Subsidence Study - Apparent Movement of Fixed Targets Relative to June 7, 2017
Points in and around Pond 4 vicinity, Leviathan Mine, California
Observations June 2, 2017 to June 14, 2017

Obs Date	NAD83 CA Zn 2 N	NAD83 CA Zn 2 E	NGVD29 Z	DN	DE	DZ
		SM-1				
June 2, 2017	2027384.723	7228625.362	6910.268	-0.029	0.020	0.026
June 5, 2017	2027384.745	7228625.354	6910.276	-0.007	0.012	0.034
June 7, 2017	2027384.752	7228625.342	6910.242	Reference Date		
June 9, 2017	2027384.757	7228625.338	6910.242	0.005	-0.004	0.000
June 13, 2017	2027384.755	7228625.341	6910.250	0.003	-0.001	0.008
June 14, 2017	2027384.756	7228625.342	6910.247	0.004	0.000	0.005
		SM-2				
June 2, 2017	2027603.876	7228750.935	6917.711	-0.030	0.022	0.028
June 5, 2017	2027603.900	7228750.919	6917.721	-0.006	0.006	0.038
June 7, 2017	2027603.906	7228750.913	6917.683	Reference Date		
June 9, 2017	2027603.917	7228750.905	6917.688	0.011	-0.008	0.005
June 13, 2017	2027603.912	7228750.905	6917.695	0.006	-0.008	0.012
June 14, 2017	2027603.915	7228750.913	6917.695	0.009	0.000	0.012
		SM-3				
June 2, 2017	2027509.758	7228796.967	6917.955	-0.033	0.012	0.021
June 5, 2017	2027509.780	7228796.958	6917.963	-0.011	0.003	0.029
June 7, 2017	2027509.791	7228796.955	6917.934	Reference Date		
June 9, 2017	2027509.797	7228796.949	6917.927	0.006	-0.006	-0.007
June 13, 2017	2027509.795	7228796.951	6917.940	0.004	-0.004	0.006
June 14, 2017	2027509.798	7228796.960	6917.942	0.007	0.005	0.008
		SM-4				
June 2, 2017	2027414.758	7228795.168	6918.346	-0.020	0.012	0.020
June 7, 2017	2027414.776	7228795.160	6918.323	Reference Date		
June 9, 2017	2027414.782	7228795.153	6918.322	0.004	-0.003	-0.004
June 13, 2017	2027414.778	7228795.156	6918.326	0.000	0.000	0.000
June 14, 2017	2027414.780	7228795.157	6918.327	0.002	0.001	0.001
		SM-6				
June 2, 2017	2027360.881	7228780.637	6917.951	-0.032	0.023	0.016
June 5, 2017	2027360.905	7228780.624	6917.969	-0.008	0.010	0.034
June 7, 2017	2027360.913	7228780.614	6917.935	Reference Date		
June 9, 2017	2027360.916	7228780.609	6917.932	0.003	-0.005	-0.003
June 13, 2017	2027360.914	7228780.613	6917.936	0.001	-0.001	0.001
June 14, 2017	2027360.915	7228780.613	6917.937	0.002	-0.001	0.002
		SM-8				
June 2, 2017	2027220.098	7228826.824	6925.134	-0.027	0.020	0.021

June 5, 2017	2027220.119	7228826.819	6925.143	-0.006	0.015	0.030
June 7, 2017	2027220.125	7228826.804	6925.113	Reference Date		
June 9, 2017	2027220.130	7228826.799	6925.114	0.005	-0.005	0.001
June 13, 2017	2027220.129	7228826.805	6925.118	0.004	0.001	0.005
June 14, 2017	2027220.129	7228826.804	6925.115	0.004	0.000	0.002
		SM-10				
June 2, 2017	2027790.663	7228913.588	6955.735	-0.036	0.021	0.035
June 5, 2017	2027790.689	7228913.574	6955.747	-0.010	0.007	0.047
June 7, 2017	2027790.699	7228913.567	6955.700	Reference Date		
June 9, 2017	2027790.713	7228913.564	6955.713	0.014	-0.003	0.013
June 13, 2017	2027790.706	7228913.562	6955.727	0.007	-0.005	0.027
June 14, 2017	2027790.705	7228913.562	6955.722	0.006	-0.005	0.022
		SM-13				
June 2, 2017	2027463.380	7228977.963	6977.265	-0.036	0.000	0.020
June 5, 2017	2027463.403	7228977.964	6977.276	-0.013	0.001	0.031
June 7, 2017	2027463.416	7228977.963	6977.245	Reference Date		
June 9, 2017	2027463.422	7228977.961	6977.240	0.006	-0.002	-0.005
June 13, 2017	2027463.419	7228977.963	6977.258	0.003	0.000	0.013
June 14, 2017	2027463.418	7228977.964	6977.253	0.002	0.001	0.008
		SM-16				
June 2, 2017	2027476.868	7229033.470	6985.477	-0.039	0.010	0.026
June 5, 2017	2027476.894	7229033.468	6985.497	-0.013	0.008	0.046
June 7, 2017	2027476.907	7229033.460	6985.451	Reference Date		
June 9, 2017	2027476.913	7229033.459	6985.459	0.006	-0.001	0.008
June 13, 2017	2027476.910	7229033.457	6985.475	0.003	-0.003	0.024
June 14, 2017	2027476.909	7229033.461	6985.469	0.002	0.001	0.018

Observations made by Summit Engineering Corporation
Observing personnel Lawrence F. Grube, PLS and Jason Merchant, Survey Technician
Oversight by Greg Lambeth and Kendall Weller (AMEC FW)
Instrument for observations Trimble 5605, serviced and calibrated end of May, 2017 by Monsen Engineering Suppl
All subsidence points and backsights are a 25mm (1 in) diameter copper coated mini-prism, -17.5 mm prism consta
All points and backsights permanently mounted on 3ft 4in althread driven 2.5 feet to 3.0 feet into soil
Exception is backsight 1 which is mounted on the Southwest corner of the HDS Plant
Observation point for all dates after June 2 were on permanent control point 1351, a six inch steel bollard embedded in three feet of concrete on the Northerly side of pond 2N
June 7, 2017 assigned as reference date due to creep in observation point assumed to be from seven day hardening of concrete

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