split

Table 2. Importance of Source								
Parameter		Ag. Subsurface Drainage	Ag. Surface Drainage and Delta Subsurface Drainage	Urban/Ind. Runoff	Mine Drainage	M&I WW	All Sources	Seawater
Organic	TOC		2	1	1	1		
	Carbofuran		2					
	Chlordane							
	Chlorpyrifos		2	2				
	DDT		1					
	Diazinon		2	2				
	Toxaphene		2					
	PCB's							
Salts	Salinity	2	1					
	SAR	2	1					
	Bromide							
	Chloride	2	1			2		
Biotic	Pathogens			1		2		
	Viruses			1		2		
Metals	Cadmium			2	2	2		
	Copper			2	2	2		
	Mercury			1	2	1		
	Zinc			2	2	2		
Nutrients	Nitrate	1	1	1	1	2		
	Ammonia					2		
Trace elem	Selenium	2						
	Boron	2	1					
Other	ssolved Oxygen					2		
	Turbidity	1	2	2	2	1		
	Temperature	1	2	1	1	2		
	Unknown Toxicities			2	2	2		
	pH				2			

Scoring Legend:

2 strongly positive impact
1 positive impact
0 no impact
-1 negative impact
-2 strong negative impact

Attachment B

CALFED WQ Actions by Source and Method

Source Type	Attenuation Method	Area	Action # in So	Action Description
Ag. subsurface				
	Dilution			
		SJV - drainage affected a	1B	Control the timing of agricultural drainage discharge to coincide with periods when dilution flow is sufficient to achieve CALFED water quality target concentrations. (Agricultural Drainage) -- Storage of subsurface drainage in ponds
		SJV - drainage affected a	1A	Control the timing of agricultural drainage discharge to coincide with periods when dilution flow is sufficient to achieve CALFED water quality target concentrations. (Agricultural Drainage) -- Storage of subsurface drainage in subsoil.
	Other			
		Delta	8	Improve water circulation in the Delta by development of improvements at the head of Old River to block fish movement into Old River and by management of water flow and stage down Old River. (Agricultural Drainage)
	Other - Concentration			
		SJV - drainage affected a	14	Reduce the loadings of water quality parameters of concern entering the Delta and San Joaquin tributaries by concentrating and disposing of agricultural sub-surface drainage in evaporation ponds in the San Joaquin Valley. (Agricultural Drainage)
	Source Control			
		SJV - drainage affected a	11A	Implement additional agricultural source control for water quality parameters of concern found in agricultural surface and sub-surface drainage. Implementation may include incentives and/or enforcement of existing regulations. (Agricultural Drainage) -- Tailwater separation.
		SJV - drainage affected a	11B	Implement additional agricultural source control for water quality parameters of concern found in agricultural surface and sub-surface drainage. Implementation may include incentives and/or enforcement of existing regulations. (Agricultural Drainage) -- Water use efficiency.

Source Type	Attenuation Method	Area	Action # in So	Action Description
		SJV - drainage affected a	13	Provide incentives to fallow or retire land that is a major source of water quality parameters of concern. Landowner participation should be voluntary and by compensated purchase or lease payment.
	Treatment			
		SJV - drainage affected a	6, 16	Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries by treating agricultural drainage and releasing it during periods of low flow for dilution purposes. (Dilution) Reduce the loadings of water quality parameters of concern entering the Delta and San Joaquin tributaries by treating a significant portion of San Joaquin agricultural sub-surface drainage by reverse osmosis or other means. (Agricultural Drainage)
Ag. surf. & Delt				
	Dilution			
		Delta watershed	1C	Control the timing of agricultural drainage discharge to coincide with periods when dilution flow is sufficient to achieve CALFED water quality target concentrations. (Agricultural Drainage) -- Storage of surface drainage in ponds.
	Source Control			
		Delta watershed	32B	Implement additional agricultural source control for water quality parameters of concern found in agricultural surface and sub-surface drainage. Implementation may include provision of incentives for pesticide users to increase implementation of best management practices (BMPs) including integrated pest management (IPM) to reduce pesticide loads and concentrations from agricultural drainage. (Agricultural Drainage)
		Delta watershed	28C	Improve source water quality parameters of concern at domestic water supply intakes, as identified in the geographic scope, by reducing Delta Island discharges that are high in TOC or other compounds that impact source water quality, or by relocating water supply intakes to areas that are not influenced by those discharges. (Water Treatment) -- Reduce Delta island discharges.
	Treatment			
		Delta watershed	15	Reduce the loadings of water quality parameters of concern entering the Delta and its tributaries by treating agricultural surface drainage and/or Delta agricultural sub-surface drainage in constructed wetlands. (Agricultural Drainage)

Source Type	*Attenuation Method*	*Area*	*Action # in So*	*Action Description*
		Delta watershed	29	Improve water quality parameters of concern within the Delta and its tributaries by restoring or improving riparian habitat. (Watershed Coordination)

All sources

Dilution

Source Type	*Attenuation Method*	*Area*	*Action # in So*	*Action Description*
		San Joaquin Valley	2, 3, 4, 5, 7	Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries during low flow periods by acquiring dilution water (50,000 to 100,000 acre-feet) from willing sellers. Action is primarily targeted at the San Joaquin River. (Dilution) Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries during low flow periods by acquiring dilution water (50,000 to 100,000 acre-feet). Water would be acquired by providing incentives for more efficient water management of dams, including reservoir re-operation. Action is primarily target primarily at the San Joaquin River. (Dilution) Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries during low flow periods by acquiring dilution water (50,000 to 100,000 acre-feet) through urban water conservation. Action is primary targeted at the San Joaquin River. Conservation might be achieved through use of incentives for implementation of best management practices by more suppliers and water users. Implementation of the action may reduce demand for existing water and may make dilution water available (including transfers), especially on the San Joaquin River. (Dilution) Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries during low flow periods by acquiring dilution water (50,000 to 100,000 acre-feet) through greater use of reclaimed wastewater. Action is primarily targeted at the San Joaquin River. Reclamation projects could include: recharge groundwater, use for agricultural irrigation, recycling and treating for potable or non-potable urban, use of grey water, and storage for use in meeting X2 standards. Reclamation programs would focus on facilities that currently discharge treated wastewater to salt sinks or other degraded bodies of water that are not reusable. (Dilution) Reduce the concentration of water quality parameters of concern entering the Delta and its tributaries during low flow periods by acquiring additional dilution water through enhanced seasonal recharge and development of additional groundwater supplies. Water would be used for dilution, especially on the San Joaquin River. (Dilution)
	Other			
		Delta watershed	21	Promote and support efforts of local watershed programs that improve water quality parameters of concern within the Delta and Delta tributary watersheds. Efforts may include coordination, incentives, and/or other assistance. (Watershed Coordination)

Source Type	Attenuation Method	Area	Action # in So	Action Description
		Delta	28B	Improve source water quality parameters of concern at domestic water supply intakes, as identified in the geographic scope, by reducing Delta Island discharges that are high in TOC or other compounds that impact source water quality, or by relocating water supply intakes to areas that are not influenced by those discharges. (Water Treatment) -- Relocate intakes.
	Other - Monitoring			
		Delta watershed	31	Identify and implement actions to address potential toxicity to water and sediment within the Delta and its tributaries by conducting toxicity testing and toxicity identification evaluations and/or other appropriate methods. Coordinate these efforts with other programs. (Watershed Coordination)
	Treatment			
		Delta	26, 28A	Reduce the formation of disinfection by-products, and their concentration in the domestic water supply, resulting from the use of chlorine in water treatment plants. Conversion of facilities from chlorine to ozone would serve to reduce the formation of disinfection by-products (Water Treatment)
				Improve treated drinking water quality parameters of concern by providing incentives for the addition of enhanced coagulation, ozone, granular activated carbon filtration and/or membrane filtration facilities to the water systems treating water from the Delta. (Water Treatment)
M&I wastewate				
	Other			
		Delta watershed	25	Reduce point source water quality parameters of concern loadings to the Delta and its tributaries through cost effective control of industrial and municipal wastewater discharges. Methods may include encouragement of pollutant credit trading. (Wastewater and Industrial Discharges)
	Source Control			
		Delta watershed	32A	Provide incentives for pesticide users to increase implementation of best management practices (BMPs) including integrated pest management (IPM) to reduce pesticide loads and concentrations to the Delta and its tributaries from urban & industrial runoff. (Urban and Industrial Runoff)

Source Type	*Attenuation Method*	*Area*	*Action # in So*	*Action Description*
		Delta watershed	27	Reduce point source water parameters of concern loadings to the Delta and its tributaries through control of industrial and municipal wastewater discharges. Methods may include incentives for reclamation and reuse. (Wastewater and Industrial Discharges)
	Treatment			
		Delta watershed	24	Reduce water quality parameters of concern loadings to the Delta and its tributaries by treating a portion of upstream municipal wastewater effluent in wetlands. (Wastewater and Industrial Discharges)
Mines				
	Source Control			
		Delta watershed	(22 A, 22B)A	Reduce metal loadings (e.g. cadmium, copper, mercury and zinc) to the Delta and its tributaries by implementation of moderate on-site mine drainage remediation measures developed in site-specific studies at inactive mine sites. (Mine Drainage). Source control.
	Treatment			
		Delta watershed	(22 A, 22B)B	Reduce metal loadings (e.g. cadmium, copper, mercury and zinc) to the Delta and its tributaries by implementation of moderate on-site mine drainage remediation measures developed in site-specific studies at inactive mine sites. (Mine Drainage). -- Treatment.
Other				
	Source Control			
		Delta	9	Reduce the vulnerability of Delta water quality to salinity intrusion through implementation of the Delta Long-Term Protection Plan (including levees O & M). (Watershed Coordination)
Urban runoff				
	Dilution			
		Delta watershed	17	Reduce urban and industrial water quality parameters of concern loadings to the Delta and its tributaries by detention and strategic release of 20 to 30 percent of urban runoff water. Action would involve retrofitting existing urban and industrial areas with detention basins at the outlets of drainage basins contributing largest loadings of parameters of concern. (Urban and Industrial Runoff)

Source Type	*Attenuation Method*	*Area*	*Action # in So*	*Action Description*
	Source Control			
		Delta watershed	20, 18, 19	Reduce urban and industrial water quality parameters of concern loadings to the Delta and its tributaries through better planning of new developments to reduce urban and industrial runoff. Examples of better planning might include design of storm drainage systems that target maximum infiltration of stormwater into the ground or on-site or regional stormwater sedimentation facilities that detain the majority of stormwater for at least 8 hours. (Urban and Industrial Runoff) Reduce urban and industrial water quality parameters of concern loadings to the Delta and its tributaries through enforcement of existing source control regulations for urban and industrial runoff. (Urban and Industrial Runoff) Reduce urban and industrial water quality parameters of concern loadings to the Delta and its tributaries through provision of incentives for additional source control of urban and industrial runoff. An example of an incentives might be to provide rebates on construction permit fees when erosion control measures have been applied. (Urban and Industrial Runoff)

Parameter		Source:	Ag. Subsurface Drainage							
		Method:	Source Control			Treatment	Dilution		Other	
		Strategy:	Land Retirement, Fallowing	Tailwater Separation	Water Use Efficiency	Various	Store in Ponds	Store in Subsoil	Delta Reoperation	Agroforestry and Evaporation Ponds
Organic	TOC									
	Carbofuran									
	Chlordane									
	Chlorpyrifos									
	DDT									
	Diazinon									
	Toxaphene									
	PCB's									
Salts	Salinity		1	1	1	1	1	1	2	1
	SAR		1	1		1	1	1	1	1
	Bromide								2	
	Chloride		1	1	1	1	1	1	2	1
Biotic	Pathogens									
	Viruses									
Metals	Cadmium									
	Copper									
	Mercury									
	Zinc									
Nutrients	Nitrate					1		1		1
	Ammonia									
Trace elem	Selenium		2	1	2	2	2	2		2
	Boron		1	1	1	1	1	1		1
Other	Dissolved Oxygen						1	1		1
	Turbidity									
	Temperature						1	1		1
	Unknown Toxicities									
	pH									
Classification in database:		Action No	13	11A	11B	6, 16	1B	1A	8	14
		Source Type	Ag. subsurface	Ag. subsurface	Ag. subsurface	Ag. subsurface	Ag. subsurface	Ag. subsurface	Ag. subsurface	Ag. subsurface
		Attenuation Method	Source Control	Source Control	Source Control	Treatment	Dilution	Dilution	Other	Other - Concentration
		Area	SJV - drainage affected areas	SJV - drainage affected areas	SJV - drainage affected areas	SJV - drainage affected areas	SJV - drainage affected areas	SJV - drainage affected areas	Delta	SJV - drainage affected areas

Parameter		Source:	Ag. Surface Drainage and Delta Subsurface Drainage					Urban/Ind. Runoff	
		Method:	Source Control		Treatment		Dilution	Source Control	Dilution
		Strategy:	Integrated Pest Management	Reduce Delta Island Discharges	Buffer Strip, Settling	Wetlands	Store and Release	Various	Storage and Release
Organic	TOC			2	2	2	2	1	1
	Carbofuran		2	1	1	1	1	0	0
	Chlordane							0	0
	Chlorpyrifos		2	1	1	1	1	2	2
	DDT							0	0
	Diazinon		2	1	1	1	1	2	2
	Toxaphene		2	1	1	1	1	0	0
	PCB's							0	0
Salts	Salinity							0	0
	SAR							0	0
	Bromide							0	0
	Chloride							0	0
Biotic	Pathogens							1	1
	Viruses							1	1
Metals	Cadmium							1	2
	Copper							1	2
	Mercury							1	1
	Zinc							1	2
Nutrients	Nitrate			1	1	1	1	1	1
	Ammonia							0	0
Trace elem	Selenium							0	0
	Boron							0	0
Other	Dissolved Oxygen						1	0	0
	Turbidity				2	2	2	1	2
	Temperature						1	1	0
	Unknown Toxicities							1	1
	pH							0	0
		Action No	32B	28C	29	15	1C	20, 18, 19	17
Classification in database:		Source Type	Ag. surface	Ag. surface	Ag. surface	Ag. surface	Ag. surface	Urban Runoff	Urban Runoff
		Attenuation Method	Source Control	Source Control	Treatment	Treatment	Dilution	Source Control	Dilution
		Area	Delta watershed	Delta watershed	Delta watershed	Delta watershed	Delta watershed	Delta watershed	Delta watershed

Parameter		Source:	Mine Drainage		M&I Wastewater			
		Method:	Source Control	Treatment	Source Control		Treatment	Other
		Strategy:	Various	Various	Integrated Pest Management	Reclamation and Reuse	Wetlands	Pollution Credit Trading
Organic	TOC		1	1	0	1	1	0
	Carbofuran		0	0	0	0	0	0
	Chlordane		0	0	0	0	0	0
	Chlorpyrifos		0	0	0	0	0	0
	DDT		0	0	0	0	0	0
	Diazinon		0	0	0	0	0	0
	Toxaphene		0	0	0	0	0	0
	PCB's		0	0	0	0	0	0
Salts	Salinity		0	0	0	0	0	0
	SAR		0	0	0	0	0	0
	Bromide		0	0	0	0	0	0
	Chloride		0	0	0	1	0	1
Biotic	Pathogens		0	0	0	1	1	1
	Viruses		0	0	0	1	1	1
Metals	Cadmium		2	2	0	1	2	1
	Copper		2	2	0	1	2	1
	Mercury		2	2	0	1	1	1
	Zinc		2	2	0	1	2	1
Nutrients	Nitrate		1	1	0	1	2	1
	Ammonia		0	0	0	1	2	1
Trace elem	Selenium		0	0	0	0	0	0
	Boron		0	0	0	0	0	0
Other	Dissolved Oxygen		0	0	0	0	0	0
	Turbidity		2	2	0	1	2	2
	Temperature		0	0	0	0	0	0
	Unknown Toxicities		1	1	0	1	2	2
	pH		2	2	0	0	0	0
Classification in database:		Action No	(22 A, 22B)A	(22 A, 22B)B	32A	27	24	25
		Source Type	Mines	Mines	M&I wastewater	M&I wastewater	M&I wastewater	M&I wastewater
		Attenuation Method	Source Control	Treatment	Source Control	Source Control	Treatment	Other
		Area	Delta watershed	Delta watershed	Delta watershed	Delta watershed	Delta watershed	Delta watershed

Parameter		Source:	All Sources					Seawater
		Method:	Treatment	Dilution	Other			Other
		Strategy:	Alternative Disinfection	Acquire Dilution Water	Watershed Coordination	Relocate Drinking Water Intakes	Focussed Toxicity Testing	Delta Long-term Protection Plan
Organic	TOC		2	1	0	2	0	0
	Carbofuran		0	1	0	1	0	0
	Chlordane		0	1	0	1	0	0
	Chlorpyrifos		0	1	0	1	0	0
	DDT		0	1	0	1	0	0
	Diazinon		0	1	0	1	0	0
	Toxaphene		0	1	0	1	0	0
	PCB's		0	1	0	1	0	0
Salts	Salinity		0	1	0	0	0	2
	SAR		0	1	0	0	0	2
	Bromide		2	1	0	2	0	2
	Chloride		0	1	0	0	0	2
Biotic	Pathogens		0	1	0	2	0	0
	Viruses		0	1	0	2	0	0
Metals	Cadmium		0	1	0	0	0	0
	Copper		0	1	0	0	0	0
	Mercury		0	1	0	0	0	0
	Zinc		0	1	0	0	0	0
Nutrients	Nitrate		0	1	0	0	0	0
	Ammonia		0	1	0	0	0	0
Trace elem	Selenium		0	1	0	0	0	0
	Boron		0	1	0	0	0	0
Other	Dissolved Oxygen		0	1	0	0	0	0
	Turbidity		0	1	0	0	0	0
	Temperature		0	1	0	0	0	0
	Unknown Toxicities		0	1	0	0	2	0
	pH		0	1	0	0	0	0
Classification in database:		**Action No**	26, 28A	2, 3, 4, 5, 7	21	28B	31	9
		Source Type	All Sources	All Sources	All Sources	All Sources	All Sources	Other
		Attenuation Method	Treatment	Dilution	Other	Other	Other	Source Control
		Area	Delta	San Joaquin Valley	Delta watershed	Delta	Delta watershed	Delta