Appendix D: Calculations for the Worst-Case Scenario and Other Scenarios

Second Amendment to the Once-through Cooling Water Policy
Analysis of Entrainment and Impingement Impacts
Data Sheet

Facility	Unit	In service	Policy Compliance Date	Proposed Amendment Compliance Date	Number of Pumps	Rated Pump Capacity	Rated Pump Capacity	Design Flow	2000-2005 Actual Average Flow	2000-2005 Actual to Design Flow Ratio	2006-2010 Actual Average Flow	2006-2010 Actual to Design Flow Ratio	Average Number of Fish Larvae Entrained	Annual Number of Fish Larvae Entrained using Design Flow	Average Number of Fish Impinged	Annual Number of Fish Impinged using Design Flow	Existing Electric Generation Capacity	Maximum Intake Flow Allowed Under Track 1	Annual Maximum Number of Fish Larvae Allowed Entrained under Track 1	Annual Maximum Number of Fish Larvae Allowed Entrained under Track 2 (flow reductions only)	Annual Maximum Number of Fish Larvae Allowed Entrained under Track 2 (screens etc.)
					#	gpm	MGD	MGD	MGD		MGD		# per million gallons	#	# per million gallons	#	MW	MGD	#	#	#
Harbor	1, 2, 5	1994	12/31/2015	12/31/2031	***2***	**41,000**	**59**	**118**	**59**	**0.50**	**47**	**0.40**	**3962**	**170,755,444**	**0.4945**	**21,313**	**235**	**8.3**	**11,952,881**	**5,997,698**	**27,833,137**
Haynes	1	1962	12/31/2019	12/31/2027	2	48,000	69	138	258		221	0.80	12305	620,894,151	0.1893	9,552	222	9.7	43,462,591		
	2	1963	12/31/2019		2	48,000	69	138						620,894,151		9,552	222	9.7	43,462,591		
	5	1966	12/31/2019	12/312013	2	80,000	115	230			236	0.51		1,034,823,585		15,919	341	16.1	72,437,651		
	6	1967	12/31/2019		2	80,000	115	230						1,034,823,585		15,919	259	16.1	72,437,651		
	8, 9, 10	2005	12/31/2019	12/31/2035	4	40,000	58	230			210	0.91		1,034,823,585		15,919	575	16.1	72,437,651		
Total					**12**			**968**	**258**	**0.27**	**667**	**0.69**	**12305**	**4,346,259,057**	**0.1893**	**66,861**	**1,619**	**67.7**	**304,238,134**	**81,113,330**	**708,440,226**
Scattergood	1	1958	12/31/2020	12/31/2024	2	39,000	56	112	168	0.75	155	0.69	2797	114,663,627	0.8226	33,724	179	7.9	8,026,454		
	2	1959	12/31/2020		2	39,000	56	112						114,663,627		33,724	179	7.9	8,026,454		
	3	1974	12/31/2020	12/31/2015	4	47,000	68	271	144	0.53	135	0.50		276,368,743		81,283	460	19.0	19,345,812		
Total					**8**			**495**	**312**	**0.63**	**291**	**0.59**	**2797**	**505,695,998**	**0.8226**	**148,731**	**818**	**34.7**	**35,398,720**	**22,319,526**	**82,428,448**
TOTAL					**22**			**1,581**	**630**	**0.40**	**1,004**	**0.64**		**5,022,710,499**		**236,905**	**2,672**	**110.7**	**351,589,735**	**109,430,553**	**818,701,811**

Second Amendment to the Once-through Cooling Water Policy
Analysis of Entrainment and Impingement Impacts
Conclusion: Projection of Fish Impingement and Entrainment Under the Policy and the Amendment for Years 2010-2040

Dry cooling Scenario: (data used in Tables 1 and 2 in the Draft Staff Report)

Comparing maximum allowed flows under the Policy with maximum flows per LADWP's implementation plan
No seawater intake allowed after compliance deadline under the proposed amendment (allowed under Policy)

Scenario: Design Flows, Dry Cooling	Harbor GS		Haynes GS		Scattergood GS		All LADWP Facilities	
	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment
	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)
Policy	127,875	1,323,036,547	668,614	49,851,591,388	1,636,045	6,270,630,369	2,432,534	57,445,258,305
Amendment	468,876	3,756,504,075	885,117	57,536,191,331	1,499,419	5,098,121,277	2,853,413	66,390,816,683
Difference:	**-341,001**	**-2,433,467,527**	**-216,503**	**-7,684,599,943**	**136,625**	**1,172,509,092**	**-420,879**	**-8,945,558,378**

Most Realistic Scenario:

Using average actual historical LADWP flows (2006-2010) to project flows under both the Policy and the proposed Amendment
No seawater intake allowed after compliance deadline under either the Policy or the proposed amendment

Scenario: 2000-2005 Actual Flows, Dry Cooling	Harbor GS		Haynes GS		Scattergood GS		All LADWP Facilities	
	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment
	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)
Policy	50,905	407,852,680	460,642	29,943,560,639	959,611	3,262,737,591	1,471,158	33,614,150,909
Amendment	186,653	1,495,459,826	716,980	46,606,585,841	942,587	3,204,854,510	1,846,220	51,306,900,176
Difference:	**-135,748**	**-1,087,607,146**	**-256,338**	**-16,663,025,202**	**17,024**	**57,883,081**	**-375,062**	**-17,692,749,267**

Wet Cooling Towers Scenario: (data used in Table 3 in the Draft Staff Report)

Comparing maximum allowed flows under the Policy with maximum flows per LADWP's implementation plan
7% seawater intake allowed after compliance deadline under both the Policy and the proposed amendment

Scenario: Design Flows, Wet Cooling and Seawater Intake	Harbor GS		Haynes GS		Scattergood GS		All LADWP Facilities	
	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment	Impingement	Entrainment
	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)
Policy	127,875	1,323,036,547	668,614	49,851,591,388	1,636,045	6,270,630,369	2,432,534	57,445,258,305
Amendment	468,876	3,864,007,121	885,117	62,940,040,092	1,499,419	5,838,613,103	2,853,413	72,642,660,316
Difference:	**-341,001**	**-2,540,970,574**	**-216,503**	**-13,088,448,704**	**136,625**	**432,017,267**	**-420,879**	**-15,197,402,011**

HARBOR GENERATING STATION: UNIT 5

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000	52	79	79	72	82	66	51	55	93	86	25	67	67
2001	80	86	82	69	62	65	62	63	58	71	49	32	65
2002	69	60	87	63	59	57	63	62	67	64	49	53	63
2003	53	29	58	51	54	54	72	73	61	68	50	71	58
2004	64	62	69	18	57	48	63	53	55	44	43	48	52
2005	59	63	66	26	54	51	62	48	60	39	37	44	51
2006	50	44	44	35	46	58	67	55	49	45	49	44	49
2007	52	36	45	44	46	44	51	62	53	47	44	45	47
2008	18	44	43	49	54	54	50	55	50	47	55	50	47
2009	29	55	48	43	49	45	48	48	61	7	ND	28	42
2010	55	53	54	57	46	49	52	56	50	27	ND	45	49
2000-2005 Average	63	63	74	50	61	57	62	59	66	62	42	53	59
2006-2010 Average	41	46	47	46	48	50	54	55	53	35	49	42	47
2000-2010 Average	53	56	61	48	55	54	58	57	60	50	45	48	54

HAYNES GENERATING STATION: UNITS 1 & 2

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000													
2001													
2002													
2003													
2004													
2005	209	137	153	146	178	274	272	273	273	274	271	272	228
2006	196	138	253	168	257	245	260	257	273	273	232	251	234
2007	243	242	143	135	162	265	252	268	225	220	271	271	225
2008	262	158	231	242	229	232	269	211	274	271	264	274	243
2009	186	161	129	136	129	136	261	266	270	267	272	236	204
2010	228	143	135	138	135	135	184	265	271	271	241	272	202
2000-2005 Average													
2006-2010 Average	223	168	178	164	182	203	245	253	263	260	256	261	221
2000-2010 Average													

HAYNES GENERATING STATION: UNIT 8

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000													
2001													
2002													
2003													
2004													
2005	220	215	220	230	158	230	222	230	201	64	112	226	194
2006	229	179	229	186	229	228	228	230	230	230	138	230	214
2007	225	203	0	35	229	229	229	229	229	214	127	229	182
2008	230	230	230	230	229	229	230	230	230	230	188	45	211
2009	185	175	228	228	230	230	230	230	230	230	127	229	213
2010	230	230	229	230	230	230	230	230	229	230	219	230	229
2000-2005 Average													
2006-2010 Average	220	203	183	182	229	229	229	230	230	227	160	193	210
2000-2010 Average													

HAYNES GENERATING STATION: UNITS 5 & 6

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000													
2001													
2002													
2003													
2004													
2005	400	456	460	311	460	439	339	395	314	204	232	229	353
2006	228	364	315	460	451	228	274	367	449	295	222	229	324
2007	225	271	259	230	10	107	398	443	261	115	115	115	212
2008	159	115	246	268	261	195	392	370	309	169	169	230	240
2009	135	115	286	111	181	297	322	181	338	155	280	226	219
2010	115	161	109	127	204	306	427	256	154	113	115	115	184
2000-2005 Average													
2006-2010 Average	172	205	243	239	221	227	363	323	302	169	180	183	236
2000-2010 Average													

SCATTERGOOD GENERATING STATION: UNITS 1 & 2

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000	163	112	112	130	183	199	197	198	179	169	148	116	159
2001	160	101	109	112	116	216	189	197	184	144	112	159	150
2002	173	175	187	207	168	189	214	174	195	170	168	167	182
2003	152	196	124	170	178	183	213	217	180	193	156	112	173
2004	135	211	205	225	218	198	206	176	171	172	135	168	185
2005	195	155	166	112	112	175	176	178	169	176	124	171	159
2006	110	128	182	167	157	180	171	194	166	152	176	170	163
2007	146	159	88	139	168	172	179	177	180	168	178	171	160
2008	162	156	170	180	181	172	186	175	169	161	199	176	174
2009	117	94	140	150	138	159	169	149	187	149	164	112	144
2010	89	92	103	106	104	167	139	179	145	163	169	158	135
2000-2005 Average	163	158	151	159	163	193	199	190	180	171	141	149	168
2006-2010 Average	125	126	137	148	150	170	169	175	169	159	177	157	155
2000-2010 Average	146	144	144	154	157	183	185	183	175	165	157	153	162

SCATTERGOOD GENERATING STATION: UNIT 3

YEAR	Monthly Average Flow (MGD)												Average Annual Flow (MGD)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2000	181	226	217	147	89	223	219	228	206	186	135	188	187
2001	220	141	0	0	0	8	179	212	198	216	174	157	125
2002	145	23	0	0	0	61	156	209	135	137	102	84	88
2003	108	221	236	209	145	193	201	208	216	171	166	175	187
2004	222	158	196	0	31	141	172	194	180	142	146	134	143
2005	136	59	12	138	135	155	202	190	174	171	119	135	136
2006	135	135	159	175	83	83	202	170	184	175	169	164	153
2007	217	121	0	0	42	166	182	188	104	152	149	10	111
2008	120	107	138	167	168	133	172	206	187	174	61	41	140
2009	120	112	134	142	147	119	140	159	169	178	32	137	132
2010	135	146	108	120	132	129	157	168	143	157	160	143	142
2000-2005 Average	158	132	109	100	88	128	180	194	172	169	128	124	144
2006-2010 Average	145	124	108	121	114	126	171	178	157	167	114	99	135
2000-2010 Average	158	132	109	100	88	128	180	194	172	169	128	124	140

A Comparison of Fish Impingement and Entrainment Under the Policy and the Amendment for years 2010-2040:

Comparing maximum allowed flows under the Policy with maximum flows per LADWP's implementation plan

No seawater intake allowed after compliance deadline under amendment

	Harbor Generating Station				Haynes Generating Station										Scattergood Generating Station							
	Impingement		Entrainment		Impingement					Entrainment					Impingement				Entrainment			
						Amendment					Amendment					Amendment				Amendment		
Year	Policy	Amendment	Policy	Amendment	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Unit 3	All units	Policy	Units 1&2	Unit 3	All units
2010	21,313	21,313	170,639,756	170,639,756	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2011	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2012	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2013	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2014	21,313	21,313	170,755,444	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2015	21,313	21,313	170,755,444	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2016		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448		67,448	505,695,998	229,327,255		229,327,255
2017		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448		67,448	505,695,998	229,327,255		229,327,255
2018		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448		67,448	505,695,998	229,327,255		229,327,255
2019		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448		67,448	505,695,998	229,327,255		229,327,255
2020		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887	148,731	67,448		67,448	505,695,998	229,327,255		229,327,255
2021		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887		67,448		67,448	35,398,720	229,327,255		229,327,255
2022		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887		67,448		67,448	35,398,720	229,327,255		229,327,255
2023		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887		67,448		67,448	35,398,720	229,327,255		229,327,255
2024		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887		67,448		67,448	35,398,720	229,327,255		229,327,255
2025		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887				0	35,398,720			0
2026		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887				0	35,398,720			0
2027		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302		1,034,823,585	2,276,611,887				0	35,398,720			0
2028		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2029		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2030		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2031		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2032			11,944,783					15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2033			11,944,783					15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2034			11,944,783					15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2035			11,944,783					15,919	15,919	304,238,134			1,034,823,585	1,034,823,585				0	35,398,720			0
2036			11,944,783						0	304,238,134				0				0	35,398,720			0
2037			11,944,783						0	304,238,134				0				0	35,398,720			0
2038			11,944,783						0	304,238,134				0				0	35,398,720			0
2039			11,944,783						0	304,238,134				0				0	35,398,720			0
2040			11,944,783						0	304,238,134				0				0	35,398,720			0
Total	**127,875**	**468,876**	**1,323,036,547**	**3,756,504,075**	**668,614**	**343,858**	**127,355**	**413,904**	**885,117**	**49,851,591,388**	**22,352,189,438**	**8,278,588,681**	**26,905,413,212**	**57,536,191,331**	**1,636,045**	**1,011,719**	**487,700**	**1,499,419**	**6,270,630,369**	**3,439,908,820**	**1,658,212,457**	**5,098,121,277**
Difference	**-341,001**		**-2,433,467,527**		**-216,503**					**-7,684,599,943**					**136,625**							

A Comparison of Fish Impingement and Entrainment Under the Policy and the Amendment for years 2010-2040:

Using average actual historical LADWP flows (2006-2010) to project flows under both the Policy and the proposed Amendment

No seawater intake allowed after compliance deadline under either the Policy or proposed amendment

	Harbor Generating Station				Haynes Generating Station										Scattergood Generating Station							
	Impingement		Entrainment		Impingement					Entrainment					Impingement				Entrainment			
						Amendment					Amendment					Amendment				Amendment		
Year	Policy	Amendment	Policy	Amendment	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Unit 3	All units	Policy	Units 1&2	Unit 3	All units
2010	8,484	8,484	67,975,447	67,975,447	46,064	15,298	16,287	14,480	46,064	2,994,356,064	994,400,789	1,058,702,978	941,252,297	2,994,356,064	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2011	8,484	8,484	67,975,447	67,975,447	46,064	15,298	16,287	14,480	46,064	2,994,356,064	994,400,789	1,058,702,978	941,252,297	2,994,356,064	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2012	8,484	8,484	67,975,447	67,975,447	46,064	15,298	16,287	14,480	46,064	2,994,356,064	994,400,789	1,058,702,978	941,252,297	2,994,356,064	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2013	8,484	8,484	67,975,447	67,975,447	46,064	15,298	16,287	14,480	46,064	2,994,356,064	994,400,789	1,058,702,978	941,252,297	2,994,356,064	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2014	8,484	8,484	67,975,447	67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2015	8,484	8,484	67,975,447	67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574	40,664	87,237	296,612,508	158,353,273	138,259,235	296,612,508
2016		8,484		67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574		46,574	296,612,508	158,353,273		158,353,273
2017		8,484		67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574		46,574	296,612,508	158,353,273		158,353,273
2018		8,484		67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574		46,574	296,612,508	158,353,273		158,353,273
2019		8,484		67,975,447	46,064	15,298		14,480	29,777	2,994,356,064	994,400,789		941,252,297	1,935,653,086	87,237	46,574		46,574	296,612,508	158,353,273		158,353,273
2020		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086	87,237	46,574		46,574	296,612,508	158,353,273		158,353,273
2021		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086		46,574		46,574		158,353,273		158,353,273
2022		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086		46,574		46,574		158,353,273		158,353,273
2023		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086		46,574		46,574		158,353,273		158,353,273
2024		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086		46,574		46,574		158,353,273		158,353,273
2025		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086				0				0
2026		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086				0				0
2027		8,484		67,975,447		15,298		14,480	29,777		994,400,789		941,252,297	1,935,653,086				0				0
2028		8,484		67,975,447				14,480	14,480				941,252,297	941,252,297				0				0
2029		8,484		67,975,447				14,480	14,480				941,252,297	941,252,297				0				0
2030		8,484		67,975,447				14,480	14,480				941,252,297	941,252,297				0				0
2031		8,484		67,975,447				14,480	14,480				941,252,297	941,252,297				0				0
2032								14,480	14,480				941,252,297	941,252,297				0				0
2033								14,480	14,480				941,252,297	941,252,297				0				0
2034								14,480	14,480				941,252,297	941,252,297				0				0
2035								14,480	14,480				941,252,297	941,252,297				0				0
2036									0					0				0				0
2037									0					0				0				0
2038									0					0				0				0
2039									0					0				0				0
2040									0					0				0				0
Total	**50,905**	**186,653**	**407,852,680**	**1,495,459,826**	**460,642**	**275,355**	**65,147**	**376,478**	**716,980**	**29,943,560,639**	**17,899,214,198**	**4,234,811,911**	**24,472,559,732**	**46,606,585,841**	**959,611**	**698,604**	**243,982**	**942,587**	**3,262,737,591**	**2,375,299,100**	**829,555,409**	**3,204,854,510**
Difference	**-135,748**		**-1,087,607,146**		**-256,338**					**-16,663,025,202**					**17,024**				**57,883,081**			

A Comparison of Fish Impingement and Entrainment Under the Policy and the Amendment for years 2010-2040:

Comparing maximum allowed flows under the Policy with maximum flows per LADWP's implementation plan

Assuming 7% seawater intake allowed after compliance deadline under amendment

	Harbor Generating Station				Haynes Generating Station										Scattergood Generating Station							
	Impingement		Entrainment		Impingement					Entrainment					Impingement				Entrainment			
						Amendment					Amendment					Amendment				Amendment		
Year	Policy	Amendment	Policy	Amendment	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Units 5&6	Units 8, 9 & 10	All units	Policy	Units 1&2	Unit 3	All units	Policy	Units 1&2	Unit 3	All units
2010	21,313	21,313	170,639,756	170,639,756	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2011	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2012	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2013	21,313	21,313	170,755,444	170,755,444	66,861	19,103	31,839	15,919	66,861	4,346,259,057	1,241,788,302	2,069,647,170	1,034,823,585	4,346,259,057	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2014	21,313	21,313	170,755,444	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2015	21,313	21,313	170,755,444	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448	81,283	148,731	505,695,998	229,327,255	276,368,743	505,695,998
2016		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448		67,448	505,695,998	229,327,255	19,345,812	248,673,067
2017		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448		67,448	505,695,998	229,327,255	19,345,812	248,673,067
2018		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448		67,448	505,695,998	229,327,255	19,345,812	248,673,067
2019		21,313	11,944,783	170,755,444	66,861	19,103		15,919	35,023	4,346,259,057	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448		67,448	505,695,998	229,327,255	19,345,812	248,673,067
2020		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189	148,731	67,448		67,448	505,695,998	229,327,255	19,345,812	248,673,067
2021		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189		67,448		67,448	35,398,720	229,327,255	19,345,812	248,673,067
2022		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189		67,448		67,448	35,398,720	229,327,255	19,345,812	248,673,067
2023		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189		67,448		67,448	35,398,720	229,327,255	19,345,812	248,673,067
2024		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189		67,448		67,448	35,398,720	229,327,255	19,345,812	248,673,067
2025		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189				0	35,398,720	16,052,908	19,345,812	35,398,720
2026		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189				0	35,398,720	16,052,908	19,345,812	35,398,720
2027		21,313	11,944,783	170,755,444		19,103		15,919	35,023	304,238,134	1,241,788,302	144,875,302	1,034,823,585	2,421,487,189				0	35,398,720	16,052,908	19,345,812	35,398,720
2028		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2029		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2030		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2031		21,313	11,944,783	170,755,444				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2032			11,944,783	11,944,783				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2033			11,944,783	11,944,783				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2034			11,944,783	11,944,783				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2035			11,944,783	11,944,783				15,919	15,919	304,238,134	86,925,181	144,875,302	1,034,823,585	1,266,624,068				0	35,398,720	16,052,908	19,345,812	35,398,720
2036			11,944,783	11,944,783					0	304,238,134	86,925,181	144,875,302	72,437,651	304,238,134				0	35,398,720	16,052,908	19,345,812	35,398,720
2037			11,944,783	11,944,783					0	304,238,134	86,925,181	144,875,302	72,437,651	304,238,134				0	35,398,720	16,052,908	19,345,812	35,398,720
2038			11,944,783	11,944,783					0	304,238,134	86,925,181	144,875,302	72,437,651	304,238,134				0	35,398,720	16,052,908	19,345,812	35,398,720
2039			11,944,783	11,944,783					0	304,238,134	86,925,181	144,875,302	72,437,651	304,238,134				0	35,398,720	16,052,908	19,345,812	35,398,720
2040			11,944,783	11,944,783					0	304,238,134	86,925,181	144,875,302	72,437,651	304,238,134				0	35,398,720	16,052,908	19,345,812	35,398,720
Total	**127,875**	**468,876**	**1,323,036,547**	**3,864,007,121**	**668,614**	**343,858**	**127,355**	**413,904**	**885,117**	**49,851,591,388**	**23,482,216,793**	**12,190,221,832**	**27,267,601,467**	**62,940,040,092**	**1,636,045**	**1,011,719**	**487,700**	**1,499,419**	**6,270,630,369**	**3,696,755,346**	**2,141,857,757**	**5,838,613,103**
Difference	**-341,001**		**-2,540,970,574**		**-216,503**					**-13,088,448,704**					**136,625**				**432,017,267**			