

Appendix E

DWR GHG Emissions Reduction Plan Consistency Determination Form and Inventory and Calculation of Greenhouse Gas Emissions

DWR GHG Emissions Reduction Plan Consistency Determination Form For Projects Using Contractors or Other Outside Labor

Print Form



California Department of Water Resources
1416 9th Street
Sacramento, CA
95814

dwrclimatechange.water.ca.gov
www.water.ca.gov/climatechange

This form is to be used by DWR project managers to document a DWR CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan. This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at:
dwrclimatechange.water.ca.gov/guidance_resources.cfm

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at:
<http://www.water.ca.gov/climatechange/CAP.cfm>

Project Name:	Fremont Weir Adult Fish Passage Modification Project
Environmental Document type:	Initial Study / Environmental Assessment
Manager's Name:	Karen Enstrom
Manager's email:	Karen.Enstrom@water.ca.gov
Division:	Division of Environmental Services
Office, Branch, or Field Division	

Short Project Description:

The proposed project would improve salmonid and sturgeon passage in the Yolo Bypass. Construction would be completed within one year. The existing Fremont Weir fish ladder would be modified to accommodate a wider, deeper concrete box culvert. The existing channels that extend downstream and upstream of the fish ladder would be realigned or sculpted to provide better fish passage with the modified fish passageway. The existing earthen road near the fish ladder would be realigned. The modified fishway would draw from an onsite power source consisting of a solar-charged battery bank.

In addition, two earthen agricultural road crossings along the Tule Canal would be modified. At Agricultural Road Crossing 2, one 30" culvert and one 36" culvert would be replaced with a railcar bridge. At Agricultural Road Crossing 3, the existing 30" culvert would be removed.

Project GHG Emissions Summary

Total Construction Emissions	<input type="text" value="601.8"/>	mtCO ₂ e
Maximum Annual Construction Emissions	<input type="text" value="601.8"/>	mtCO ₂ e

All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

Extraordinary Construction Project Determination

Do total project construction emissions exceed 25,000 mtCO₂e for the entire construction phase or exceed 12,500 mtCO₂e in any single year of construction.

- Yes - Addition analysis is required, consult with C4
- No - Additional analysis not required

Project GHG Reduction Plan Checklist

All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. ([Project Level GHG Emissions Reduction Measures](#))

Or

All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not to apply to the proposed project (include as an attachment)

Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures ([Specific Action GHG Emissions Reduction Measures](#))

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

Yes No

If you answered Yes, attach a Renewable Power Procurement Plan update approval letter from the DWR SWP Power and Risk Office.

Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

Yes No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR CEQA Climate Change Committee has determined that the proposed project is consistent with the DWR Greenhouse Gas Reduction Plan and the greenhouse gasses emitted by the project are covered by the plan's analysis.

**Project Manager
Signature:**

Date:

**C4 Approval
Signature:**

Date:

Attachments:

- GHG Emissions Inventory
- List and Explanation of excluded Project Level GHG Emissions Reduction Measures
- Plan to update Renewable Energy Procurement Plan from DWR SWP Power and Risk Office

Fremont Weir Adult Fish Passage Modification Project - Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions from Construction Equipment								
	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)	
1									
2	Excavator	2	50	800	3.38	2,704	0.010	28	
3	Crane	2	7	112	3.42	383	0.010	4	
4	Grader	2	10	160	5.66	906	0.010	9	
5	Rollers (sheep's-foot roller compactor)	2	10	160	2.71	434	0.010	5	
6	Dozer	2	40	640	3.15	2,016	0.010	21	
7	Tractors/Loaders/Backhoes	2	45	720	1.41	1,015	0.010	11	
8	Other Construction Equipment (water truck)	4	75	2400	1.3	3,120	0.010	32	
9	Other Construction Equipment (chain saw)	1	6	48	0.6	29	0.010	0	
10	Compressor	6	6	288	5.6	1,613	0.010	17	
11	Generator	5	75	3000	4.05	12,150	0.010	126	
12	Supervisor Truck	2	75	1200	3	3,600	0.010	37	
13	TOTAL					27,969		291	
14	¹ An 8-hour work day is assumed.								
15	² California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors								
16	³ World Resources Institute-Mobile combustion CO ₂ emissions tool, June 2003 Version 1.2								
17									
18	Emissions from Transportation of Construction Workforce								
	Average Number of Workers per Day	Total Number of Workdays	Average Distance Travelled (round trip)	Total Miles Travelled	Average Passenger Vehicle Fuel Efficiency ⁴	Total Fuel Consumption (gal. gasoline)	CO ₂ e/gal Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)	
19									
20	30	75	60	135000	20.8	6490.4	0.009	58	
21	⁴ United States Environmental Protection Agency. 2008. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2002.								
22									
23	Emissions from Transportation of Construction Materials								
	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Semi-truck Fuel Efficiency	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)	
24									
25	Disposal & Delivery	2918	50	145900	6	24316.66667	0.010	252.6836264	
26	TOTAL							252.6836264	
27									
28	Construction Electricity Emissions								
29		MWh of electricity	mtCO ₂ e/MWh ⁵	CO ₂ e emissions					
30	Electricity Needed		0.310	0					
31	⁵ eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.								
32									
33	Total Construction Activity Emissions							601.8	(from lines 25, 32, 39, and 43)
34	Total Years of Construction							1	
35	Expected Start Date of Construction							May-17	
36									
37	Estimated Project Useful life							50 Years	
38	Average Annual Total GHG Emissions⁷							12.04 MT CO₂ equivalents	
39	⁷ short-term construction emissions amortized over life of project								

These data were generated using the California Air Resource Control Board Offroad 2007 Emissions Inventory.

	Offroad 2007 Outputs			Individual Unit Factors
Equipment	Fuel	MaxHP	Class	Gal/hr
Tampers/Rammers	G2	15	Construction and Mining Equipment	0.20
Plate Compactors	G2	15	Construction and Mining Equipment	0.20
Asphalt Pavers	G4	15	Construction and Mining Equipment	0.58
Asphalt Pavers	G4	25	Construction and Mining Equipment	1.47
Asphalt Pavers	G4	50	Construction and Mining Equipment	2.34
Asphalt Pavers	G4	120	Construction and Mining Equipment	3.95
Tampers/Rammers	G4	15	Construction and Mining Equipment	0.49
Plate Compactors	G4	5	Construction and Mining Equipment	0.18
Plate Compactors	G4	15	Construction and Mining Equipment	0.44
Rollers	G4	5	Construction and Mining Equipment	0.27
Rollers	G4	15	Construction and Mining Equipment	0.55
Rollers	G4	25	Construction and Mining Equipment	1.19
Rollers	G4	50	Construction and Mining Equipment	2.64
Rollers	G4	120	Construction and Mining Equipment	4.64
Paving Equipment	G4	5	Construction and Mining Equipment	0.20
Paving Equipment	G4	15	Construction and Mining Equipment	0.58
Paving Equipment	G4	25	Construction and Mining Equipment	1.32
Paving Equipment	G4	50	Construction and Mining Equipment	2.30
Paving Equipment	G4	120	Construction and Mining Equipment	3.70
Surfacing Equipment	G4	5	Construction and Mining Equipment	0.20
Surfacing Equipment	G4	15	Construction and Mining Equipment	0.39
Surfacing Equipment	G4	25	Construction and Mining Equipment	0.94
Signal Boards	G4	5	Construction and Mining Equipment	0.33
Signal Boards	G4	15	Construction and Mining Equipment	0.60
Trenchers	G4	15	Construction and Mining Equipment	0.65
Trenchers	G4	25	Construction and Mining Equipment	1.40
Trenchers	G4	50	Construction and Mining Equipment	2.20
Trenchers	G4	120	Construction and Mining Equipment	4.27
Bore/Drill Rigs	G4	15	Construction and Mining Equipment	0.79
Bore/Drill Rigs	G4	25	Construction and Mining Equipment	1.45
Bore/Drill Rigs	G4	50	Construction and Mining Equipment	2.68
Bore/Drill Rigs	G4	120	Construction and Mining Equipment	6.67
Bore/Drill Rigs	G4	175	Construction and Mining Equipment	9.04
Concrete/Industrial Saws	G4	5	Construction and Mining Equipment	0.27
Concrete/Industrial Saws	G4	15	Construction and Mining Equipment	0.69
Concrete/Industrial Saws	G4	25	Construction and Mining Equipment	1.34
Concrete/Industrial Saws	G4	50	Construction and Mining Equipment	2.78
Concrete/Industrial Saws	G4	120	Construction and Mining Equipment	4.72
Cement and Mortar Mixers	G4	5	Construction and Mining Equipment	0.26

Cement and Mortar Mixers	G4	15	Construction and Mining Equipment	0.52
Cement and Mortar Mixers	G4	25	Construction and Mining Equipment	1.61
Cranes	G4	50	Construction and Mining Equipment	1.94
Cranes	G4	120	Construction and Mining Equipment	3.42
Cranes	G4	175	Construction and Mining Equipment	5.37
Crushing/Proc. Equipment	G4	15	Construction and Mining Equipment	0.75
Crushing/Proc. Equipment	G4	25	Construction and Mining Equipment	1.37
Crushing/Proc. Equipment	G4	120	Construction and Mining Equipment	7.91
Rough Terrain Forklifts	G4	50	Construction and Mining Equipment	3.30
Rough Terrain Forklifts	G4	120	Construction and Mining Equipment	5.26
Rough Terrain Forklifts	G4	175	Construction and Mining Equipment	8.18
Rubber Tired Loaders	G4	50	Construction and Mining Equipment	2.44
Rubber Tired Loaders	G4	120	Construction and Mining Equipment	3.85
Tractors/Loaders/Backhoes	G4	120	Construction and Mining Equipment	2.97
Skid Steer Loaders	G4	15	Construction and Mining Equipment	0.80
Skid Steer Loaders	G4	25	Construction and Mining Equipment	1.11
Skid Steer Loaders	G4	50	Construction and Mining Equipment	1.93
Skid Steer Loaders	G4	120	Construction and Mining Equipment	4.31
Dumpers/Tenders	G4	5	Construction and Mining Equipment	0.14
Dumpers/Tenders	G4	15	Construction and Mining Equipment	0.40
Dumpers/Tenders	G4	25	Construction and Mining Equipment	0.84
Dumpers/Tenders	G4	120	Construction and Mining Equipment	2.60
Other Construction Equipment	G4	175	Construction and Mining Equipment	5.49
Pavers	D	25	Construction and Mining Equipment	0.85
Pavers	D	50	Construction and Mining Equipment	1.32
Pavers	D	120	Construction and Mining Equipment	3.18
Pavers	D	175	Construction and Mining Equipment	5.87
Pavers	D	250	Construction and Mining Equipment	8.84
Pavers	D	500	Construction and Mining Equipment	10.62
Plate Compactors	D	15	Construction and Mining Equipment	0.20
Rollers	D	15	Construction and Mining Equipment	0.29
Rollers	D	25	Construction and Mining Equipment	0.61
Rollers	D	50	Construction and Mining Equipment	1.22
Rollers	D	120	Construction and Mining Equipment	2.71
Rollers	D	175	Construction and Mining Equipment	4.94
Rollers	D	250	Construction and Mining Equipment	6.95
Rollers	D	500	Construction and Mining Equipment	9.95
Scrapers	D	120	Construction and Mining Equipment	4.32
Scrapers	D	175	Construction and Mining Equipment	6.77
Scrapers	D	250	Construction and Mining Equipment	9.52
Scrapers	D	500	Construction and Mining Equipment	14.64
Scrapers	D	750	Construction and Mining Equipment	25.28
Paving Equipment	D	25	Construction and Mining Equipment	0.57
Paving Equipment	D	50	Construction and Mining Equipment	1.13
Paving Equipment	D	120	Construction and Mining Equipment	2.50
Paving Equipment	D	175	Construction and Mining Equipment	4.62
Paving Equipment	D	250	Construction and Mining Equipment	5.56

Surfacing Equipment	D	50	Construction and Mining Equipment	0.66
Surfacing Equipment	D	120	Construction and Mining Equipment	2.92
Surfacing Equipment	D	175	Construction and Mining Equipment	3.91
Surfacing Equipment	D	250	Construction and Mining Equipment	6.12
Surfacing Equipment	D	500	Construction and Mining Equipment	10.04
Surfacing Equipment	D	750	Construction and Mining Equipment	15.75
Signal Boards	D	15	Construction and Mining Equipment	0.28
Signal Boards	D	50	Construction and Mining Equipment	1.68
Signal Boards	D	120	Construction and Mining Equipment	3.67
Signal Boards	D	175	Construction and Mining Equipment	7.05
Signal Boards	D	250	Construction and Mining Equipment	11.57
Trenchers	D	15	Construction and Mining Equipment	0.39
Trenchers	D	25	Construction and Mining Equipment	1.50
Trenchers	D	50	Construction and Mining Equipment	1.55
Trenchers	D	120	Construction and Mining Equipment	2.98
Trenchers	D	175	Construction and Mining Equipment	6.58
Trenchers	D	250	Construction and Mining Equipment	10.14
Trenchers	D	500	Construction and Mining Equipment	14.18
Trenchers	D	750	Construction and Mining Equipment	26.74
Bore/Drill Rigs	D	15	Construction and Mining Equipment	0.47
Bore/Drill Rigs	D	25	Construction and Mining Equipment	0.73
Bore/Drill Rigs	D	50	Construction and Mining Equipment	1.42
Bore/Drill Rigs	D	120	Construction and Mining Equipment	3.52
Bore/Drill Rigs	D	175	Construction and Mining Equipment	6.42
Bore/Drill Rigs	D	250	Construction and Mining Equipment	8.50
Bore/Drill Rigs	D	500	Construction and Mining Equipment	14.07
Bore/Drill Rigs	D	750	Construction and Mining Equipment	27.80
Bore/Drill Rigs	D	1000	Construction and Mining Equipment	41.98
Excavators	D	25	Construction and Mining Equipment	0.75
Excavators	D	50	Construction and Mining Equipment	1.17
Excavators	D	120	Construction and Mining Equipment	3.38
Excavators	D	175	Construction and Mining Equipment	5.12
Excavators	D	250	Construction and Mining Equipment	7.19
Excavators	D	500	Construction and Mining Equipment	10.60
Excavators	D	750	Construction and Mining Equipment	17.56
Concrete/Industrial Saws	D	25	Construction and Mining Equipment	0.75
Concrete/Industrial Saws	D	50	Construction and Mining Equipment	1.40
Concrete/Industrial Saws	D	120	Construction and Mining Equipment	3.40
Concrete/Industrial Saws	D	175	Construction and Mining Equipment	7.30
Cement and Mortar Mixers	D	15	Construction and Mining Equipment	0.29
Cement and Mortar Mixers	D	25	Construction and Mining Equipment	0.80
Cranes	D	50	Construction and Mining Equipment	1.09
Cranes	D	120	Construction and Mining Equipment	2.30
Cranes	D	175	Construction and Mining Equipment	3.67
Cranes	D	250	Construction and Mining Equipment	5.09
Cranes	D	500	Construction and Mining Equipment	8.18
Cranes	D	750	Construction and Mining Equipment	13.77

Cranes	D	9999	Construction and Mining Equipment	44.16
Graders	D	50	Construction and Mining Equipment	1.29
Graders	D	120	Construction and Mining Equipment	3.44
Graders	D	175	Construction and Mining Equipment	5.66
Graders	D	250	Construction and Mining Equipment	7.81
Graders	D	500	Construction and Mining Equipment	10.42
Graders	D	750	Construction and Mining Equipment	22.05
Off-Highway Trucks	D	175	Construction and Mining Equipment	5.71
Off-Highway Trucks	D	250	Construction and Mining Equipment	7.55
Off-Highway Trucks	D	500	Construction and Mining Equipment	12.35
Off-Highway Trucks	D	750	Construction and Mining Equipment	20.03
Off-Highway Trucks	D	1000	Construction and Mining Equipment	28.37
Crushing/Proc. Equipment	D	50	Construction and Mining Equipment	2.06
Crushing/Proc. Equipment	D	120	Construction and Mining Equipment	3.82
Crushing/Proc. Equipment	D	175	Construction and Mining Equipment	7.64
Crushing/Proc. Equipment	D	250	Construction and Mining Equipment	11.09
Crushing/Proc. Equipment	D	500	Construction and Mining Equipment	16.94
Crushing/Proc. Equipment	D	750	Construction and Mining Equipment	26.70
Crushing/Proc. Equipment	D	9999	Construction and Mining Equipment	59.43
Rough Terrain Forklifts	D	50	Construction and Mining Equipment	1.58
Rough Terrain Forklifts	D	120	Construction and Mining Equipment	2.86
Rough Terrain Forklifts	D	175	Construction and Mining Equipment	5.70
Rough Terrain Forklifts	D	250	Construction and Mining Equipment	7.74
Rough Terrain Forklifts	D	500	Construction and Mining Equipment	11.63
Rubber Tired Loaders	D	25	Construction and Mining Equipment	0.77
Rubber Tired Loaders	D	50	Construction and Mining Equipment	1.46
Rubber Tired Loaders	D	120	Construction and Mining Equipment	2.70
Rubber Tired Loaders	D	175	Construction and Mining Equipment	4.85
Rubber Tired Loaders	D	250	Construction and Mining Equipment	6.76
Rubber Tired Loaders	D	500	Construction and Mining Equipment	10.76
Rubber Tired Loaders	D	750	Construction and Mining Equipment	22.04
Rubber Tired Loaders	D	1000	Construction and Mining Equipment	26.99
Rubber Tired Dozers	D	175	Construction and Mining Equipment	5.93
Rubber Tired Dozers	D	250	Construction and Mining Equipment	8.36
Rubber Tired Dozers	D	500	Construction and Mining Equipment	12.11
Rubber Tired Dozers	D	750	Construction and Mining Equipment	18.23
Rubber Tired Dozers	D	1000	Construction and Mining Equipment	27.08
Tractors/Loaders/Backhoes	D	25	Construction and Mining Equipment	0.72
Tractors/Loaders/Backhoes	D	50	Construction and Mining Equipment	1.41
Tractors/Loaders/Backhoes	D	120	Construction and Mining Equipment	2.37
Tractors/Loaders/Backhoes	D	175	Construction and Mining Equipment	4.63
Tractors/Loaders/Backhoes	D	250	Construction and Mining Equipment	7.78
Tractors/Loaders/Backhoes	D	500	Construction and Mining Equipment	15.62
Tractors/Loaders/Backhoes	D	750	Construction and Mining Equipment	23.43
Crawler Tractors	D	50	Construction and Mining Equipment	1.17
Crawler Tractors	D	120	Construction and Mining Equipment	3.03
Crawler Tractors	D	175	Construction and Mining Equipment	5.54

Crawler Tractors	D	250	Construction and Mining Equipment	7.55
Crawler Tractors	D	500	Construction and Mining Equipment	11.80
Crawler Tractors	D	750	Construction and Mining Equipment	21.15
Crawler Tractors	D	1000	Construction and Mining Equipment	29.99
Skid Steer Loaders	D	25	Construction and Mining Equipment	0.63
Skid Steer Loaders	D	50	Construction and Mining Equipment	1.18
Skid Steer Loaders	D	120	Construction and Mining Equipment	1.95
Off-Highway Tractors	D	120	Construction and Mining Equipment	4.32
Off-Highway Tractors	D	175	Construction and Mining Equipment	5.97
Off-Highway Tractors	D	250	Construction and Mining Equipment	5.94
Off-Highway Tractors	D	750	Construction and Mining Equipment	25.95
Off-Highway Tractors	D	1000	Construction and Mining Equipment	37.23
Dumpers/Tenders	D	25	Construction and Mining Equipment	0.35
Other Construction Equipment	D	15	Construction and Mining Equipment	0.46
Other Construction Equipment	D	25	Construction and Mining Equipment	0.60
Other Construction Equipment	D	50	Construction and Mining Equipment	1.30
Other Construction Equipment	D	120	Construction and Mining Equipment	3.70
Other Construction Equipment	D	175	Construction and Mining Equipment	4.86
Other Construction Equipment	D	500	Construction and Mining Equipment	11.51
Compressor (Dredging)	D	50	Dredging	1.41
Compressor (Dredging)	D	120	Dredging	2.62
Compressor (Dredging)	D	175	Dredging	4.42
Compressor (Dredging)	D	250	Dredging	5.60
Compressor (Dredging)	D	500	Dredging	8.90
Compressor (Dredging)	D	1000	Dredging	22.11
Crane (Dredging)	D	750	Dredging	16.28
Deck/door engine	D	250	Dredging	6.45
Dredger	D	175	Dredging	4.09
Dredger	D	250	Dredging	5.69
Dredger	D	750	Dredging	15.90
Dredger	D	9999	Dredging	34.80
Hoist/swing/winch	D	50	Dredging	0.96
Hoist/swing/winch	D	120	Dredging	3.05
Hoist/swing/winch	D	175	Dredging	3.88
Hoist/swing/winch	D	250	Dredging	6.18
Hoist/swing/winch	D	500	Dredging	9.81
Hoist/swing/winch	D	750	Dredging	19.56
Hoist/swing/winch	D	9999	Dredging	36.86
Pump (Dredging)	D	120	Dredging	4.29
Pump (Dredging)	D	175	Dredging	6.35
Pump (Dredging)	D	250	Dredging	10.51
Pump (Dredging)	D	500	Dredging	16.24
Pump (Dredging)	D	750	Dredging	23.77
Pump (Dredging)	D	9999	Dredging	114.38
Generator (Dredging)	D	50	Dredging	1.44
Generator (Dredging)	D	120	Dredging	4.05
Generator (Dredging)	D	175	Dredging	5.47

Generator (Dredging)	D	250	Dredging	9.94
Generator (Dredging)	D	500	Dredging	16.88
Generator (Dredging)	D	750	Dredging	28.09
Generator (Dredging)	D	9999	Dredging	61.55
Other (Dredging)	D	120	Dredging	2.96
Other (Dredging)	D	175	Dredging	5.11
Other (Dredging)	D	250	Dredging	6.32
Other (Dredging)	D	500	Dredging	11.20
Misc Portable Equipment	D	120	Other Portable Equipment	3.15
Misc Portable Equipment	D	175	Other Portable Equipment	4.32
Misc Portable Equipment	D	250	Other Portable Equipment	7.19
Misc Portable Equipment	D	500	Other Portable Equipment	13.44
Misc Portable Equipment	D	750	Other Portable Equipment	19.11
Misc Portable Equipment	D	1000	Other Portable Equipment	25.52