

## SUPPLEMENTAL MATERIALS

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# Effects of Joint and Crack Geometry on Hydraulic Jacking in Lined and Unlined Spillways

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**Table S1.** Uplift pressure test data

Type	Key dimension	Tilt	Skew	Offset	Gap	Discharge per unit			Channel velocity		Boundary layer		Attached uplift		
	$h_{ch}, R, r$	$\phi$	$\psi$	$h$	$s$	$\beta$	width	Depth	Velocity	$N$	$\alpha$	$\alpha^*$	head	velocity head	$\Delta H$
	mm	deg.	deg.	mm	mm	-	$q$	$y$	$V$	-	-	-	m	m	m
chamfer	6.35	0	0	9.87	7.24	0.73	0.587	7.16	8.20	9.14	1.028	0.536	3.429	1.839	1.308
	6.35	0	0	9.87	7.24	0.73	0.219	3.51	6.26	8.83	1.030	0.669	1.996	1.336	0.840
radius	6.35	0	0	9.82	7.25	0.74	0.573	6.80	8.42	8.78	1.030	0.532	3.614	1.922	1.417
	6.35	0	0	9.82	7.25	0.74	0.387	5.49	7.04	8.77	1.030	0.572	2.530	1.447	1.003
	6.35	0	0	9.82	7.25	0.74	0.210	3.53	5.96	8.83	1.030	0.667	1.810	1.206	0.746
	6.35	0	0	5.61	7.16	1.28	0.210	3.51	5.98	8.21	1.034	0.529	1.824	0.965	0.554
tilt away from flow	-	-45	0	11.93	10.94	0.92	0.290	4.67	6.21	8.81	1.030	0.647	1.967	1.272	0.729
	-	-45	0	11.93	10.94	0.92	0.599	7.97	7.52	9.04	1.029	0.548	2.883	1.579	0.999
	-	-60	0	11.93	10.94	0.92	0.290	4.65	6.24	8.69	1.031	0.644	1.984	1.278	0.595
	-	-75	0	11.93	10.94	0.92	0.290	4.64	6.25	8.68	1.031	0.644	1.992	1.283	0.436
	-	-30	0	3.95	11.45	2.90	0.290	4.66	6.22	8.53	1.032	0.433	1.976	0.855	0.490
	-	-30	0	3.95	11.45	2.90	0.598	7.96	7.51	8.98	1.029	0.377	2.876	1.085	0.668
	-	-85	0	3.95	11.45	2.90	0.290	4.61	6.29	8.74	1.030	0.443	2.015	0.893	0.123
	-	-30	0	3.37	27.58	8.17	0.290	4.65	6.24	8.59	1.031	0.413	1.986	0.820	0.239
	-	-60	0	3.37	27.58	8.17	0.290	4.63	6.26	8.68	1.031	0.417	1.996	0.832	0.184
	-	-15	0	11.91	6.03	0.51	0.290	4.68	6.19	8.47	1.032	0.636	1.953	1.242	0.953
-	-38	0	11.91	6.03	0.51	0.290	4.67	6.21	8.71	1.031	0.644	1.966	1.266	0.854	
tilt into flow	-	15	0	11.70	5.98	0.51	0.358	5.47	6.54	8.37	1.033	0.594	2.181	1.296	1.121
	-	22.5	0	11.64	6.30	0.54	0.354	5.53	6.40	8.06	1.035	0.580	2.089	1.211	1.135
	-	30	0	11.30	6.30	0.56	0.354	5.53	6.40	8.07	1.035	0.573	2.089	1.198	1.147
	-	37.5	0	11.47	6.30	0.55	0.433	6.41	6.74	8.34	1.033	0.556	2.319	1.290	1.276
	-	37.5	0	11.47	6.30	0.55	0.354	5.53	6.40	8.07	1.035	0.576	2.089	1.205	1.181
	-	45	0	11.37	6.30	0.55	0.434	6.43	6.75	8.53	1.032	0.561	2.325	1.304	1.291
	-	30	0	11.30	6.30	0.56	0.434	6.43	6.75	8.53	1.032	0.560	2.325	1.301	1.233
	-	37.5	0	11.79	6.30	0.53	0.434	6.43	6.75	8.53	1.032	0.568	2.325	1.321	1.274
	-	45	0	11.37	6.30	0.55	0.210	3.58	5.87	8.43	1.032	0.686	1.758	1.206	1.041
	-	45	0	11.37	1.27	0.11	0.165	2.82	5.86	8.06	1.035	0.738	1.753	1.294	0.951
	-	37.5	0	11.37	6.30	0.55	0.210	3.58	5.87	8.42	1.032	0.686	1.758	1.206	1.020
	-	37.5	0	11.47	6.30	0.55	0.354	5.53	6.40	8.07	1.035	0.576	2.089	1.205	1.173
	-	30	0	11.30	6.30	0.56	0.165	2.82	5.87	8.07	1.035	0.737	1.754	1.293	0.899
	-	30	0	11.30	6.30	0.56	0.210	3.58	5.87	8.42	1.032	0.685	1.758	1.204	0.962
-	30	0	11.30	6.30	0.56	0.354	5.53	6.40	8.07	1.035	0.573	2.089	1.198	1.138	
-	45	0	5.37	19.47	3.63	0.354	5.53	6.40	8.07	1.035	0.435	2.091	0.910	0.651	

Type	Key dimension	Tilt	Skew	Offset	Gap	Discharge per unit width						Channel velocity head	Boundary layer velocity head	Attached uplift	
	$h_{ch}, R, r$	$\phi$	$\psi$	$h$	$s$	$\beta$	$q$	Depth $y$	Velocity $V$	$N$	$\alpha$	$\alpha^*$	$h_v$	$h_v^*$	$\Delta H$
	mm	deg.	deg.	mm	mm	-	m <sup>2</sup> /s	cm	m/s	-	-	-	m	m	m
tilt into	-	45	0	5.37	19.47	3.63	0.434	6.43	6.75	8.54	1.032	0.431	2.326	1.003	0.697
flow	-	30	0	5.49	19.47	3.55	0.354	5.53	6.40	8.07	1.035	0.438	2.090	0.916	0.623
(cont.)	-	30	0	5.49	19.47	3.55	0.434	6.43	6.75	8.53	1.032	0.434	2.325	1.010	0.666
	-	15	0	5.58	19.47	3.49	0.354	5.53	6.40	8.06	1.035	0.441	2.089	0.921	0.565
	-	15	0	5.58	19.47	3.49	0.434	6.43	6.75	8.53	1.032	0.436	2.324	1.015	0.596
relief	45.2	0	0	12.11	10.77	0.89	0.358	5.48	6.53	8.76	1.030	0.614	2.176	1.336	0.406
slot	26.2	0	0	11.47	10.77	0.94	0.358	5.48	6.53	8.76	1.030	0.603	2.176	1.311	0.581
	13.7	0	0	11.47	10.77	0.94	0.358	5.48	6.53	8.76	1.030	0.603	2.176	1.311	0.771
	7.3	0	0	11.47	10.77	0.94	0.358	5.48	6.53	8.76	1.030	0.603	2.176	1.311	0.854
	2.8	0	0	11.47	10.77	0.94	0.358	5.48	6.53	8.76	1.030	0.603	2.176	1.311	0.914
	2.8	0	0	11.47	10.77	0.94	0.213	3.66	5.81	8.54	1.032	0.686	1.720	1.180	0.728
	50.4	0	0	11.91	6.02	0.51	0.358	5.48	6.54	8.36	1.033	0.597	2.180	1.303	0.386
	50.4	0	0	4.26	5.87	1.38	0.213	3.66	5.81	8.54	1.032	0.484	1.720	0.833	0.054
	50.4	0	0	4.26	5.87	1.38	0.358	5.47	6.54	8.37	1.033	0.413	2.181	0.902	0.077
	32.8	0	0	4.45	5.87	1.32	0.354	5.53	6.40	8.06	1.035	0.405	2.089	0.846	0.129
	32.8	0	0	4.45	5.87	1.32	0.433	6.42	6.74	8.34	1.033	0.395	2.319	0.917	0.145
	35.6	0	0	6.27	16.01	2.55	0.210	3.58	5.88	8.44	1.032	0.556	1.760	0.978	0.174
	48.4	0	0	6.24	3.21	0.51	0.165	2.82	5.86	8.06	1.035	0.591	1.753	1.036	0.159
	29.0	0	0	5.59	3.21	0.57	0.165	2.82	5.86	8.06	1.035	0.567	1.753	0.994	0.243
	9.9	0	0	5.81	3.21	0.55	0.165	2.82	5.86	8.06	1.035	0.575	1.753	1.008	0.605
skewed	-	0	10	11.65	2.94	0.25	0.354	5.55	6.38	8.00	1.035	0.577	2.079	1.199	0.997
(insert)	-	0	10	11.65	2.94	0.25	0.434	6.44	6.74	8.47	1.032	0.563	2.314	1.303	1.075
	-	0	20	11.65	3.03	0.26	0.354	5.55	6.39	8.00	1.035	0.577	2.079	1.199	0.889
	-	0	20	11.65	3.03	0.26	0.434	6.44	6.74	8.47	1.032	0.563	2.314	1.303	0.933
	-	0	30	11.65	3.59	0.31	0.354	5.55	6.39	8.00	1.035	0.577	2.079	1.200	0.742
	-	0	30	11.65	3.59	0.31	0.434	6.44	6.74	8.47	1.032	0.563	2.314	1.303	0.799
	-	0	40	11.65	3.03	0.26	0.354	5.55	6.39	8.00	1.035	0.577	2.079	1.200	0.568
	-	0	40	11.65	3.03	0.26	0.434	6.44	6.74	8.47	1.032	0.563	2.314	1.303	0.605
	-	0	50	11.65	3.03	0.26	0.354	5.55	6.39	8.00	1.035	0.577	2.079	1.200	0.357
	-	0	50	11.65	3.03	0.26	0.434	6.44	6.74	8.47	1.032	0.563	2.314	1.303	0.381
	-	0	60	11.65	3.59	0.31	0.354	5.55	6.39	8.01	1.035	0.577	2.080	1.200	0.183
	-	0	60	11.65	3.59	0.31	0.434	6.44	6.74	8.47	1.032	0.563	2.315	1.304	0.203
	-	0	70	11.65	3.03	0.26	0.434	6.44	6.74	8.48	1.032	0.563	2.315	1.305	0.071
	-	0	30	11.90	5.98	0.50	0.434	6.44	6.74	8.47	1.032	0.568	2.315	1.314	0.745

Type	Key dimension	Tilt	Skew	Offset	Gap	Discharge per unit width						Channel velocity head	Boundary layer velocity head	Attached uplift	
	$h_{ch}, R, r$	$\phi$	$\psi$	$h$	$s$	$\beta$	$q$	Depth $y$	Velocity $V$	$N$	$\alpha$	$\alpha^*$	$h_v$	$h_v^*$	$\Delta H$
	mm	deg.	deg.	mm	mm	-	m <sup>2</sup> /s	cm	m/s	-	-	-	m	m	m
skewed	-	0	45	2.91	3.12	1.07	0.148	2.64	5.60	8.61	1.031	0.478	1.600	0.765	0.275
slot	-	0	45	2.91	3.12	1.07	0.599	7.85	7.64	9.10	1.028	0.347	2.974	1.032	0.429
	-	0	45	1.17	3.12	2.67	0.237	3.91	6.06	8.48	1.032	0.298	1.870	0.557	0.185
	-	0	45	1.17	3.12	2.67	0.574	6.32	9.08	9.35	1.027	0.285	4.208	1.201	0.344
	-	0	45	1.17	3.12	2.67	0.597	7.79	7.66	8.96	1.029	0.252	2.995	0.756	0.233
	-	0	45	1.17	3.12	2.67	0.123	2.30	5.35	7.74	1.038	0.327	1.459	0.477	0.138
	-	0	45	4.37	3.12	0.72	0.601	7.83	7.67	9.07	1.028	0.396	3.001	1.188	0.507
	-	0	45	4.37	3.12	0.72	0.187	3.22	5.80	8.81	1.030	0.521	1.713	0.893	0.326
	-	0	45	4.37	3.12	0.72	0.355	5.31	6.69	8.73	1.030	0.437	2.282	0.997	0.411
	-	0	45	11.96	3.12	0.26	0.601	7.83	7.67	8.95	1.029	0.548	2.999	1.644	0.650
	-	0	45	11.96	3.12	0.26	0.321	4.97	6.47	8.75	1.030	0.632	2.132	1.348	0.480
	-	0	45	9.68	3.12	0.32	0.601	7.84	7.66	9.01	1.029	0.512	2.995	1.535	0.624
	-	0	45	9.68	3.12	0.32	0.322	5.08	6.33	8.44	1.032	0.573	2.043	1.170	0.453
	-	0	45	0.74	3.12	4.24	0.602	7.70	7.82	7.79	1.037	0.173	3.118	0.540	0.188
	-	0	45	0.74	3.12	4.24	0.583	6.62	8.80	10.19	1.023	0.272	3.953	1.076	0.265
	-	0	45	0.74	3.12	4.24	0.067	1.52	4.39	8.26	1.034	0.344	0.983	0.338	0.081
	-	0	30	2.90	5.81	2.01	0.147	2.65	5.54	7.83	1.037	0.444	1.563	0.693	0.313
	-	0	30	2.90	5.81	2.01	0.591	7.25	8.15	9.55	1.026	0.373	3.389	1.263	0.585
	-	0	30	11.96	5.81	0.49	0.262	4.19	6.25	9.12	1.028	0.681	1.993	1.357	0.694
	-	0	30	11.96	5.81	0.49	0.593	7.33	8.09	9.76	1.025	0.587	3.335	1.958	1.065
	-	0	30	5.79	5.81	1.00	0.182	3.19	5.72	8.81	1.030	0.576	1.670	0.962	0.492
-	0	30	5.79	5.81	1.00	0.596	7.57	7.87	9.32	1.027	0.449	3.162	1.420	0.808	
tilt+skew	-	45	30	2.90	5.81	2.01	0.275	4.33	6.37	8.72	1.030	0.406	2.069	0.841	0.489
	-	30	30	2.90	5.81	2.01	0.275	4.33	6.37	8.72	1.030	0.406	2.069	0.841	0.429
	-	0	30	2.90	5.81	2.01	0.275	4.33	6.37	8.72	1.030	0.406	2.069	0.841	0.379
	-	-30	30	2.90	5.81	2.01	0.275	4.33	6.37	8.72	1.030	0.406	2.069	0.841	0.351
	-	-45	30	2.90	5.81	2.01	0.275	4.33	6.37	8.72	1.030	0.406	2.069	0.841	0.316
	-	45	30	5.79	5.81	1.00	0.275	4.33	6.37	8.72	1.030	0.516	2.069	1.067	0.646
	-	30	30	5.79	5.81	1.00	0.275	4.33	6.37	8.72	1.030	0.516	2.069	1.067	0.615
	-	0	30	5.79	5.81	1.00	0.275	4.33	6.37	8.72	1.030	0.516	2.069	1.067	0.579
	-	-30	30	5.79	5.81	1.00	0.275	4.33	6.37	8.72	1.030	0.516	2.069	1.067	0.486
	-	-45	30	5.79	5.81	1.00	0.275	4.33	6.37	8.72	1.030	0.516	2.069	1.067	0.428

Type	Key dimension	Tilt	Skew	Offset	Gap	Discharge per unit width					Channel velocity head			Boundary layer velocity head	Attached uplift
	$h_{ch}, R, r$	$\phi$	$\psi$	$h$	$s$	$\beta$	$q$	Depth $y$	Velocity $V$	$N$	$\alpha$	$\alpha^*$	$h_v$	$h_v^*$	$\Delta H$
	mm	deg.	deg.	mm	mm	-	m <sup>2</sup> /s	cm	m/s	-	-	-	m	m	m
cracked concrete	-	0	0	11.39	17.46	1.53	0.354	5.54	6.39	9.00	1.029	0.607	2.081	1.263	0.844
	-	0	0	11.39	17.46	1.53	0.434	6.43	6.75	9.14	1.028	0.582	2.323	1.352	0.903
	-	0	0	11.39	17.46	1.53	0.190	3.32	5.74	8.20	1.034	0.699	1.678	1.173	0.677
	-	0	0	11.39	17.46	1.53	0.231	3.70	6.23	8.32	1.033	0.675	1.981	1.338	0.770
	-	0	0	11.39	17.46	1.53	0.163	2.78	5.84	8.08	1.035	0.743	1.741	1.293	0.682
	-	0	0	11.39	17.46	1.53	0.285	4.59	6.21	8.69	1.031	0.637	1.970	1.255	0.786
	-	0	0	11.39	17.46	1.53	0.581	7.82	7.44	9.23	1.028	0.550	2.820	1.549	1.057
	-	0	0	11.09	17.46	1.57	0.165	2.83	5.85	8.01	1.035	0.730	1.747	1.275	0.709
	-	0	0	11.09	17.46	1.57	0.210	3.59	5.86	8.37	1.033	0.678	1.750	1.186	0.758
	-	0	0	11.09	17.46	1.57	0.433	6.36	6.82	8.94	1.029	0.573	2.370	1.358	0.926
	-	0	0	11.09	17.46	1.57	0.749	9.18	8.16	9.46	1.026	0.525	3.392	1.781	1.256
	-	0	0	10.58	17.46	1.65	0.213	3.82	5.58	5.25	1.074	0.516	1.586	0.817	0.468
	-	0	0	10.58	17.46	1.65	0.354	5.79	6.12	5.26	1.073	0.407	1.910	0.777	0.546
	-	0	0	10.58	17.46	1.65	0.586	8.18	7.16	5.51	1.068	0.351	2.611	0.915	0.695

**Table S2.** Joint flow test data

Type	Relief distance	Tilt	Skew	Offset	Gap	$\beta$	Joint thickness	Discharge per unit width	Depth	Velocity	$N$	Net head	Joint flow	Discharge coefficient	$V_{gap}/V_{chute}$
	$r$	$\phi$	$\psi$	$h$	$s$		$t$	$q$	$y$	$V$		$\Delta H_{max} - \Delta H$	$q_j$	$C_d$	
	mm	deg.	deg.	mm	mm	-		m <sup>2</sup> /s	cm	m/s	-	m	L/s/m	-	-
relief	45.2	0	0	12.11	10.77	0.89	63.50	0.358	5.48	6.53	8.76	0.450	16.85	0.527	0.239
slot	45.2	0	0	12.11	10.77	0.89	63.50	0.358	5.48	6.53	8.76	0.286	11.17	0.438	0.159
	45.2	0	0	12.11	10.77	0.89	63.50	0.358	5.48	6.53	8.76	0.188	7.06	0.342	0.100
	45.2	0	0	12.11	10.77	0.89	63.50	0.358	5.48	6.53	8.76	0.085	2.82	0.203	0.040
	45.2	0	0	12.11	10.77	0.89	63.50	0.358	5.48	6.53	8.76	0.085	2.82	0.203	0.040
skewed	-	0	45	2.91	3.12	1.07	57.15	0.148	2.64	5.60	8.61	0.322	3.88	0.494	0.222
	-	0	45	2.91	3.12	1.07	57.15	0.599	7.85	7.64	9.10	0.439	4.50	0.491	0.189
	-	0	45	1.17	3.12	2.67	57.15	0.574	6.32	9.08	9.35	0.421	4.32	0.481	0.152
	-	0	45	4.37	3.12	0.72	57.15	0.601	7.83	7.67	9.07	0.479	4.79	0.500	0.200
	-	0	45	4.37	3.12	0.72	57.15	0.601	7.83	7.67	9.07	0.744	6.37	0.533	0.266
	-	0	45	11.96	3.12	0.26	57.15	0.601	7.83	7.67	8.95	0.560	5.28	0.510	0.221
	-	0	45	11.96	3.12	0.26	57.15	0.601	7.83	7.67	8.95	1.037	8.09	0.575	0.338
	-	0	45	0.74	3.12	4.24	57.15	0.602	7.70	7.82	7.79	0.354	3.71	0.451	0.152
	-	0	45	0.74	3.12	4.24	57.15	0.602	7.70	7.82	7.79	0.276	3.08	0.424	0.126
	-	0	45	0.74	3.12	4.24	57.15	0.602	7.70	7.82	7.79	0.150	1.97	0.368	0.081
	-	0	45	0.74	3.12	4.24	57.15	0.583	6.62	8.80	10.19	0.171	2.21	0.386	0.080
	-	0	45	0.74	3.12	4.24	57.15	0.583	6.62	8.80	10.19	0.338	3.55	0.441	0.129
	-	0	45	0.74	3.12	4.24	57.15	0.583	6.62	8.80	10.19	0.405	4.05	0.460	0.147
	-	0	45	0.74	3.12	4.24	57.15	0.067	1.52	4.39	8.26	0.247	2.87	0.417	0.209
	-	0	45	0.74	3.12	4.24	57.15	0.067	1.52	4.39	8.26	0.160	2.33	0.421	0.170
	-	0	30	2.90	5.81	2.01	47.63	0.147	2.65	5.54	7.83	0.105	3.59	0.430	0.112
	-	0	30	2.90	5.81	2.01	47.63	0.147	2.65	5.54	7.83	0.716	14.63	0.672	0.455
	-	0	30	2.90	5.81	2.01	47.63	0.591	7.25	8.15	9.55	0.162	4.56	0.441	0.096
	-	0	30	2.90	5.81	2.01	47.63	0.591	7.25	8.15	9.55	0.561	11.49	0.596	0.243
	-	0	30	2.90	5.81	2.01	47.63	0.591	7.25	8.15	9.55	1.007	16.80	0.651	0.355
-	0	30	11.96	5.81	0.49	47.63	0.262	4.19	6.25	9.12	0.486	12.63	0.704	0.348	
-	0	30	11.96	5.81	0.49	47.63	0.262	4.19	6.25	9.12	1.131	21.31	0.779	0.586	
-	0	30	11.96	5.81	0.49	47.63	0.593	7.33	8.09	9.76	0.245	7.99	0.627	0.170	
-	0	30	11.96	5.81	0.49	47.63	0.593	7.33	8.09	9.76	1.330	23.16	0.780	0.493	
-	0	30	11.96	5.81	0.49	47.63	0.593	7.33	8.09	9.76	1.614	25.33	0.775	0.539	

Type	Relief distance	Tilt	Skew	Offset	Gap	Joint thickness	Discharge per unit width	Depth	Velocity	Net head	Joint flow	Discharge coefficient	$V_{gap}/V_{chute}$		
	$r$	$\phi$	$\psi$	$h$	$s$		$\beta$	$q$	$y$		$V$	$N$		$\Delta H_{max} - \Delta H$	$q_j$
	mm	deg.	deg.	mm	mm	-	m <sup>2</sup> /s	cm	m/s	-	m	L/s/m	-	-	
cracked concrete	-	0	0	11.25	17.46	1.55	57.87	0.434	6.44	6.74	8.48	0.157	6.84	0.223	0.058
	-	0	0	11.25	17.46	1.55	57.87	0.434	6.44	6.74	8.48	0.191	13.35	0.395	0.113
	-	0	0	11.25	17.46	1.55	57.87	0.434	6.44	6.74	8.48	0.242	19.73	0.518	0.168
	-	0	0	11.25	17.46	1.55	57.87	0.434	6.44	6.74	8.48	0.497	34.82	0.639	0.296
	-	0	0	11.25	17.46	1.55	57.87	0.434	6.44	6.74	8.48	0.860	47.07	0.657	0.400
	-	0	0	11.39	17.46	1.53	57.81	0.434	6.43	6.75	9.14	0.032	6.84	0.495	0.058
	-	0	0	11.39	17.46	1.53	57.81	0.434	6.43	6.75	9.14	0.066	13.35	0.674	0.113
	-	0	0	11.39	17.46	1.53	57.81	0.434	6.43	6.75	9.14	0.117	19.73	0.745	0.167
	-	0	0	11.39	17.46	1.53	57.81	0.434	6.43	6.75	9.14	0.372	34.82	0.738	0.295
	-	0	0	11.39	17.46	1.53	57.81	0.434	6.43	6.75	9.14	0.735	47.07	0.710	0.399
	-	0	0	11.09	17.46	1.57	57.95	0.749	9.18	8.16	9.46	1.266	42.73	0.491	0.300
	-	0	0	11.09	17.46	1.57	57.95	0.749	9.18	8.16	9.46	0.636	31.42	0.509	0.221
	-	0	0	10.58	17.46	1.65	58.21	0.213	3.82	5.58	5.25	0.583	37.56	0.636	0.386
	-	0	0	10.58	17.46	1.65	58.21	0.213	3.82	5.58	5.25	0.367	29.15	0.622	0.299
	-	0	0	10.58	17.46	1.65	58.21	0.213	3.82	5.58	5.25	0.149	18.03	0.604	0.185
	-	0	0	10.58	17.46	1.65	58.21	0.213	3.82	5.58	5.25	0.048	7.40	0.436	0.076
	-	0	0	10.58	17.46	1.65	58.21	0.354	5.79	6.12	5.26	0.038	4.70	0.311	0.044
	-	0	0	10.58	17.46	1.65	58.21	0.354	5.79	6.12	5.26	0.206	21.23	0.605	0.199
	-	0	0	10.58	17.46	1.65	58.21	0.354	5.79	6.12	5.26	0.418	30.84	0.617	0.289
	-	0	0	10.58	17.46	1.65	58.21	0.354	5.79	6.12	5.26	0.631	39.31	0.640	0.368
	-	0	0	10.58	17.46	1.65	58.21	0.586	8.18	7.16	5.51	0.730	41.34	0.626	0.331
	-	0	0	10.58	17.46	1.65	58.21	0.586	8.18	7.16	5.51	0.405	29.71	0.603	0.238
	-	0	0	10.58	17.46	1.65	58.21	0.586	8.18	7.16	5.51	0.113	13.17	0.507	0.105
	-	0	0	10.58	17.46	1.65	58.21	0.586	8.18	7.16	5.51	0.030	3.99	0.296	0.032