

TRANSMITTAL

Mr. Brian Gasiorowski
Director of Land & Environment - Great Lakes Region
LafargeHolcim
6211 Ann Arbor Road
Dundee, MI 48131

July 28, 2017

Re: Chelsea Plant – 2017 Second Quarter Water Level Data

Project No. 06088B

- FOR REVIEW
- FOR YOUR USE
- AS REQUESTED

Sent By: Todd C. Campbell, CPG/lkj

COPIES	DATE	DESCRIPTION
1	07/27/2017	Surface Water (Clear Lake) Hydrograph (PDF format)
1	07/27/2017	Table 1 – Groundwater and Surface Water Elevation Data (PDF format)
1	07/27/2017	Monitoring Well and Surface Water Hydrograph (PDF format)

COMMENTS

As requested, attached is your 2017 Second Quarter water level data. If you have any questions or require additional information, please contact me at 269.544.6948 or tccampbell@ftch.com.

By email

cc/att: Mr. Robert Hayes, P.E. – Aggregate Industries US
Ms. Melinda Keillor – LafargeHolcim
Ms. Lynn M. Spurr – FTCH
Ms. Marley E. McVey – FTCH

Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P
 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments						
	Northing	Easting														
MW-1	N42.32649	W084.13039	25	15-25	987.90	08/29/02		10.06	977.84	ASTI						
						09/20/02		10.96	976.94	ASTI						
						01/26/04		11.81	976.09	ASTI						
						03/03/04		11.69	976.21	ASTI						
						04/19/04		11.72	976.18	ASTI						
						02/13/06		10.83	977.07	FTC&H Begins Monitoring						
						10/26/06		9.64	978.26							
						11/02/06				Well Abandoned						
						MW-2	N42.32887	W084.13489	30	20-30	990.10	08/29/02		14.08	976.02	ASTI
												09/20/02		14.06	976.04	ASTI
01/26/04		15.02	975.08	ASTI												
03/03/04		14.91	975.19	ASTI												
04/19/04		14.40	975.70	ASTI												
02/13/06		14.23	975.87	FTC&H Begins Monitoring												
10/26/06		15.47	974.63													
08/24/07		13.74	976.36													
09/13/07		13.59	976.51													
10/02/07		13.93	976.17													
11/13/07		13.50	976.60													
12/06/07		13.30	976.80													
01/09/08		12.57	977.53													
02/15/08		12.29	977.81													
03/14/08		12.23	977.87													
04/04/08		12.36	977.74													
05/29/08		13.23	976.87													
06/17/08		13.13	976.97													
07/11/08		13.24	976.86													
08/08/08		13.71	976.39													
09/04/08		14.15	975.95													
10/06/08		13.42	976.68	Large/many rain events in September 2008												
11/10/08		13.97	976.13													
12/03/08		14.02	976.08													
01/09/09		13.62	976.48													
02/09/09		13.77	976.33													
03/13/09		12.97	977.13													
04/03/09		12.89	977.21													
05/08/09		12.60	977.50													
06/26/09		12.45	977.65													
07/28/09		12.84	977.26													
08/25/09		13.70	976.40													
09/25/09		14.37	975.73													
10/28/09		14.50	975.60													
11/24/09		13.96	976.14													
12/16/09		13.81	976.29													
01/13/10		13.83	976.27													
02/18/10		13.97	976.13													
03/11/10		13.91	976.19													
04/21/10		13.71	976.39													
05/05/10		13.71	976.39													
06/25/10		12.90	977.20	Large/many rain events in June 2010												
07/22/10		13.71	976.39													
08/26/10		14.12	975.98													
09/24/10		14.42	975.68													
10/21/10		14.52	975.58													
11/18/10		14.75	975.35													
12/13/10		14.35	975.75													
01/11/11		14.26	975.84													
02/04/11		14.31	975.79													
03/11/11		14.07	976.03													
04/29/11		13.80	976.30													
05/25/11		13.50	976.60													
06/27/11		13.04	977.06													
07/22/11		13.67	976.43													
08/19/11		12.69	977.41													
09/30/11		12.80	977.30													
10/28/11		12.97	977.13													
11/23/11		13.09	977.01													
12/28/11		12.95	977.15													
01/27/12		12.59	977.51													
02/22/12		12.55	977.55													
03/26/12		12.49	977.61													
04/27/12		13.32	976.78													
05/30/12		13.39	976.71													
06/29/12		14.18	975.92													
07/26/12		14.55	975.55													
08/23/12		14.85	975.25													
09/28/12		15.12	974.98													
10/26/12		14.98	975.12													
11/29/12		14.84	975.26													
12/21/12		14.79	975.31													
01/28/13		14.69	975.41													
02/25/13		14.54	975.56													
03/26/13		14.33	975.77													
04/19/13		14.20	975.90													
05/23/13		14.11	975.99													
06/27/13		14.39	975.71													
07/26/13		14.40	975.70													
08/29/13		14.53	975.57													
09/20/13		14.79	975.31													
10/22/13		15.07	975.03													
11/27/13		15.17	974.93													
12/19/13		15.14	974.96													
01/29/14		14.83	975.27													
02/25/14		14.79	975.31													
03/20/14		14.56	975.54													
04/29/14		14.12	975.98													
05/30/14		14.16	975.94													
MW-2 (continued)																



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P
 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						06/20/14		14.05	976.05	
						07/17/14		14.06	976.04	
						08/28/14		14.48	975.62	
						09/23/14		14.81	975.29	
						10/30/14		15.38	974.72	
						11/25/14		15.44	974.66	
						12/29/14		15.14	974.96	
						01/07/15		15.18	974.92	
						02/16/15		14.95	975.15	
						03/20/15		14.77	975.33	
						04/24/15		15.17	974.93	
						05/12/15		15.71	974.39	
						06/11/15		15.72	974.38	
						07/24/15		14.67	975.43	
						08/28/15		15.10	975.00	
						09/29/15		15.40	974.70	
						10/29/15		15.71	974.39	
						11/24/15		15.63	974.47	
						12/18/15		15.32	974.78	
						01/28/16		14.88	975.22	
						02/26/16		14.75	975.35	
						03/25/16		14.58	975.52	
						04/27/16		14.36	975.74	
						05/26/16		14.17	975.93	
						06/14/16		14.46	975.64	
						07/22/16		15.11	974.99	
						08/31/16		15.16	974.94	
						09/22/16		15.33	974.77	
						10/28/16		15.31	974.79	
						11/28/16		15.26	974.84	
						12/22/16		15.04	975.06	
						01/26/17		14.35	975.75	
						02/28/17		13.76	976.34	
03/21/17		13.53	976.57							
04/27/17		12.93	977.17							
05/23/17		12.67	977.43							
06/30/17		13.27	976.83							
MW-3	N42.31787	W084.14101	30	20-30	996.80	08/29/02		15.72	981.08	ASTI
						09/20/02		16.18	980.62	ASTI
						01/26/04		17.45	979.35	ASTI
						03/03/04		17.49	979.31	ASTI
						04/19/04		16.92	979.88	ASTI
						02/13/06		16.24	980.56	FTC&H Begins Monitoring
						10/26/06		15.80	981.00	
						08/24/07		14.54	982.26	
						09/13/07		14.68	982.12	
						10/02/07		14.89	981.91	
						11/13/07		15.28	981.52	
						12/06/07		15.27	981.53	
						01/09/08		14.66	982.14	
						02/15/08		14.24	982.56	
						03/14/08		14.01	982.79	
						04/04/08		13.74	983.06	
						05/29/08		14.30	982.50	
						06/17/08		14.33	982.47	
						07/11/08		14.50	982.30	
						08/08/08		14.99	981.81	
						09/04/08		15.48	981.32	
						10/06/08		15.14	981.66	Large/many rain events in September 2008
						11/10/08		15.53	981.27	
						12/03/08		15.53	981.27	
						01/09/09		15.04	981.76	
						02/09/09		15.20	981.60	
						03/13/09		14.39	982.41	
						04/03/09		14.36	982.44	
						05/08/09		14.10	982.70	
						06/26/09		13.72	983.08	
						07/28/09		14.40	982.40	
						08/25/09		14.76	982.04	
						09/25/09		15.08	981.72	
						10/28/09		15.00	981.80	
						11/24/09		15.22	981.58	
						12/16/09		15.27	981.53	
						01/13/10		15.38	981.42	
						02/18/10		15.58	981.22	
						03/11/10		15.48	981.32	
						04/21/10		15.36	981.44	
						05/05/10		15.40	981.40	
						06/25/10		14.33	982.47	Large/many rain events in June 2010
						07/22/10		14.73	982.07	
08/26/10		15.00	981.80							
09/24/10		15.47	981.33							
10/21/10		15.77	981.03							
11/18/10		16.00	980.80							
12/13/10		16.02	980.78							
01/11/11		16.18	980.62							
02/04/11		16.36	980.44							
03/11/11		15.70	981.10							
04/29/11		14.79	982.01							
05/25/11		14.70	982.10							
06/27/11		14.50	982.30							
07/22/11		15.05	981.75							
08/19/11		13.96	982.84							
09/30/11		14.44	982.36							
10/28/11		14.57	982.23							
11/23/11		14.68	982.12							
MW-3 (continued)										



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 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						12/28/11		14.05	982.75	
						01/27/12		13.97	982.83	
						02/22/12		14.05	982.75	
						03/26/12		13.57	983.23	
						04/27/12		14.06	982.74	
						05/30/12		14.51	982.29	
						06/29/12		14.82	981.98	
						07/26/12		15.46	981.34	
						08/23/12		15.82	980.98	
						09/28/12		16.25	980.55	
						10/26/12		16.33	980.47	
						11/29/12		16.59	980.21	
						12/21/12		16.67	980.13	
						01/28/13		16.60	980.20	
						02/25/13		16.35	980.45	
						03/26/13		16.09	980.71	
						04/19/13		15.83	980.97	
						05/23/13		15.56	981.24	
						06/27/13		15.86	980.94	
						07/26/13		16.21	980.59	
						08/29/13		16.45	980.35	
						09/20/13		16.73	980.07	
						10/22/13		16.94	979.86	
						11/27/13		16.93	979.87	
						12/19/13		17.10	979.70	
						01/29/14		16.86	979.94	
						02/25/14		16.93	979.87	
						03/20/14		16.38	980.42	
						04/29/14		15.78	981.02	
						05/30/14		15.78	981.02	
						06/20/14		15.80	981.00	
						07/17/14		15.93	980.87	
						08/28/14		16.32	980.48	
						09/23/14		16.29	980.51	
						10/30/14		16.40	980.40	
						11/25/14		16.59	980.21	
						12/29/14		16.72	980.08	
						01/07/15		16.77	980.03	
						02/16/15		17.03	979.77	
						03/20/15		16.48	980.32	
						04/24/15		16.28	980.52	
						05/12/15		16.41	980.39	
						06/11/15		16.29	980.51	
						07/24/15		15.56	981.24	
						08/28/15		16.19	980.61	
						09/29/15		16.67	980.13	
						10/29/15		16.95	979.85	
						11/24/15		17.05	979.75	
						12/18/15		17.10	979.70	
						01/28/16		16.98	979.82	
						02/26/16		17.01	979.79	
						03/25/16		16.53	980.27	
						04/27/16		16.12	980.68	
						05/26/16		15.99	980.81	
						06/14/16		16.32	980.48	
						07/22/16		17.01	979.79	
						08/31/16		16.60	980.20	
						09/22/16		16.95	979.85	
						10/28/16		16.85	979.95	
						11/28/16		16.91	979.89	
						12/22/16		16.98	979.82	
						01/26/17		16.30	980.50	
						02/28/17		15.98	980.82	
						03/21/17		15.82	980.98	
						04/27/17		14.79	982.01	
						05/23/17		14.58	982.22	
						06/30/17		15.19	981.61	
MW-4	N42.31845	W084.13161	55	45-55	1022.90	08/29/02		40.71	982.19	ASTI
						09/20/02		41.00	981.90	ASTI
						01/26/04		42.30	980.60	ASTI
						03/03/04		42.26	980.64	ASTI
						04/19/04		41.64	981.26	ASTI
						02/13/06		41.04	981.86	FTC&H Begins Monitoring
						10/26/06		40.53	982.37	
						08/24/07		38.91	983.99	
						09/13/07		39.26	983.64	
						10/02/07		39.56	983.34	
						11/13/07		40.15	982.75	
						12/06/07		40.09	982.81	
						01/09/08		39.21	983.69	
						02/15/08		38.85	984.05	
						03/14/08		38.44	984.46	
						04/04/08		38.32	984.58	
						05/29/08		38.92	983.98	
						06/17/08		38.99	983.91	
						07/11/08		39.21	983.69	
						08/08/08		39.76	983.14	
						09/04/08		40.26	982.64	
						10/06/08		40.11	982.79	Large/many rain events in September 2008
						11/10/08		40.53	982.37	
						12/03/08		40.55	982.35	
						01/09/09		39.81	983.09	
						02/09/09		39.85	983.05	
						03/13/09		39.05	983.85	
						04/03/09		38.82	984.08	
						05/08/09		38.51	984.39	
MW-4 (continued)										



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Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Eastings								
MW-4 (continued)						06/26/09	38.06	984.84		
						07/28/09	38.82	984.08		
						08/25/09	39.35	983.55		
						09/25/09	39.78	983.12		
						10/28/09	39.86	983.04		
						11/24/09	40.10	982.80		
						12/16/09	40.15	982.75		
						01/13/10	40.26	982.64		
						02/18/10	40.45	982.45		
						03/11/10	40.23	982.67		
						04/21/10	40.06	982.84		
						05/05/10	40.04	982.86		
						06/25/10	38.66	984.24		Large/many rain events in June 2010
						07/22/10	39.19	983.71		
						08/26/10	39.61	983.29		
						09/24/10	40.14	982.76		
						10/21/10	40.53	982.37		
						11/18/10	40.83	982.07		
						12/13/10	40.95	981.95		
						01/11/11	41.07	981.83		
						02/04/11	41.27	981.63		
						03/11/11	40.59	982.31		
						04/29/11	39.43	983.47		
						05/25/11	39.13	983.77		
						06/27/11	38.72	984.18		
						07/22/11	39.36	983.54		
						08/19/11	38.36	984.54		
						09/30/11	39.08	983.82		
						10/28/11	39.34	983.56		
						11/23/11	39.48	983.42		
						12/28/11	38.59	984.31		
						01/27/12	38.51	984.39		
						02/22/12	38.60	984.30		
						03/26/12	38.49	984.41		
						04/27/12	38.72	984.18		
						05/30/12	39.16	983.74		
						06/29/12	39.67	983.23		
						07/26/12	40.24	982.66		
						08/23/12	40.69	982.21		
						09/28/12	41.21	981.69		
						10/26/12	41.45	981.45		
						11/29/12	41.71	981.19		
						12/21/12	41.82	981.08		
						01/28/13	41.75	981.15		
						02/25/13	41.47	981.43		
						03/26/13	41.16	981.74		
						04/19/13	40.89	982.01		
						05/23/13	40.13	982.77		
						06/27/13	40.45	982.45		
						07/26/13	40.75	982.15		
					08/29/13	41.13	981.77			
					09/20/13	41.42	981.48			
					10/22/13	41.74	981.16			
					11/27/13	41.84	981.06			
					12/19/13	41.96	980.94			
					01/29/14	41.71	981.19			
					02/25/14	41.79	981.11			
					03/20/14	41.13	981.77			
					04/29/14	40.30	982.60			
					05/30/14	40.19	982.71			
					06/20/14	40.20	982.70			
					07/17/14	40.35	982.55			
					08/28/14	40.84	982.06			
					09/23/14	41.10	981.80			
					10/30/14	41.38	981.52			
					11/25/14	41.51	981.39			
					12/29/14	41.59	981.31			
					01/07/15	41.65	981.25			
					02/16/15	41.83	981.07			
					03/20/15	41.36	981.54			
					04/24/15	41.35	981.55			
					05/12/15	41.33	981.57			
					06/11/15	41.08	981.82			
					07/24/15	40.18	982.72			
					08/28/15	40.74	982.16			
					09/29/15	41.24	981.66			
					10/29/15	41.64	981.26			
					11/24/15	41.86	981.04			
					12/18/15	41.92	980.98			
					01/28/16	41.86	981.04			
					02/26/16	41.95	980.95			
					03/25/16	41.42	981.48			
					04/27/16	40.86	982.04			
					05/26/16	40.58	982.32			
					06/14/16	40.79	982.11			
					07/22/16	41.38	981.52			
					08/31/16	41.47	981.43			
					09/22/16	41.76	981.14			
					10/28/16	41.82	981.08			
					11/28/16	41.83	981.07			
					12/22/16	41.83	981.07			
					01/26/17	41.18	981.72			
					02/28/17	40.63	982.27			
					03/21/17	40.35	982.55			
					04/27/17	38.97	983.93			
					05/23/17	38.70	984.20			
					06/30/17	39.33	983.57			



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P

Aggregate Industries - Chelsea Operations
Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Eastings								
MW-5	N42.31192	W084.13466	50	40-50	1017.20	08/29/02		35.58	981.62	ASTI
						09/20/02		35.79	981.41	ASTI
						01/26/04		37.19	980.01	ASTI
						03/03/04		37.27	979.93	ASTI
						04/19/04		36.74	980.46	ASTI
						02/13/06		36.39	980.81	FTC&H Begins Monitoring
						10/26/06		35.73	981.47	
						08/24/07		34.47	982.73	
						09/13/07		34.54	982.66	
						10/02/07		34.78	982.42	
						11/13/07		35.16	982.04	
						12/06/07		35.34	981.86	
						01/09/08		35.30	981.90	
						02/15/08		34.42	982.78	
						03/14/08		33.90	983.30	
						04/04/08		33.85	983.35	
						05/29/08		34.13	983.07	
						06/17/08		34.23	982.97	
						07/11/08		34.44	982.76	
						08/08/08		34.76	982.44	
						09/04/08		35.14	982.06	
						10/06/08		35.28	981.92	Large/many rain events in September 2008
						11/10/08		35.53	981.67	
						12/03/08		35.54	981.66	
						01/09/09		35.23	981.97	
						02/09/09		35.15	982.05	
						03/13/09		34.75	982.45	
						04/03/09		34.37	982.83	
						05/08/09		34.02	983.18	
						06/26/09		33.62	983.58	
						07/28/09		34.01	983.19	
						08/25/09		34.40	982.80	
						09/25/09		34.78	982.42	
						10/28/09		35.08	982.12	
						11/24/09		35.15	982.05	
						12/16/09		35.28	981.92	
						01/13/10		35.29	981.91	
						02/18/10		35.50	981.70	
						03/11/10		35.51	981.69	
						04/21/10		35.15	982.05	
						05/05/10		35.23	981.97	
						06/25/10		34.38	982.82	Large/many rain events in June 2010
						07/22/10		34.50	982.70	
						08/26/10		34.71	982.49	
						09/24/10		35.06	982.14	
						10/21/10		35.42	981.78	
						11/18/10		35.73	981.47	
						12/13/10		35.93	981.27	
						01/11/11		36.00	981.20	
						02/04/11		36.16	981.04	
03/11/11		35.96	981.24							
04/29/11		35.27	981.93							
05/25/11		34.68	982.52							
06/27/11		34.15	983.05							
07/22/11		34.56	982.64							
08/22/11		33.98	983.22							
09/30/11		34.37	982.83							
10/28/11		34.55	982.65							
11/23/11		34.73	982.47							
12/28/11		34.08	983.12							
01/27/12		34.01	983.19							
02/22/12		33.83	983.37							
03/26/12		33.89	983.31							
04/27/12		34.01	983.19							
05/30/12		34.27	982.93							
06/29/12		34.64	982.56							
07/26/12		35.10	982.10							
08/23/12		35.59	981.61							
09/28/12		36.11	981.09							
10/26/12		36.46	980.74							
11/29/12		36.61	980.59							
12/21/12		36.82	980.38							
01/28/13		36.74	980.46							
02/25/13		36.52	980.68							
03/26/13		36.37	980.83							
04/19/13		36.23	980.97							
05/23/13		35.54	981.66							
06/27/13		35.57	981.63							
07/26/13		35.82	981.38							
08/29/13		36.13	981.07							
09/20/13		36.30	980.90							
10/22/13		36.58	980.62							
11/27/13		36.74	980.46							
12/19/13		36.87	980.33							
01/29/14		36.68	980.52							
02/25/14		36.72	980.48							
03/20/14		36.18	981.02							
04/29/14		35.64	981.56							
05/30/14		35.51	981.69							
06/20/14		35.41	981.79							
07/17/14		35.57	981.63							
08/28/14		35.93	981.27							
09/23/14		36.11	981.09							
10/30/14		36.28	980.92							
11/25/14		36.50	980.70							
12/29/14		36.61	980.59							

MW-5 (continued)



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P

Aggregate Industries - Chelsea Operations
Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						01/07/15		36.67	980.53	
						02/16/15		36.60	980.60	
						03/20/15		36.52	980.68	
						04/24/15		36.31	980.89	
						05/12/15		36.35	980.85	
						06/11/15		36.27	980.93	
						07/24/15		35.55	981.65	
						08/28/15		35.74	981.46	
						09/29/15		36.10	981.10	
						10/29/15		36.45	980.75	
						11/24/15		36.70	980.50	
						12/18/15		36.76	980.44	
						01/28/16		36.74	980.46	
						02/26/16		36.89	980.31	
						03/25/16		36.59	980.61	
						04/27/16		36.11	981.09	
						05/26/16		35.84	981.36	
						06/14/16		35.86	981.34	
						07/22/16		36.34	980.86	
						08/31/16		36.64	980.56	
						09/22/16		36.72	980.48	
						10/28/16		36.82	980.38	
						11/28/16		36.74	980.46	
						12/22/16		36.87	980.33	
						01/26/17		36.56	980.64	
						02/28/17		35.92	981.28	
						03/21/17		35.69	981.51	
						04/27/17		34.84	982.36	
						05/23/17		34.44	982.76	
						06/30/17		34.63	982.57	
MW-6	N42.321778	W084.14391	116.85		1079.95	06/20/14		104.19	975.76	Installed May 2014
						07/17/14		104.16	975.79	
						08/28/14		104.25	975.70	
						09/23/14		104.43	975.52	
						10/30/14		104.63	975.32	
						11/25/14		104.85	975.10	
						12/29/14		104.95	975.00	
						01/07/15		105.01	974.94	
						02/16/15		104.98	974.97	
						03/20/15		105.00	974.95	
						04/24/15		105.06	974.89	
						05/12/15		105.09	974.86	
						06/11/15		105.05	974.90	
						07/24/15		104.40	975.55	
						08/28/15		104.40	975.55	
						09/29/15		104.60	975.35	
						10/29/15		104.84	975.11	
						11/24/15		105.15	974.80	
						12/18/15		105.15	974.80	
						01/28/16		105.05	974.90	
						02/26/16		105.35	974.60	
						03/25/16		105.27	974.68	
						04/27/16		104.90	975.05	
						05/26/16		104.66	975.29	
						06/14/16		104.67	975.28	
						07/22/16		104.86	975.09	
						08/31/16		104.93	975.02	
						09/22/16		105.04	974.91	
						10/28/16		105.16	974.79	
						11/28/16		105.04	974.91	
12/22/16		105.25	974.70							
01/26/17		105.02	974.93							
02/28/17		104.60	975.35							
03/21/17		104.49	975.46							
04/27/17		103.72	976.23							
05/23/17		103.27	976.68							
06/30/17		102.89	977.06							
MW-7	N42.323694	W084.141108	117.12		1080.40	06/20/14		104.49	975.91	Installed May 2014
						07/17/14		104.44	975.96	
						08/28/14		104.53	975.87	
						09/23/14		104.73	975.67	
						10/30/14		105.00	975.40	
						11/25/14		105.21	975.19	
						12/29/14		105.27	975.13	
						01/07/15		105.31	975.09	
						02/16/15		105.28	975.12	
						03/20/15		105.30	975.10	
						04/24/15		105.40	975.00	
						05/12/15		105.49	974.91	
						06/11/15		105.47	974.93	
						07/24/15		104.76	975.64	
						08/28/15		104.79	975.61	
						09/29/15		105.00	975.40	
						10/29/15		105.24	975.16	
						11/24/15		105.50	974.90	
						12/18/15		105.47	974.93	
						01/28/16		105.35	975.05	
						02/26/16		105.60	974.80	
						03/25/16		105.54	974.86	
						04/27/16		105.19	975.21	
						05/26/16		104.99	975.41	
						06/14/16		104.99	975.41	
						07/22/16		105.20	975.20	
						08/31/16		105.25	975.15	
						09/22/16		105.35	975.05	



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P
 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Eastng								
						10/28/16	105.47		974.93	
						11/28/16	105.37		975.03	
						12/22/16	105.53		974.87	
						01/26/17	105.29		975.11	
						02/28/17	104.86		975.54	
						03/21/17	104.74		975.66	
						04/27/17	103.99		976.41	
						05/23/17	103.59		976.81	
						06/30/17	103.29		977.11	
Al Lake-SE	N42.32668	W084.13218				02/13/06	976.75			GPS accuracy 18 feet
Al Lake-N	N42.32744	W084.13376				02/13/06	976.24			GPS accuracy 21 feet
Al Lake-N (cont.)						10/26/06	974.83			Elevation Surveyed from MW-2
Al Lake-W	N42.32587	W084.13441				08/24/07	976.60			Elevation Surveyed From BM-1
Freshwater Lake*-W						09/13/07	976.27			Al Lake re-named Freshwater Lake per Part 301 permit
						10/02/07	972.10			
						11/13/07	977.43			
						12/06/07	977.63			
						01/09/08	978.35			
						02/15/08	978.63			
						03/14/08	978.75			
						04/04/08	977.17			
						05/29/08	976.56			
						06/17/08	977.47			
						07/11/08	977.10			
						08/08/08	976.37			
						09/04/08	976.12			
						10/06/08	977.46			Large/many rain events in September 2008
						11/10/08	976.72			
						12/03/08	976.93			
						01/09/09	975.33			
						02/09/09	977.23			
						03/13/09	977.88			
						04/03/09	977.65			
						05/08/09	977.80			
						06/26/09	978.63			
						07/28/09	978.52			
						08/25/09	976.59			
						09/25/09	975.23			
						10/28/09	975.62			
						11/24/09	977.21			
						12/16/09	977.33			
						01/13/10	977.28			
						02/18/10	977.09			
						03/11/10	977.07			
						04/21/10	977.17			
						05/05/10	977.22			
						06/25/10	977.16			Large/many rain events in June 2010
						07/22/10	976.43			
						08/26/10	975.70			
						09/24/10	975.54			
						10/21/10	976.33			
						11/18/10	976.13			
						12/13/10	976.76			
						01/11/11	976.76			
						02/04/11	976.69			
						03/11/11	976.94			
						04/29/11	976.25			
						05/25/11	976.81			
						06/27/11	977.81			
						07/22/11	976.72			
						08/19/11	978.69			
						09/30/11	978.60			
						10/28/11	978.38			
						11/23/11	978.18			
						12/28/11	977.38			
						01/27/12	978.65			
						02/22/12	978.67			
						03/26/12	977.40			Pump on, but no water returning from sediment ponds
						04/27/12	976.82			
						05/30/12	976.90			
						06/29/12	976.26			
						07/26/12	975.76			
						08/23/12	975.54			
						09/28/12	975.15			
						10/26/12	975.84			
						11/29/12	976.04			
						12/21/12	976.15			
						01/28/13	976.25			
						02/25/13	976.36			
						03/26/13	976.50			
						04/19/13	976.41			
						05/23/13	976.07			
						06/27/13	976.13			
						07/26/13	976.23			
						08/29/13	976.12			
						09/20/13	975.54			
						10/22/13	975.42			
						11/27/13	975.51			
						12/19/13	975.70			
						01/29/14	976.05			
						02/25/14	976.09			
						03/20/14	976.35			
						04/29/14	976.16			
						05/30/14	976.24			
						06/20/14	976.34			
						07/17/14	976.51			



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P

Aggregate Industries -- Chelsea Operations
Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						08/28/14	976.27			
						09/23/14	975.64			
						10/30/14	974.70			
						11/25/14	975.22			
						12/29/14	975.67			
						01/07/15	975.72			
						02/16/15	975.92			
						03/20/15	975.59			
						04/24/15	974.77			
						05/12/15	973.46			
						06/11/15	974.00			
						07/24/15	975.24			
						08/28/15	974.90			
						09/29/15	974.71			
						10/29/15	974.55			
						11/24/15	975.00			
						12/18/15	975.32			
						01/28/16	975.77			
						02/26/16	975.94			
						03/25/16	975.47			
						04/27/16	975.42			
						05/26/16	975.52			
						06/14/16	975.39			
						07/22/16	975.01			
						08/31/16	975.25			
						09/22/16	974.86			
						10/28/16	975.01			
						11/28/16	975.17			
						12/22/16	975.61			
						01/26/17	976.18			
						02/28/17	976.64			
						03/21/17	976.88			
04/27/17	976.91									
05/23/17	976.56									
06/30/17	975.91									
Pond Lily Lake	N42.31729	W084.14114				10/26/06	981.44			Elevation Surveyed from MW-3, GPS accuracy 19 ft
						08/24/07	982.63			Elevation Surveyed from BM-2
						09/13/07	982.50			
						10/02/07	982.44			
						11/13/07	982.02			
						12/06/07	982.19			
						01/09/08	982.57			
						02/15/08	982.97			
						03/14/08	983.16			
						04/04/08	983.34			
						05/29/08	982.82			
						06/17/08	982.82			
						07/11/08	982.78			
08/08/08	982.37									
Pond Lily Lake (cont.)						09/04/08	981.98			
						10/06/08	982.25			Large/many rain events in September 2008
						11/10/08	982.05			
						12/03/08	982.08			
						01/09/09	982.30			
						02/09/09	982.28			
						03/13/09	982.71			
						04/03/09	982.74			
						05/08/09	982.89			
						06/26/09	983.25			
						07/28/09	982.80			
						08/25/09	982.56			
						09/25/09	982.35			
						10/28/09	982.43			
						11/24/09	982.28			
						12/16/09	982.33			
						01/13/10	982.24			
						02/18/10	982.10			
						03/11/10	982.12			
						04/21/10	982.03			
						05/05/10	982.02			
						06/25/10	982.64			Large/many rain events in June 2010
						07/22/10	982.54			
						08/26/10	982.37			
						09/24/10	982.08			
						10/21/10	981.78			
						11/18/10	981.58			
						12/13/10	981.64			
						01/11/11	981.56			
						02/04/11	981.65			
						03/11/11	981.73			
						04/29/11	982.27			
						05/25/11	982.48			
						06/27/11	982.55			
						07/22/11	982.16			
						08/19/11	983.09			
						09/30/11	982.96			
10/28/11	982.85									
11/23/11	982.80									
12/28/11	983.16									
01/27/12	983.28									
02/22/12	983.22									
03/26/12	983.27									
04/27/12	983.08									
05/30/12	982.67									
06/29/12	982.43									
07/26/12	981.95									
08/23/12	981.66									
Pond Lily Lake (cont.)										



Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P
 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						09/28/12	981.32			
						10/26/12	981.31			
						11/29/12	981.06			
						12/21/12	981.10			
						01/28/13	981.06			
						02/25/13	981.18			
						03/26/13	981.28			
						04/19/13	981.55			
						05/23/13	981.37			
						06/27/13	981.37			
						07/26/13	981.12			
						08/29/13	981.03			
						09/20/13	980.70			
						10/22/13	980.59			
						11/27/13	980.60			
						12/19/13	980.60			
						01/29/14	980.99			
						02/25/14	980.95			
						03/20/14	981.21			
						04/29/14	981.12			
						05/30/14	981.20			
						06/20/14	981.13			
						07/17/14	981.21			
						08/28/14	981.02			
						09/23/14	980.99			
						10/30/14	980.85			
						11/25/14	980.89			
						12/29/14	980.84			
						01/07/15	980.84			
						02/16/15	980.70			
						03/20/15	980.78			
						04/24/15	980.76			
						05/12/15	980.79			
						06/11/15	980.70			
						07/24/15	981.24			
						08/28/15	980.91			
						09/29/15	980.47			
						10/29/15	980.46			
						11/24/15	980.20			
						12/18/15	980.39			
						01/28/16	980.68			
						02/26/16	980.40			
						03/25/16	980.74			
						04/27/16	980.77			
						05/26/16	980.78			
						06/14/16	980.09			
						07/22/16	978.63			excavated 1.5ft dia hole and let fill with water.
						08/31/16	980.37			
						09/22/16	979.72			
						10/28/16	980.50			
						11/28/16	980.40			
						12/22/16	980.31			
						01/26/17	980.71			
						02/28/17	980.92			
						03/21/17	981.06			
						04/27/17	981.74			
						05/23/17	982.02			
						06/30/17	981.75			
Clear Lake	N42.33242	W084.15166				08/29/07	966.35			Elevation Surveyed from BM-3
						09/13/07	966.20			Note: USGS Topo shows lake elevation at 968 ft amsl
						10/02/07	966.13			
						11/13/07	966.22			
						12/06/07	966.41			
						01/09/08	966.49			
						02/15/08	966.33			
						03/14/08	966.26			
						04/04/08	966.35			
	N42.33242	W084.15166				05/29/08	966.15			Elevation Surveyed from BM-4
						06/17/08	966.25			
						07/11/08	966.26			
						08/08/08	966.06			
						09/04/08	965.89			
						10/06/08	966.20			Large/many rain events in September 2008
						11/10/08	966.33			
						12/03/08	966.47			
						01/09/09	966.31			
						02/09/09	966.17			
						03/13/09	966.54			
						04/03/09	966.75			
						05/08/09	966.29			
						06/26/09	966.35			
						07/28/09	966.16			
						08/25/09	966.18			
						09/25/09	966.23			
						10/28/09	966.39			
						11/24/09	966.46			
						12/16/09	966.35			
						01/13/10	966.34			
						02/18/10	966.32			
						03/11/10	966.31			
						04/21/10	966.21			
Clear Lake (cont.)						05/05/10	966.31			
						06/25/10	966.35			Large/many rain events in June 2010
						07/22/10	966.28			
						08/26/10	966.14			
						09/24/10	966.02			



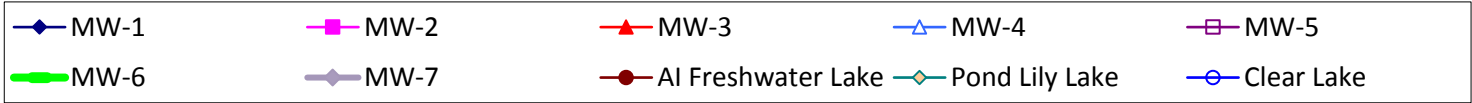
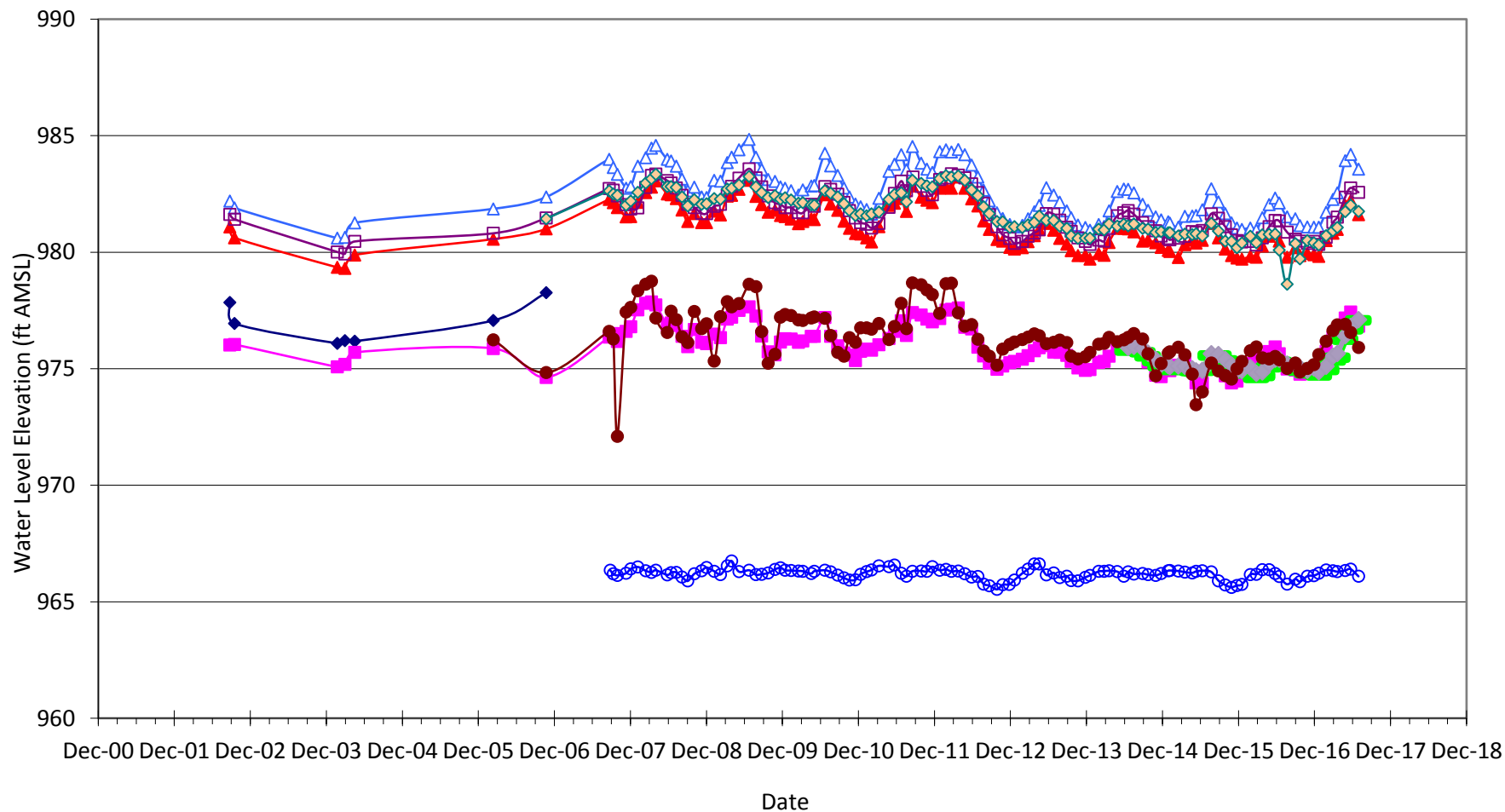
Table 1 - Groundwater and Surface Water Elevation Data - Part 301 Permit No. 12-38-0010-P
 Aggregate Industries - Chelsea Operations
 Waterloo Township, Jackson County, Michigan

Location	Coordinates		Well Depth (ft bgs)	Screen Depth (ft bgs)	Top of Casing (ft amsl)	Date	Surface Water Elevation (ft amsl)	Depth to Water (ft bgs)	Static Water Level Elevation (ft amsl)	Comments
	Northing	Easting								
						10/21/10	965.93			
						11/18/10	965.94			
						12/13/10	966.18			
						01/11/11	966.29			
						02/04/11	966.36			
						03/11/11	966.54			
						04/29/11	966.50			
						05/25/11	966.57			
						06/27/11	966.22			
						07/22/11	966.09			
						08/19/11	966.31			
						09/30/11	966.32			
						10/28/11	966.30			
						11/23/11	966.50			
						12/28/11	966.35			
						01/27/12	966.39			
						02/22/12	966.30			
						03/26/12	966.32			
						04/27/12	966.20			
						05/30/12	966.06			
						06/29/12	966.08			
						07/26/12	965.76			
						08/23/12	965.69			
						09/28/12	965.53			
						10/26/12	965.73			
						11/26/12	965.74			
						12/21/12	965.93			
						01/28/13	966.22			
						02/25/13	966.40			
						03/26/13	966.62			
						04/19/13	966.62			
						05/23/13	966.15			
						06/27/13	966.24			
						07/26/13	966.04			
						08/29/13	966.10			
						09/20/13	965.91			
						10/22/13	965.90			
						11/27/13	966.05			
						12/19/13	966.13			
						01/29/14	966.30			
						02/25/14	966.31			
						03/20/14	966.33			
						04/29/14	966.29			
						05/30/14	966.10			
						06/20/14	966.28			
						07/17/14	966.19			
						08/28/14	966.21			
						09/23/14	966.16			
						10/30/14	966.13			
						11/25/14	966.21			
						12/29/14	966.33			
						01/07/15	966.34			
						02/16/15	966.32			
						03/20/15	966.27			
						04/24/15	966.24			
						05/12/15	966.30			
						06/11/15	966.33			
						07/24/15	966.28			
						08/28/15	965.90			
						09/29/15	965.72			
						10/29/15	965.62			
						11/24/15	965.70			
						12/18/15	965.74			
						01/28/16	966.17			
						02/26/16	966.18			
						03/25/16	966.37			
						04/27/16	966.37			
						05/26/16	966.21			
						06/14/16	966.08			
						07/22/16	965.75			
						08/31/16	965.97			
						09/22/16	965.86			
						10/28/16	966.10			
						11/28/16	966.12			
						12/22/16	966.22			
						01/26/17	966.36			
						02/28/17	966.33			
						03/21/17	966.29			
						04/27/17	966.34			
						05/23/17	966.40			
						06/30/17	966.09			

Notes:
 Wells are 2" PVC with 10 foot PVC screens (0.001-inch slot). Coarse filter pack to 2 ft above screen. Finished upright with steel covers and expanding well caps.
 ASTI elevation survey to USGS Datum (2002) - reference: Hydrogeologic Investigation Report to Aggregate Industries Waterloo Township, Michigan dated September 25, 2002.
 *Freshwater Lake is the name of the created water body under Part 301 Permit No. 06-38-0043-P.



Monitoring Well & Surface Water Hydrograph Aggregate Industries, Inc. - Chelsea Plant Part 301 Permit No. 12-38-0010-P



Monitoring Well & Surface Water Hydrograph Aggregate Industries, Inc. - Chelsea Plant Part 301 Permit No. 12-38-0010-P

