One Stanton Street
Marinette, WI 54143-2542

Tele: 715-735-7411

November 14, 2018

Mr. Conor Neal
Hydrogeologist
Land & Chemicals Division
US Environmental Protection Agency, Mail Code LU-9J
77 West Jackson Blvd
Chicago, IL 60604-3590

RE: Bi-Weekly Summary Report for Pump Down Program
Tyco Fire Products LP Site
Marinette, WI

Dear Mr. Neal:

The information provided herein is a summary of activities conducted at the Tyco Fire Products LP (Tyco) site associated with the Pump Down Program for the former Salt Vault and 8th Street Slip areas. The Pump Down Program is required as part of the Administrative Order on Consent between Tyco and U.S. Environmental Protection Agency (USEPA). This summary report covers the period from October 20, 2018 through November 8, 2018 and represents the final bi-weekly report for the 2018 activities.

Summary of Work during Reporting Period

Work conducted during the reporting period included:

- Manual water level readings at the designated monitoring points and extraction wells were collected at least weekly during the reporting period. The average water level, based on the most recent water level measurements during the reporting period, in the former Salt Vault was 578.19 feet above mean seal level (ft. AMSL), or 0.29 feet above the target level. The average water level in the former 8th Street Slip was 573.83 ft. AMSL, or 4.07 feet below the target level. A cumulative summary of manual water level readings and corrected elevations is attached as Table 1.
- Total groundwater recovery rates in the former Salt Vault area averaged 0.77 gallons per minute (gpm) per well from the four extraction wells during the reporting period. Total groundwater recovery rates in the former 8th Street Slip averaged 1.69 gpm per well from the two extraction wells during pumping

operations. Limited planned shutdown of extraction well EW-8 occurred during the reporting period; the remaining extraction wells in each area were reported to have operated continuously during the reporting period.

- Off-site transportation of recovered groundwater was conducted during the reporting period. Off-site disposal operations are limited to five days per week with generally 1-2 trucks (approximately 5,000-10,000 gallons) per day necessary to maintain tank levels allowing for continuous pumping from the extraction wells.
- Decommissioning of the temporary extraction system occurred during the week of November 5, 2018. The conveyance piping was removed from each extraction well, pumps and flow meters were removed, secondary containment area was decontaminated and a portion of the structure removed to allow for stormwater discharge over the winter, and all extracted groundwater removed from the site for disposal.

A summary of pumping and disposal operations for the 2018 season is provided below.

Summary of Pump Down Operations (through November 8, 2018)

	Gallons Pumped	Gallons Treated at GWTS[1]	Gallons Transported for Off Site Disposal
This Period	~66,000	~0	~77,000
2018 Operations To Date	~1,293,090	~0	~1,293,090[2]

All quantities are estimated

Issues Encountered during Reporting Period

No operational issues occurred during the reporting period.

Issues To Be Resolved During Next Reporting Period

No issues that require resolution have been identified at this time.

[1] GWTS – Groundwater Treatment System

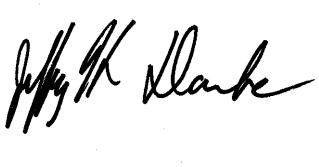
[2] Volume includes stormwater recovered in secondary containment structure

Anticipated Work During Next Reporting Period

Manual water level measurements will be collected from the designated monitoring wells on a monthly basis during the shutdown period. Groundwater elevation data will be provided to the agencies on a monthly basis.

If you have any questions regarding this report, please contact me at 262-951-6888 or jeff.danko-ext@jci.com.

Sincerely,



Jeffrey Danko
Environmental Project Geologist

Attachments:

Table 1 –Pump Down Program Groundwater Elevation Monitoring

cc: Angela Carey – WDNR
Trevor Moen - WDNR
Joseph Janeczek – Johnson Controls
Richard Mator – Johnson Controls
Ryan Suennen – Tyco Fire Products

TABLE 1
2016-2018 Pump Down Program Groundwater Elevation Monitoring
Tyco Fire Products LP
Marinette, Wisconsin

Target Elevation **577.9**

Well ID	June 14, 2016		June 16, 2016		June 22, 2016		June 29, 2016		July 6, 2016		July 13, 2016		July 20, 2016		July 27, 2016		August 1, 2016		August 3, 2016		August 8, 2016		August 10, 2016		August 11, 2016		August 13, 2016		August 17, 2016		August 20, 2016		August 22, 2016		August 24, 2016		August 27, 2016		September 3, 2016		September 7, 2016	
	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)

Well ID	April 24, 2017		May 10, 2017		June 6, 2017		June 15, 2017		June 16, 2017		July 6, 2017		August 1, 2017		August 4, 2017		August 15, 2017		August 23, 2017		August 25, 2017		August 29, 2017		September 1, 2017		September 5, 2017		September 11, 2017		September 14, 2017		September 25, 2017		September 29, 2017		October 2, 2017		October 4, 2017		October 9, 2017	
	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)

Well ID	May 18, 2018		May 22, 2018		May 24, 2018		May 25, 2018		May 29, 2018		May 31, 2018		June 5, 2018		June 8, 2018		June 12, 2018		June 14, 2018		June 19, 2018		June 22, 2018		June 26, 2018		June 28, 2018		July 3, 2018		July 5, 2018		July 10, 2018		July 13, 2018		July 17, 2018		July 19, 2018		July 20, 2018	
	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)

Well ID	October 4, 2018		October 9, 2018		October 11, 2018		October 16, 2018		October 18, 2018		October 23, 2018		October 25, 2018		October 30, 2018		November 1, 2018		November 5, 2018	
	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)	DTW	Corrected Groundwater Elevation (for equivalent fresh water)
MW001M	10.32	576.85	9.95	577.22	9.88	577.29	9.91	577.26	10.26	576.91	10.23	576.94	10.10	577.07	10.06	577.11	10.15	577.02	10.00	577.17
MW001S	9.52	577.74	9.06	578.20	9.10	578.16	8.16	579.10	9.43	577.83	9.43	577.83	9.25	578.01	9.26	578.00	9.34	577.92	9.24	578.02
MW002M-R	12.59	578.10	12.14	578.56	12.01	578.69	12.20	578.50	12.55	578.14	12.49	578.20	12.34	578.35	12.38	578.31	12.48	578.21	12.33	578.36
MW002S-R	12.51	577.81	12.10	578.22	12.07	578.25	12.06	578.26	12.43	577.89	12.42	577.90	12.26	578.06	12.30	578.02	12.39	577.93	12.20	578.12
MW031M	9.73	578.29	9.57	578.45	9.37	578.65	9.65	578.37	9.94	578.08	9.81	578.21	9.83	578.19	9.82	578.20	9.85	578.17	9.65	578.37
MW031S	11.05	577.85	10.71	578.19	10.51	578.39	10.75	578.15	11.10	577.80	10.97	577.93	10.93	577.97	10.98	577.92	10.95	577.95	10.72	578.18
MW113S	12.47	577.81	12.02	578.27	11.89	578.40	12.05	578.24	12.42	577.86	12.40	577.88	12.21	578.07	12.25	578.03	12.34	577.94	12.06	578.22
MW113M	11.35	578.94	10.79	579.51	10.57	579.73	11.09	579.20	11.26	579.03	11.19	579.10	11.16	579.13	11.21	579.08	11.22	579.07	10.96	579.33
MW115P	10.74	578.35	10.47	578.62	10.38	578.71	10.49	578.60	10.82	578.27	10.76	578.33	10.70	578.39	10.66	578.43	10.74	578.35	10.59	578.50
MW115S	11.24	577.75	10.89	578.10	10.73	578.27	10.90	578.09	11.28	577.71	11.25	577.74	11.11	577.88	11.12	577.87	11.21	577.78	11.00	577.99
MW116P	10.88	579.03	10.83	579.08	10.87	579.04	10.85	579.06	10.98	578.93	10.99	578.92	10.91	579.00	10.99	578.92	11.02	578.89	10.97	578.94
MW116S	12.06	577.84	11.67	578.23	11.57	578.33	11.68	578.22	12.01	577.89	12.04	577.86	11.86	578.04	11.88	578.02	11.95	577.95	11.76	578.14
MW119D	39.78	548.96	36.05	552.69	36.28	552.46	31.64	557.10	30.53	558.21	27.93	560.81	26.90	561.84	27.74	561.00	23.95	564.79	22.40	566.34
EW-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EW-10	23.73	564.02	23.90	563.85	23.84	563.91	23.10	564.66	22.60	565.16	24.18	563.57	21.93	565.83	24.74	563.01	23.72	564.03	17.79	569.98
EW-11	27.74	559.56	27.04	560.26	27.12	560.18	23.30	564.01	23.41	563.90	22.15	565.16	25.65	561.66	21.82	565.49	21.80	565.51	28.07	559.23
EW-13	24.18	561.56	24.08	561.66	24.01	561.73	21.95	563.80	23.22	562.52	23.66	562.08	20.78	564.97	23.30	562.44	21.78	563.97	23.14	562.60
EW-14	21.28	565.43	21.13	565.58	21.20	565.51	20.89	565.82	20.42	566.29	20.50	566.21	19.95	566.76	20.29	566.42	20.24	566.47	20.35	566.36
MW034M	13.98	574.27	13.86	574.39	13.79	574.46	13.09	575.16	13.15	575.10	14.19	574.06	14.23	574.02	14.28	573.97	14.28	573.97	14.28	573.97
MW034S	14.24	573.98	14.23	573.99	14.16	574.06	13.36	574.86	14.47	573.75	14.49	573.73	14.54	573.68	14.60	573.62	14.61	573.61	14.63	573.59
MW036M	14.81	573.74	14.83	573.72	14.84	573.71	14.09	574.47	14.93	573.61	15.02	573.52	15.02	573.52	15.08	573.46	15.10	573.44	15.11	573.43
MW036S	14.28	573.99	14.35	573.92	14.39	573.88	14.32	573.95	14.40	573.87	14.52	573.75	14.54	573.73	14.61	573.66	14.61	573.66	14.64	573.63
MW038M	14.01	573.68	14.02	573.67	14.03	573.66	13.96	573.73	14.11	573.58	14.20	573.49	14.20	573.49	14.24	573.45	14.28	573.41	14.25	573.44
MW038S	14.12	573.58	14.21	573.49	14.19	573.51	14.05	573.65	14.24	573.46	14.33	573.37	14.34	573.36	14.38	573.32	14.40	573.30	14.36	573.34
MW120D	8.09	580.74	6.99	581.85	7.01	581.83	7.87	580.96	7.89	580.94	7.49	581.35	7.71	581.12	7.59	581.24	7.70	581.13	7.27	581.57
MW120M	14.04	574.88	14.00	574.92	14.02	574.90	14.21	574.71	14.19	574.73	14.25	574.67	14.34	574.57	14.38	574.53	14.43	574.48	14.48	574.43
MW120S	13.44	575.15	13.42	575.17	13.45	575.14	14.44	574.15	13.55	575.04	13.67	574.92	13.65	574.94	13.75	574.84	13.82	574.77	13.81	574.78
EW-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EW-8	17.98	568.78	18.47	568.29	18.52	568.24	16.95	569.81	17.80	568.96	17.76	569.00	16.20	570.56	17.96	568.80	17.93	568.83	12.24	574.53
EW-9	22.29	563.38	20.27	565.41	20.30	565.38	20.49	565.19	20.30	565.38	22.62	563.05	22.14	563.53	22.11	563.56	21.10	564.58	21.72	563.95
MW004M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW004S	6.18	582.40	5.79	582.79	5.46	583.12	5.27	583.31	5.41	583.17	5.48	583.10	5.50	583.08	5.55	583.03	5.61	582.97	5.45	583.13
MW032M	6.48	581.74	5.92	582.31	5.73	582.50	5.94	582.29	6.12	582.11	6.11	582.12	6.10	582.13	6.21	582.02	6.20	582.03	5.86	582.37
MW032S	6.18	582.18	6.11	582.25	6.08	582.28	5.95	582.41	6.00	582.36	5.89	582.47	5.88	582.48	5.85	582.51	5.81	582.55	5.78	582.58
MW033M	5.21	583.58	5.29	583.50	4.44	584.36	4.32	584.49	4.49	584.31	4.56	584.24	4.57	584.23	4.61	584.19	4.69	584.11	4.50	584.30
MW033S	4.81	582.36	4.98	582.19	4.09	583.08	3.95	583.22	4.10	583.07	4.13	583.04	4.21	582.96	4.25	582.92	4.31	582.86	4.13	583.04
MW039M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW039S	3.57	582.52	3.21	582.88	2.85	583.24	2.70	583.39	2.84	583.25	2.92	583.17	2.95	583.14	2.96	583.13	3.02	583.07	2.88	583.21
MW035M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW035S	6.07	581.60	5.57	582.10	5.61	582.06	5.71	581.96	5.83	581.84	5.93	581.74	5.92	581.75	5.91	581.76	6.00	581.67	5.68	581.99
MW037M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW037S	5.31	581.77	4.90	582.18	4.88	582.20	4.98	582.10	5.07	582.01	5.15	581.93	5.17	581.91	5.21	581.87	5.25	581.83	5.04	582.04
SG4[1]	8.50	580.39	7.15	581.74	7.95	580.94	8.20	580.69	8.24	580.65	7.80	581.09	8.06	580.83	7.70	581.19	8.20	580.69	8.50	580.39
Rough Target Elevation Calc SV*		577.90		578.29		578.41		578.34		577.91		577.96		578.08		578.06		577.99		578.19
Rough Target Elevation Calc 8S*		574.16		574.16		574.16		574.33		574.14		573.94		573.91		573.86		573.83		573.83
Target Elevation (NAVD88)		577.90		577.90		577.90		577.90		577.90		577.90		577.90		577.90		577.90		577.90
SV Variance		0.00		0.39		0.51		0.44		0.01		0.06		0.18		0.16		0.09		0.29
8S Variance		-3.74		-3.74		-3.74		-3.57		-3.76		-3.96		-3.99		-4.04		-4.07		-4.07

Notes:

Measurements were collected from top of casing (TOC). All depth measurements are in feet.

ID = identification; DTW = depth to water; DTB = Depth to Bottom; TOC = Top of Casing

NM = Not Measured; MW = Monitoring Well; PZ = Piezometer

August 3rd measurements taken during Salt Vault Shut Down Period

August 10-11 measurements taken during 8th Street Slip Shut Down Period, only pumping wells EW-10 and EW-13 operating in Salt Vault

August 13th through August 23rd measurements taken with only EW-08 operating in 8th Street Slip and EW-10 and EW-13 operating in Salt Vault

August 24th through September 14th measurements taken with only EW-09 operating in 8th Street Slip and EW-10 and EW-13 operating in Salt Vault

September 17th through October 22nd measurements taken with only EW-09 operating in 8th Street Slip and EW-10, EW-11, EW-13 and EW-14 operating in Salt Vault