
21	4.4.2-7	Sacramento River Flow downstream North Delta Intakes for
22		Alternative 2D and Alternative 5A, Average Wet Years
23	4.4.2-8	Sacramento River Flow downstream North Delta Intakes for
24		Alternative 2D and Alternative 5A, Long-Term Average
25	4.4.2-9	Trinity River Flow below Lewiston Dam for Alternative 2D and
26		Alternative 5A, Average Wet Years
27	4.4.2-10	Trinity River Flow below Lewiston Dam for Alternative 2D and
28		Alternative 5A, Long-Term Average
29	4.4.2-11	American River Flow below Nimbus Dam for Alternative 2D and
30		Alternative 5A, Average Wet Years
31	4.4.2-12	American River Flow below Nimbus Dam for Alternative 2D and
32		Alternative 5A, Long-Term Average
33	4.4.2-13	Feather River Flow at Thermalito Dam for Alternative 2D and
34		Alternative 5A, Average Wet Years

1	4.4.2-14	Feather River Flow at Thermalito Dam for Alternative 2D and
2		Alternative 5a, Long-Term Average
3	4.4.2-15	Flow Spills into Yolo Bypass at Fremont weir for Alternative 2D and
4		Alternative 5A, Average Wet Years
5	4.3.2-16	Old and Middle River flows for Alternative 2D and Alternative 5A,
6		Long-Term Average
7		

# List of Tables

1			
2	<b>Tables</b>		<b>Page</b>
3	ES.2.2-1	Comparison of Alternative 4 and Alternative 4A.....	ES-17
4	ES.2.2-2	Comparison of Environmental Commitments under Alternatives 4A,	
5		2D, and 5A.....	ES-19
6	ES.2.3-1	Comparison of Alternative 4, 2D, 4A, 5A .....	ES-21
7	ES-9	Summary of BDCP/California WaterFix RDEIR/SDEIS Impacts and	
8		Mitigation Measures.....	ES-41
9	1-1	Summary of Agencies and Review, Approval, or Other	
10		Responsibilities, in Addition to Those under CEQA and NEPA .....	1-25
11	1-2	Summary of Portions of Draft EIR/EIS Revised in RDEIR/SDEIS .....	1-33
12	3.2-1	Summary of Physical Characteristics under Alternative 4 .....	3-3
13	4.2.11-1	Summary of SWP and CVP Reservoir Recreation Opportunities	
14		(years below end-of-September recreation threshold) for Existing	
15		Conditions and No Action Alternative (ELT) .....	4.2-58
16	4.2.11-2	Summary of SWP and CVP Reservoir Recreation Opportunities	
17		(years below end-of-September recreation threshold) for Existing	
18		Conditions and the No Action Alternative (ELT) .....	4.2-59
19	4.2.21-1	Total Criteria Pollutant and GHG Emissions from Electricity	
20		Consumption during Operation of the No Action Alternative (ELT).....	4.2-65
21	4.2.29-1	Existing Conditions and No Action Alternative (ELT): Summary of	
22		Annual SWP and CVP Deliveries .....	4.2-73
23	4.3.3-1	Long-Term State Water Project and Central Valley Project Deliveries	
24		to Hydrologic Regions Located South of the Delta at Early Long-Term.....	4.3.3-6
25	4.3.4-1	Estimated Ammonia Concentrations in the Sacramento River	
26		Downstream of the Sacramento Regional Wastewater Treatment	
27		Plant for the No Action Alternative Early Long-term (ELT) and	
28		Alternative 4A .....	4.3.4-3
29	4.3.7-1	Estimated Distances and Areas of Waterbodies Subject to Pile	
30		Driving Noise Levels Exceeding Interim Injury and Behavioral	
31		Thresholds, and Proposed Timing and Duration of Proposed Pile	
32		Driving Activities for Facilities or Structures in or Adjacent to	
33		Sensitive Rearing and Migration Corridors of the Covered Species	
34		(Alternative 4A).....	4.3.7-14
35	11-4A-1	Proportional Entrainment Index of Delta Smelt at SWP/CVP South	
36		Delta Facilities for Alternative 4A (Scenario H3_ELT) .....	4.3.7-23
37	11-4A-3	Differences in Delta Smelt Fall Abiotic Index between Alternative 4A	
38		(Scenarios H3_ELT and H4_ELT) and Existing Biological Conditions	
39		Scenarios, Averaged by Prior Water Year Type .....	4.3.7-28

1	11-4A-4	Percentage of Particles (and Difference) Representing Longfin Smelt Larvae Entrained by the South Delta Facilities under Alternative 4A (Scenario H3_ELT) and Baseline Scenarios .....	4.3.7-34
2			
3			
4	11-4A-5	Longfin Smelt Entrainment Index at the SWP and CVP Salvage Facilities—Differences (Absolute and Percentage) between Model Scenarios for Alternative 4A (Scenario H3_ELT) .....	4.3.7-35
5			
6			
7	11-4A-7	Differences in Mean Monthly Delta Outflow (cfs) between NAA_ELT and Alternative 4A Scenarios H3_ELT and H4_ELT, by Water Year Type, for Winter-Spring (December–June).....	4.3.7-37
8			
9			
10	11-4A-8	Estimated Differences Between Alternative 4A (Scenarios H3_ELT and H4_ELT) and Baseline for Longfin Smelt Relative Abundance in the Fall Midwater Trawl or Bay Midwater Trawl Based on the X2-Relative Abundance Regression of Kimmerer et al. (2009).....	4.3.7-39
11			
12			
13			
14	11-4A-9	Differences in Mean Monthly Delta Outflow (cfs) between Existing Conditions and Alternative 4A Scenarios H3_ELT and H4_ELT, by Water Year Type, for Winter-Spring (December–June).....	4.3.7-40
15			
16			
17	11-4A-10	Juvenile Winter-Run Chinook Salmon Annual Entrainment Index at the SWP and CVP Salvage Facilities—Differences between Model Scenarios for Alternative 4A (Scenario H3_ELT) .....	4.3.7-48
18			
19			
20	11-4A-11	Winter-Run Chinook Salmon Predation Loss at the Proposed North Delta Diversion (NDD) Intakes (Three Intakes for Alternative 4A) .....	4.3.7-49
21			
22	11-4A-12	Difference and Percent Difference in Mean May Water Storage Volume (thousand acre-feet) in Shasta Reservoir for Alternative 4A (Scenario H3_ELT) .....	4.3.7-50
23			
24			
25	11-4A-13	Maximum Water Temperature Thresholds for Covered Salmonids and Sturgeon Provided by NMFS and Used in the BDCP Effects Analysis .....	4.3.7-51
26			
27			
28	11-4A-14	Number of Days per Month Required to Trigger Each Level of Concern for Water Temperature Exceedances in the Sacramento River for Covered Salmonids and Sturgeon Provided by NMFS and Used in the BDCP Effects Analysis .....	4.3.7-51
29			
30			
31			
32	11-4A-15	Differences between H3_ELT and NAA_ELT in the Number of Years in Which Water Temperature Exceedances above 56°F Are within Each Level of Concern, Sacramento River at Bend Bridge, May through September.....	4.3.7-51
33			
34			
35			
36	11-4A-16	Differences between H3_ELT and NAA_ELT in Total Degree-Days (°F-Days) by Month and Water Year Type for Water Temperature Exceedances above 56°F in the Sacramento River at Bend Bridge, May through September.....	4.3.7-53
37			
38			
39			

1 11-4A-17 Difference and Percent Difference in Percent Mortality of Winter-  
2 Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality  
3 Model).....4.3.7-54  
4 11-4A-18 Difference and Percent Difference in Percentage of Years with  
5 “Good” Conditions for Winter-Run Chinook Salmon Habitat Metrics  
6 in the Upper Sacramento River (from SacEFT) .....4.3.7-55  
7 11-4A-19 Difference and Percent Difference in May Water Storage Volume  
8 (thousand acre-feet) in Shasta Reservoir for H4\_ELT Scenario .....4.3.7-55  
9 11-4A-20 Differences between H4\_ELT and NAA\_ELT in the Number of Years  
10 in Which Water Temperature Exceedances above 56°F Are within  
11 Each Level of Concern, Sacramento River at Bend Bridge, May  
12 through September.....4.3.7-56  
13 11-4A-21 Differences between H4\_ELT and NAA\_ELT in Total Degree-Days (°F-  
14 Days) by Month and Water Year Type for Water Temperature  
15 Exceedances above 56°F in the Sacramento River at Bend Bridge,  
16 May through September.....4.3.7-57  
17 11-4A-23 Through-Delta Survival (%) of Emigrating Juvenile Winter-Run  
18 Chinook Salmon under Alternative 4A (Scenarios H3\_ELT and  
19 H4\_ELT) .....4.3.7-67  
20 11-4A-24 Percentage (%) of Water at Collinsville that Originated in the  
21 Sacramento River during the Adult Winter-Run Chinook Salmon  
22 Migration Period for Alternative 4A (Scenario H3\_ELT) .....4.3.7-68  
23 11-4A-25 Juvenile Spring-Run Chinook Salmon Annual Entrainment Index at  
24 the SWP and CVP Salvage Facilities—Differences between Model  
25 Scenarios for Alternative 4A (Scenario H3\_ELT) .....4.3.7-79  
26 11-4A-26 Juvenile Spring-Run Chinook Salmon Predation Loss at the Proposed  
27 North Delta Diversion (NDD) Intakes for Alternative 4A (Three  
28 Intakes) .....4.3.7-80  
29 11-4A-27 Difference and Percent Difference in September Water Storage  
30 Volume in Shasta Reservoir for Scenario H3\_ELT and Two Baseline  
31 Scenarios.....4.3.7-81  
32 11-4A-28 Differences between Baseline and H3\_ELT Scenarios in the Number  
33 of Years in Which Water Temperature Exceedances above 56°F are  
34 within Each Level of Concern, Sacramento River at Red Bluff,  
35 October through April.....4.3.7-82  
36 11-4A-29 Differences between Baseline and H3\_ELT Scenarios in Total  
37 Degree-Days (°F-Days) by Month and Water Year Type for Water  
38 Temperature Exceedances above 56°F in the Sacramento River at  
39 Red Bluff, October through April .....4.3.7-83

1	11-4A-30	Difference and Percent Difference in Percent Mortality of Spring-Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality Model).....	4.3.7-84
2			
3			
4	11-4A-31	Difference and Percent Difference in Percentage of Years with “Good” Conditions for Spring-Run Chinook Salmon Habitat Metrics in the Upper Sacramento River (from SacEFT) .....	4.3.7-84
5			
6			
7	11-4A-32	Difference and Percent Difference in Greatest Monthly Reduction (Percent Change) in Instream Flow in Clear Creek below Whiskeytown Reservoir during the September through January Spawning and Egg Incubation Period .....	4.3.7-86
8			
9			
10			
11	11-4A-33	Difference and Percent Difference in September Water Storage Volume in Oroville Reservoir for Alternative 4 (Scenario H3) .....	4.3.7-86
12			
13	11-4A-34	Differences between Baseline and H3_ELT Scenarios in Percent of Months during the 82-Year CALSIM Modeling Period during Which Water Temperatures in the Feather River above Thermalito Afterbay Exceed the 56°F Threshold, September through January .....	4.3.7-87
14			
15			
16			
17	11-4A-35	Differences between Baseline and H3_ELT Scenarios in Total Degree-Months (°F-Months) by Month and Water Year Type for Water Temperature Exceedances above 56°F in the Feather River above Thermalito Afterbay, September through January .....	4.3.7-88
18			
19			
20			
21	11-4A-36	Difference and Percent Difference in September Water Storage Volume in Shasta Reservoir for Baseline and H4_ELT Scenarios.....	4.3.7-89
22			
23	11-4A-37	Differences between Baseline and H3_ELT Scenarios in the Number of Years in Which Water Temperature Exceedances above 56°F Are within Each Level of Concern, Sacramento River at Red Bluff, October through April.....	4.3.7-90
24			
25			
26			
27	11-4A-38	Differences between Baseline and H3 Scenarios in Total Degree-Days (°F-Days) by Month and Water Year Type for Water Temperature Exceedances above 56°F in the Sacramento River at Red Bluff, October through April .....	4.3.7-91
28			
29			
30			
31	11-4A-39	Difference and Percent Difference in September Water Storage Volume in Oroville Reservoir for H4 Scenarios.....	4.3.7-92
32			
33	11-4A-40	Differences between Baselines and H4_ELT Scenarios in Percent of Months during the 82-Year CALSIM Modeling Period during Which Water Temperatures in the Feather River above Thermalito Afterbay Exceed the 56°F Threshold, September through January .....	4.3.7-93
34			
35			
36			
37	11-4A-41	Differences between Baseline Scenarios and H4_ELT Scenario in Total Degree-Months (°F-Months) by Month and Water Year Type for Water Temperature Exceedances above 56°F in the Feather River above Thermalito Afterbay, September through April .....	4.3.7-94
38			
39			
40			

1	11-4A-42	Difference and Percent Difference in May Water Storage Volume in	
2		Oroville Reservoir for Alternative 4A (Model Scenario H3_ELT) .....	4.3.7-101
3	11-4A-43	Differences between Baseline and H3_ELT Scenarios in Percent of	
4		Months during the 82-Year CALSIM Modeling Period during Which	
5		Water Temperatures in the Feather River above Thermalito	
6		Afterbay Exceed the 63°F Threshold, May through August .....	4.3.7-102
7	11-4A-44	Differences between Baseline and H3_ELT Scenarios in Total	
8		Degree-Months (°F-Months) by Month and Water Year Type for	
9		Water Temperature Exceedances above 63°F in the Feather River	
10		above Thermalito Afterbay, May through August.....	4.3.7-103
11	11-4A-45	Difference and Percent Difference in May Water Storage Volume in	
12		Oroville Reservoir for Baseline and H4_ELT Scenarios .....	4.3.7-104
13	11-4A-46	Differences between Baseline and H4 Scenarios in Percent of	
14		Months during the 82-Year CALSIM Modeling Period during Which	
15		Water Temperatures in the Feather River above Thermalito	
16		Afterbay Exceed the 63°F Threshold, May through August .....	4.3.7-105
17	11-4A-47	Differences between Baseline and H4 Scenarios in Total Degree-	
18		Months (°F-Months) by Month and Water Year Type for Water	
19		Temperature Exceedances above 63°F in the Feather River above	
20		Thermalito Afterbay, May through August.....	4.3.7-106
21	11-4A-48	Differences (Percentage Differences) in the Percentage of Years	
22		Exceeding NMFS Suggested Minimum Flows in the Feather River	
23		High-Flow Channel (at Thermalito).....	4.3.7-112
24	11-4A-49	Differences (Percentage Differences) in the Percentage of Years	
25		Exceeding NMFS Suggested Minimum Flows in the Feather River	
26		High-Flow Channel (at Thermalito) between Baseline and H4 Model	
27		Scenarios.....	4.3.7-114
28	11-4A-51	Through-Delta Survival (%) of Emigrating Juvenile Spring-Run	
29		Chinook Salmon under Alternative 4A (Scenarios H3_ELT and	
30		H4_ELT) .....	4.3.7-116
31	11-4A-52	Percentage of Water at Collinsville that Originated in the	
32		Sacramento during the Adult Spring-Run Chinook Salmon Migration	
33		Period for Alternative 4A (Scenario H3_ELT) .....	4.3.7-117
34	11-4A-53	Juvenile Fall-Run and Late Fall-Run Chinook Salmon Annual	
35		Entrainment Index at the SWP and CVP Salvage Facilities—	
36		Differences between Model Scenarios for Alternative 4A (Scenario	
37		H3_ELT) .....	4.3.7-126
38	11-4A-54	Fall-Run and Late Fall-Run Chinook Salmon Juvenile Predation Loss	
39		at the Proposed North Delta Diversion (NDD) Intakes for Alternative	
40		4A (Three Intakes).....	4.3.7-127

1	11-4A-55	Difference and Percent Difference in Percent Mortality of Fall-Run	
2		Chinook Salmon Eggs in the Sacramento River (Egg Mortality Model) ....	4.3.7-129
3	11-4A-56	Difference and Percent Difference in Percentage of Years with	
4		“Good” Conditions for Fall-Run Chinook Salmon Habitat Metrics in	
5		the Upper Sacramento River (from SacEFT) .....	4.3.7-129
6	11-4A-57	Difference and Percent Difference in Percent Mortality of Late Fall-	
7		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
8		Model).....	4.3.7-130
9	11-4A-58	Difference and Percent Difference in Percentage of Years with	
10		“Good” Conditions for Late Fall-Run Chinook Salmon Habitat	
11		Metrics in the Upper Sacramento River (from SacEFT) .....	4.3.7-131
12	11-4A-59	Difference and Percent Difference in Greatest Monthly Reduction in	
13		Instream Flow in Clear Creek below Whiskeytown Reservoir during	
14		the September through February Spawning and Egg Incubation	
15		Period.....	4.3.7-131
16	11-4A-60	Differences between Baseline and H3_ELT Scenarios in Percent of	
17		Months during the 82-Year CALSIM Modeling Period during Which	
18		Water Temperatures in the Feather River at Gridley Exceed the 56°F	
19		Threshold, October through April.....	4.3.7-133
20	11-4A-61	Differences between Baseline and H3_ELT Scenarios in Total	
21		Degree-Months (°F-Months) by Month and Water Year Type for	
22		Water Temperature Exceedances above 56°F in the Feather River at	
23		Gridley, October through April .....	4.3.7-134
24	11-4A-62	Difference and Percent Difference in Percent Mortality of Fall-Run	
25		Chinook Salmon Eggs in the Feather River (Egg Mortality Model).....	4.3.7-135
26	11-4A-63	Difference and Percent Difference in Greatest Monthly Reduction	
27		(Percent Change) in Instream Flow in the American River at Nimbus	
28		Dam during the October through January Spawning and Egg	
29		Incubation Period.....	4.3.7-136
30	11-4A-64	Differences between Baseline and H3_ELT Scenarios in Percent of	
31		Months during the 82-Year CALSIM Modeling Period during Which	
32		Water Temperatures in the American River at the Watt Avenue	
33		Bridge Exceed the 56°F Threshold, November through April.....	4.3.7-137
34	11-4A-65	Differences between Baseline and H3 Scenarios in Total Degree-	
35		Months (°F-Months) by Month and Water Year Type for Water	
36		Temperature Exceedances above 56°F in the American River at the	
37		Watt Avenue Bridge, November through April .....	4.3.7-138
38	11-4A-66	Difference and Percent Difference in Percent Mortality of Fall-Run	
39		Chinook Salmon Eggs in the American River (Egg Mortality Model).....	4.3.7-139
40	11-4A-67	Differences between Baseline Scenarios and H4_ELT Scenarios in	
41		the Number of Years in Which Water Temperature Exceedances	



1		above 56°F Are within Each Level of Concern, Sacramento River at	
2		Red Bluff, October through April .....	4.3.7-140
3	11-4A-68	Differences between Baseline and H4_ELT Scenarios in Total	
4		Degree-Days (°F-Days) by Month and Water Year Type for Water	
5		Temperature Exceedances above 56°F in the Sacramento River at	
6		Red Bluff, October through April .....	4.3.7-141
7	11-4A-69	Differences between Baselines and H4_ELT Scenarios in Percent of	
8		Months during the 82-Year CALSIM Modeling Period during Which	
9		Water Temperatures in the Feather River at Gridley Exceed the 56°F	
10		Threshold, October through April.....	4.3.7-143
11	11-4A-70	Differences between Baselines and H4_ELT Scenarios in Total	
12		Degree-Months (°F-Months) by Month and Water Year Type for	
13		Water Temperature Exceedances above 56°F in the Feather River at	
14		Gridley, October through April .....	4.3.7-144
15	11-4A-71	Differences between Baseline and H4_ELT Scenarios in Percent of	
16		Months during the 82-Year CALSIM Modeling Period during Which	
17		Water Temperatures in the American River at the Watt Avenue	
18		Bridge Exceed the 56°F Threshold, November through April.....	4.3.7-145
19	11-4A-72	Differences between Baseline H4_ELT Scenarios in Total Degree-	
20		Months (°F-Months) by Month and Water Year Type for Water	
21		Temperature Exceedances above 56°F in the American River at the	
22		Watt Avenue Bridge, November through April .....	4.3.7-146
23	11-4A-74	Through-Delta Survival (%) of Emigrating Juvenile Fall-Run Chinook	
24		Salmon under Alternative 4A (Scenarios H3_ELT and H4_ELT) .....	4.3.7-177
25	11-4A-75	Percentage of Water at Collinsville that Originated in the	
26		Sacramento River and San Joaquin River during the Adult Fall-Run	
27		and Late Fall-Run Chinook Salmon Migration Period for Alternative	
28		4A (Scenario H3_ELT).....	4.3.7-178
29	11-4A-76	Through-Delta Survival (%) of Emigrating Juvenile Late Fall-Run	
30		Chinook Salmon under Alternative 4A (Scenarios H3_ELT and	
31		H4_ELT) .....	4.3.7-179
32	11-4A-77	Juvenile Steelhead Annual Entrainment Index at the	
33		SWP and CVP Salvage Facilities—Differences between Model	
34		Scenarios for Alternative 4A (Scenario H3_ELT) .....	4.3.7-198
35	11-4A-78	Difference and Percent Difference in Percentage of Years with	
36		“Good” Conditions for Steelhead Habitat Metrics in the Upper	
37		Sacramento River (from SacEFT) .....	4.3.7-200
38	11-4A-79	Comparisons of Greatest Monthly Reduction (Percent Change) in	
39		Instream Flow under Model Scenarios in Clear Creek during the	
40		January–April Steelhead Spawning and Egg Incubation Period .....	4.3.7-201

1	11-4A-80	Differences between Baseline and H3_ELT Scenarios in Percent of	
2		Months during the 82-Year CALSIM Modeling Period during Which	
3		Water Temperatures in the Feather River above Thermalito	
4		Afterbay Exceed the 56°F Threshold, January through April.....	4.3.7-202
5	11-4A-81	Differences between Baseline and H3_ELT Scenarios in Total	
6		Degree-Months (°F-Months) by Month and Water Year Type for	
7		Water Temperature Exceedances above 56°F in the Feather River	
8		above Thermalito Afterbay, January through April .....	4.3.7-203
9	11-4A-82	Differences between Baselines and H4_ELT Scenarios in Percent of	
10		Months during the 82-Year CALSIM Modeling Period during Which	
11		Water Temperatures in the Feather River above Thermalito	
12		Afterbay Exceed the 56°F Threshold, January through April.....	4.3.7-206
13	11-4A-83	Differences between Baselines and H4_ELT Scenarios in Total	
14		Degree-Months (°F-Months) by Month and Water Year Type for	
15		Water Temperature Exceedances above 56°F in the Feather River at	
16		above Thermalito Afterbay, January through April .....	4.3.7-207
17	11-4A-84	Minimum Monthly Instream Flow for Model Scenarios in Clear	
18		Creek during the Year-Round Juvenile Steelhead Rearing Period .....	4.3.7-216
19	11-4A-85	Differences between Baseline and H3_ELT Scenarios in Percent of	
20		Months during the 82-Year CALSIM Modeling Period during Which	
21		Water Temperatures in the American River at the Watt Avenue	
22		Bridge Exceed the 65°F Threshold, May through October .....	4.3.7-218
23	11-4A-86	Differences between Baseline and H3_ELT Scenarios in Total	
24		Degree-Months (°F-Months) by Month and Water Year Type for	
25		Water Temperature Exceedances above 65°F in the American River	
26		at the Watt Avenue Bridge, May through October .....	4.3.7-219
27	11-4A-89	Percentage of Water at Collinsville that Originated in the	
28		Sacramento River and San Joaquin River during the Adult Steelhead	
29		Migration Period for Alternative 4A .....	4.3.7-240
30	11-4A-91	Differences Between Model Scenarios in Juvenile Sacramento	
31		Splittail Entrainment Index (Per Capita Method) at the	
32		SWP and CVP Salvage Facilities for Alternative 4A (Scenario H3_ELT).....	4.3.7-259
33	11-4A-92	Differences Between Model Scenarios in Adult Sacramento Splittail	
34		Entrainment Index (salvage density method) at the	
35		SWP and CVP Salvage Facilities for Alternative 4A (Scenario H3_ELT) ....	4.3.7-260
36	11-4A-93	Differences in Frequencies of Inundation Events (for 82-Year	
37		Simulations) of Different Durations on the Yolo Bypass under	
38		Different Scenarios and Water Year Types, February through June,	
39		from 15 2-D and Daily CALSIM II Modeling Runs.....	4.3.7-263
40	11-4A-94	Change in Splittail Weighted Habitat Area (HUs and percent) in Yolo	
41		Bypass from Existing Biological Conditions to Alternative 4A by	
42		Water Year Type from 15 2-D and Daily CALSIM II Modeling Runs.....	4.3.7-264

1	11-4A-95	Differences (and Percent Change) in Daily Average (December–June)	
2		Lower Sutter Bypass Inundation.....	4.3.7-264
3	11-4A-96	Difference (Percent Difference) in Percent of Days or Months during	
4		February to June in Which Temperature Would Be below 45°F or	
5		above 75°F in the Sacramento River at Hamilton City and Feather	
6		River at the Confluence with the Sacramento River .....	4.3.7-266
7	11-4A-97	Difference in Percent of Days or Months during February to June in	
8		Which Temperature Would Be below 45°F or above 75°F in the	
9		Sacramento River at Hamilton City and Feather River at the	
10		Confluence with the Sacramento River .....	4.3.7-268
11	4.3.7-2	Potential Underwater Noise Impact Areas in each Year of Pile	
12		Driving Activities as a Percentage of the Total Amount of Subtidal	
13		Aquatic Habitat in the Delta (Alternative 4A).....	4.3.7-280
14	11-4A-98	Juvenile Green Sturgeon Entrainment Index at the SWP and CVP	
15		Salvage Facilities—Differences (Absolute and Percentage) between	
16		Model Scenarios for Alternative 4A (Scenario H3_ELT).....	4.3.7-282
17	11-4A-99	Differences between Baseline and H3_ELT Scenarios in the Number	
18		of Years in Which Water Temperature Exceedances above 63°F are	
19		within Each Level of Concern, Sacramento River at Bend Bridge, May	
20		through September.....	4.3.7-283
21	11-4A-100	Differences between Baseline and H3_ELT Scenarios in Total	
22		Degree-Days (°F-Days) by Month and Water Year Type for Water	
23		Temperature Exceedances above 63°F in the Sacramento River at	
24		Bend Bridge, May through September .....	4.3.7-284
25	11-4A-101	Differences between Baselines and H3_ELT in Percent of Months	
26		during the 82-Year CALSIM Modeling Period during Which Water	
27		Temperatures in the Feather River at Gridley Exceed the 64°F	
28		Threshold, May through September .....	4.3.7-285
29	11-4A-102	Differences between Baselines and H3_ELT in Total Degree-Months	
30		(°F-Months) by Month and Water Year Type for Water Temperature	
31		Exceedances above 64°F in the Feather River at Gridley, May	
32		through September.....	4.3.7-286
33	11-4A-103	Differences between Baseline Scenarios and H1 and H4_ELT	
34		Scenarios in the Number of Years in Which Water Temperature	
35		Exceedances above 63°F Are within Each Level of Concern,	
36		Sacramento River at Bend Bridge, May through September .....	4.3.7-287
37	11-4A-104	Differences between Baseline Scenarios and H4_ELT in Total	
38		Degree-Days (°F-Days) by Month and Water Year Type for Water	
39		Temperature Exceedances above 63°F in the Sacramento River at	
40		Bend Bridge, May through September .....	4.3.7-288
41	11-4A-105	Differences between Baselines and H4_ELT Scenarios in Percent of	
42		Months during the 82-Year CALSIM Modeling Period during Which	

1		Water Temperatures in the Feather River at Gridley Exceed the 64°F	
2		Threshold, May through September .....	4.3.7-289
3	11-4A-106	Differences between Baselines and H1 and H4_ELT Scenarios in	
4		Total Degree-Months (°F-Months) by Month and Water Year Type	
5		for Water Temperature Exceedances above 64°F in the Feather	
6		River at Gridley, May through September.....	4.3.7-290
7	11-4A-107	Differences between Baselines and H3_ELT in the Number of Years	
8		in Which Water Temperature Exceedances above the 61°F and 68°F	
9		Thresholds Are Within Each Level of Concern, Sacramento River at	
10		Hamilton City, March through June.....	4.3.7-310
11	11-4A-108	Differences between Baseline and H3_ELT Scenarios in Total	
12		Degree-Days (°F-Days) by Month and Water Year Type for Water	
13		Temperature Exceedances above 61°F in the Sacramento River at	
14		Hamilton City, March through June.....	4.3.7-311
15	11-4A-109	Differences between Baseline and H3_ELT Scenarios in Total	
16		Degree-Days (°F-Days) by Month and Water Year Type for Water	
17		Temperature Exceedances above 68°F in the Sacramento River at	
18		Hamilton City, March through June.....	4.3.7-312
19	11-4A-110	Differences between Baselines and H4_ELT Scenario in the Number	
20		of Years in Which Water Temperature Exceedances above the 61°F	
21		and 68°F Thresholds are within Each Level of Concern, Sacramento	
22		River at Hamilton City, March through June .....	4.3.7-314
23	11-4A-111	Differences between Baselines and H4_ELT in Total Degree-Days	
24		(°F-days) by Month and Water Year Type for Water Temperature	
25		Exceedances above 61°F in the Sacramento River at Hamilton City,	
26		March through June.....	4.3.7-315
27	11-4A-112	Differences between Baselines and H4_ELT in Total Degree-Days	
28		(°F-Days) by Month and Water Year Type for Water Temperature	
29		Exceedances above 68°F in the Sacramento River at Hamilton City,	
30		March through June.....	4.3.7-316
31	11-4A-113	Difference and Percent Difference in Number of Months in Which	
32		Flow Rates Exceed 17,700 and 5,300 cfs in the Sacramento River at	
33		Wilkins Slough and 31,000 cfs at Verona.....	4.3.7-323
34	11-4A-114	Difference and Percent Difference in Percentage of Months in	
35		Which Average Delta Outflow is Predicted to Exceed 15,000, 20,000,	
36		and 25,000 Cubic Feet per Second in April and May of Wet and	
37		Above-Normal Water Years .....	4.3.7-324
38	11-4A-115	Lamprey Annual Entrainment Index at the SWP and CVP Salvage	
39		Facilities for Alternative 4A (Scenario H3_ELT) .....	4.3.7-332
40	11-4A-116	Differences between Model Scenarios in Dewatering Risk of Pacific	
41		Lamprey Redd Cohorts .....	4.3.7-333

1	11-4A-117	Differences (Percent Differences) between Model Scenarios in Pacific Lamprey Egg Cohort Temperature Exposure .....4.3.7-334
2		
3	11-4A-118	Differences between Model Scenarios in Dewatering Risk of Pacific Lamprey Redd Cohorts in the Feather River at Thermalito Afterbay .....4.3.7-335
4		
5	11-4A-119	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Keswick .....4.3.7-337
6		
7		
8	11-4A-120	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Red Bluff .....4.3.7-337
9		
10		
11	11-4A-121	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Trinity River at Lewiston.....4.3.7-338
12		
13		
14	11-4A-122	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Feather River at Thermalito Afterbay .....4.3.7-338
15		
16		
17	11-4A-123	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at Nimbus Dam .....4.3.7-339
18		
19		
20	11-4A-124	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at the Confluence with the Sacramento River.....4.3.7-339
21		
22		
23		
24	11-4A-125	Differences (Percent Differences) between Model Scenarios in Pacific Lamprey Ammocoete Cohorts Exposed to Temperatures Greater than 71.6°F in at Least One Day or Month .....4.3.7-340
25		
26		
27	11-4A-126	Percent Difference between Baselines and H4_ELT Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Feather River at Thermalito Afterbay .....4.3.7-341
28		
29		
30		
31	11-4A-127	Differences between Model Scenarios in Dewatering Risk of River Lamprey Redd Cohorts .....4.3.7-354
32		
33	11-4A-128	Differences (Percent Differences) between Model Scenarios in River Lamprey Egg Cohort Temperature Exposure.....4.3.7-355
34		
35	11-4A-129	Differences between Model Scenarios in Dewatering Risk of River Lamprey Redd Cohorts .....4.3.7-356
36		
37	11-4A-130	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Keswick .....4.3.7-358
38		
39		

1	11-4A-131	Percent Difference between Model Scenarios in the Number of	
2		River Lamprey Ammocoete Cohorts Exposed to Month-over-Month	
3		Flow Reductions, Sacramento River at Red Bluff .....	4.3.7-358
4	11-4A-132	Percent Difference between Model Scenarios in the Number of	
5		River Lamprey Ammocoete Cohorts Exposed to Month-over-Month	
6		Flow Reductions, Trinity River at Lewiston.....	4.3.7-359
7	11-4A-133	Percent Difference between Model Scenarios in the Number of	
8		River Lamprey Ammocoete Cohorts Exposed to Month-over-Month	
9		Flow Reductions, Feather River at Thermalito Afterbay .....	4.3.7-359
10	11-4A-134	Percent Difference between Model Scenarios in the Number of	
11		River Lamprey Ammocoete Cohorts Exposed to Month-over-Month	
12		Flow Reductions, American River at Nimbus Dam .....	4.3.7-360
13	11-4A-135	Relative Difference between Model Scenarios in the Number of	
14		River Lamprey Ammocoete Cohorts Exposed to Month-over-Month	
15		Flow Reductions, American River at the Confluence with the	
16		Sacramento River.....	4.3.7-360
17	11-4A-136	Differences (Percent Differences) between Model Scenarios in River	
18		Lamprey Ammocoete Cohorts Exposed to Temperatures in the	
19		Feather River Greater than 71.6°F and 77°F in at Least One Month.....	4.3.7-361
20	11-4A-137	Percent Difference between Baselines and H4_ELT Model Scenarios	
21		in the Number of River Lamprey Ammocoete Cohorts Exposed to	
22		Month-over-Month Flow Reductions, Feather River at Thermalito	
23		Afterbay .....	4.3.7-362
24	11-4A-138	Difference and Percent Difference in the Percentage of Months	
25		during April–June in Which Water Temperatures in the Feather	
26		River below Thermalito Afterbay are outside the 59°F to 68°F Water	
27		Temperature Range for Striped Bass Spawning, Embryo Incubation,	
28		and Initial Rearing .....	4.3.7-376
29	11-4A-139	Difference and Percent Difference between the Baseline Scenarios	
30		and H4_ELT in the Percentage of Months during April–June in which	
31		Water Temperatures in the Feather River below Thermalito	
32		Afterbay are Outside the 59°F to 68°F Water Temperature Range for	
33		Striped Bass Spawning, Embryo Incubation, and Initial Rearing .....	4.3.7-377
34	11-4A-140	Difference and Percent Difference in the Percentage of Months	
35		during April–June in Which Water Temperatures in the Feather	
36		River below Thermalito Afterbay Are outside the 60°F to 70°F Water	
37		Temperature Range for American Shad Adult Migration and	
38		Spawning.....	4.3.7-380
39	11-4A-141	Difference and Percent Difference between the Baseline Scenarios	
40		and H4_ELT in the Percentage of Months during April–June in Which	
41		Water Temperatures in the Feather River below Thermalito	

1		Afterbay Are outside the 60°F to 70°F Water Temperature Range for	
2		American Shad Adult Migration and Spawning .....	4.3.7-381
3	11-4A-142	Difference and Percent Difference in the Percentage of Months	
4		during April–August in Which Water Temperatures in the Feather	
5		River below Thermalito Afterbay fall below the 68°F Water	
6		Temperature Threshold for Threadfin Shad Spawning .....	4.3.7-385
7	11-4A-143	Difference and Percent Difference between the Baseline Scenarios	
8		and H4_ELT in the Percentage of Months during April–June in Which	
9		Water Temperatures in the Feather River below Thermalito	
10		Afterbay fall below the 68°F Water Temperature Threshold for	
11		Threadfin Shad Spawning .....	4.3.7-386
12	11-4A-144	Difference and Percent Difference in the Percentage of Months	
13		during March–June in Which Water Temperatures in the Feather	
14		River below Thermalito Afterbay Would Be outside the 59°F to 75°F	
15		Water Temperature Range for Largemouth Bass Spawning .....	4.3.7-390
16	11-4A-145	Difference and Percent Difference between the Baseline Scenarios	
17		and H4_ELT in the Percentage of Months during April–June in Which	
18		Water Temperatures in the Feather River below Thermalito	
19		Afterbay Would Be outside the 59°F to 75°F Water Temperature	
20		Range for Largemouth Bass Spawning .....	4.3.7-391
21	11-4A-146	Difference and Percent Difference in the Percentage of Months	
22		during March–June in Which Water Temperatures in the Feather	
23		River below Thermalito Afterbay Fall below the 60.8°F Water	
24		Temperature Threshold for the Initiation of Sacramento-San Joaquin	
25		Roach Spawning .....	4.3.7-395
26	11-4A-147	Difference and Percent Difference between the Baseline Scenarios	
27		and H4_ELT in the Percentage of Months during March–June in	
28		Which Water Temperatures in the Feather River below Thermalito	
29		Afterbay Would Fall below the 60.8°F Water Temperature Threshold	
30		for Sacramento-San Joaquin Roach Spawning .....	4.3.7-396
31	11-4A-148	Difference and Percent Difference in the Percentage of Months	
32		during April–May in Which Water Temperatures in the Feather River	
33		below Thermalito Afterbay Would Be outside the 59°F to 64°F	
34		Water Temperature Range for Hardhead Spawning .....	4.3.7-400
35	11-4A-149	Difference and Percent Difference between the Baseline Scenarios	
36		and H4_ELT in the Percentage of Months during April–May in Which	
37		Water Temperatures in the Feather River below Thermalito	
38		Afterbay Would Fall outside the 59°F to 64°F Water Temperature	
39		Range for Hardhead Spawning .....	4.3.7-401
40	11-4A-150	Difference and Percent Difference in the Percentage of Months	
41		during April–November in Which Water Temperatures in the	

1		Feather River below Thermalito Afterbay Exceed the 88°F Water	
2		Temperature Threshold for Juvenile Largemouth Bass Rearing.....	4.3.7-407
3	11-4A-151	Difference and Percent Difference in the Percentage of Months	
4		Year-Round in Which Water Temperatures in the Feather River	
5		below Thermalito Afterbay Exceed the 86°F Water Temperature	
6		Threshold for Adult Largemouth Bass Survival.....	4.3.7-409
7	11-4A-152	Difference and Percent Difference between the Baseline Scenarios	
8		and H4_ELT in the Percentage of Months during April–November in	
9		Which Water Temperatures in the Feather River below Thermalito	
10		Afterbay Exceed the 88°F Water Temperature Threshold for Juvenile	
11		Largemouth Bass Rearing .....	4.3.7-410
12	11-4A-153	Difference and Percent Difference between the Baseline Scenarios	
13		and H4_ELT in the Percentage of Months Year-Round in Which	
14		Water Temperatures in the Feather River below Thermalito	
15		Afterbay Exceed the 86°F Water Temperature Threshold for Adult	
16		Largemouth Bass Survival .....	4.3.7-411
17	11-4A-154	Difference and Percent Difference in the Percentage of Months	
18		Year-Round in Which Water Temperatures in the Feather River	
19		below Thermalito Afterbay Exceed 72°F and 75°F Water	
20		Temperature Thresholds for Sacramento Tule Perch Occurrence .....	4.3.7-418
21	11-4A-155	Difference and Percent Difference between the Baseline Scenarios	
22		and H4_ELT in the Percentage of Months Year-Round in Which	
23		Water Temperatures in the Feather River below Thermalito	
24		Afterbay Exceed 72°F and 75°F Water Temperature Thresholds for	
25		Sacramento Tule Perch Occurrence .....	4.3.7-420
26	11-4A-156	Difference and Percent Difference in the Percentage of Months	
27		Year-Round in Which Water Temperatures in the Feather River	
28		below Thermalito Afterbay Exceed the 86°F Water Temperature	
29		Threshold for Sacramento-San Joaquin Roach Survival .....	4.3.7-425
30	11-4A-157	Difference and Percent Difference between the Baseline Scenarios	
31		and H4_ELT in the Percentage of Months Year-Round in Which	
32		Water Temperatures in the Feather River below Thermalito	
33		Afterbay Exceed the 86°F Water Temperature Threshold for	
34		Sacramento-San Joaquin Roach Survival .....	4.3.7-426
35	11-4A-158	Difference and Percent Difference in the Percentage of Months	
36		Year-Round in Which Water Temperatures in the Feather River	
37		below Thermalito Afterbay Are outside the 65°F to 82.4°F Water	
38		Temperature Range for Juvenile and Adult Hardhead Occurrence .....	4.3.7-432
39	11-4A-159	Difference and Percent Difference between the Baseline Scenarios	
40		and H4_ELT in the Percentage of Months Year-Round in Which	
41		Water Temperatures in the Feather River below Thermalito	



1		Afterbay Are outside the 65°F to 82.4°F Water Temperature Range	
2		for Juvenile and Adult Hardhead Occurrence.....	4.3.7-433
3	12-4A-1	Changes in Tidal Perennial Aquatic Natural Community Associated	
4		with Alternative 4A .....	4.3.8-2
5	12-4A-2	Changes in Tidal Freshwater Emergent Wetland Natural Community	
6		Associated with Alternative 4A .....	4.3.8-10
7	12-4A-3	Changes in Valley/Foothill Riparian Natural Community Associated	
8		with Alternative 4A .....	4.3.8-16
9	12-4A-4	Changes in Nontidal Perennial Aquatic Natural Community	
10		Associated with Alternative 4A.....	4.3.8-23
11	12-4A-5	Changes in Nontidal Freshwater Perennial Emergent Wetland	
12		Natural Community Associated with Alternative 4A.....	4.3.8-28
13	12-4A-6	Changes in Alkali Seasonal Wetland Complex Natural Community	
14		Associated with Alternative 4A.....	4.3.8-33
15	12-4A-7	Changes in Vernal Pool Complex Natural Community Associated	
16		with Alternative 4A .....	4.3.8-39
17	12-4A-8	Changes in Managed Wetland Associated with Alternative 4A .....	4.3.8-45
18	12-4A-9	Changes in Other Natural Seasonal Wetland Associated with	
19		Alternative 4A .....	4.3.8-50
20	12-4A-10	Changes in Grassland Natural Community Associated with	
21		Alternative 4A .....	4.3.8-54
22	12-4A-11	Changes in Vernal Pool Crustacean Modeled Habitat Associated with	
23		Alternative 4A .....	4.3.8-62
24	12-4A-12	Estimated Effects on Wetted Vernal Pool Crustacean Habitat under	
25		Alternative 4A .....	4.3.8-64
26	12-4A-13	Changes in Valley Elderberry Longhorn Beetle Modeled Habitat	
27		Associated with Alternative 4A.....	4.3.8-67
28	12-4A-14	Changes in Nonlisted Vernal Pool Invertebrate Habitat Associated	
29		with Alternative 4A .....	4.3.8-71
30	12-4A-15	Estimated Effects on Wetted Vernal Pool Crustacean Habitat under	
31		Alternative 4A .....	4.3.8-73
32	12-4A-16	Changes in Sacramento and Antioch Dunes Anthicid Beetles' Habitat	
33		Associated with Alternative 4A.....	4.3.8-77
34	12-4A-17	Changes in Delta Green Ground Beetle Habitat Associated with	
35		Alternative 4A .....	4.3.8-79
36	12-4A-18	Changes in Callippe Silverspot Butterfly Habitat Associated with	
37		Alternative 4A .....	4.3.8-81
38	12-4A-19	Changes in California Red-Legged Frog Modeled Habitat Associated	
39		with Alternative 4A .....	4.3.8-84

1	12-4A-20	Changes in California Tiger Salamander Modeled Habitat Associated	
2		with Alternative 4A .....	4.3.8-90
3	12-4A-21	Changes in Giant Garter Snake Modeled Habitat Associated with	
4		Alternative 4A .....	4.3.8-96
5	12-4A-22	Changes in Western Pond Turtle Modeled Habitat Associated with	
6		Alternative 4A .....	4.3.8-102
7	12-4A-23	Changes in Special-Status Reptile Habitat Associated with	
8		Alternative 4A .....	4.3.8-108
9	12-4A-24	Changes in California Black Rail Modeled Habitat Associated with	
10		Alternative 4A .....	4.3.8-112
11	12-4A-25	Changes in California Clapper Rail Modeled Habitat Associated with	
12		Alternative 4A .....	4.3.8-122
13	12-4A-26	Changes in California Least Tern Modeled Habitat Associated with	
14		Alternative 4A .....	4.3.8-124
15	12-4A-27	Changes in Greater Sandhill Crane Modeled Habitat Associated with	
16		Alternative 4A .....	4.3.8-134
17	12-4A-28	Value of Greater Sandhill Crane Foraging Habitat affected by	
18		Alternative 4A .....	4.3.8-136
19	12-4A-29	Greater Sandhill Crane Habitat Affected by General Construction	
20		and Pile Driving Noise Under Alternative 4A .....	4.3.8-142
21	12-4A-30	Changes in Lesser Sandhill Crane Modeled Habitat Associated with	
22		Alternative 4A .....	4.3.8-148
23	12-4A-31	Value of Lesser Sandhill Crane Foraging Habitat Affected By	
24		Alternative 4A Water Conveyance Facilities.....	4.3.8-150
25	12-4A-32	Changes in Least Bell’s Vireo and Yellow Warbler Modeled Habitat	
26		Associated with Alternative 4A.....	4.3.8-160
27	12-4A-33	Changes in Suisun Song Sparrow Saltmarsh Common Yellowthroat	
28		Modeled Habitat Associated with Alternative 4A .....	4.3.8-169
29	12-4A-34	Changes in Swainson’s Hawk Modeled Habitat Associated with	
30		Alternative 4A .....	4.3.8-171
31	12-4A-35	Acres of Impacted Foraging Habitat by Value Classes for Swainson’s	
32		Hawk .....	4.3.8-172
33	12-4A-36	Changes to Tricolored Modeled Habitat Associated with Alternative	
34		4A.....	4.3.8-179
35	12-4A-37	Tricolored Blackbird Foraging Habitat Value Classes.....	4.3.8-182
36	12-4A-38	Changes in Western Burrowing Owl Modeled Habitat Associated	
37		with Alternative 4A .....	4.3.8-189
38	12-4A-39	Changes in Western Yellow-Billed Cuckoo Modeled Habitat	
39		Associated with Alternative 4A.....	4.3.8-195

1	12-4A-40	Changes in White-Tailed Kite Modeled Habitat Associated with	
2		Alternative 4A .....	4.3.8-202
3	12-4A-41	Changes in Yellow-Breasted Chat Modeled Habitat Associated with	
4		Alternative 4A .....	4.3.8-212
5	12-4A-42	Changes in Cooper’s Hawk and Osprey Modeled Habitat Associated	
6		with Alternative 4A .....	4.3.8-218
7	12-4A-43	Changes in Golden Eagle and Ferruginous Hawk Habitat Associated	
8		with Alternative 4A .....	4.3.8-225
9	12-4A-44	Changes in Cormorant, Heron and Egret Modeled Habitat	
10		Associated with Alternative 4A.....	4.3.8-230
11	12-4A-45	Changes in Short-Eared Owl and Northern Harrier Modeled Habitat	
12		Associated with Alternative 4A.....	4.3.8-238
13	12-4A-46	Changes in Mountain Plover Modeled Habitat Associated with	
14		Alternative 4A .....	4.3.8-247
15	12-4A-47	Changes in Black Tern Modeled Habitat Associated with Alternative	
16		4A.....	4.3.8-251
17	12-4A-48	Changes in California Horned Lark and Grasshopper Sparrow	
18		Modeled Habitat Associated with Alternative 4A .....	4.3.8-252
19	12-4A-49	Changes in Least Bittern and White-Faced Ibis Modeled Habitat	
20		Associated with Alternative 4A.....	4.3.8-257
21	12-4A-50	Changes in Loggerhead Shrike Modeled Habitat Associated with	
22		Alternative 4A .....	4.3.8-265
23	12-4A-51	Changes in Modesto Song Sparrow Modeled Habitat Associated	
24		with Alternative 4A .....	4.3.8-272
25	12-4A-52	Changes in Bank Swallow Modeled Habitat Associated with	
26		Alternative 4A .....	4.3.8-278
27	12-4A-53	Changes in Yellow-Headed Blackbird Modeled Habitat Associated	
28		with Alternative 4A .....	4.3.8-282
29	12-4A-54	Changes in Riparian Brush Rabbit Modeled Habitat Associated with	
30		Alternative 4A .....	4.3.8-289
31	12-4A-55	Changes in Riparian Woodrat Modeled Habitat Associated with	
32		Alternative 4A .....	4.3.8-293
33	12-4A-56	Changes in Salt Marsh Harvest Mouse Modeled Habitat Associated	
34		with Alternative 4A .....	4.3.8-294
35	12-4A-57	Changes in Suisun Shrew Modeled Habitat Associated with	
36		Alternative 4A .....	4.3.8-295
37	12-4A-58	Changes in San Joaquin Kit Fox Modeled Habitat Associated with	
38		Alternative 4A .....	4.3.8-297
39	12-4A-59	Changes in San Joaquin Pocket Mouse Habitat Associated with	
40		Alternative 4A .....	4.3.8-302

1	12-4A-60	Changes in Special-Status Bat Roosting and Foraging Habitat	
2		Associated with Alternative 4A.....	4.3.8-306
3	12-4A-61	Summary of Impacts on Vernal Pool Plant Species under Alternative	
4		4A.....	4.3.8-315
5	12-4A-62	Summary of Impacts on Seasonal Alkali Wetland Plant Species under	
6		Alternative 4A.....	4.3.8-319
7	12-4A-63	Summary of Impacts on Grassland Plant Species under Alternative	
8		4A.....	4.3.8-323
9	12-4A-64	Summary of Impacts on Valley/Foothill Riparian Plant Species under	
10		Alternative 4A.....	4.3.8-325
11	12-4A-65	Summary of Impacts on Tidal Wetland Plant Species under	
12		Alternative 4A.....	4.3.8-328
13	12-4A-66	Summary of Impacts on Inland Dune Plants under Alternative 4A.....	4.3.8-331
14	12-4A-67	Summary of Impacts on Nontidal Wetland Plant Species under	
15		Alternative 4A.....	4.3.8-332
16	12-4A-68	Estimated Fill of Waters of the U.S. Associated with the	
17		Construction of Water Conveyance Facilities under Alternative 4A.....	4.3.8-335
18	12-4A-69	Summary of Temporary Disturbance in Natural Communities under	
19		Alternative 4A.....	4.3.8-356
20	4.3.11-1	Summary of Years with Reduced SWP and CVP Reservoir Recreation	
21		Opportunities (End-of September Elevations below Recreation	
22		Thresholds) for Alternative 4A.....	4.3.11-10
23	4.3.11-2	Summary of Years with Reduced SWP and CVP Reservoir Recreation	
24		Opportunities (End-of September Elevations below Recreation	
25		Thresholds) for Alternative 4A.....	4.3.11-11
26	4.3.18-1	GHG Emissions from Operation, Maintenance, and Increased SWP	
27		Pumping, Alternative 4A (Operational Scenarios H3 through H4).....	4.3.18-14
28	4.3.3-1	Long-Term State Water Project and Central Valley Project Deliveries	
29		to Hydrologic Regions Located South of the Delta at Early Long-Term.....	4.4.2-6
30	4.4.4-1	Estimated Ammonia Concentrations in the Sacramento River	
31		Downstream of the Sacramento Regional Wastewater Treatment	
32		Plant for the No Action Alternative Early Long-term (ELT) and	
33		Alternative 2D.....	4.4.4-3
34	11-2D-1	Differences in Proportional Entrainment of Delta Smelt at SWP/CVP	
35		South Delta Facilities.....	4.4.7-3
36	11-2D-3	Differences in Delta Smelt Fall Abiotic Index between Alternative 2D	
37		(A2D_ELT) and Existing Conditions/NAA_ELT Scenarios, Averaged by	
38		Prior Water Year Type.....	4.4.7-5
39	11-2D-4	Percentage of Particles (and Difference) Representing Longfin Smelt	
40		Larvae Entrained by the South Delta Facilities under Alternative 2D	
41		and Baseline Scenarios.....	4.4.7-8

1	11-2D-5	Longfin Smelt Entrainment Index (March–June) at the	
2		SWP and CVP Salvage Facilities and Differences (Absolute and	
3		Percentage) between Model Scenarios .....	4.4.7-9
4	11-2D-7	Estimated Differences between Scenarios for Longfin Smelt Relative	
5		Abundance in the Fall Midwater Trawl or Bay Otter Trawl .....	4.4.7-10
6	11-2D-8	Juvenile Winter-Run Chinook Salmon Annual Entrainment Index at	
7		the SWP and CVP Salvage Facilities—Differences between Model	
8		Scenarios for Alternative 2D .....	4.4.7-14
9	11-2D-1	Winter-Run Chinook Salmon Predation Loss at the Proposed North	
10		Delta Diversion (NDD) Intakes (Five Intakes for Alternative 2D) .....	4.4.7-15
11	11-2D-9	Difference and Percent Difference in May Water Storage Volume in	
12		Shasta Reservoir for Model Scenarios .....	4.4.7-16
13	11-2D-10	Maximum Water Temperature Thresholds for Covered Salmonids	
14		and Sturgeon Provided by NMFS and Used in the BDCP Effects	
15		Analysis .....	4.4.7-17
16	11-2D-11	Number of Days per Month Required to Trigger Each Level of	
17		Concern for Water Temperature Exceedances in the Sacramento	
18		River for Covered Salmonids and Sturgeon Provided by NMFS and	
19		Used in the BDCP Effects Analysis .....	4.4.7-17
20	11-2D-12	Differences between Baseline and Alternative 2D Scenarios in the	
21		Number of Years in Which Water Temperature Exceedances above	
22		56°F Are within Each Level of Concern, Sacramento River at Bend	
23		Bridge, May through September .....	4.4.7-17
24	11-2D-13	Differences between Baseline and Alternative 2D Scenarios in Total	
25		Degree-Days (°F-Days) by Month and Water Year Type for Water	
26		Temperature Exceedances above 56°F in the Sacramento River at	
27		Bend Bridge, May through September .....	4.4.7-18
28	11-2D-14	Difference and Percent Difference in Percent Mortality of Winter-	
29		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
30		Model).....	4.4.7-19
31	11-2D-15	Difference and Percent Difference in Percentage of Years with	
32		“Good” Conditions for Winter-Run Chinook Salmon Habitat Metrics	
33		in the Upper Sacramento River (from SacEFT) .....	4.4.7-20
34	11-2D-16	Through-Delta Survival (%) of Emigrating Juvenile Winter-Run	
35		Chinook Salmon under Alternative 2D .....	4.4.7-27
36	11-2D-17	Percentage (%) of Water at Collinsville that Originated in the	
37		Sacramento River and San Joaquin River during the Adult Salmonid	
38		Migration Period for Alternative 2D .....	4.4.7-28
39	11-2D-18	Juvenile Spring-Run Chinook Salmon Annual Entrainment Index at	
40		the SWP and CVP Salvage Facilities—Differences between Model	
41		Scenarios for Alternative 2D .....	4.4.7-34

1	11-2D-19	Difference and Percent Difference in September Water Storage	
2		Volume in Shasta Reservoir for Model Scenarios.....	4.4.7-35
3	11-2D-20	Differences between Baseline and Alternative 2D Scenarios in the	
4		Number of Years in Which Water Temperature Exceedances above	
5		56°F Are within Each Level of Concern, Sacramento River at Red	
6		Bluff, October through April .....	4.4.7-36
7	11-2D-21	Differences between Baseline and Alternative 2D Scenarios in Total	
8		Degree-Days (°F-Days) by Month and Water Year Type for Water	
9		Temperature Exceedances above 56°F in the Sacramento River at	
10		Red Bluff, October through April .....	4.4.7-37
11	11-2D-22	Difference and Percent Difference in Percent Mortality of Spring-	
12		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
13		Model).....	4.4.7-38
14	11-2D-23	Difference and Percent Difference in Percentage of Years with	
15		“Good” Conditions for Spring-Run Chinook Salmon Habitat Metrics	
16		in the Upper Sacramento River (from SacEFT) .....	4.4.7-38
17	11-2D-24	Difference and Percent Difference in Greatest Monthly Reduction	
18		(Percent Change) in Instream Flow in Clear Creek below	
19		Whiskeytown Reservoir during the September through January	
20		Spawning and Egg Incubation Period .....	4.4.7-39
21	11-2D-25	Difference and Percent Difference in September Water Storage	
22		Volume in Oroville Reservoir for Model Scenarios.....	4.4.7-40
23	11-2D-26	Differences between Baseline and Alternative 2D Scenarios in	
24		Percent of Months during the 82-Year CALSIM Modeling Period	
25		during Which Water Temperatures in the Feather River above	
26		Thermalito Afterbay Exceed the 56°F Threshold, September through	
27		January.....	4.4.7-41
28	11-2D-27	Differences between Baseline and Alternative 2D Scenarios in Total	
29		Degree-Months (°F-Months) by Month and Water Year Type for	
30		Water Temperature Exceedances above 56°F in the Feather River	
31		above Thermalito Afterbay, September through January.....	4.4.7-42
32	11-2D-28	Difference and Percent Difference in May Water Storage Volume in	
33		Oroville Reservoir for Model Scenarios .....	4.4.7-47
34	11-2D-29	Differences between Baseline and Alternative 2D Scenarios in	
35		Percent of Months during the 82-Year CALSIM Modeling Period	
36		during Which Water Temperatures in the Feather River above	
37		Thermalito Afterbay Exceed the 63°F Threshold, May through	
38		August .....	4.4.7-48
39	11-2D-30	Differences between Baseline and Alternative 2D Scenarios in Total	
40		Degree-Months (°F-Months) by Month and Water Year Type for	
41		Water Temperature Exceedances above 63°F in the Feather River	
42		above Thermalito Afterbay, May through August.....	4.4.7-49

1	SR_bioenergetics	Spring-Run Chinook Salmon Predation Loss at the Proposed North	
2		Delta Diversion (NDD) Intakes (Five Intakes for Alternative 2D) .....	4.4.7-54
3	11-2D-31	Through-Delta Survival (%) of Emigrating Juvenile Spring-Run	
4		Chinook Salmon under Alternative 2D .....	4.4.7-55
5	11-2D-32	Juvenile Chinook Salmon Annual Entrainment Index at the SWP and	
6		CVP Salvage Facilities—Differences between Model Scenarios for	
7		Alternative 2D .....	4.4.7-61
8	11-2D-33	Difference and Percent Difference in Percent Mortality of Fall-Run	
9		Chinook Salmon Eggs in the Sacramento River (Egg Mortality Model) .....	4.4.7-63
10	11-2D-34	Difference and Percent Difference in Percentage of Years with	
11		“Good” Conditions for Fall-Run Chinook Salmon Habitat Metrics in	
12		the Upper Sacramento River (from SacEFT) .....	4.4.7-63
13	11-2D-35	Difference and Percent Difference in Percent Mortality of Late Fall–	
14		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
15		Model).....	4.4.7-64
16	11-2D-36	Difference and Percent Difference in Percentage of Years with	
17		“Good” Conditions for Late Fall–Run Chinook Salmon Habitat	
18		Metrics in the Upper Sacramento River (from SacEFT) .....	4.4.7-65
19	11-2D-37	Difference and Percent Difference in Greatest Monthly Reduction in	
20		Instream Flow in Clear Creek below Whiskeytown Reservoir during	
21		the September through February Spawning and Egg Incubation	
22		Period.....	4.4.7-66
23	11-2D-38	Differences between Baseline and Alternative 2D Scenarios in	
24		Percent of Months during the 82-Year CALSIM Modeling Period	
25		during Which Water Temperatures in the Feather River at Gridley	
26		Exceed the 56°F Threshold, October through April .....	4.4.7-67
27	11-2D-39	Differences between Baseline and Alternative 2D Scenarios in Total	
28		Degree-Months (°F-Months) by Month and Water Year Type for	
29		Water Temperature Exceedances above 56°F in the Feather River at	
30		Gridley, October through April .....	4.4.7-68
31	11-2D-40	Difference and Percent Difference in Percent Mortality of Fall-Run	
32		Chinook Salmon Eggs in the Feather River (Egg Mortality Model).....	4.4.7-69
33	11-2D-41	Differences between Baseline and Alternative 2D Scenarios in	
34		Percent of Months during the 82-Year CALSIM Modeling Period	
35		during Which Water Temperatures in the American River at the	
36		Watt Avenue Bridge Exceed the 56°F Threshold, November through	
37		April.....	4.4.7-70
38	11-2D-42	Differences between Baseline and Alternative 2D Scenarios in Total	
39		Degree-Months (°F-Months) by Month and Water Year Type for	
40		Water Temperature Exceedances above 56°F in the American River	
41		at the Watt Avenue Bridge, November through April.....	4.4.7-71

1	11-2D-43	Difference and Percent Difference in Greatest Monthly Reduction	
2		(Percent Change) in Instream Flow in the American River at Nimbus	
3		Dam during the October through January Spawning and Egg	
4		Incubation Period.....	4.4.7-72
5	11-2D-44	Difference and Percent Difference in Percent Mortality of Fall-Run	
6		Chinook Salmon Eggs in the American River (Egg Mortality Model).....	4.4.7-72
7	FR_bioenergetics	Fall-Run Chinook Salmon Predation Loss at the Proposed North	
8		Delta Diversion (NDD) Intakes (Five Intakes for Alternative 2D).....	4.4.7-89
9	11-2D-45	Through-Delta Survival (%) of Emigrating Juvenile Fall-Run Chinook	
10		Salmon under Alternative 2D .....	4.4.7-90
11	LFR_bioenergetics	Late Fall-Run Chinook Salmon Predation Loss at the Proposed North	
12		Delta Diversion (NDD) Intakes (Five Intakes for Alternative 2D).....	4.4.7-91
13	11-2D-46	Through-Delta Survival (%) of Emigrating Juvenile Late Fall-Run	
14		Chinook Salmon under Alternative 2D .....	4.4.7-91
15	11-2D-48	Juvenile Steelhead Annual Entrainment at the SWP and CVP Salvage	
16		Facilities—Differences between Model Scenarios for Alternative 2D .....	4.4.7-100
17	11-2D-49	Difference and Percent Difference in Percentage of Years with	
18		“Good” Conditions for Steelhead Habitat Metrics in the Upper	
19		Sacramento River (from SacEFT) .....	4.4.7-102
20	11-2D-50	Comparisons of Greatest Monthly Reduction (Percent Change) in	
21		Instream Flow under Alternative 2D Model Scenarios in Clear Creek	
22		during the January–April Steelhead Spawning and Egg Incubation	
23		Period.....	4.4.7-103
24	11-2D-51	Differences between Baseline and Alternative 2D Scenarios in	
25		Percent of Months during the 82-Year CALSIM Modeling Period	
26		during Which Water Temperatures in the Feather River above	
27		Thermalito Afterbay Exceed the 56°F Threshold, January through	
28		April.....	4.4.7-104
29	11-2D-52	Differences between Baseline and Alternative 2D Scenarios in Total	
30		Degree-Months (°F-Months) by Month and Water Year Type for	
31		Water Temperature Exceedances above 56°F in the Feather River	
32		above Thermalito Afterbay, January through April .....	4.4.7-104
33	11-2D-53	Difference and Percent Difference in Minimum Monthly Mean Flow	
34		in Clear Creek during the Year-Round Juvenile Steelhead Rearing	
35		Period.....	4.4.7-111
36	11-2D-54	Differences between Baseline and Alternative 2D Scenarios in	
37		Percent of Months during the 82-Year CALSIM Modeling Period	
38		during Which Water Temperatures in the American River at the	
39		Watt Avenue Bridge Exceed the 65°F Threshold, May through	
40		October .....	4.4.7-114



1	11-2D-55	Differences between Baseline and Alternative 2D Scenarios in Total Degree-Months (°F-Months) by Month and Water Year Type for Water Temperature Exceedances above 65°F in the American River at the Watt Avenue Bridge, May through October .....4.4.7-115
2		
3		
4		
5	11-2D-58	Juvenile Sacramento Splittail Entrainment Indexa (per Capita Method) at the SWP and CVP Salvage Facilities and Differences between Model Scenarios for Alternative 2D .....4.4.7-137
6		
7		
8	11-2D-59	Adult Sacramento Splittail Entrainment Index (Salvage Density Method) at the SWP and CVP Salvage Facilities and Differences between Model Scenarios for Alternative 2D .....4.4.7-138
9		
10		
11	11-2D-60	Differences in Frequencies of Inundation Events (for 82-Year Simulations) of Different Durations on the Yolo Bypass under Different Scenarios and Water Year Types, February through June, from 15 2-D and Daily CALSIM II Modeling Runs.....4.4.7-140
12		
13		
14		
15	11-2D-61	Increase in Splittail Weighted Habitat Area (HUs and Percent) in Yolo Bypass from Existing Biological Conditions to Alternative 2D by Water Year Type from 15 2-D and Daily CALSIM II Modeling Runs.....4.4.7-140
16		
17		
18	11-2D-62	Difference (Percent Difference) in Percent of Days or Months during February to June in Which Temperature Would Be below 45°F or above 75°F in the Sacramento River at Hamilton City and Feather River at the Confluence with the Sacramento River .....4.4.7-143
19		
20		
21		
22	11-2D-63	Juvenile Green Sturgeon Annual Entrainment Index at the SWP and CVP Salvage Facilities for Alternative 2D .....4.4.7-151
23		
24	11-2D-64	Differences between Baseline and Alternative 2D Scenarios in the Number of Years in Which Water Temperature Exceedances above 63°F Are within Each Level of Concern, Sacramento River at Bend Bridge, May through September .....4.4.7-152
25		
26		
27		
28	11-2D-65	Differences between Baseline and Alternative 2D Scenarios in Total Degree-Days (°F-Days) by Month and Water Year Type for Water Temperature Exceedances above 63°F in the Sacramento River at Bend Bridge, May through September .....4.4.7-152
29		
30		
31		
32	11-2D-66	Differences between Baseline and Alternative 2D Scenarios in Percent of Months during the 82-Year CALSIM Modeling Period during Which Water Temperatures in the Feather River at Gridley Exceed the 64°F Threshold, May through September .....4.4.7-153
33		
34		
35		
36	11-2D-67	Differences between Baseline and Alternative 2D Scenarios in Total Degree-Months (°F-Months) by Month and Water Year Type for Water Temperature Exceedances above 64°F in the Feather River at Gridley, May through September .....4.4.7-154
37		
38		
39		
40	11-2D-68	Juvenile White Sturgeon Entrainment Index at the SWP and CVP Salvage Facilities for Sacramento Valley Water Year-
41		

1		Types and Differences (Absolute and Percentage) between Model	
2		Scenarios .....	4.4.7-167
3	11-2D-69	Differences between Baselines and Alternative 2D in the Number of	
4		Years in Which Water Temperature Exceedances above the 61°F	
5		and 68°F Thresholds are within Each Level of Concern, Sacramento	
6		River at Hamilton City, March through June .....	4.4.7-168
7	11-2D-70	Differences between Baseline and Alternative 2D Scenarios in Total	
8		Degree-Days (°F-Days) by Month and Water Year Type for Water	
9		Temperature Exceedances above 61°F in the Sacramento River at	
10		Hamilton City, March through June .....	4.4.7-169
11	11-2D-71	Differences between Baseline and Alternative 2D Scenarios in Total	
12		Degree-Days (°F-Days) by Month and Water Year Type for Water	
13		Temperature Exceedances above 68°F in the Sacramento River at	
14		Hamilton City, March through June .....	4.4.7-170
15	11-2D-72	Difference and Percent Difference in Number of Months between	
16		February and May in Which Flow Rates Exceed 17,700 and 5,300 cfs	
17		in the Sacramento River at Wilkins Slough and 31,000 cfs at Verona .....	4.4.7-175
18	11-2D-73	Difference and Percent Difference in Percentage of Months in	
19		Which Average Delta Outflow is Predicted to Exceed 15,000, 20,000,	
20		and 25,000 Cubic Feet per Second in April and May of Wet and	
21		Above-Normal Water Years .....	4.4.7-176
22	11-2D-74	Lamprey Annual Entrainment Index at the SWP and CVP Salvage	
23		Facilities for Alternative 2D .....	4.4.7-181
24	11-2D-75	Differences between Model Scenarios in Dewatering Risk of Pacific	
25		Lamprey Redd Cohorts .....	4.4.7-182
26	11-2D-76	Differences (Percent Differences) between Model Scenarios in	
27		Pacific Lamprey Egg Cohort Temperature Exposure .....	4.4.7-183
28	11-2D-77	Percent Difference between Model Scenarios in the Number of	
29		Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-	
30		Month Flow Reductions, Sacramento River at Keswick .....	4.4.7-186
31	11-2D-78	Percent Difference between Model Scenarios in the Number of	
32		Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-	
33		Month Flow Reductions, Sacramento River at Red Bluff .....	4.4.7-186
34	11-2D-79	Percent Difference between Model Scenarios in the Number of	
35		Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-	
36		Month Flow Reductions, Trinity River at Lewiston .....	4.4.7-187
37	11-2D-80	Percent Difference between Model Scenarios in the Number of	
38		Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-	
39		Month Flow Reductions, Feather River at Thermalito Afterbay .....	4.4.7-187

1	11-2D-81	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at Nimbus Dam .....4.4.7-188
2		
3		
4	11-2D-82	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at the Confluence with the Sacramento River .....4.4.7-188
5		
6		
7		
8	11-2D-83	Differences between Model Scenarios in Pacific Lamprey Ammocoete Cohorts Exposed to Temperatures in the Feather River Greater than 71.6°F in at Least One Day or Month .....4.4.7-189
9		
10		
11	11-2D-85	Differences between Model Scenarios in Dewatering Risk of River Lamprey Redd Cohorts .....4.4.7-197
12		
13	11-2D-86	Differences between Model Scenarios in River Lamprey Egg Cohort Temperature Exposure .....4.4.7-199
14		
15	11-2D-87	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Keswick .....4.4.7-201
16		
17		
18	11-2D-88	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Red Bluff .....4.4.7-201
19		
20		
21	11-2D-89	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Trinity River at Lewiston.....4.4.7-202
22		
23		
24	11-2D-90	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Feather River at Thermalito Afterbay .....4.4.7-202
25		
26		
27	11-2D-91	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at Nimbus Dam .....4.4.7-203
28		
29		
30	11-2D-92	Relative Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at the Confluence with the Sacramento River .....4.4.7-203
31		
32		
33		
34	11-2D-93	Differences between Model Scenarios in River Lamprey Ammocoete Cohorts Exposed to Temperatures in the Feather River Greater than 71.6°F and 77°F in at Least One Month .....4.4.7-205
35		
36		
37	11-2D-138	Difference and Percent Difference in the Percentage of Months during April–June in Which Water Temperatures in the Feather River below Thermalito Afterbay are outside the 59°F to 68°F Water Temperature Range for Striped Bass Spawning, Embryo Incubation, and Initial Rearing .....4.4.7-216
38		
39		
40		
41		

1	11-2D-140	Difference and Percent Difference in the Percentage of Months during April–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Are outside the 60°F to 70°F Water Temperature Range for American Shad Adult Migration and Spawning.....	4.4.7-219
2			
3			
4			
5			
6	11-2D-142	Difference and Percent Difference in the Percentage of Months during April–August in Which Water Temperatures in the Feather River below Thermalito Afterbay fall below the 68°F Water Temperature Threshold for Threadfin Shad Spawning .....	4.4.7-222
7			
8			
9			
10	11-2D-144	Difference and Percent Difference in the Percentage of Months during March–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Would Be outside the 59°F to 75°F Water Temperature Range for Largemouth Bass Spawning .....	4.4.7-225
11			
12			
13			
14	11-2D-146	Difference and Percent Difference in the Percentage of Months during March–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Fall below the 60.8°F Water Temperature Threshold for the Initiation of Sacramento-San Joaquin Roach Spawning.....	4.4.7-228
15			
16			
17			
18			
19	11-2D-148	Difference and Percent Difference in the Percentage of Months during April–May in Which Water Temperatures in the Feather River below Thermalito Afterbay Would Be outside the 59°F to 64°F Water Temperature Range for Hardhead Spawning .....	4.4.7-231
20			
21			
22			
23	11-2D-150	Difference and Percent Difference in the Percentage of Months during April–November in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 88°F Water Temperature Threshold for Juvenile Largemouth Bass Rearing.....	4.4.7-236
24			
25			
26			
27	11-2D-151	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 86°F Water Temperature Threshold for Adult Largemouth Bass Survival.....	4.4.7-238
28			
29			
30			
31	11-2D-154	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed 72°F and 75°F Water Temperature Thresholds for Sacramento Tule Perch Occurrence .....	4.4.7-244
32			
33			
34			
35	11-2D-156	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 86°F Water Temperature Threshold for Sacramento-San Joaquin Roach Survival .....	4.4.7-248
36			
37			
38			
39	11-2D-158	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Are outside the 65°F to 82.4°F Water Temperature Range for Juvenile and Adult Hardhead Occurrence .....	4.4.7-253
40			
41			
42			

1	4.4.8-1	Alternative 2D Effects on Natural Communities Relative to	
2		Alternative 4A .....	4.8.8-3
3	4.4.8-2	Alternative 2D Effects on Jurisdictional Wetlands and Waters	
4		Relative to Alternative 4A.....	4.8.8-4
5	4.3.11-1	Summary of Years with Reduced SWP and CVP Reservoir Recreation	
6		Opportunities (End-of September Elevations below Recreation	
7		Thresholds) for Alternative 2D.....	4.4.11-10
8	4.3.11-2	Summary of Years with Reduced SWP and CVP Reservoir Recreation	
9		Opportunities (End-of September Elevations below Recreation	
10		Thresholds) for Alternative 2D.....	4.4.11-11
11	4.4.18-1	GHG Emissions from Operation, Maintenance, and Increased SWP	
12		Pumping, Alternative 2D .....	4.4.18-16
13	4.3.3-3	Long-Term State Water Project and Central Valley Project Deliveries	
14		to Hydrologic Regions Located South of the Delta at Early Long-Term.....	4.5.3-6
15	4.5.4-1	Estimated Ammonia Concentrations in the Sacramento River	
16		Downstream of the Sacramento Regional Wastewater Treatment	
17		Plant for the No Action Alternative Early Long-term Timeframe (ELT)	
18		and Alternative 5A .....	4.5.3-3
19	pile_driving_alt5A	Estimated Distances and Areas of Waterbodies Subject to Pile	
20		Driving Noise Levels Exceeding Interim Injury and Behavioral	
21		Thresholds, and Proposed Timing and Duration of Proposed Pile	
22		Driving Activities for Facilities or Structures in or Adjacent to	
23		Sensitive Rearing and Migration Corridors of the Covered Species	
24		(Alternative 5A).....	4.5.7-2
25	11-5A-1	Differences in Proportional Entrainment of Delta Smelt at SWP/CVP	
26		South Delta Facilities .....	4.5.7-4
27	11-5A-3	Differences in Delta Smelt Fall Abiotic Index between Alternative 5A	
28		and Existing Conditions/NAA_ELT Scenarios, Averaged by Prior	
29		Water Year Type .....	4.5.7-6
30	11-5A-4	Percentage of Particles (and Difference) Representing Longfin Smelt	
31		Larvae Entrained by the South Delta Facilities under Alternative 5A	
32		and Baseline Scenarios .....	4.5.7-9
33	11-5A-5	Longfin Smelt Entrainment Index at the SWP and CVP Salvage	
34		Facilities—Differences (Absolute and Percentage) between Model	
35		Scenarios for Alternative 5A .....	4.5.7-9
36	11-5A-7	Estimated Differences between Scenarios for Longfin Smelt Relative	
37		Abundance in the Fall Midwater Trawl or Bay Otter Trawl .....	4.5.7-11
38	11-5A-8	Juvenile Winter-Run Chinook Salmon Annual Entrainment Index at	
39		the SWP and CVP Salvage Facilities—Differences between Model	
40		Scenarios for Alternative 5A .....	4.5.7-14

1	11-5A-9	Difference and Percent Difference in May Water Storage Volume in Shasta Reservoir for Model Scenarios .....	4.5.7-16
2			
3	11-5A-10	Maximum Water Temperature Thresholds for Covered Salmonids and Sturgeon Provided by NMFS and Used in the BDCP Effects Analysis .....	4.5.7-16
4			
5			
6	11-5A-11	Number of Days per Month when Three Different Water Temperature Exceedances Trigger Different Levels of Concern for Covered Salmonids and Sturgeon Provided by NMFS and Used in the BDCP Effects Analysis.....	4.5.7-17
7			
8			
9			
10	11-5A-12	Differences between Baseline and Alternative 5A Scenarios in the Number of Years in Which Water Temperature Exceedances above 56°F Are within Each Level of Concern, Sacramento River at Bend Bridge, May through September .....	4.5.7-17
11			
12			
13			
14	11-5A-13	Differences and Percent Differences between Alternative 5A and Baseline Scenarios in Total Degree-Days (°F-Days) by Month and Water Year Type for Water Temperature Exceedances above 56°F in the Sacramento River at Bend Bridge, May through September .....	4.5.7-18
15			
16			
17			
18	11-5A-14	Difference and Percent Difference in Percent Mortality of Winter-Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality Model).....	4.5.7-19
19			
20			
21	11-5A-15	Difference and Percent Difference in Percentage of Years with “Good” Conditions for Winter-Run Chinook Salmon Habitat Metrics in the Upper Sacramento River (from SacEFT) .....	4.5.7-19
22			
23			
24	11-5A-13	Chinook Salmon Predation Loss at the Proposed North Delta Diversion Intake (One Intake for Alternative 5A) .....	4.5.7-26
25			
26	11-5A-14	Through-Delta Survival (%) of Emigrating Juvenile Winter-Run Chinook Salmon under Alternative 5A and Baseline Scenarios; and Differences between Alternative 5A and Baseline Scenarios.....	4.5.7-26
27			
28			
29	11-5A-15	Percentage (%) of Flows and Differences at Collinsville that Originated in the Sacramento River and San Joaquin River during the Adult Salmonid Period for Alternative 5A and Baseline Scenarios, and Percent Differences between Alternative 5A and Baseline Scenarios.....	4.5.7-27
30			
31			
32			
33			
34	11-5A-16	Juvenile Spring-Run Chinook Salmon Annual Entrainment Index at the SWP and CVP Salvage Facilities—Differences between Model Scenarios for Alternative 5A .....	4.5.7-32
35			
36			
37	11-5A-19	Difference and Percent Difference in September Water Storage Volume in Shasta Reservoir for Model Scenarios.....	4.5.7-33
38			
39	11-5A-20	Differences between Baseline and Alternative 5A Scenarios in the Number of Years in Which Water Temperature Exceedances above	
40			

1		56°F Are within Each Level of Concern, Sacramento River at Red	
2		Bluff, October through April .....	4.5.7-34
3	11-5A-21	Differences between Alternative 5A and Baseline Scenarios in Total	
4		Degree-Days (°F-Days) by Month and Water Year Type for Water	
5		Temperature Exceedances above 56°F in the Sacramento River at	
6		Red Bluff, October through April .....	4.5.7-34
7	11-5A-22	Difference and Percent Difference in Percent Mortality of Spring-	
8		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
9		Model).....	4.5.7-35
10	11-5A-23	Difference and Percent Difference in Percentage of Years with	
11		“Good” Conditions for Spring-Run Chinook Salmon Habitat Metrics	
12		in the Upper Sacramento River (from SacEFT) .....	4.5.7-36
13	11-5A-24	Difference and Percent Difference in Greatest Monthly Reduction	
14		(Percent Change) in Instream Flow in Clear Creek below	
15		Whiskeytown Reservoir during the September through January	
16		Spawning and Egg Incubation Period .....	4.5.7-37
17	11-5A-25	Difference and Percent Difference in September Water Storage	
18		Volume in Oroville Reservoir for Model Scenarios.....	4.5.7-37
19	11-5A-26	Differences between Baseline and Alternative 5A Scenarios in	
20		Percent of Months during the 82-Year CALSIM Modeling Period	
21		during Which Water Temperatures in the Feather River above	
22		Thermalito Afterbay Exceed the 56°F Threshold, September through	
23		January .....	4.5.7-38
24	11-5A-27	Differences between Baseline and Alternative 5A Scenarios in Total	
25		Degree-Months (°F-Months) by Month and Water Year Type for	
26		Water Temperature Exceedances above 56°F in the Feather River	
27		above Thermalito Afterbay, September through January.....	4.5.7-39
28	11-5A-28	Difference and Percent Difference in May Water Storage Volume in	
29		Oroville Reservoir for Model Scenarios .....	4.5.7-45
30	11-5A-29	Differences between Alternative 5A and Baseline Scenarios in	
31		Percent of Months during the 82-Year CALSIM Modeling Period	
32		during Which Water Temperatures in the Feather River above	
33		Thermalito Afterbay Exceed the 63°F Threshold, May through	
34		August .....	4.5.7-45
35	11-5A-30	Differences between Alternative 5A and Baseline Scenarios in Total	
36		Degree-Months (°F-Months) by Month and Water Year Type for	
37		Water Temperature Exceedances above 63°F in the Feather River	
38		above Thermalito Afterbay, May through August.....	4.5.7-46
39	11-5A-31	Through-Delta Survival (%) of Emigrating Juvenile Spring-Run	
40		Chinook Salmon under Baseline and Alternative 5A Scenarios, by	
41		Year Type .....	4.5.7-51

1	11-5A-32	Juvenile Fall-Run and Late Fall-Run Chinook Salmon Annual	
2		Entrainment Index at the SWP and CVP Salvage Facilities—	
3		Differences between Model Scenarios for Alternative 5A .....	4.5.7-58
4	11-5A-33	Difference and Percent Difference in Percent Mortality of Fall-Run	
5		Chinook Salmon Eggs in the Sacramento River (Egg Mortality Model) .....	4.5.7-59
6	11-5A-34	Difference and Percent Difference in Percentage of Years with	
7		“Good” Conditions for Fall-Run Chinook Salmon Habitat Metrics in	
8		the Upper Sacramento River (from SacEFT) .....	4.5.7-60
9	11-5A-35	Difference and Percent Difference in Percent Mortality of Late Fall–	
10		Run Chinook Salmon Eggs in the Sacramento River (Egg Mortality	
11		Model).....	4.5.7-60
12	11-5A-36	Difference and Percent Difference in Percentage of Years with	
13		“Good” Conditions for Late Fall–Run Chinook Salmon Habitat	
14		Metrics in the Upper Sacramento River (from SacEFT) .....	4.5.7-61
15	11-5A-38	Differences Alternative 5A and Baseline Scenarios in Percent of	
16		Months during the 82-Year CALSIM Modeling Period during Which	
17		Water Temperatures in the Feather River at Gridley Exceed the 56°F	
18		Threshold, October through April.....	4.5.7-63
19	11-5A-39	Differences between Baseline and Alternative 5A Scenarios in Total	
20		Degree-Months (°F-Months) by Month and Water Year Type for	
21		Water Temperature Exceedances above 56°F in the Feather River at	
22		Gridley, October through April .....	4.5.7-64
23	11-5A-40	Difference and Percent Difference in Percent Mortality of Fall-Run	
24		Chinook Salmon Eggs in the Feather River (Egg Mortality Model).....	4.5.7-65
25	11-5A-41	Differences between Baseline and Alternative 5A Scenarios in	
26		Percent of Months during the 82-Year CALSIM Modeling Period	
27		during Which Water Temperatures in the American River at the	
28		Watt Avenue Bridge Exceed the 56°F Threshold, November through	
29		April.....	4.5.7-66
30	11-5A-42	Differences between Baseline and Alternative 5A Scenarios in Total	
31		Degree-Months (°F-Months) by Month and Water Year Type for	
32		Water Temperature Exceedances above 56°F in the American River	
33		at the Watt Avenue Bridge, November through April.....	4.5.7-67
34	11-5A-43	Difference and Percent Difference in Greatest Monthly Reduction	
35		(Percent Change) in Instream Flow in the American River at Nimbus	
36		Dam during the October through January Spawning and Egg	
37		Incubation Period.....	4.5.7-68
38	11-5A-44	Difference and Percent Difference in Percent Mortality of Fall-Run	
39		Chinook Salmon Eggs in the American River (Egg Mortality Model).....	4.5.7-68
40	11-5A-45	Through-Delta Survival (%) of Emigrating Juvenile Fall-Run Chinook	
41		Salmon under Baseline and Alternative 5A Scenarios.....	4.5.7-87



1	11-5A-34	Through-Delta Survival (%) of Emigrating Juvenile Late Fall–Run	
2		Chinook Salmon under Baseline and Alternative 5A Scenarios.....	4.5.7-88
3	11-5A-46	Juvenile Steelhead Annual Entrainment Index at the	
4		SWP and CVP Salvage Facilities—Differences between Model	
5		Scenarios for Alternative 5A .....	4.5.7-98
6	11-5A-49	Difference and Percent Difference in Percentage of Years with	
7		“Good” Conditions for Steelhead Habitat Metrics in the Upper	
8		Sacramento River (from SacEFT) .....	4.5.7-99
9	11-5A-50	Comparisons of Greatest Monthly Reduction (Percent Change) in	
10		Instream Flow under Alternative 5A Model Scenarios in Clear Creek	
11		during the January–April Steelhead Spawning and Egg Incubation	
12		Period.....	4.5.7-100
13	11-5A-51	Differences between Baseline and Alternative 5A Scenarios in	
14		Percent of Months during the 82-Year CALSIM Modeling Period	
15		during Which Water Temperatures in the Feather River above	
16		Thermalito Afterbay Exceed the 56°F Threshold, January through	
17		April.....	4.5.7-101
18	11-5A-52	Differences between Baseline and Alternative 5A Scenarios in Total	
19		Degree-Months (°F-Months) by Month and Water Year Type for	
20		Water Temperature Exceedances above 56°F in the Feather River	
21		above Thermalito Afterbay, January through April .....	4.5.7-102
22	11-5A-53	Difference and Percent Difference in Minimum Monthly Mean Flow	
23		in Clear Creek during the Year-Round Juvenile Steelhead Rearing	
24		Period.....	4.5.7-109
25	11-5A-54	Differences between Baseline and Alternative 5A Scenarios in	
26		Percent of Months during the 82-Year CALSIM Modeling Period	
27		during Which Water Temperatures in the American River at the	
28		Watt Avenue Bridge Exceed the 65°F Threshold, May through	
29		October .....	4.5.7-111
30	11-5A-55	Differences between Baseline and Alternative 5A Scenarios in Total	
31		Degree-Months (°F-Months) by Month and Water Year Type for	
32		Water Temperature Exceedances above 65°F in the American River	
33		at the Watt Avenue Bridge, May through October .....	4.5.7-112
34	11-5A-56	Juvenile Sacramento Splittail Entrainment Index (per Capita	
35		Method) at the SWP and CVP Salvage Facilities and Differences	
36		between Model Scenarios for Alternative 5A .....	4.5.7-133
37	11-5A-57	Adult Sacramento Splittail Entrainment Index (Salvage Density	
38		Method) at the SWP and CVP Salvage Facilities and Differences	
39		between Model Scenarios for Alternative 5A .....	4.5.7-134
40	11-5A-60	Differences in Frequencies of Inundation Events (for 82-Year	
41		Simulations) of Different Durations on the Yolo Bypass under	

1		Different Scenarios and Water Year Types, February through June,	
2		from 15 2-D and Daily CALSIM II Modeling Runs.....	4.5.7-136
3	11-5A-61	Increase in Splittail Weighted Habitat Area (HUs and Percent) in	
4		Yolo Bypass from Existing Biological Conditions to Alternative 5A by	
5		Water Year Type from 15 2-D and Daily CALSIM II Modeling Runs.....	4.5.7-136
6	11-5A-62	Difference (Percent Difference) in Percent of Days or Months during	
7		February to June in Which Temperature Would Be below 45°F or	
8		above 75°F in the Sacramento River at Hamilton City and Feather	
9		River at the Confluence with the Sacramento River .....	4.5.7-139
10	11-5A-63	Juvenile Green Sturgeon Entrainment Index at the SWP and CVP	
11		Salvage Facilities—Differences (Absolute and Percentage) between	
12		Model Scenarios for Alternative 5 .....	4.5.7-146
13	11-5A-64	Differences between Baseline and Alternative 5A Scenarios in the	
14		Number of Years in Which Water Temperature Exceedances above	
15		63°F Are within Each Level of Concern, Sacramento River at Bend	
16		Bridge, May through September .....	4.5.7-147
17	11-5A-65	Differences between Baseline and Alternative 5A Scenarios in Total	
18		Degree-Days (°F-Days) by Month and Water Year Type for Water	
19		Temperature Exceedances above 63°F in the Sacramento River at	
20		Bend Bridge, May through September .....	4.5.7-148
21	11-5A-66	Differences between Baseline and Alternative 5A Scenarios in	
22		Percent of Months during the 82-Year CALSIM Modeling Period	
23		during Which Water Temperatures in the Feather River at Gridley	
24		Exceed the 64°F Threshold, May through September.....	4.5.7-149
25	11-5A-67	Differences between Baseline and Alternative 5A Scenarios in Total	
26		Degree-Months (°F-Months) by Month and Water Year Type for	
27		Water Temperature Exceedances above 64°F in the Feather River at	
28		Gridley, May through September .....	4.5.7-150
29	11-5A-68	Juvenile White Sturgeon Entrainment Index at the SWP and CVP	
30		Salvage Facilities for Sacramento Valley Water Year-Types and	
31		Differences (Absolute and Percentage) between Model Scenarios	
32		for Alternative 5A .....	4.5.7-163
33	11-5A-69	Differences and Percent Differences between Alternative 5A and	
34		Baseline Scenarios in the Number of Years by Level of Concern that	
35		are Based on Water Temperature Exceedances above the 61°F and	
36		68°F Thresholds in the Sacramento River at Hamilton City, March	
37		through June .....	4.5.7-164
38	11-5A-70	Differences between Baseline and Alternative 5A Scenarios in Total	
39		Degree-Days (°F-Days) by Month and Water Year Type for Water	
40		Temperature Exceedances above 61°F in the Sacramento River at	
41		Hamilton City, March through June.....	4.5.7-165

1	11-5A-71	Differences between Baseline and Alternative 5A Scenarios in Total Degree-Days (°F-Days) by Month and Water Year Type for Water Temperature Exceedances above 68°F in the Sacramento River at Hamilton City, March through June.....	4.5.7-166
2			
3			
4			
5	11-5A-72	Difference and Percent Difference in Number of Months between February and May in Which Flow Rates Exceed 17,700 and 5,300 cfs in the Sacramento River at Wilkins Slough and 31,000 cfs at Verona.....	4.5.7-171
6			
7			
8	11-5A-73	Difference and Percent Difference in Percentage of Months in Which Average Delta Outflow is Predicted to Exceed 15,000, 20,000, and 25,000 Cubic Feet per Second in April and May of Wet and Above-Normal Water Years .....	4.5.7-172
9			
10			
11			
12	11-5A-74	Lamprey Annual Entrainment Index at the SWP and CVP Salvage Facilities for Alternative 5 .....	4.5.7-177
13			
14	11-5A-75	Differences between Model Scenarios in Dewatering Risk of Pacific Lamprey Redd Cohorts .....	4.5.7-179
15			
16	11-5A-76	Differences (Percent Differences) between Model Scenarios in Pacific Lamprey Egg Cohort Temperature Exposure .....	4.5.7-180
17			
18	11-5A-77	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Keswick .....	4.5.7-182
19			
20			
21	11-5A-78	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Red Bluff .....	4.5.7-183
22			
23			
24	11-5A-79	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Trinity River at Lewiston.....	4.5.7-183
25			
26			
27	11-5A-80	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Feather River at Thermalito Afterbay .....	4.5.7-184
28			
29			
30	11-5A-81	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at Nimbus Dam .....	4.5.7-184
31			
32			
33	11-5A-82	Percent Difference between Model Scenarios in the Number of Pacific Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at the Confluence with the Sacramento River.....	4.5.7-185
34			
35			
36			
37	11-5A-83	Differences (Percent Differences) between Model Scenarios in Pacific Lamprey Ammocoete Cohorts Exposed to Temperatures in the Feather River Greater than 71.6°F in at Least One Day or Month .....	4.5.7-186
38			
39			
40	11-5A-85	Differences between Model Scenarios in Dewatering Risk of River Lamprey Redd Cohorts .....	4.5.7-194
41			

1	11-5A-86	Differences (Percent Differences) between Model Scenarios in River Lamprey Egg Cohort Temperature Exposure.....	4.5.7-195
2			
3	11-5A-87	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Keswick .....	4.5.7-197
4			
5			
6	11-5A-88	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Sacramento River at Red Bluff .....	4.5.7-197
7			
8			
9	11-5A-89	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Trinity River at Lewiston.....	4.5.7-198
10			
11			
12	11-5A-90	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, Feather River at Thermalito Afterbay .....	4.5.7-198
13			
14			
15	11-5A-91	Percent Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at Nimbus Dam .....	4.5.7-199
16			
17			
18	11-5A-92	Relative Difference between Model Scenarios in the Number of River Lamprey Ammocoete Cohorts Exposed to Month-over-Month Flow Reductions, American River at the Confluence with the Sacramento River.....	4.5.7-199
19			
20			
21			
22	11-5A-93	Differences (Percent Differences) between Model Scenarios in River Lamprey Ammocoete Cohorts Exposed to Temperatures Greater than 71.6°F and 77°F in at Least One Month.....	4.5.7-200
23			
24			
25	11-5A-138	Difference and Percent Difference in the Percentage of Months during April–June in Which Water Temperatures in the Feather River below Thermalito Afterbay are outside the 59°F to 68°F Water Temperature Range for Striped Bass Spawning, Embryo Incubation, and Initial Rearing .....	4.5.7-211
26			
27			
28			
29			
30	11-58-140	Difference and Percent Difference in the Percentage of Months during April–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Are outside the 60°F to 70°F Water Temperature Range for American Shad Adult Migration and Spawning.....	4.5.7-214
31			
32			
33			
34			
35	11-58-142	Difference and Percent Difference in the Percentage of Months during April–August in Which Water Temperatures in the Feather River below Thermalito Afterbay fall below the 68°F Water Temperature Threshold for Threadfin Shad Spawning .....	4.5.7-217
36			
37			
38			
39	11-5A-144	Difference and Percent Difference in the Percentage of Months during March–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Would Be outside the 59°F to 75°F Water Temperature Range for Largemouth Bass Spawning .....	4.5.7-220
40			
41			
42			

1	11-5A-146	Difference and Percent Difference in the Percentage of Months during March–June in Which Water Temperatures in the Feather River below Thermalito Afterbay Fall below the 60.8°F Water Temperature Threshold for the Initiation of Sacramento-San Joaquin Roach Spawning.....	4.5.7-223
2			
3			
4			
5			
6	11-5A-148	Difference and Percent Difference in the Percentage of Months during April–May in Which Water Temperatures in the Feather River below Thermalito Afterbay Would Be outside the 59°F to 64°F Water Temperature Range for Hardhead Spawning .....	4.5.7-226
7			
8			
9			
10	11-5A-150	Difference and Percent Difference in the Percentage of Months during April–November in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 88°F Water Temperature Threshold for Juvenile Largemouth Bass Rearing.....	4.5.7-231
11			
12			
13			
14	11-5A-151	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 86°F Water Temperature Threshold for Adult Largemouth Bass Survival.....	4.5.7-233
15			
16			
17			
18	11-5A-154	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed 72°F and 75°F Water Temperature Thresholds for Sacramento Tule Perch Occurrence .....	4.5.7-239
19			
20			
21			
22	11-5A-156	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Exceed the 86°F Water Temperature Threshold for Sacramento-San Joaquin Roach Survival .....	4.5.7-243
23			
24			
25			
26	11-5A-158	Difference and Percent Difference in the Percentage of Months Year-Round in Which Water Temperatures in the Feather River below Thermalito Afterbay Are outside the 65°F to 82.4°F Water Temperature Range for Juvenile and Adult Hardhead Occurrence .....	4.5.7-247
27			
28			
29			
30	4.5.8-1	Alternative 5A Effects on Natural Communities Relative to Alternative 4A .....	4.5.8-3
31			
32	4.5.8-2	Alternative 5A Effects on Jurisdictional Wetlands and Waters Relative to Alternative 4A (acres) .....	4.5.8-3
33			
34	4.3.11-1	Summary of Years with Reduced SWP and CVP Reservoir Recreation Opportunities (End-of September Elevations below Recreation Thresholds) for Alternative 5A.....	4.5.11-10
35			
36			
37	4.3.11-2	Summary of Years with Reduced SWP and CVP Reservoir Recreation Opportunities (End-of September Elevations below Recreation Thresholds) for Alternative 5A.....	4.5.11-11
38			
39			
40	4.5.18-1	GHG Emissions from Operation, Maintenance, and Increased SWP Pumping, Alternative 5A .....	4.5.18-16
41			

1 4.1-1 Comparison of Alternative 4 and Alternative 4A.....4.1-5

2 4.1-2 New and Existing Water Operations Flow Criteria and Relationship

3 to Assumptions in CALSIM Modeling.....4.1-7

4 4.1-3 Environmental Commitments under Alternative 4A.....4.1-15

5 4.1-4 Comparison of Alternatives 4, 2A, and 2D.....4.1-22

6 4.1-5 Environmental Commitments under Alternative 2D.....4.1-26

7 4.1-6 Comparison of Alternatives 4, 5, and 5A .....4.1-30

8 4.1-7 Environmental Commitments under Alternative 5A.....4.1-33

9 4.1-8 Terrestrial Biology Resource Restoration and Protection Principles

10 for Implementing Environmental Commitments. ....4.1-38

11 5.2.1-1 Interim Implementation Actions: Restoration Projects with Potential

12 to Contribute to Meeting Habitat Conservation Measures or

13 Environmental Commitments.....5-6

14 5.2.2.1-1 Effects on Water Supplies from Additional Plans, Policies, and

15 Programs Considered for Cumulative Analysis.....5-37

16 5.2.2.2-1 Effects on Surface Water from Additional Plans, Policies, and

17 Programs Considered for Cumulative Analysis.....5-47

18 5.2.2.3-1 Effects on Groundwater from Additional Plans, Policies, and

19 Programs Considered for Cumulative Analysis.....5-60

20 5.2.2.4-1 Effects on Water Quality from Additional Plans, Policies, and

21 Programs Considered for Cumulative Analysis.....5-73

22 5.2.2.5-1 Cumulative Effects on Geology and Seismicity from Plans, Policies,

23 and Programs.....5-84

24 5.2.2.6-1 Programs and Projects Considered in the Soils Cumulative Analysis .....5-86

25 11-13 Effects on Covered Fish Species from the Plans, Policies, and

26 Programs Included in the Cumulative Effects Analysis.....5-96

27 11-14 Effects on Fish from the Programs, Projects, and Policies Considered

28 for Cumulative Analysis .....5-108

29 5.2.2.8-1 Additional Programs, Projects, and Policies Included In the

30 Cumulative Impact Analysis for Terrestrial Biological Resources.....5-128

31 5.2.2.9-1 Effects on Land Use from a Selection of Plans, Policies, and

32 Programs Considered for Cumulative Analysis.....5-137

33 5.2.2.10-1 Effects on Agriculture from Additional Plans, Policies, and Programs

34 Considered for Cumulative Analysis .....5-145

35 5.2.2.11-1 Effects on Recreation Resources from Additional Programs and

36 Projects Considered for Cumulative Analysis .....5-149

37 5.2.2.12-1 Effects on Socioeconomics from the Plans, Policies, and Programs

38 Considered for Cumulative Analysis .....5-152

39 5.2.2.13-1 Effects on Aesthetics and Visual Resources from Additional

40 Programs and Projects Considered for Cumulative Analysis.....5-167

1	5.2.2.14-1	Effects on Cultural Resources from Additional Programs and Projects	
2		Considered for Cumulative Analysis .....	5-182
3	5.2.1.15-1	Effects on Transportation from a Selection of Plans, Policies, and	
4		Programs Considered for Cumulative Analysis .....	5-185
5	5.2.2.16-1	Public Services and Utilities Effects of Additional Plans, Policies, and	
6		Programs Considered for Cumulative Analysis .....	5-188
7	5.2.2.17-1	Effects on Energy Resources from Additional Programs and Projects	
8		Considered for Cumulative Analysis .....	5-193
9	5.2.2.19-1	Noise Effects from Additional Plans, Policies, and Programs	
10		Considered for Cumulative Analysis .....	5-203
11	5.2.2.20-1	Effects Related to Hazards and Hazardous Materials from the Plans,	
12		Policies, and Programs Considered for Cumulative Analysis .....	5-209
13	5.2.2.21-1	Effects on Public Health from the Plans, Policies, and Programs	
14		Considered for Cumulative Analysis .....	5-214
15	5.2.2.22-1	Effects on Mineral Resources from Additional Programs and Projects	
16		Considered for Cumulative Analysis .....	5-227
17	5.2.2.23-1	Effects on Paleontological Resources from Additional Programs and	
18		Projects Considered for Cumulative Analysis .....	5-230
19	5.2.2.24-1	Effects on Environmental Justice Resources from Additional	
20		Programs and Projects Considered for Cumulative Analysis .....	5-232
21			

## List of Acronyms and Abbreviations

---

µg	micrograms
5RMK	5RMK Inc.
A	average
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
af	acre-feet
AGR	agricultural beneficial use
ALSP	Agricultural Lands Stewardship Plan
AMM	avoidance and minimization measure
AMMP	Adaptive Management and Monitoring Plan
AN	above normal years
AOU	American Ornithologists' Union
APA	applicant-preferred alternative
AQMP	Air Quality Mitigation Plan
ARB	California Air Resources Board
ATS	Active Treatment Systems
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Sacramento and San Joaquin River Basins
Bay Area	San Francisco Bay Area
Bay-Delta Plan	Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
Bay-Delta WQCP	San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan
BDCP	Bay Delta Conservation Plan
BiOps	biological opinions
BMP	best management practices
BN	below normal years
BNSF	Burlington Northern Santa Fe
BPBG	baseline plus background growth
BPBGPP	baseline plus background growth plus project
C	critical years
CAAQS	California ambient air quality standards
CALFED	California Bay-Delta Program's
CAMT	Collaborative Adaptive Management Team
CAP	Climate Action Plan
CBC	California Building Code
CCR	California Code of Regulations



CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CM	conservation measures
CO	carbon monoxide
CO <sub>2e</sub>	carbon dioxide equivalent
COA	Coordinated Operations Agreement
Council	Delta Stewardship Council
CPT	cone penetration testing
CSAMP	Collaborative Science and Adaptive Management Program
CSMP	Construction Site Monitoring Program
CVJV	Central Valley Joint Venture
CVP	Central Valley Project
CWA	Clean Water Act
D	dry years
D-1641	State Water Resources Control Board Water Right Decision 1641
dB	decibel
dBA	A-weighted decibels
DBPs	disinfection byproducts
DBW	California Department of Boating and Waterways
DDT	dichlorodiphenyltrichloroethane
Delta	Sacramento-San Joaquin Delta
Delta Protection Act	Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992
DFW	California Department of Fish & Wildlife
DMD	Dredge Material Disposal
DO	Dissolved Oxygen
DOC	Dissolved organic carbon
DOI	U.S. Department of the Interior
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DRMS	Delta Risk Management Strategy
DSD	Division of Safety of Dams
dw	dry weight
DWR	California Department of Water Resources
DWSC	Deep Water Ship Channel
E/I	export/inflow
EBC	existing biological conditions
EC	electrical conductivity
EC	Environmental Commitments

ECAs	Essential Connectivity Areas
EcoRestore	California EcoRestore
EDMS	Emissions and Dispersion Modeling System
EFH	essential fish habitat
EIR	environmental impact report
EIS	environmental impact statement
ELT	Early Long Term
EQs	Exceedance Quotients
ESA	federal Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
ft	feet
FTE	full time equivalent
GEZs	geotechnical exploration zones
GHG	greenhouse gas
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans
GWh	gigawatt hours
HABS	Historic American Buildings Survey
HCP	habitat conservation plan
HMMP	Hazardous Materials Management Plan
HORB	head of Old River barrier
HRA	health risk assessment
HUs	Habitat Units
IA	Implementation Agreement
in/sec PPV	inches per second peak particle velocity
IRWMP	Integrated Regional Management Plan
IWMA	Integrated Waste Management Act
Lead Agencies	state and federal lead agencies
LLT	Late Long-term
LOS	level of service
LURMP	Land Use and Resources Management Plan
M&I	Municipal and Industrial
Marsh	Suisun Marsh
MCL	maximum contaminant level
Mercury Basin Plan Amendments	Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary
MHHW	mean higher high water
MLLW	mean lower low water

MOA	Memorandum of Agreement
MPOs	metropolitan planning organizations
MRZs	mineral resource zones
MSA	Stockton Metropolitan Statistical Area
MSP	Memorial State Park
MUN	municipal water supply
MW	Megawatt
N:P	nitrogen to phosphorus
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NAWMP	North American Waterfowl Management Plan
NBAAIP	North Bay Aqueduct Alternative Intake Project
NCCP	natural community conservation plan
NCCPA	Natural Community Conservation Planning Act
NEL	numerical effluent limit
NEPA	National Environmental Policy Act
NGO	Non-Governmental Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	notice of availability
NOD	Notice of Determination
NOP	notice of preparation
NO <sub>x</sub>	nitrogen oxide
NPBs	nonphysical barriers
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTUs	nephelometric turbidity units
O&M	operations and maintenance
OMR	Old and Middle River
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PCI	pavement condition index
PM	particulate matter
PM10	Particulate matter less than 10 microns in diameter
POTWs	publically owned treatment works
PRC	Public Resources Code
QSD	Qualified SWPPP Developer
RDEIR	Partially Recirculated Draft Environmental Impact Report
Reclamation	United States Bureau of Reclamation
REEP	Renewable Energy Procurement Program
ROA	Restoration Opportunity Area
ROD	Record of Decision

ROG	Reactive organic gases
RPA	Reasonable and Prudent Alternative
RPS	Renewables Portfolio Standard
RTM	reusable tunnel material
RTO	Real Time Operations
RWQCB	Regional Water Quality Control Boards
SAP	sampling and analysis plan
SB	Senate Bill
SDEIS	Supplemental Draft Environmental Impact Statement
SFBAAB	San Francisco Bay Area Air Basin
SFNA	Sacramento Federal Nonattainment Area
SGMA	Sustainable Groundwater Management Act
SIPs	state implementation plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLR	sea level rise
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARTS	Stormwater Multiple Application and Report Tracking System
SOCs	sites of concern
SPCCP	Spill Prevention, Containment, and Countermeasure Plan
SPFC	State Plan of Flood Control
SPT	standard penetration test
SR	State Route
SRWTP	Sacramento Regional Wastewater Treatment Plant
State Water Board	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
TBM	tunnel boring machine
TCPs	traditional cultural places
TMDL	Total Maximum Daily Load
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
W	wet years
Water Action Plan	Sustainable Groundwater Management Act
WBS 14	Westside and Northern Pleasant Valley basins
WDR	waste discharge requirements
WQCP	Water Quality Control Plan
WSWA	White Slough Wildlife Management Area
YSAQMD	Yolo-Solano Air Quality Management District