Jackson River DO Special Study
VDEQ, WestRock &
ONE Environmental Group

December 2019 Quarterly Meeting

Dissolved Oxygen Data Summary

January-November 2019

Notes

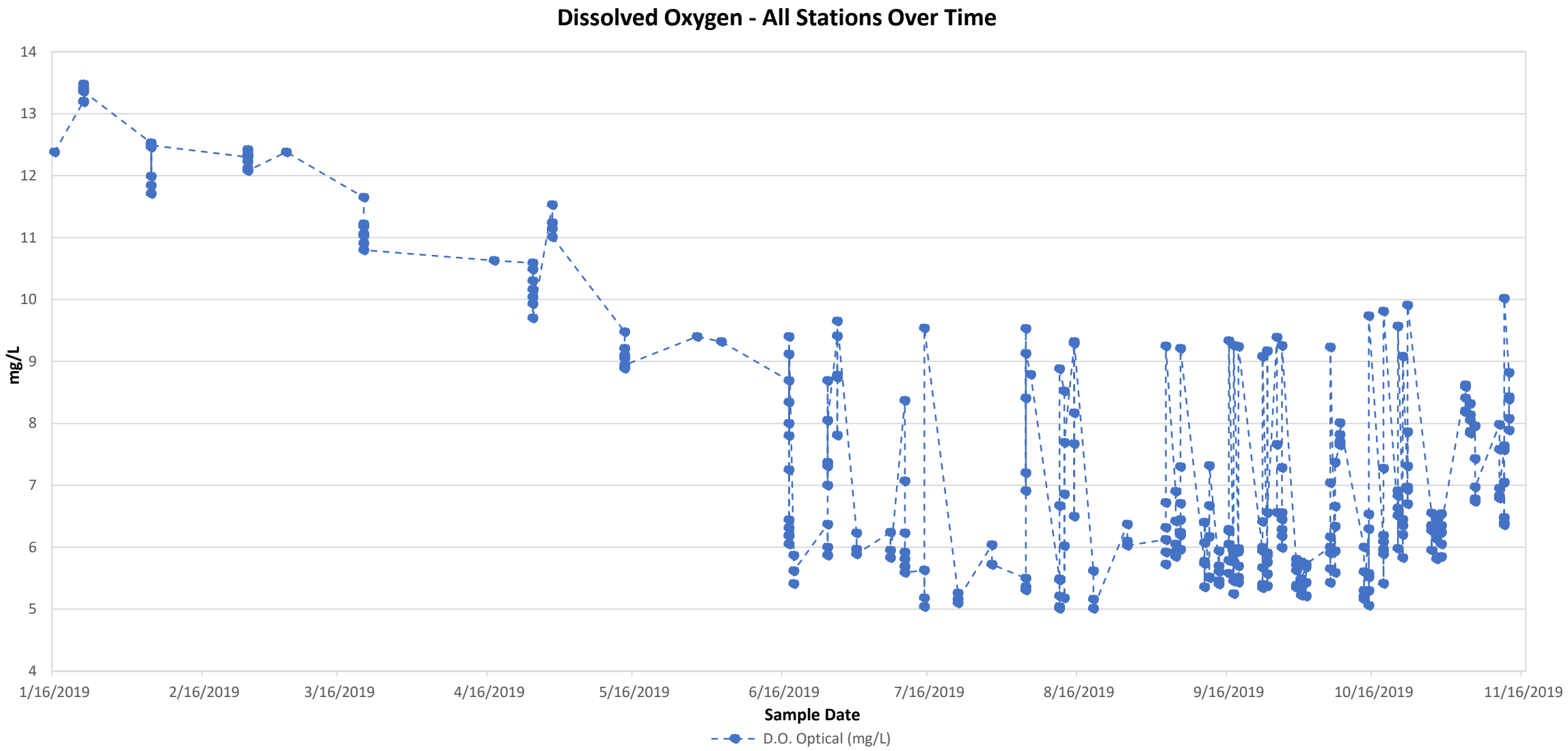
- Data QA/QC: all data collection sheets were compared to DEQ ‘data pull’ and differences were noted and sent to DEQ. The errors were corrected in the data spreadsheet used by ONE to prepare the enclosed graphs and tables.
- There were 0 exceedances of the DO standards:
  - Daily Average DO < 5.0 mg/L AND Minimum DO < 4.0 mg/L
  - >10.5% of days/assessment would have to exceed either criterion to be impaired
- Diurnal sampling was conducted on 9/16-18/19 and 10/21-23/19.
- Pulse dates were 9/4/19, 9/25/19, and 10/16/19.

Sampling Plan

		Summer		Winter/Spring
Station ID	Description	15 June- August		Dec. - May
2-JKS026.01	Filtration plant	1/ month		1/month
2-JKS023.61	Playground	1/month		1/month
2-JKS022.78	Fudges Bridge	1/month	1/week	1/month
2-JKS022.15	Industrial Park	1/month		1/month
2-JKS021.09	Hercules	1/month	1/week	1/month
2-JKS018.68	Idlewilde/Rt. 18	1/month	1/week	1/month
2-JKS015.60	Behind Mallow Mall	1/month		1/month

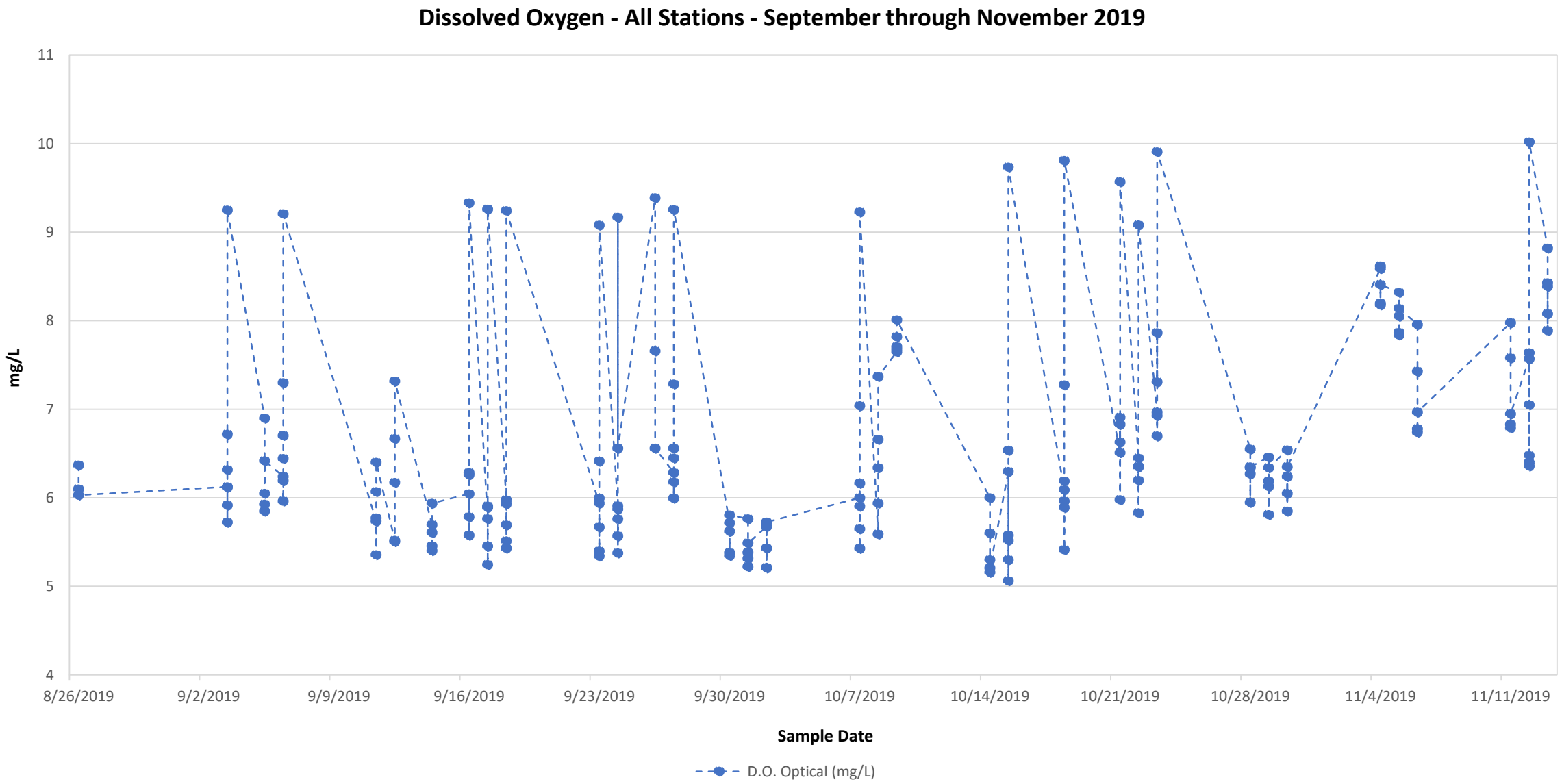
		Fall	
Station ID	Description	Sept. – Nov 15	
2-JKS026.01	Filtration plant	1/ month	
2-JKS023.61	Playground	1/month	
2-JKS022.78	Fudges Bridge	Potentially collect diurnal data once a month to understand diurnal effect	3/week
2-JKS022.15	Industrial Park		3/week
2-JKS021.09	Hercules		3/week
2-JKS018.68	Idlewilde/Rt. 18		3/week
2-JKS015.60	Behind Mallow Mall		3/week

Overall Data Trends



Note: DO data includes all stations – the 7 stations in this study and the additional stations monitored by DEQ. Sampling days that had >1 sample collected (due to low AM DO, diurnal days, or pre-/post-pulse days) are shown as the average of that day.

Overall Data Trends-data for the high frequency sampling months



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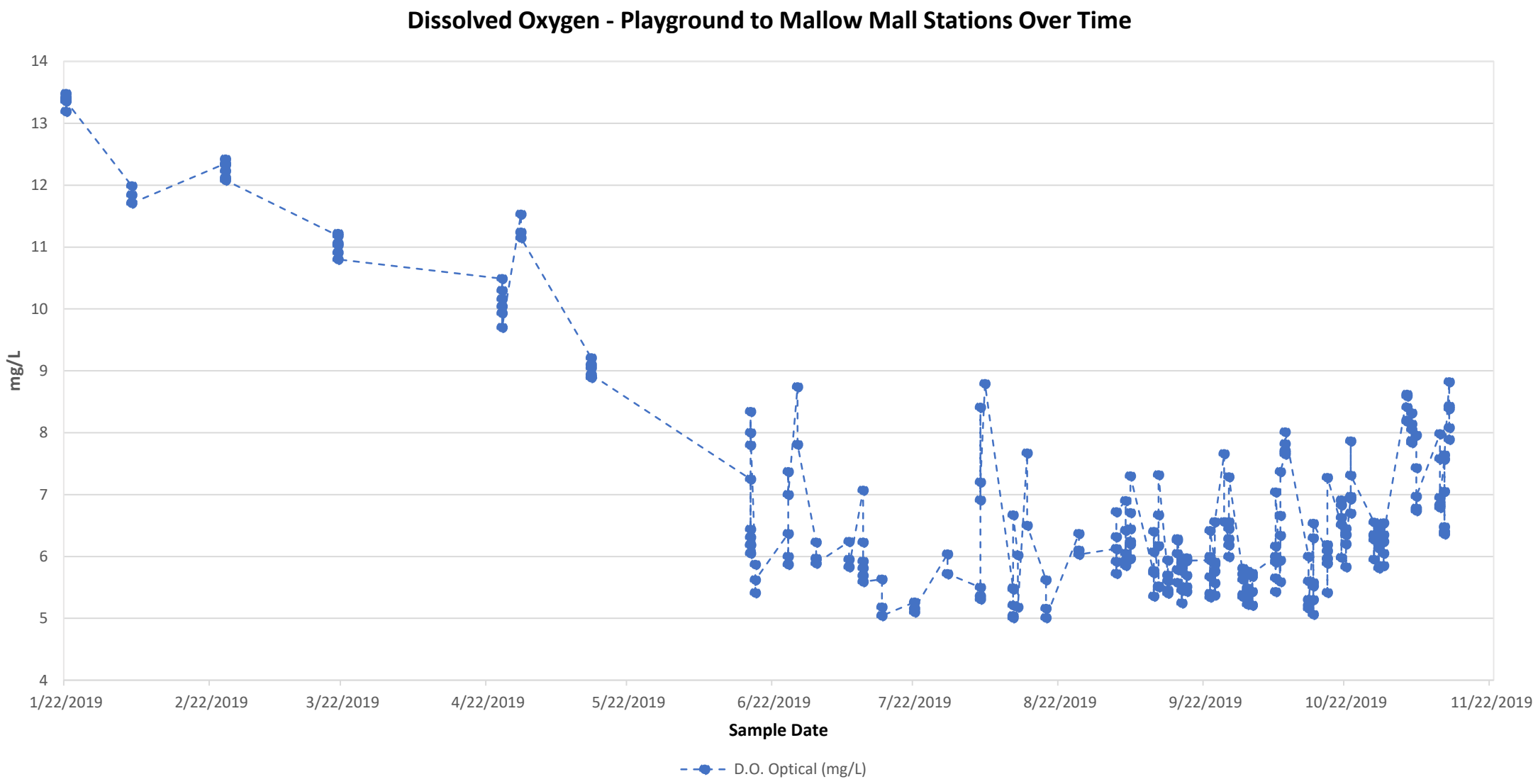
9/4/19
9/25/19
10/16/19



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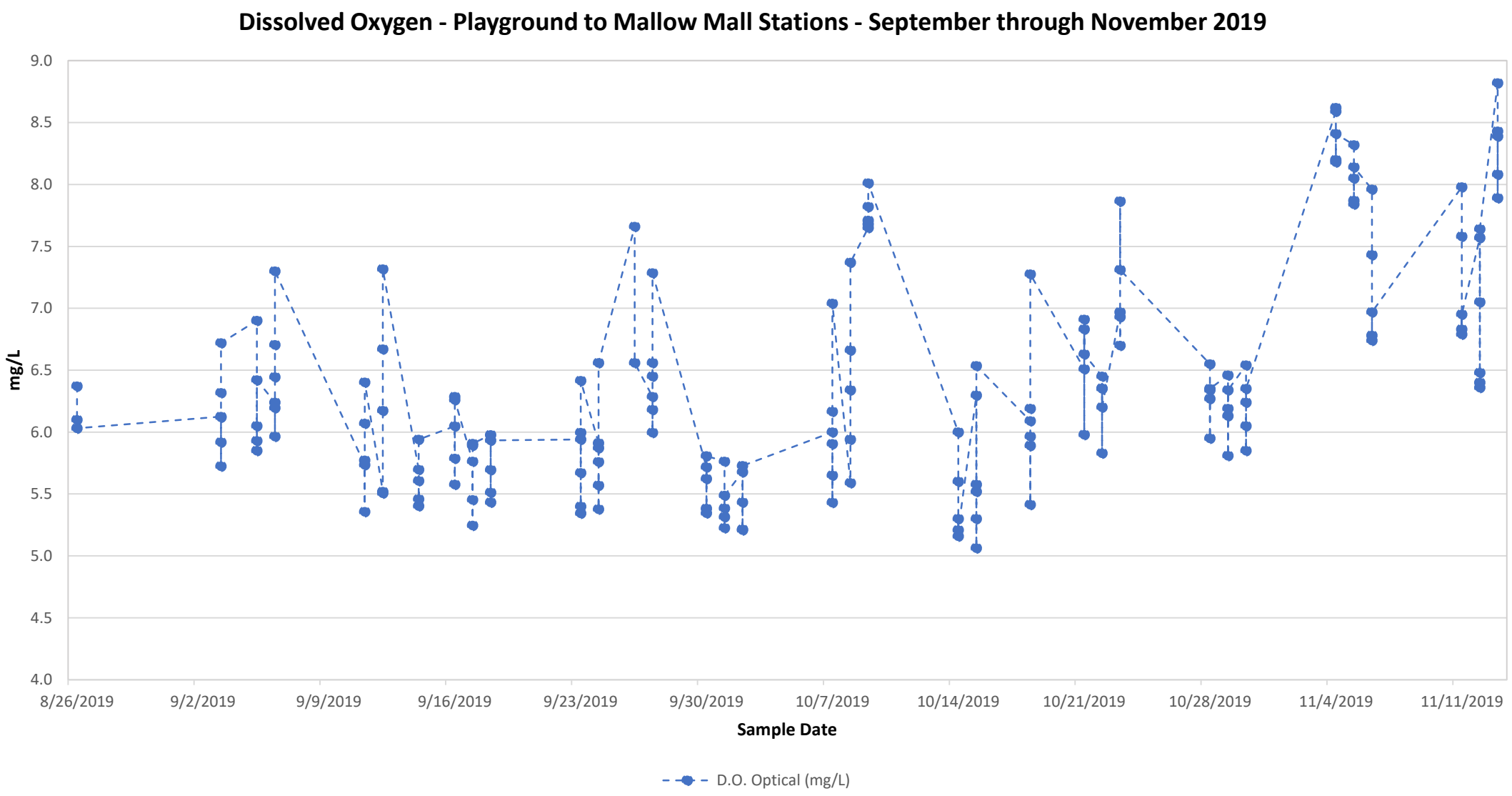

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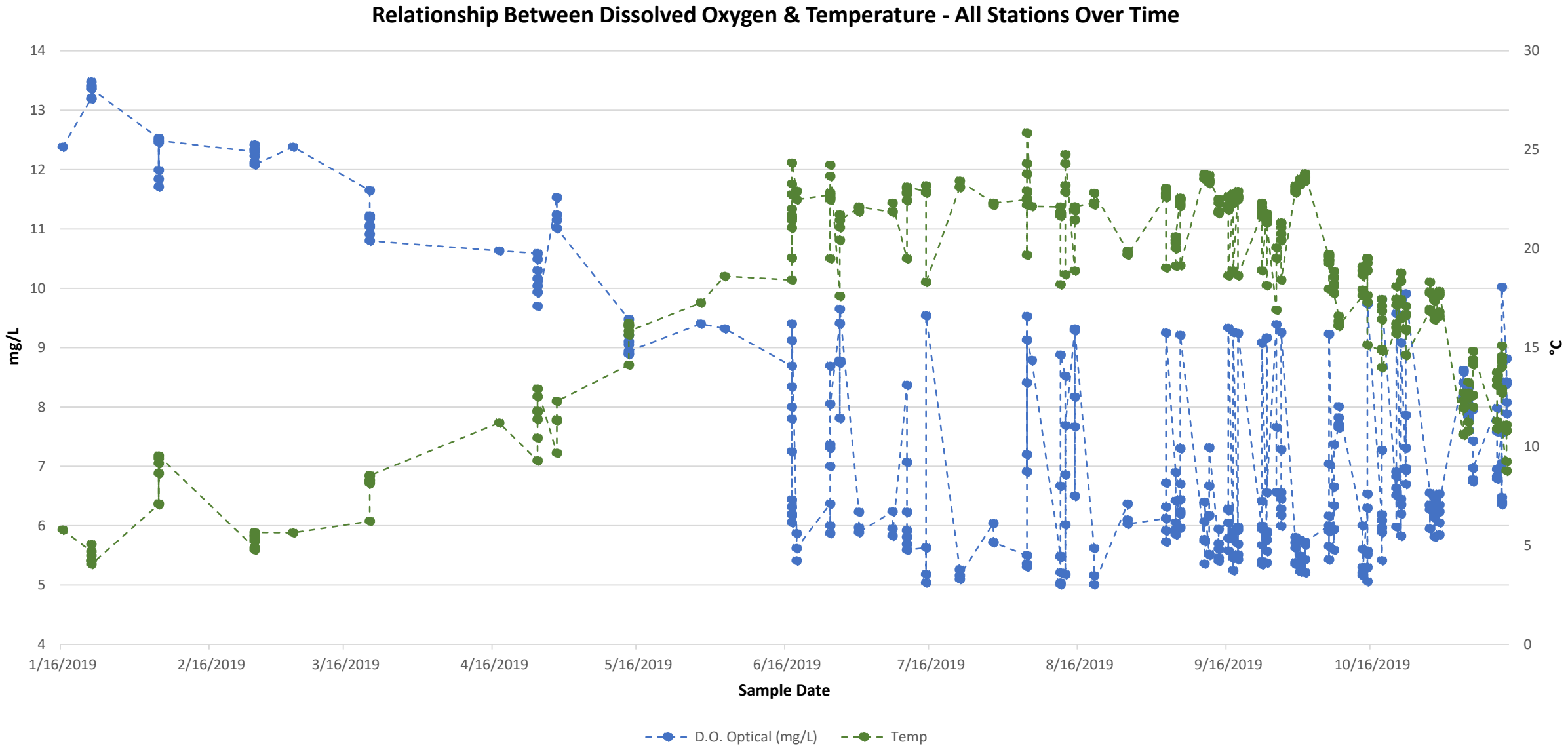

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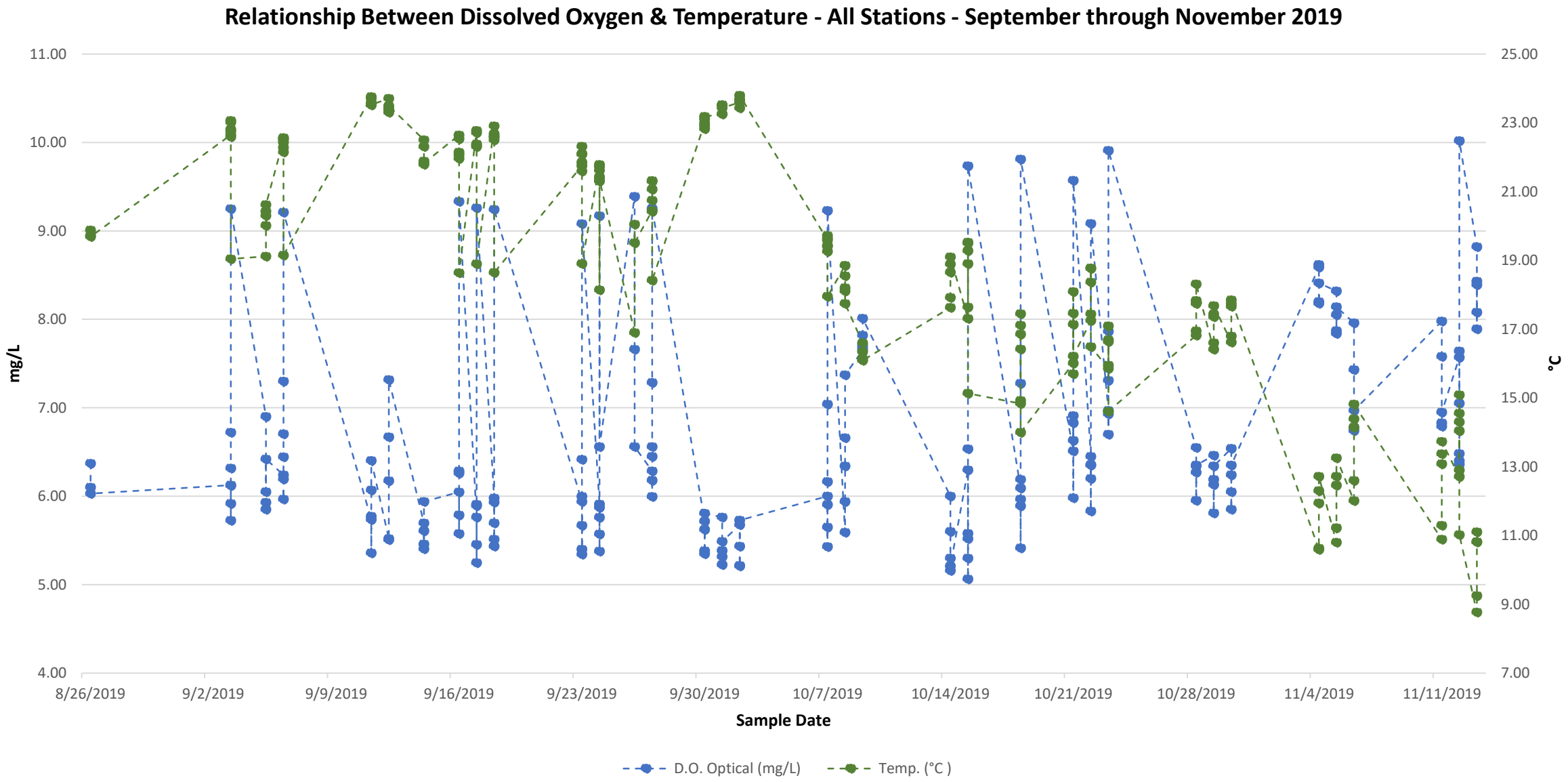

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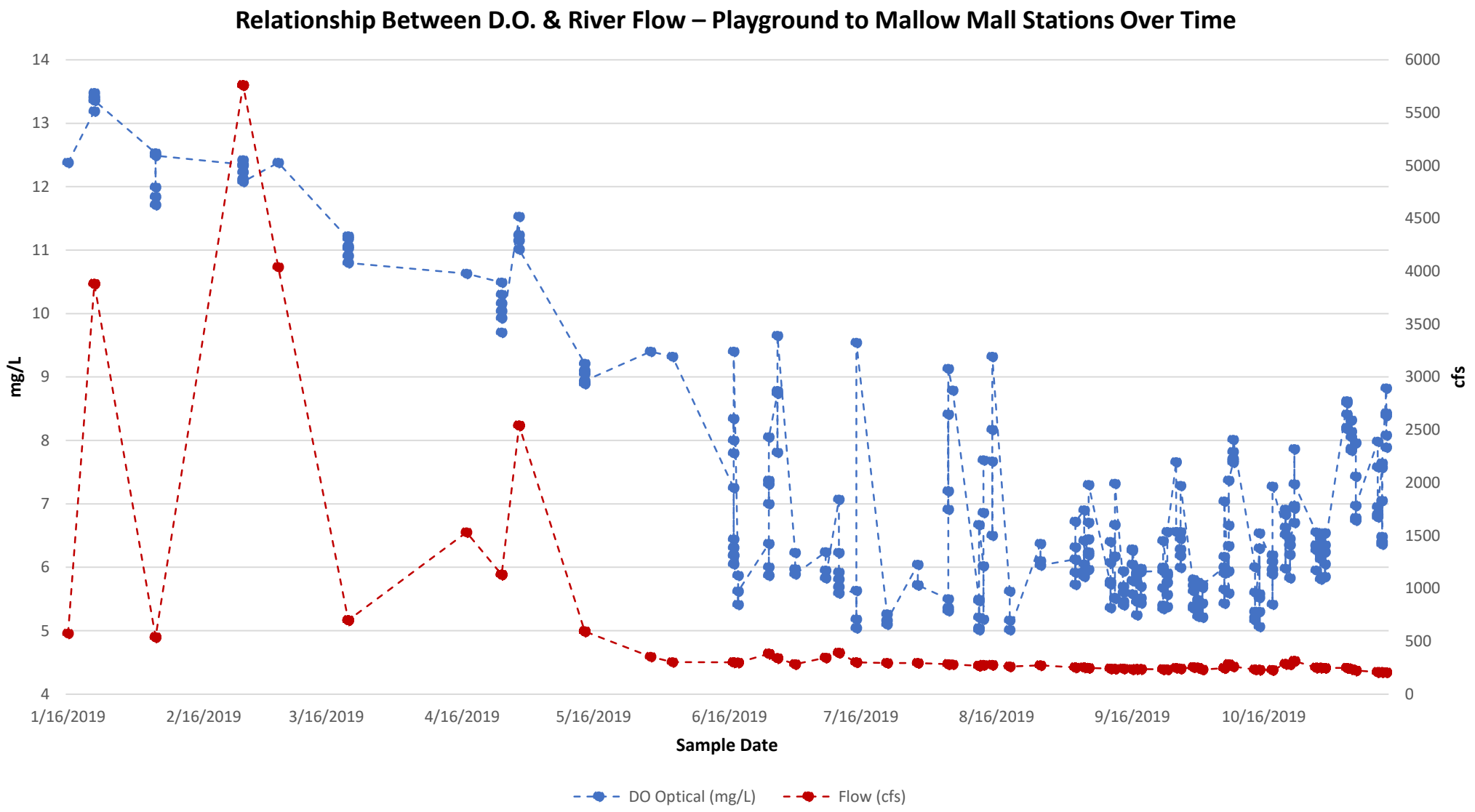

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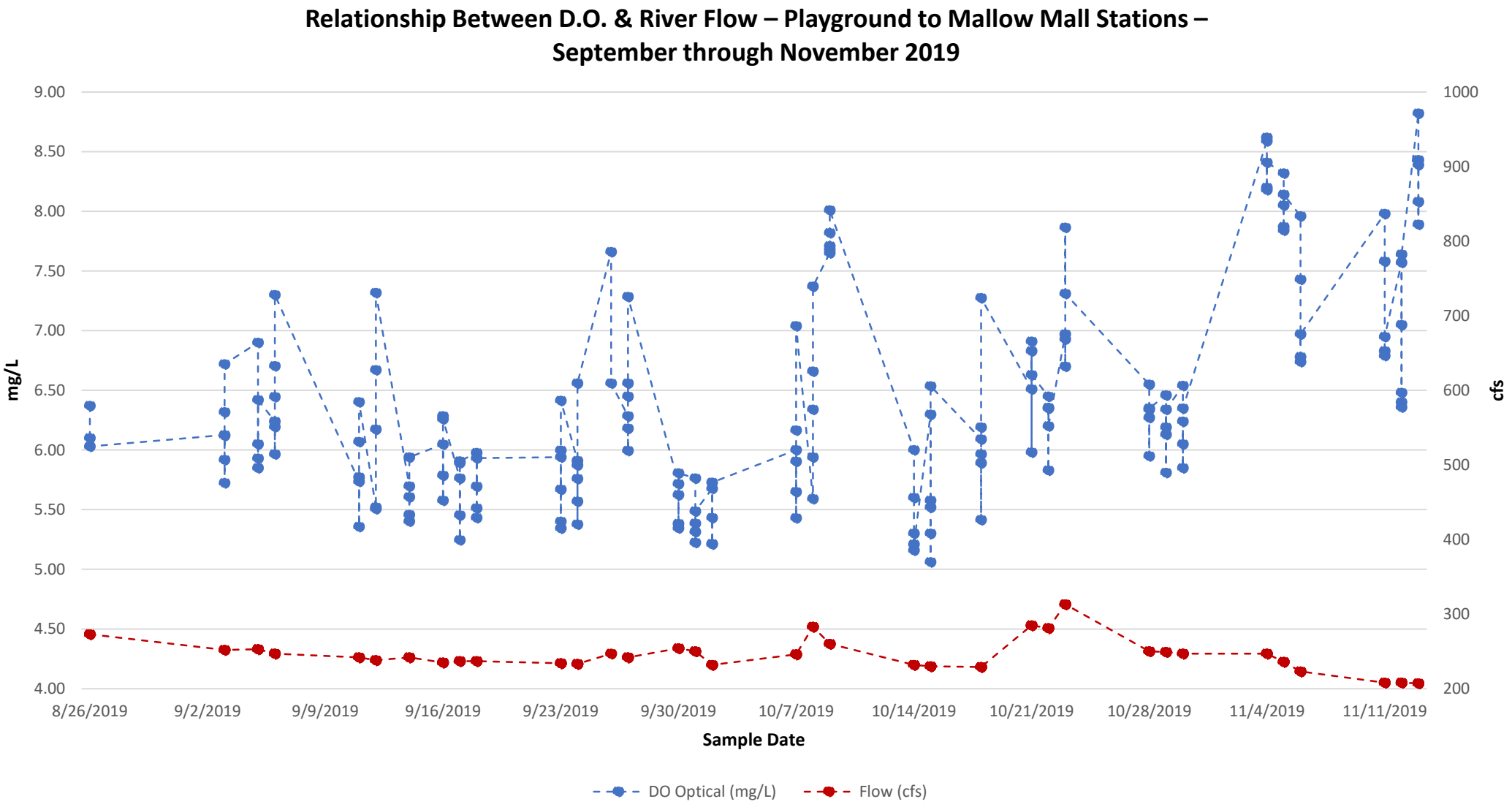

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Station-Specific Data Trends

Station ID	Description
2-JKS026.01	Covington Water Filtration Plant
2-JKS023.61	At USGS gauge 02013100 (City Playground)
2-JKS022.78	Upstream side of Route 154 bridge (Fudges Bridge)
2-JKS022.15	Industrial Park Behind Wal-Mart
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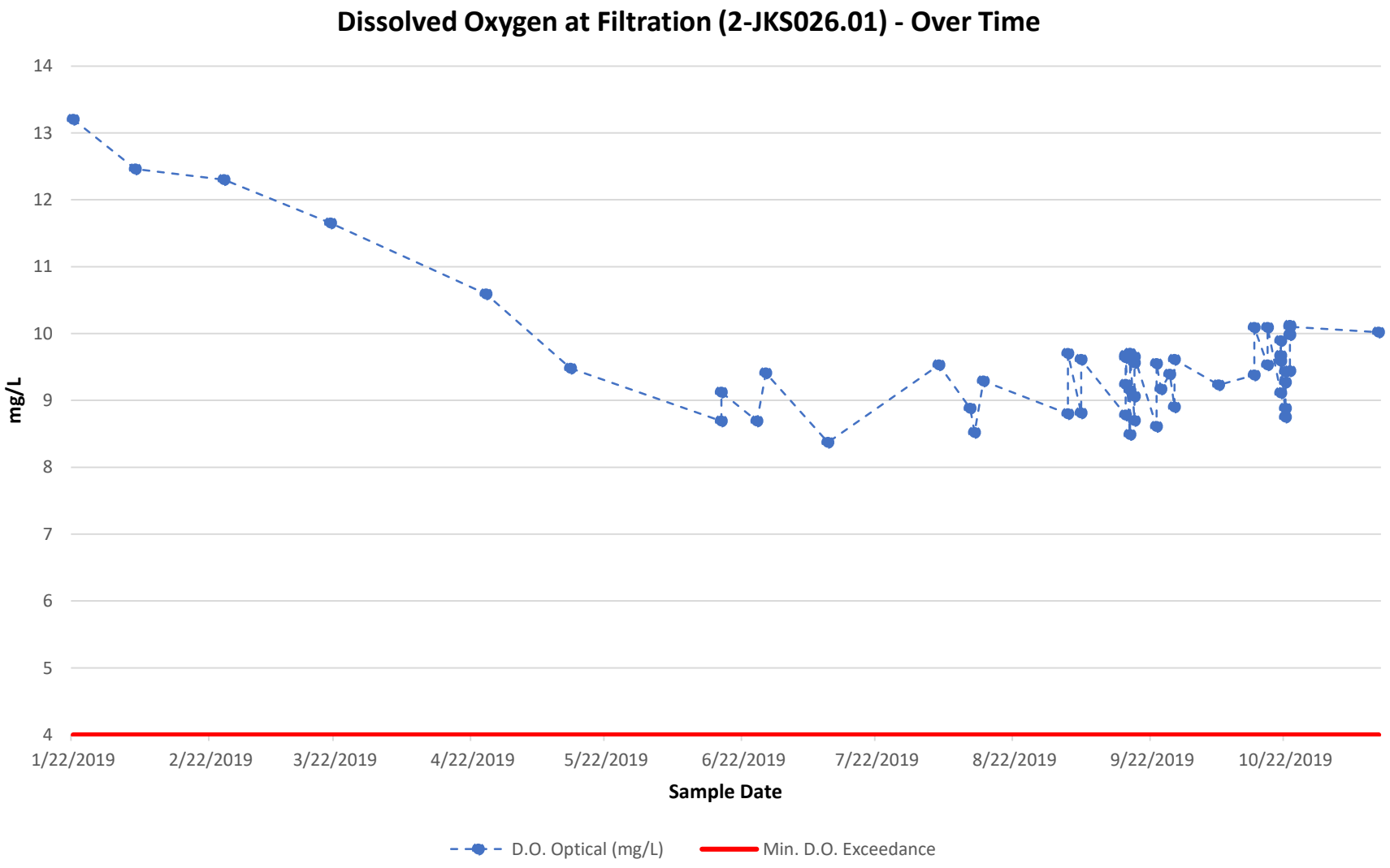

Note: DO data includes the entire data set (includes all samples, both collected by WR/ONE and DEQ) and all data on sample dates with >1 sample collected.

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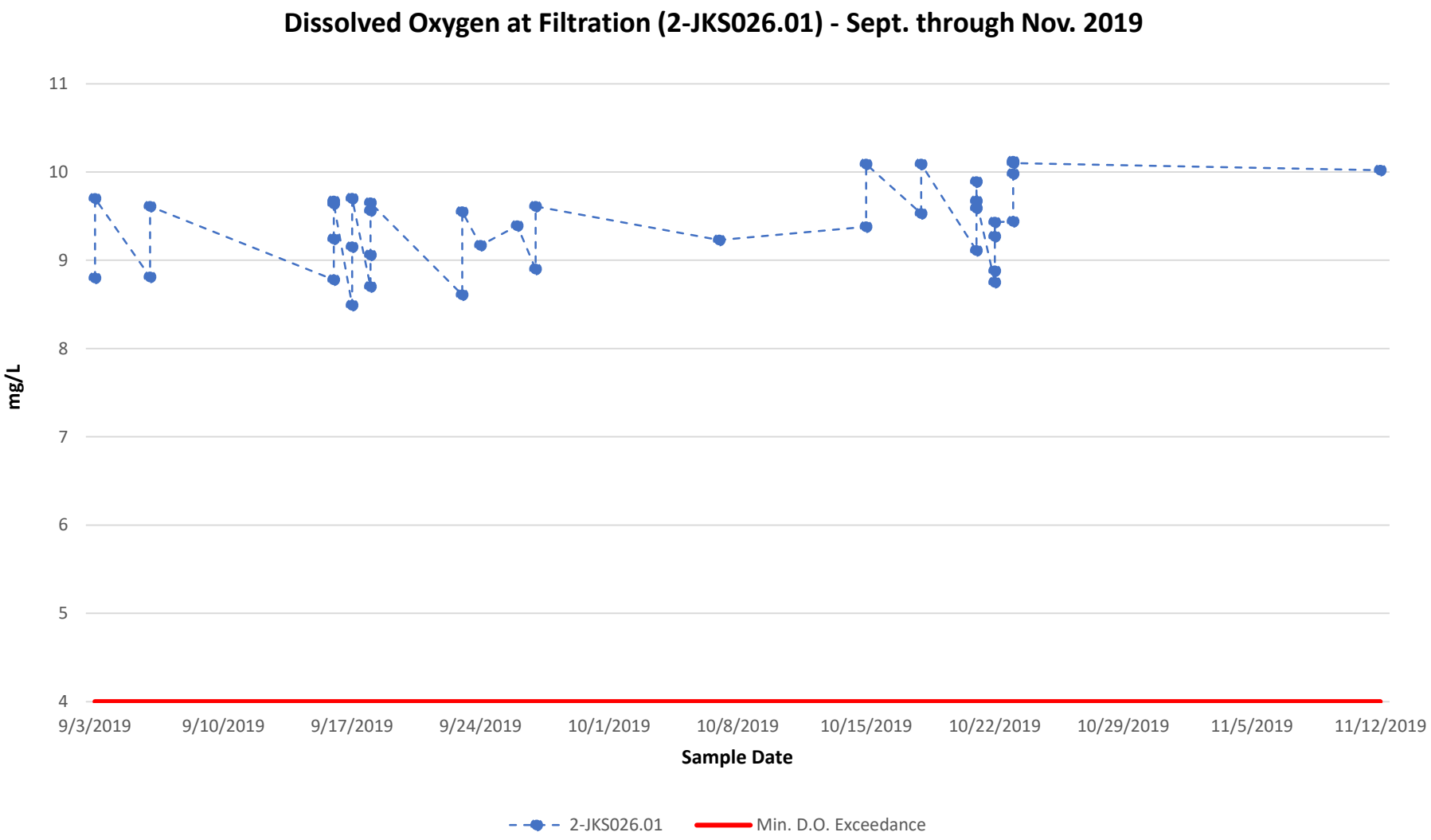

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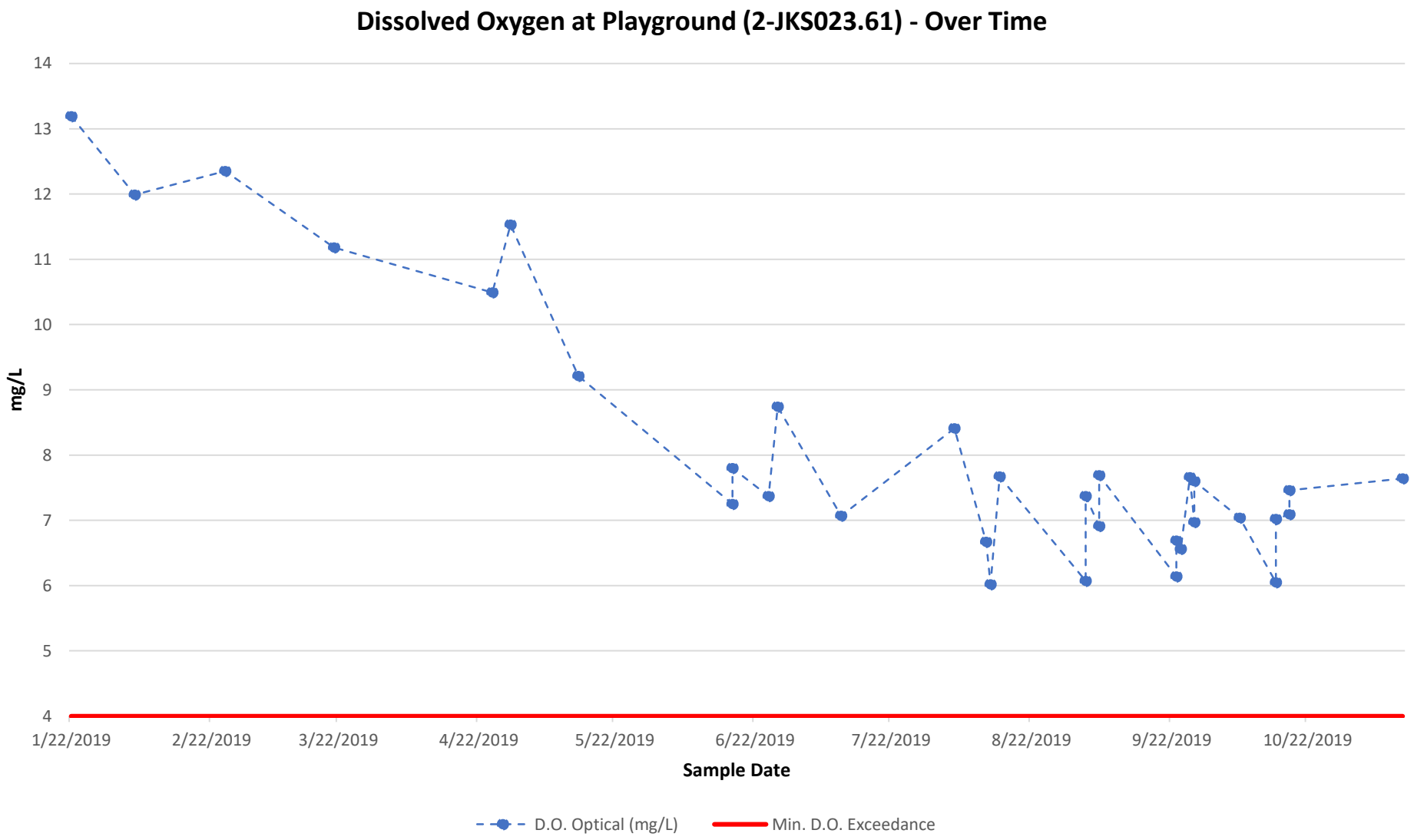

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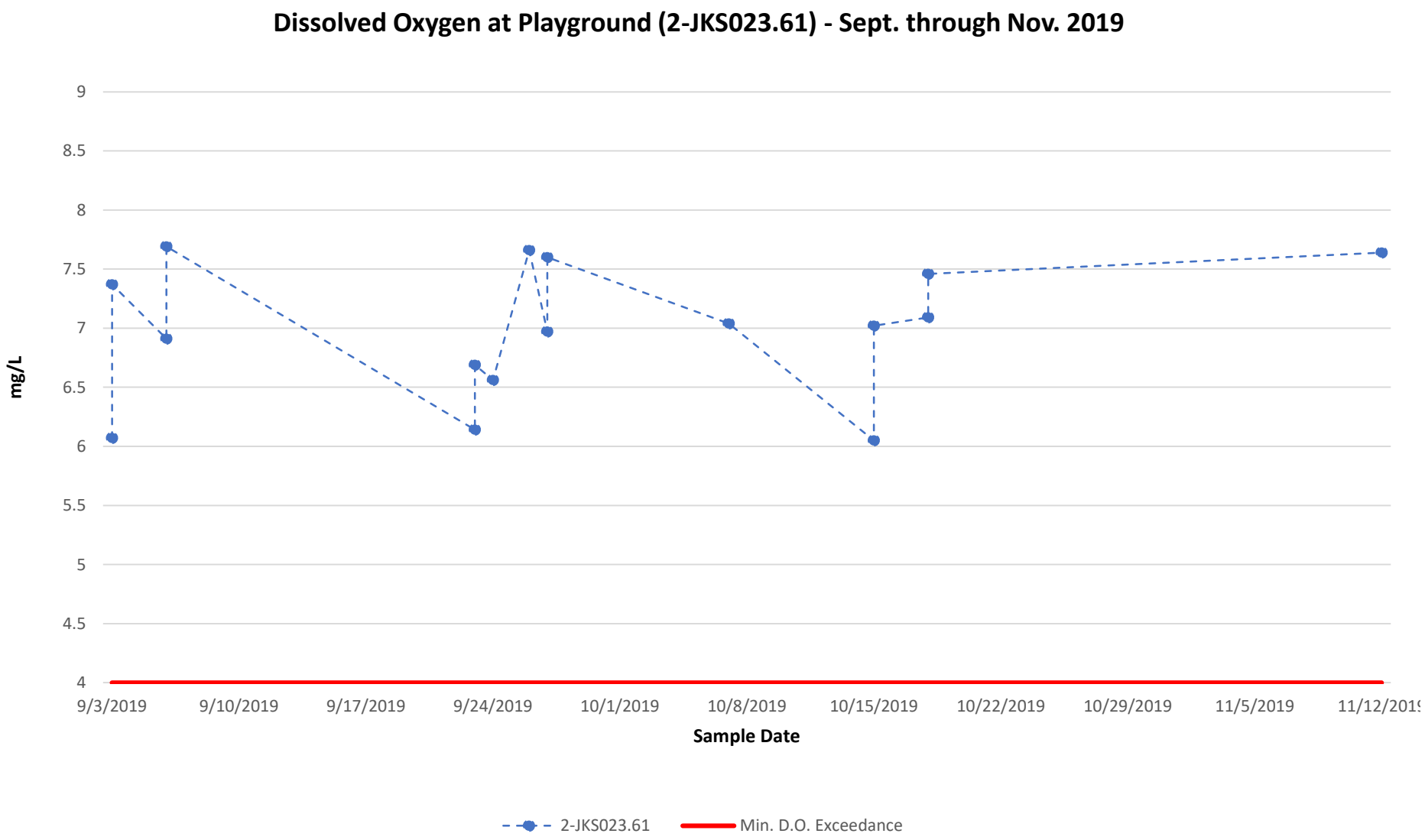

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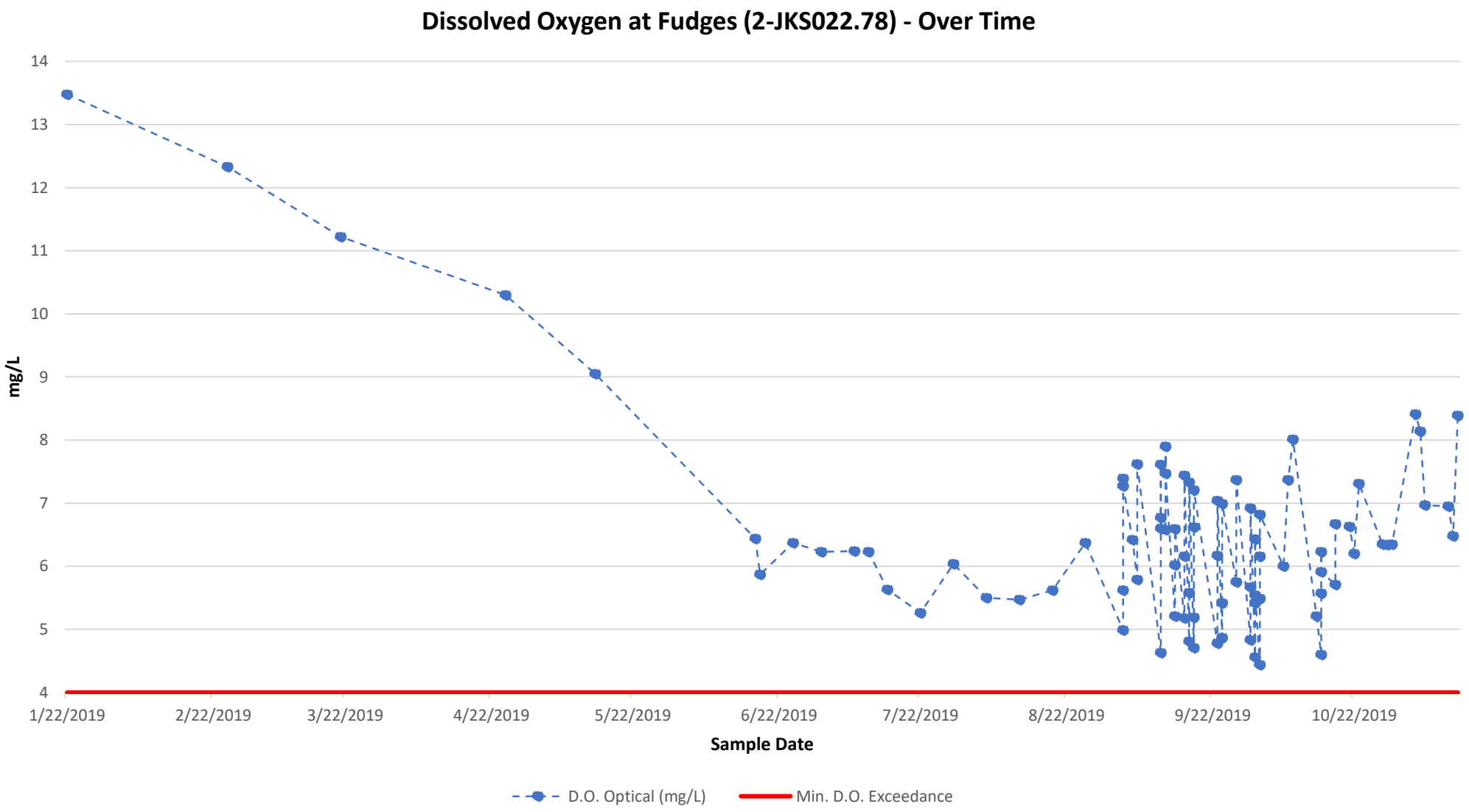

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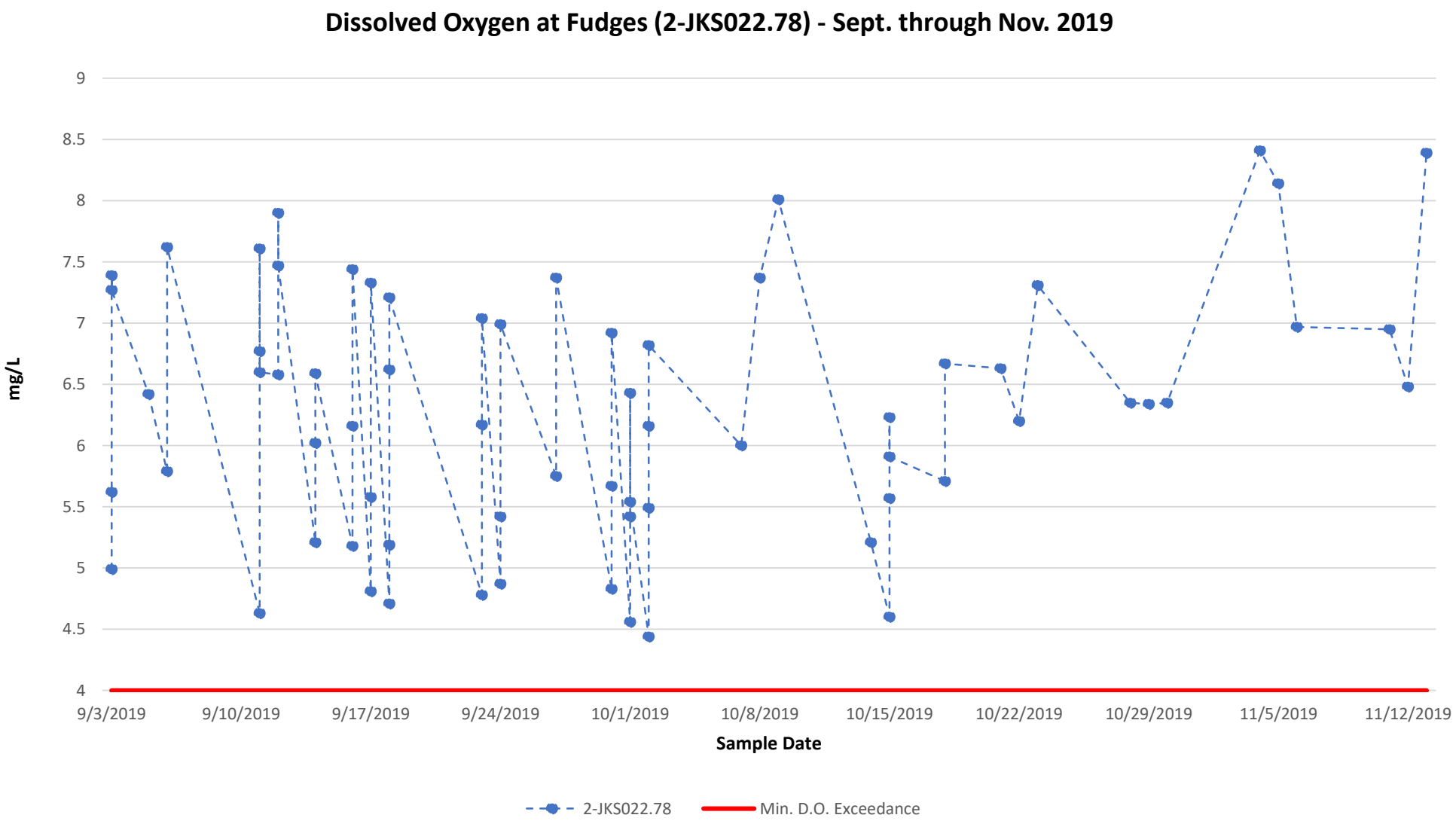

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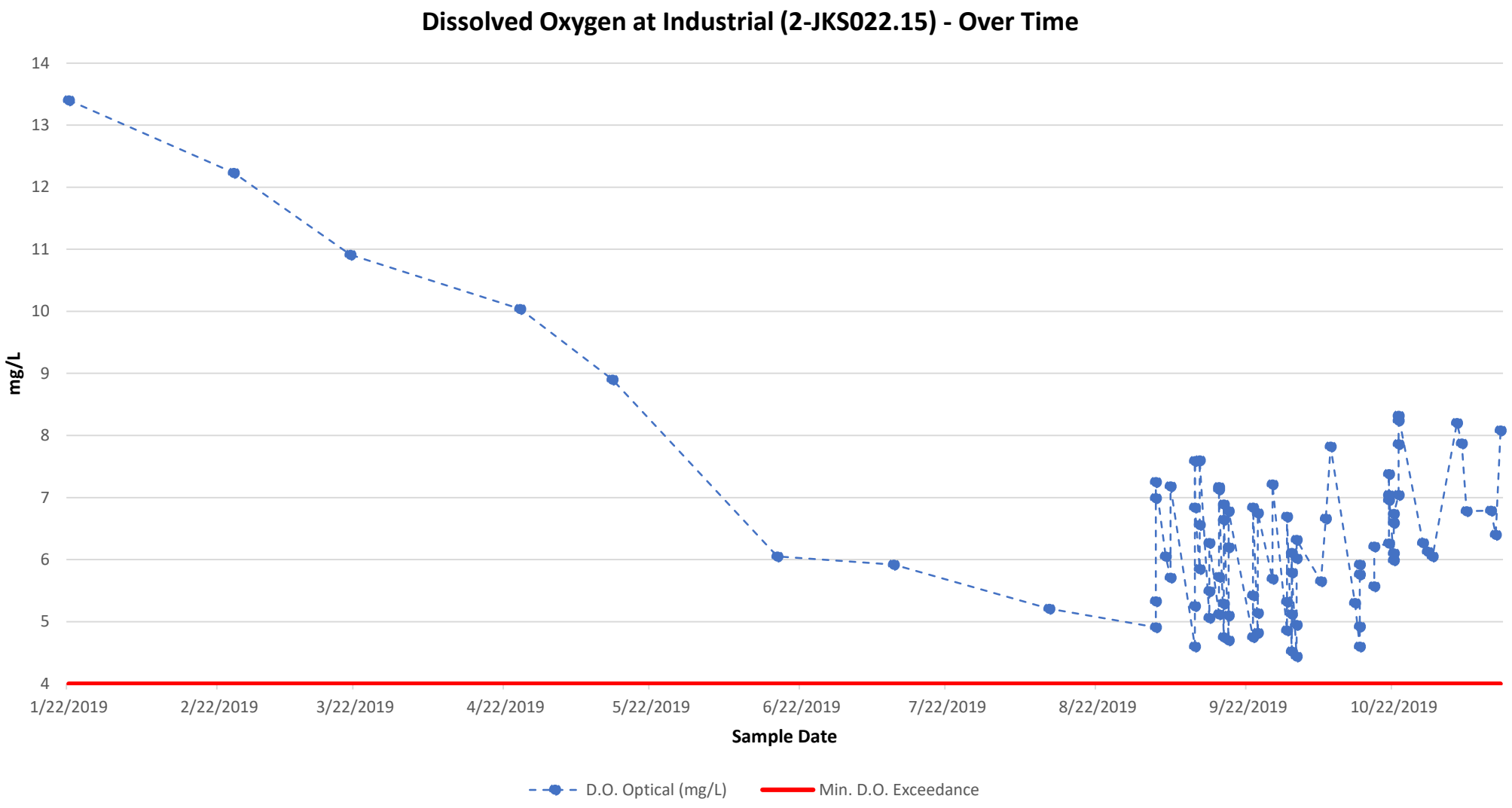

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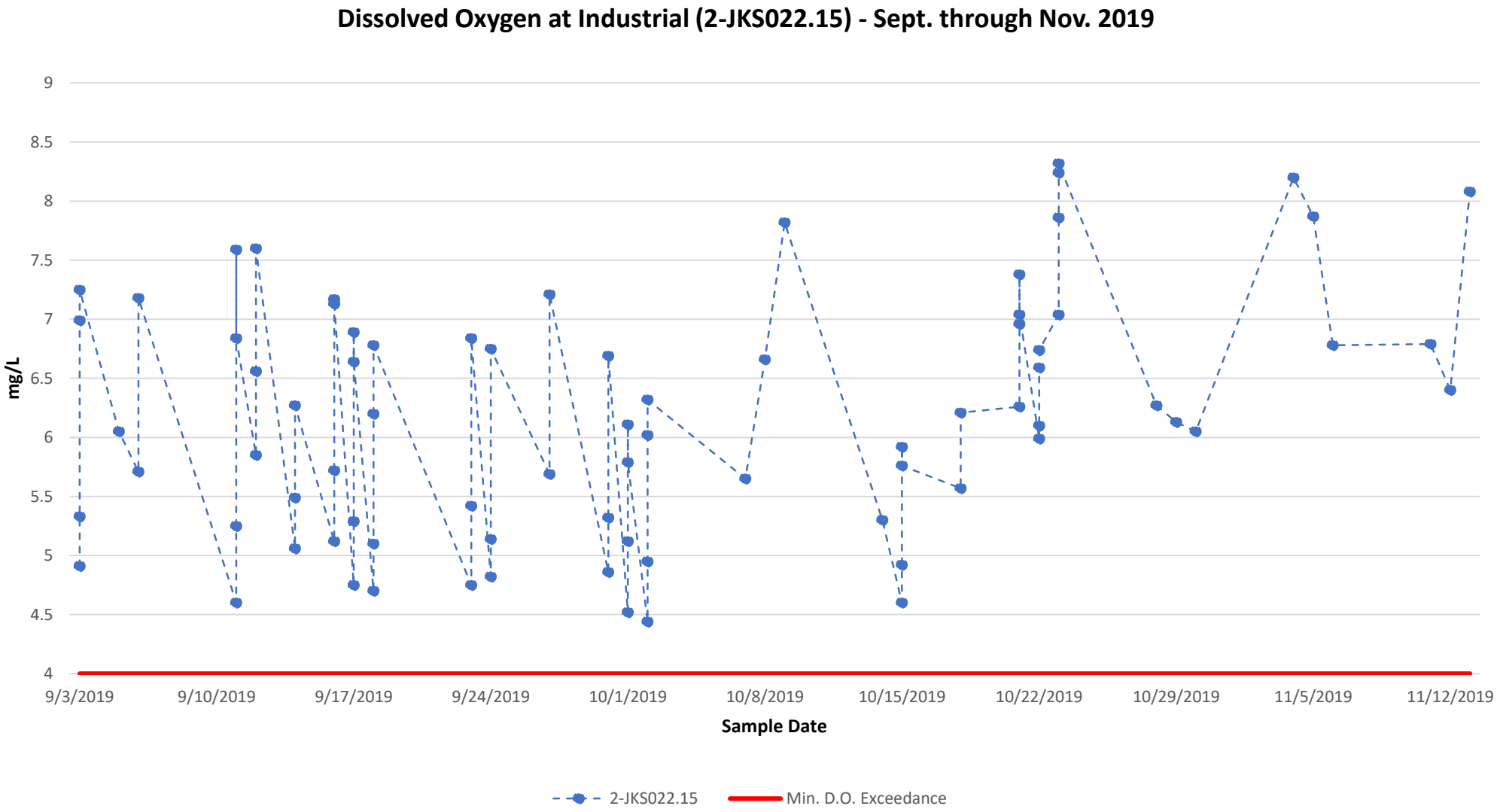

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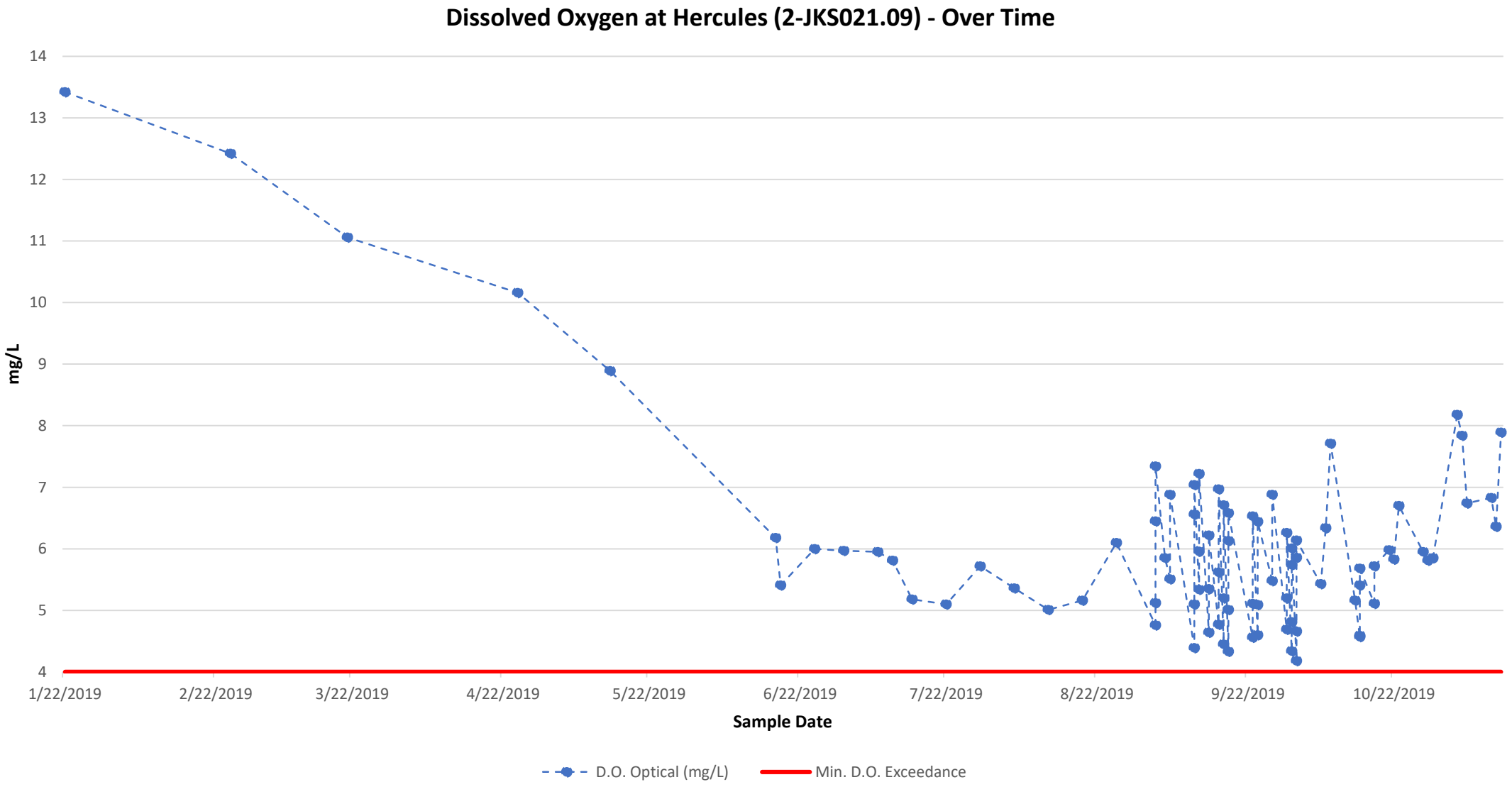

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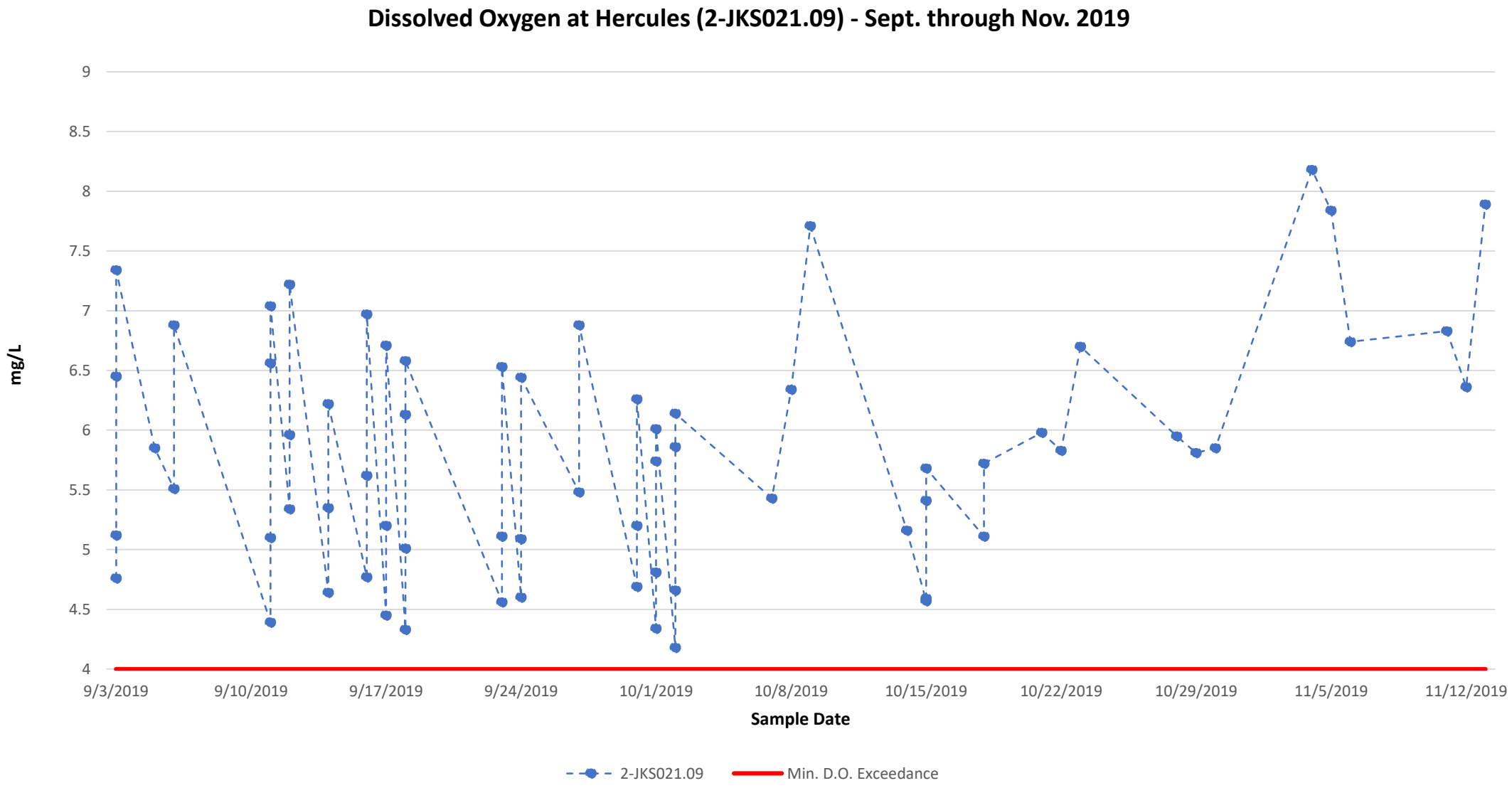

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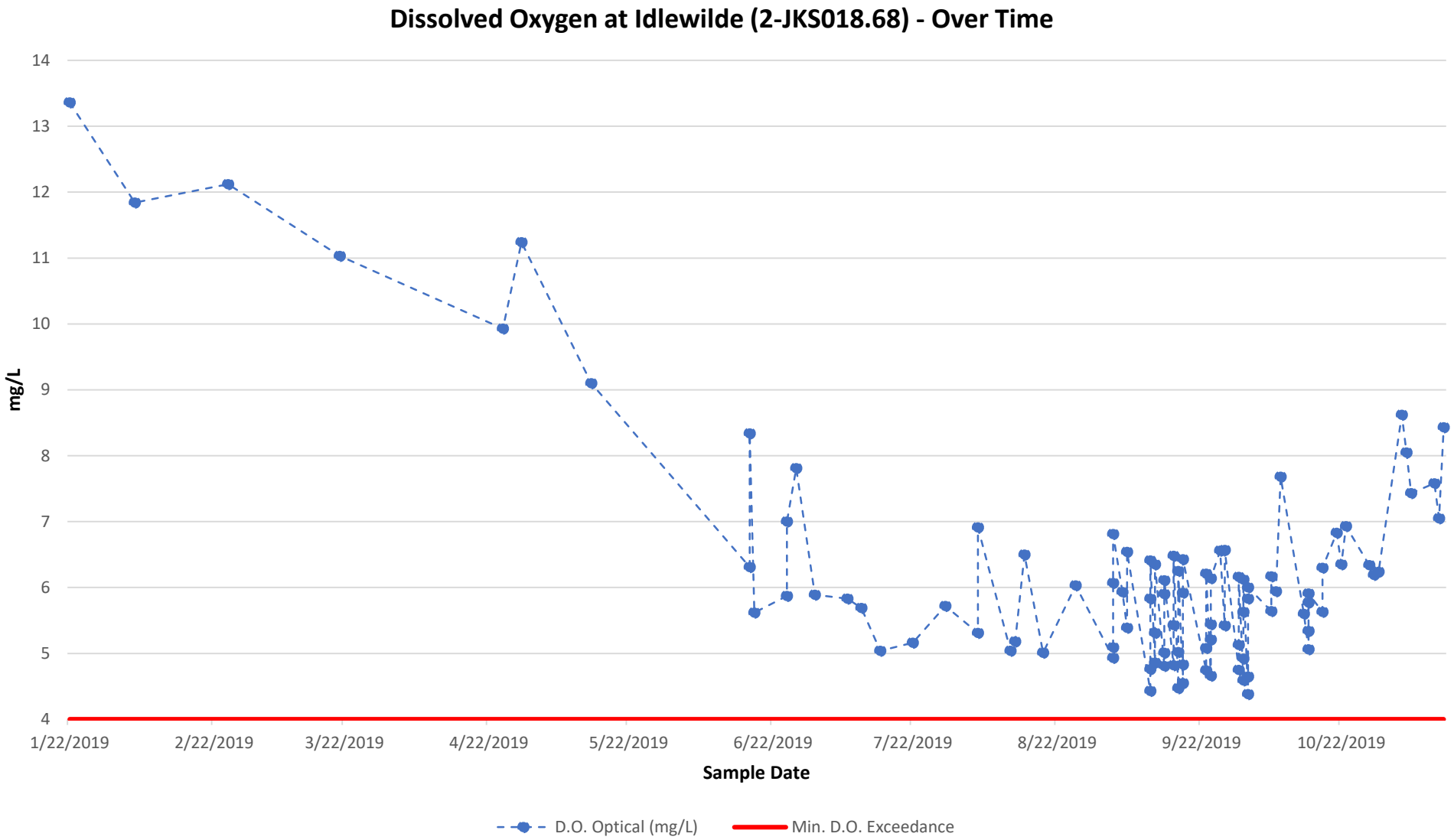

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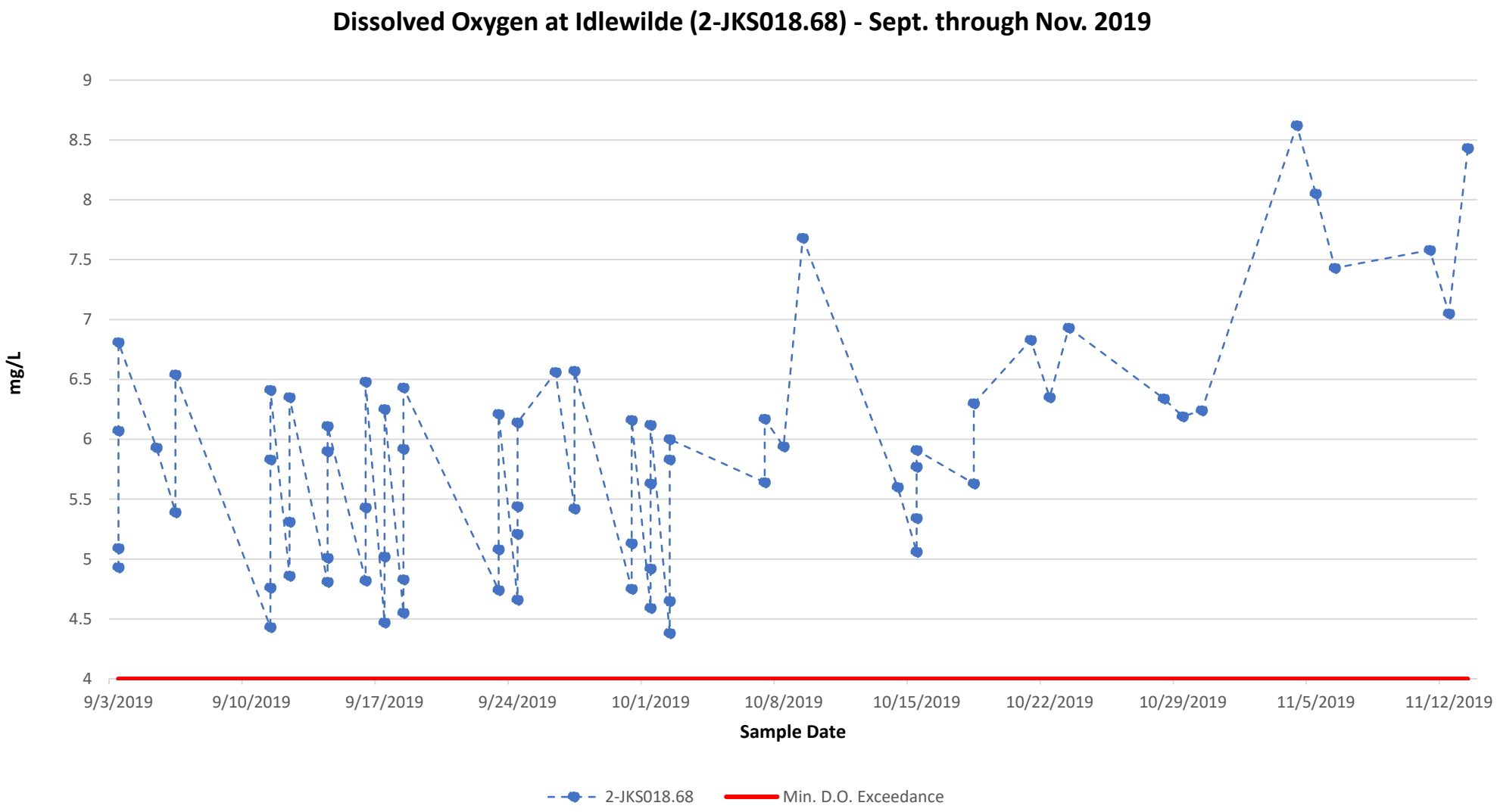

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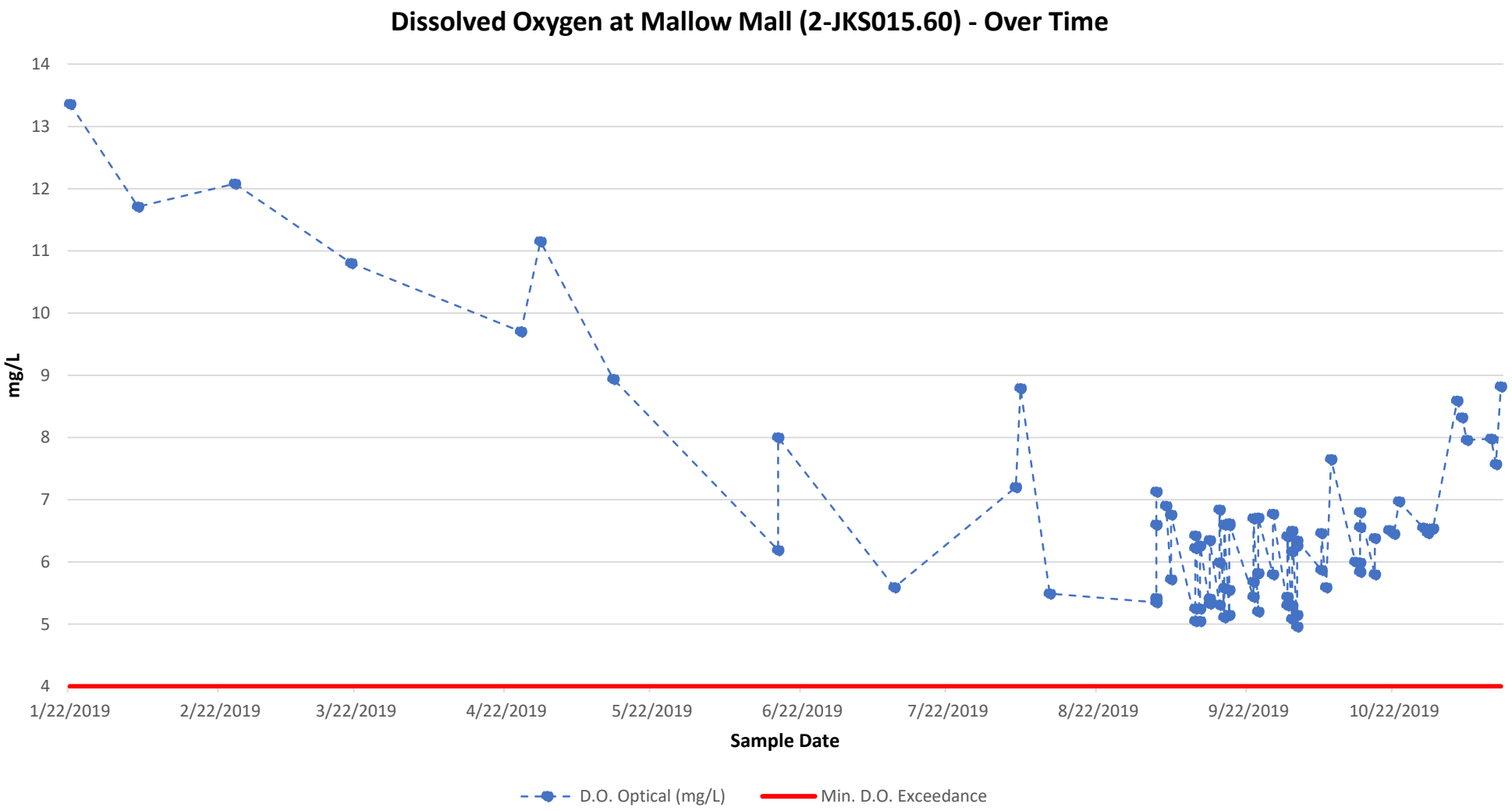

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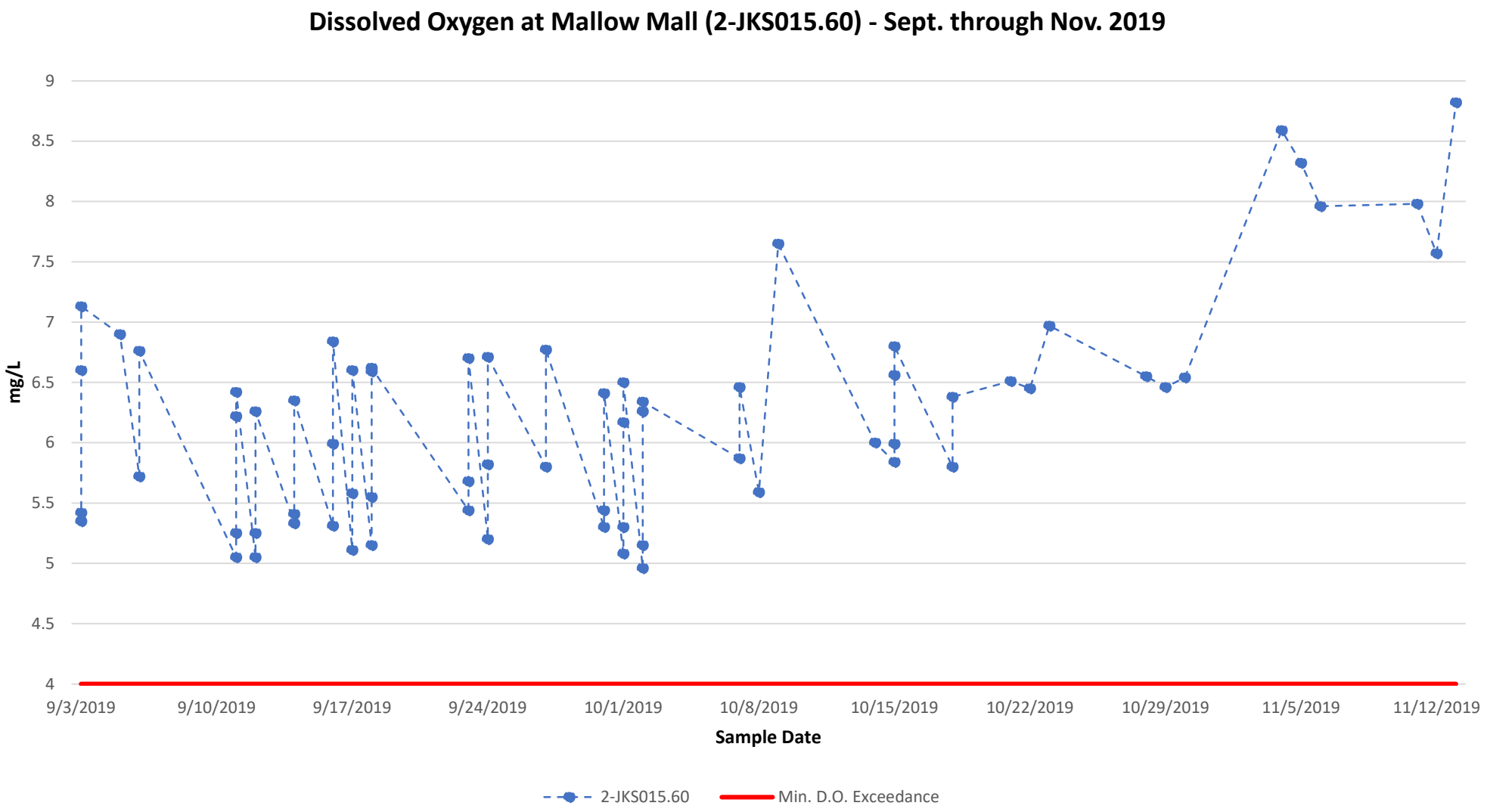

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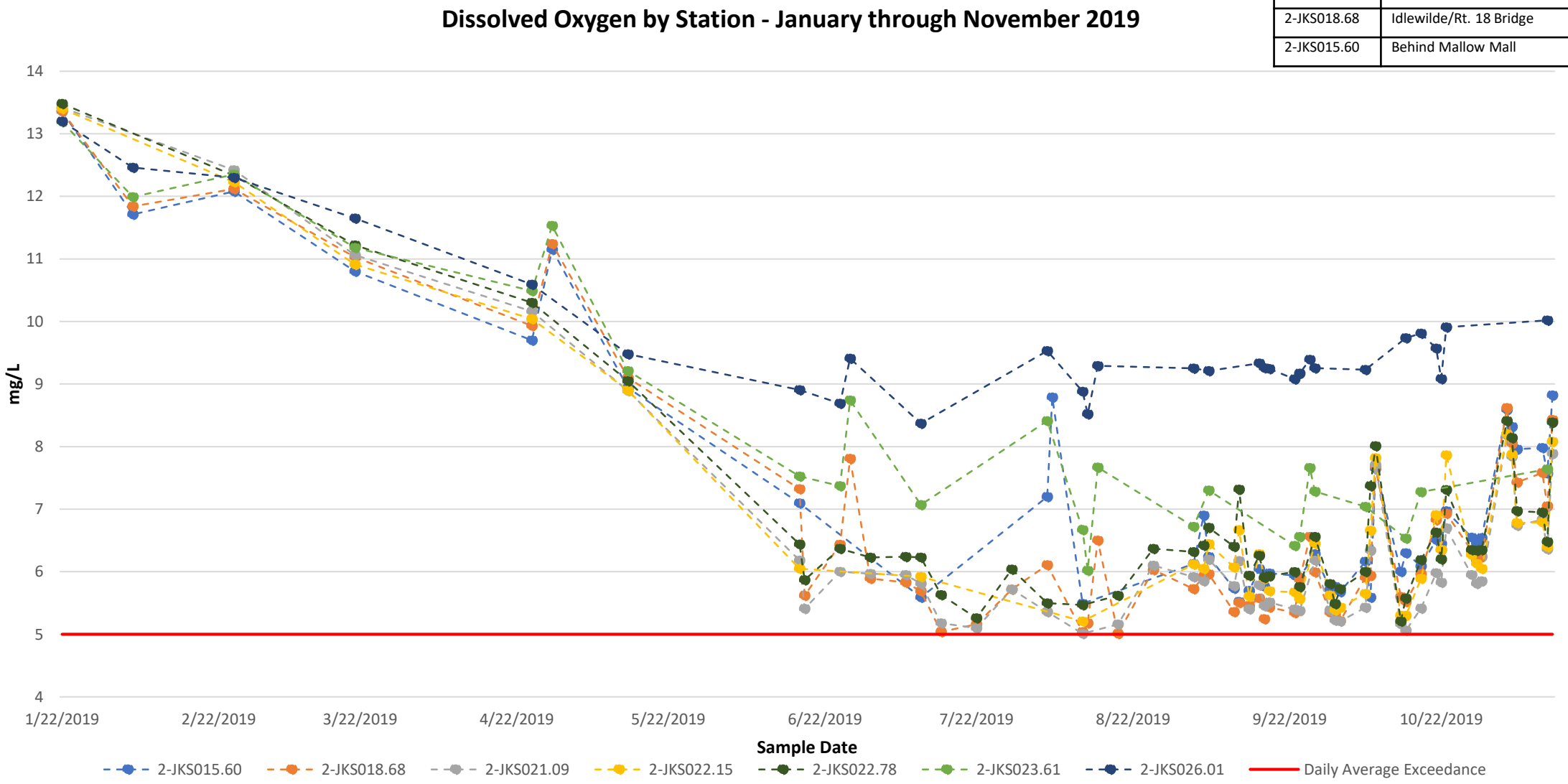

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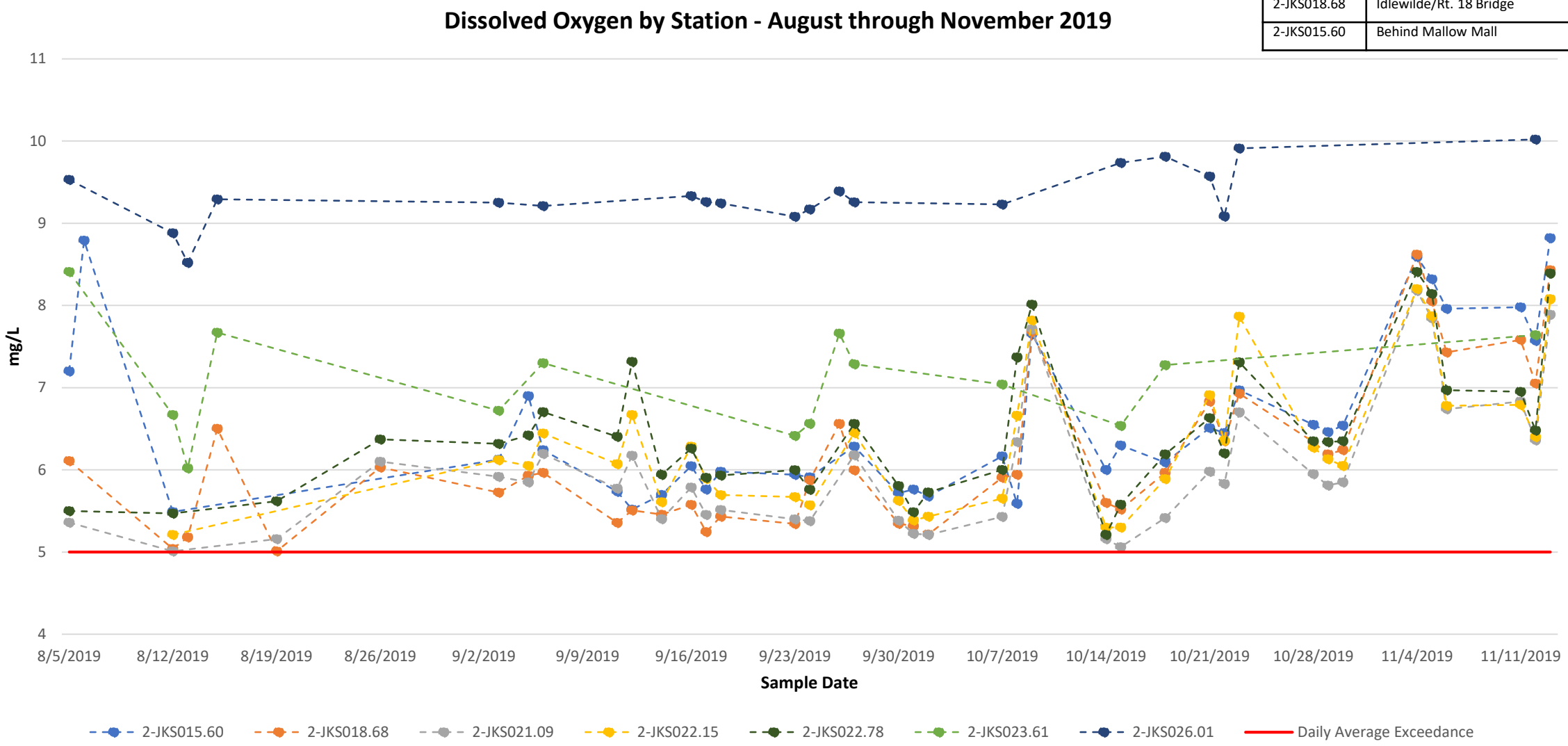

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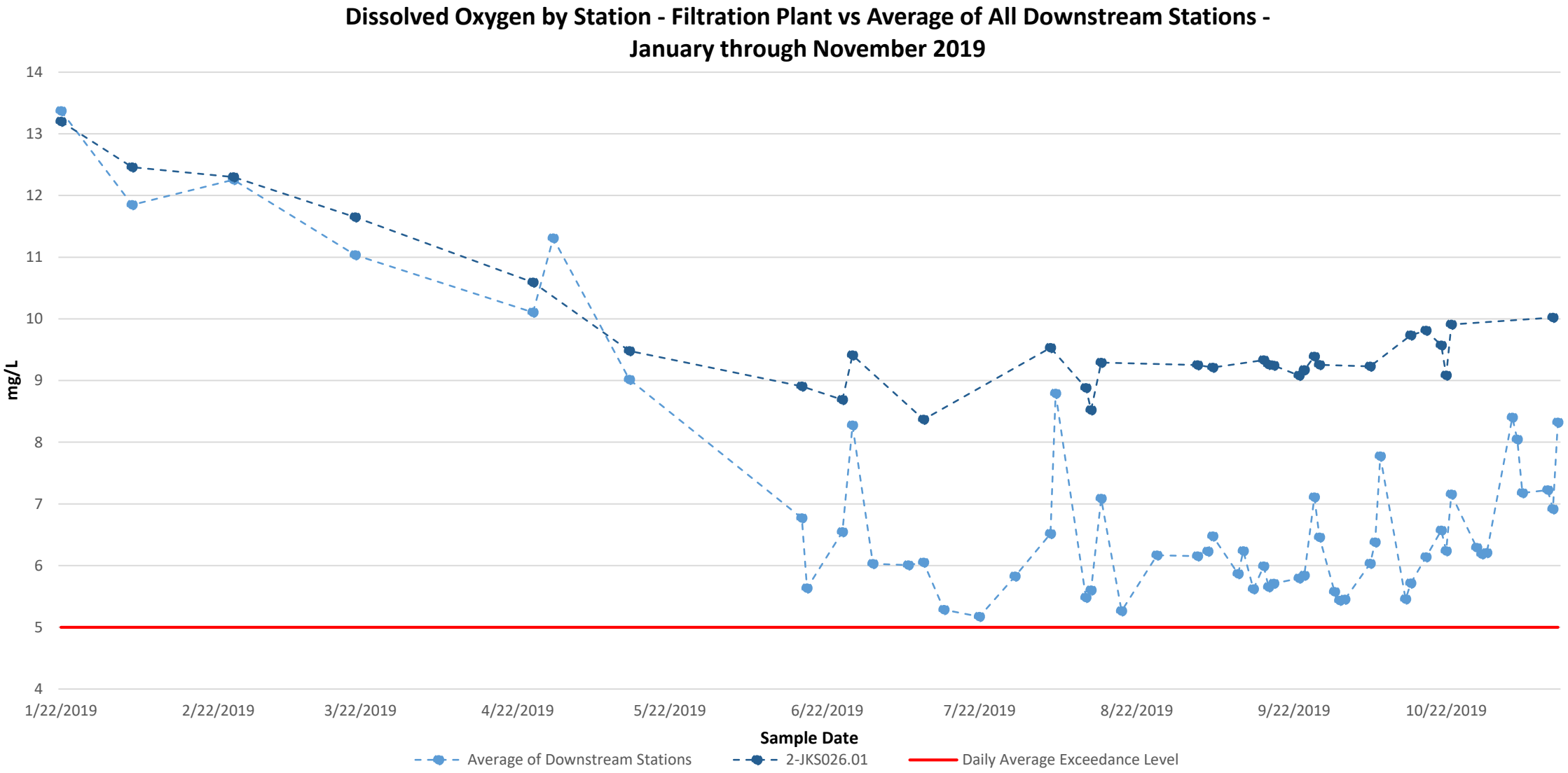

Note: DO data includes the 7 stations in this study; 2-JKS026.01 and the average of the six downstream stations. Sampling days that had >1 sample collected (due to low AM DO, diurnal days, or pre-/post-pulse days) are shown as the average of that day.

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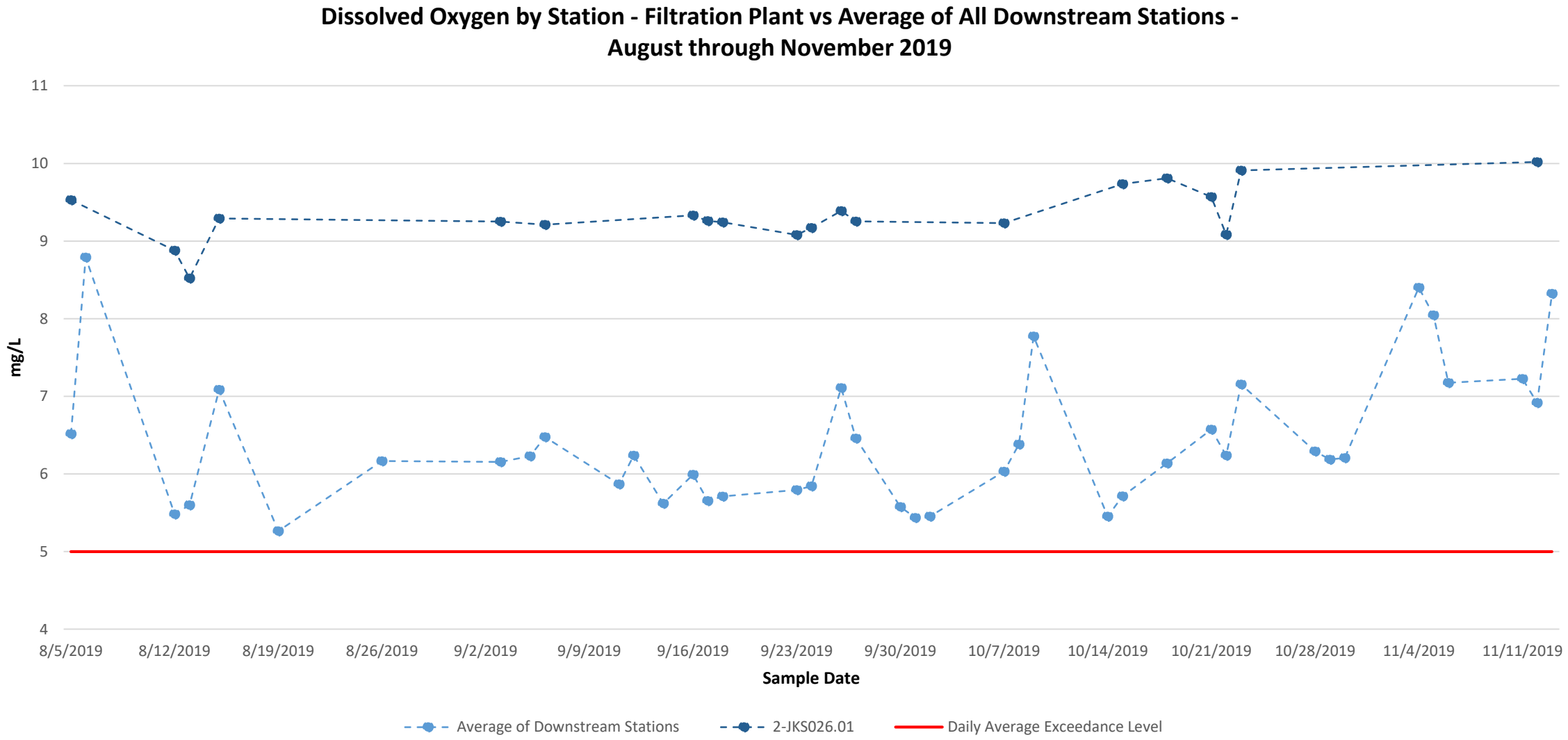

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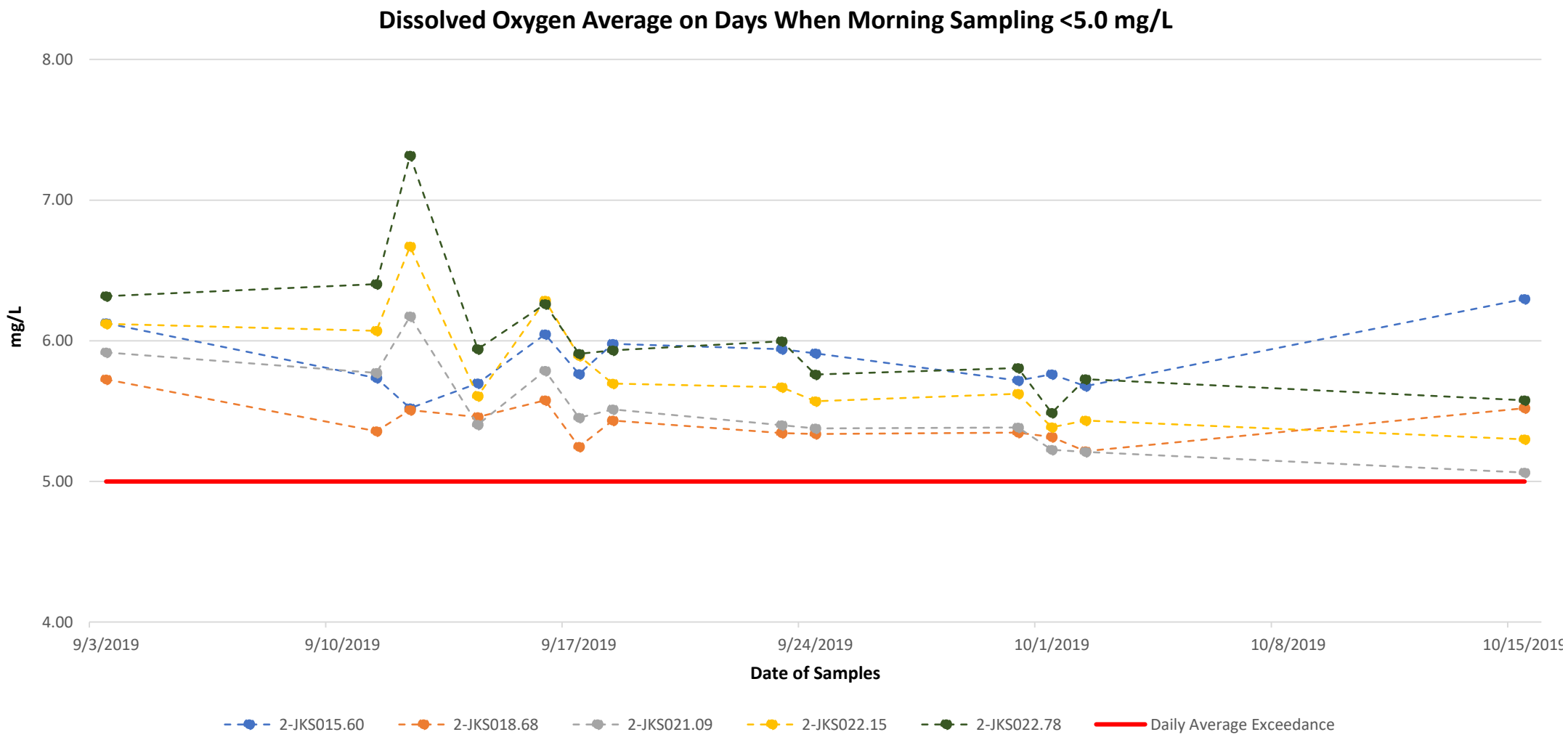

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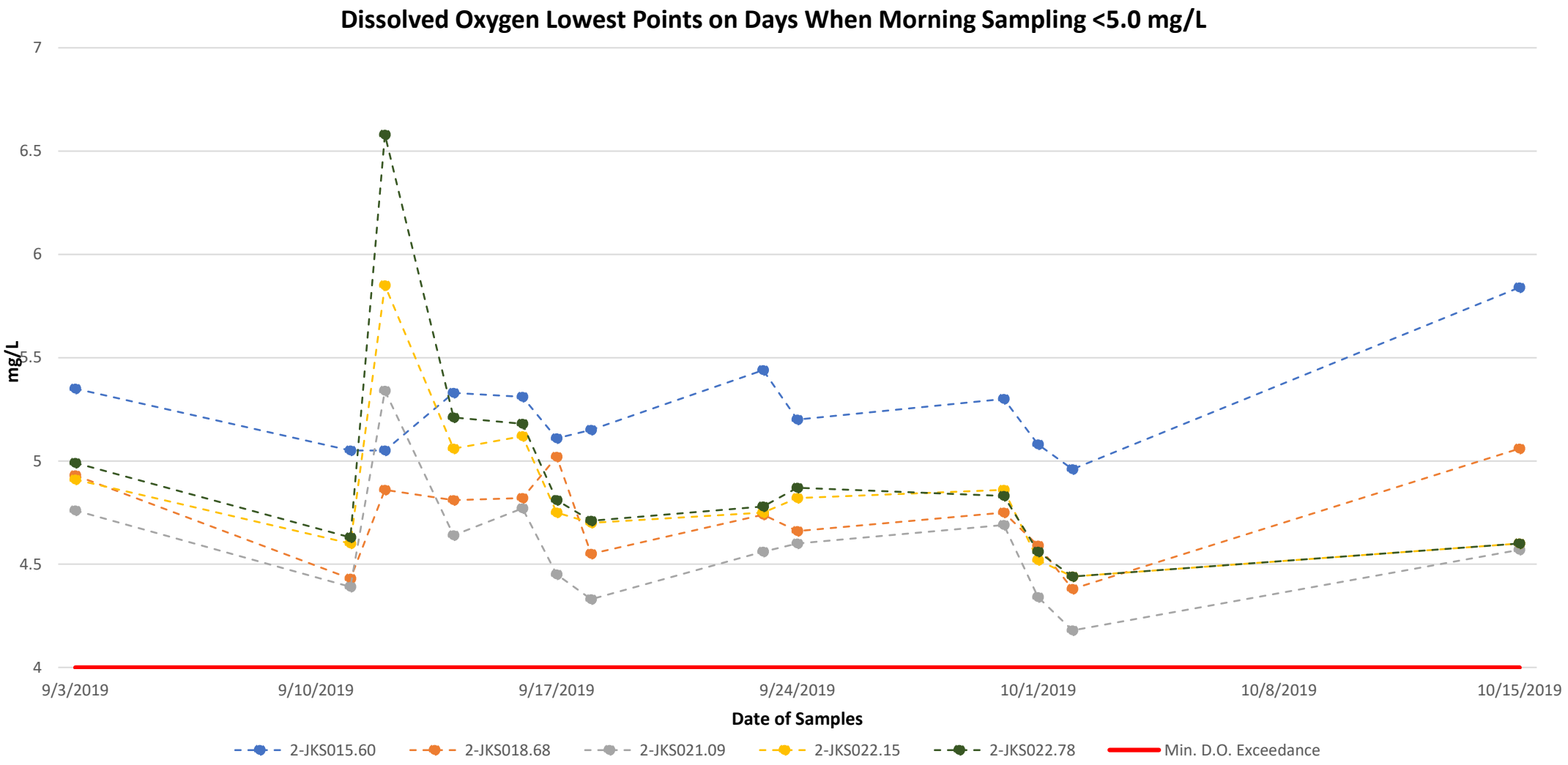

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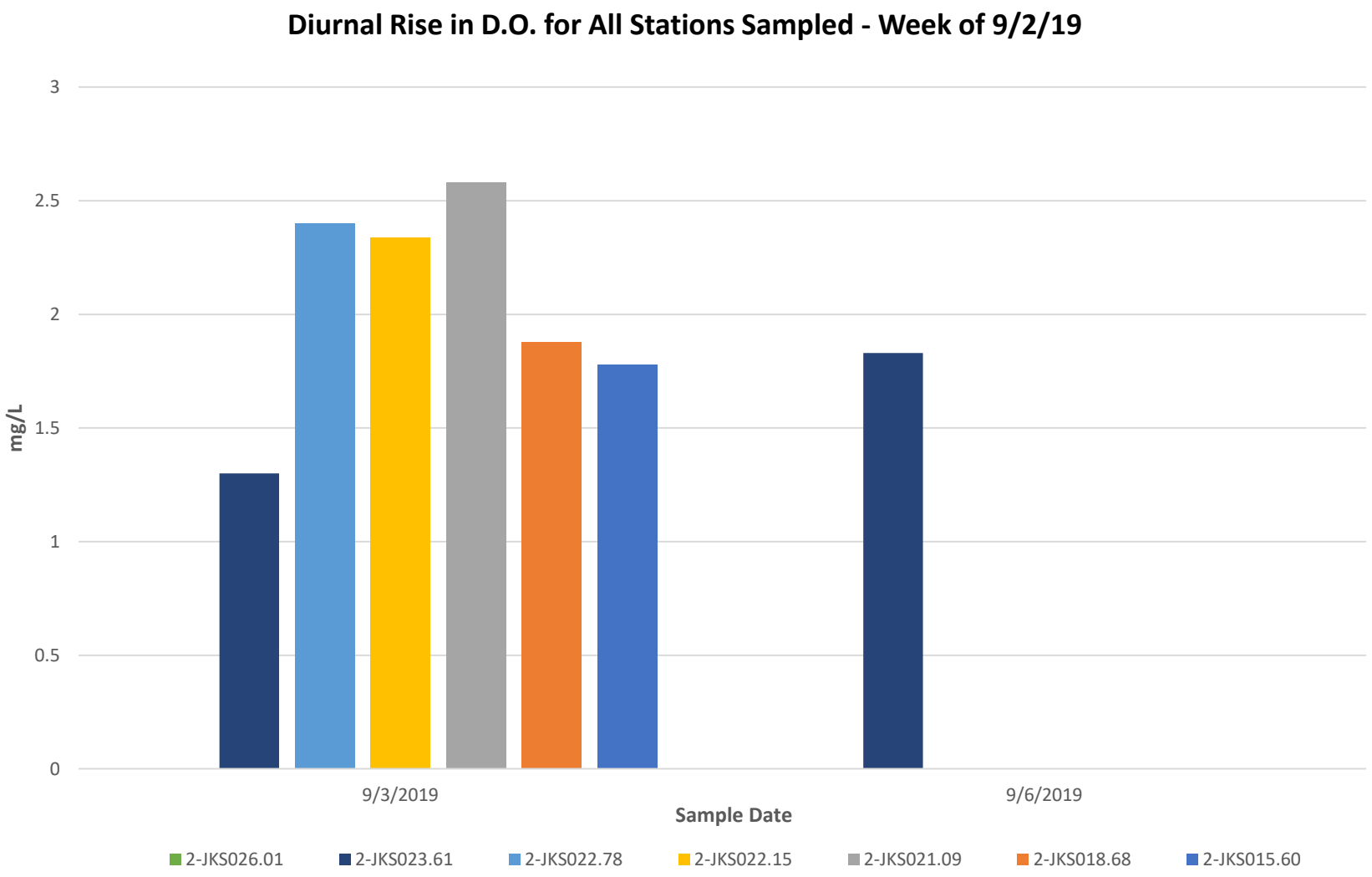
Diurnal Data Trends- Change in DO



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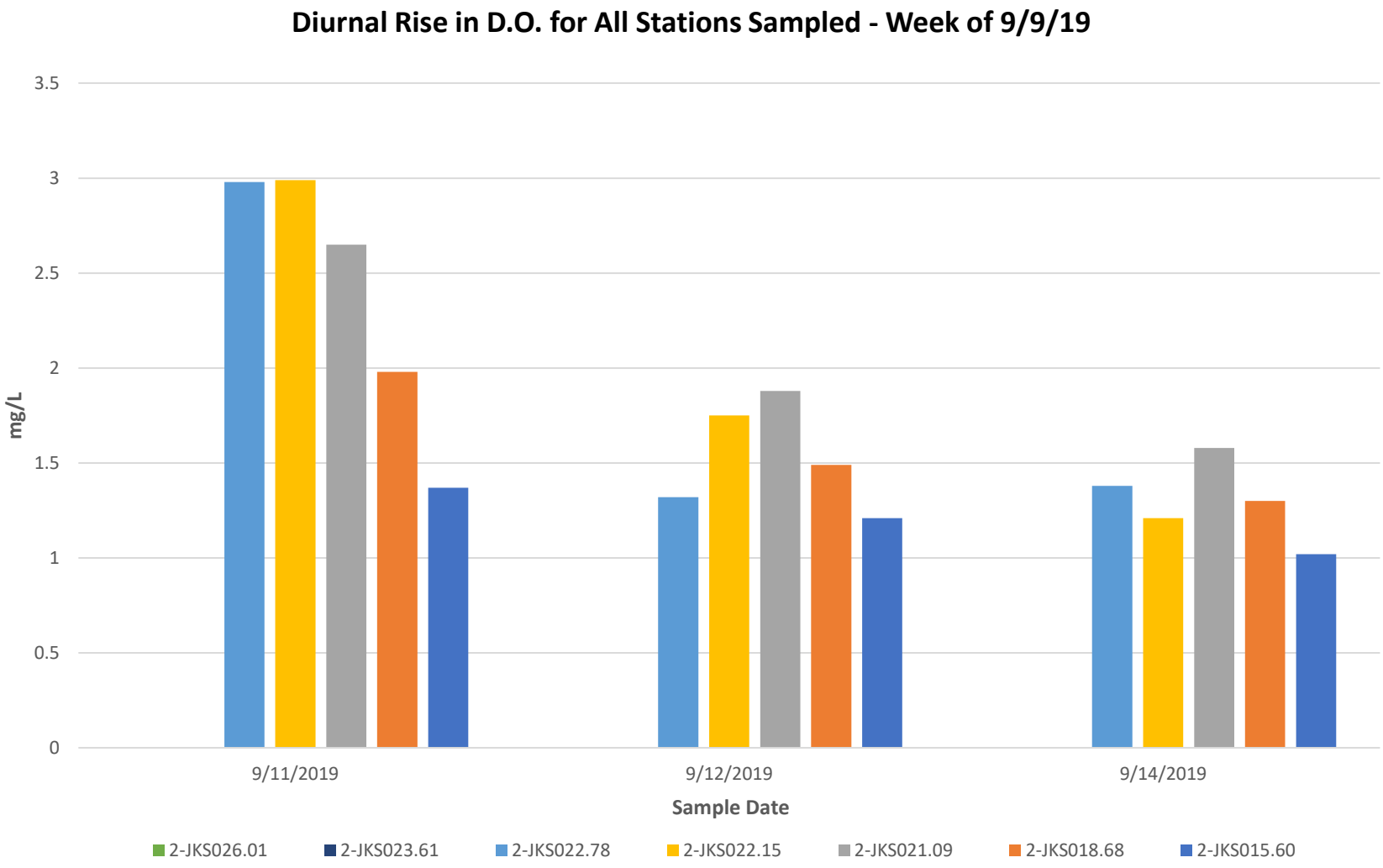
Diurnal Data Trends- Change in DO



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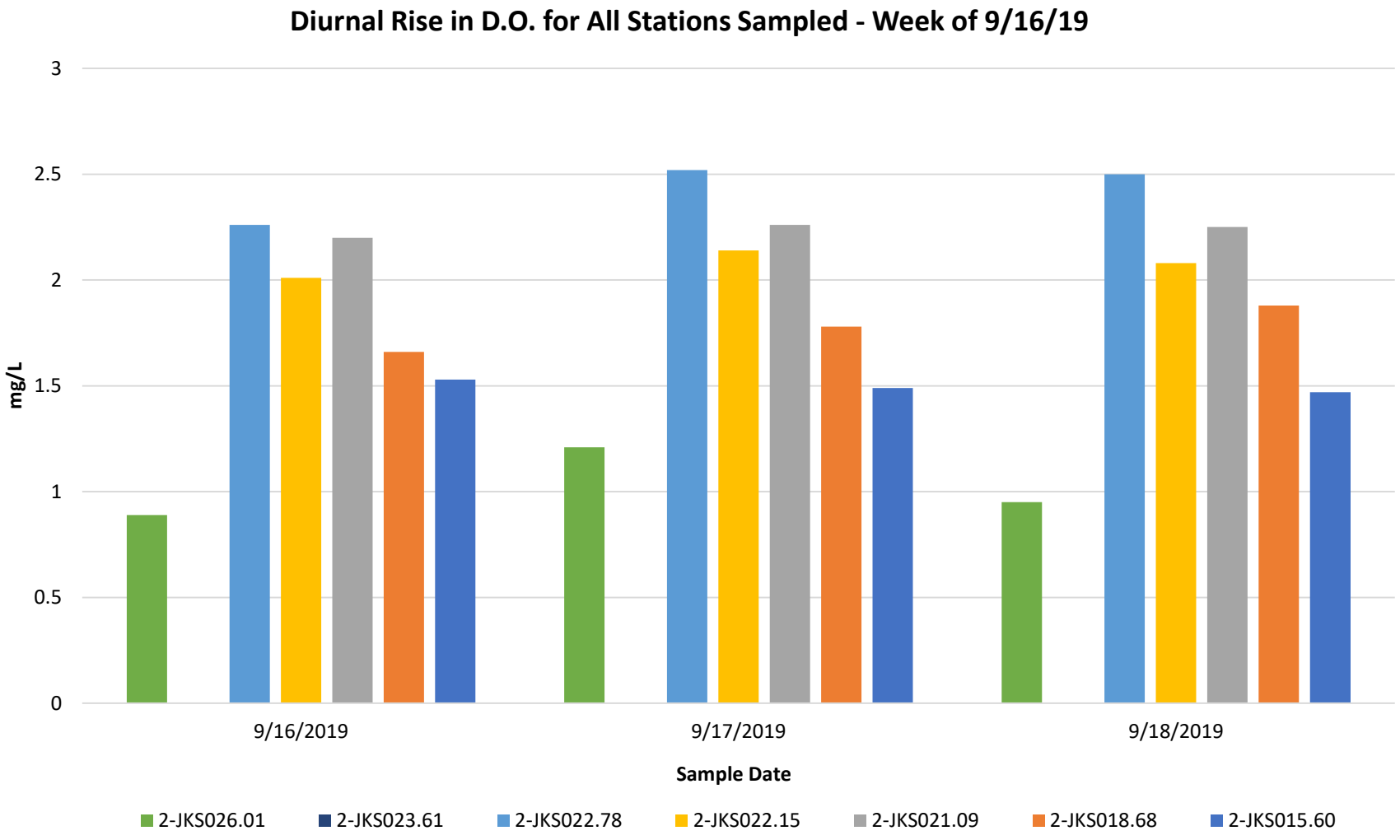

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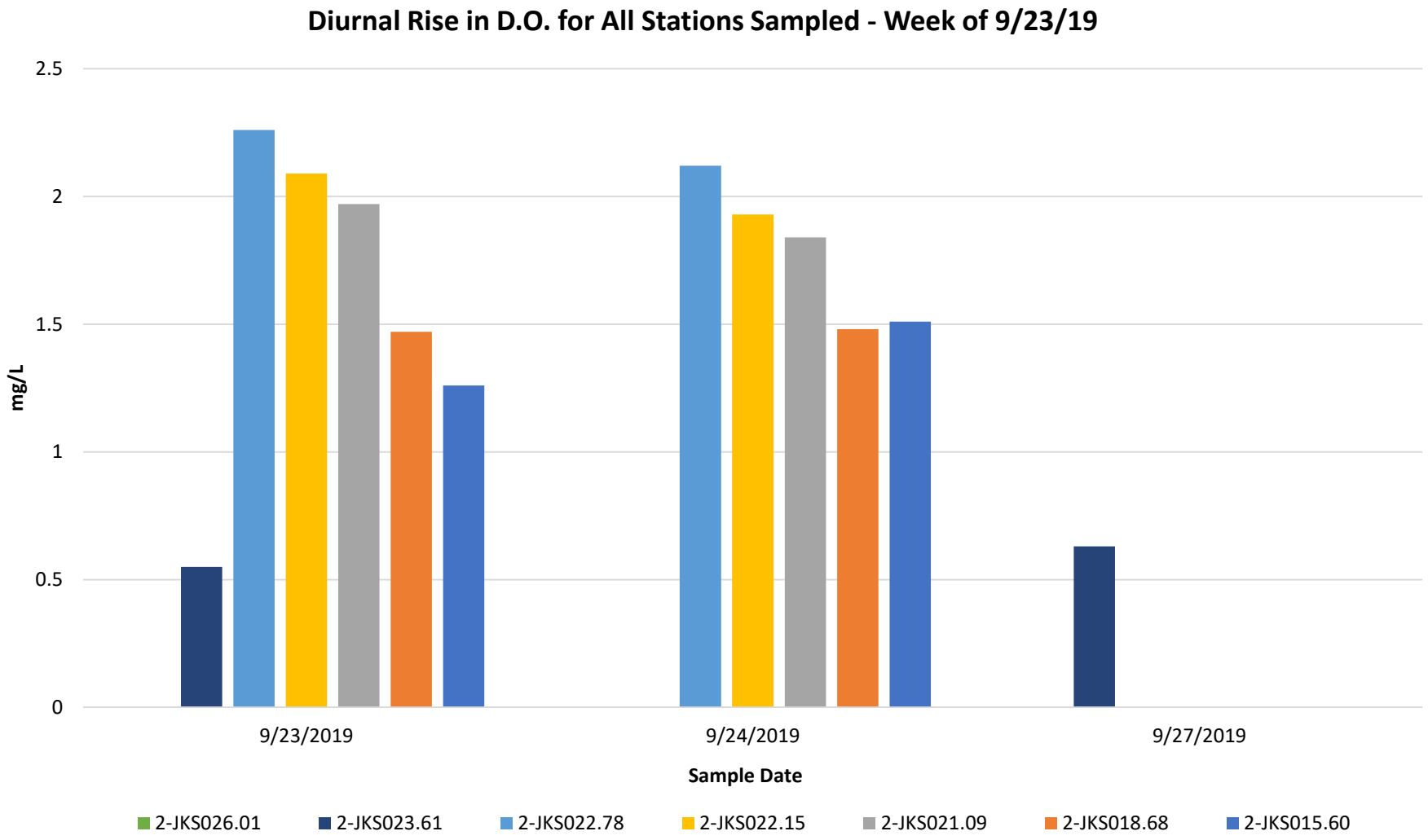

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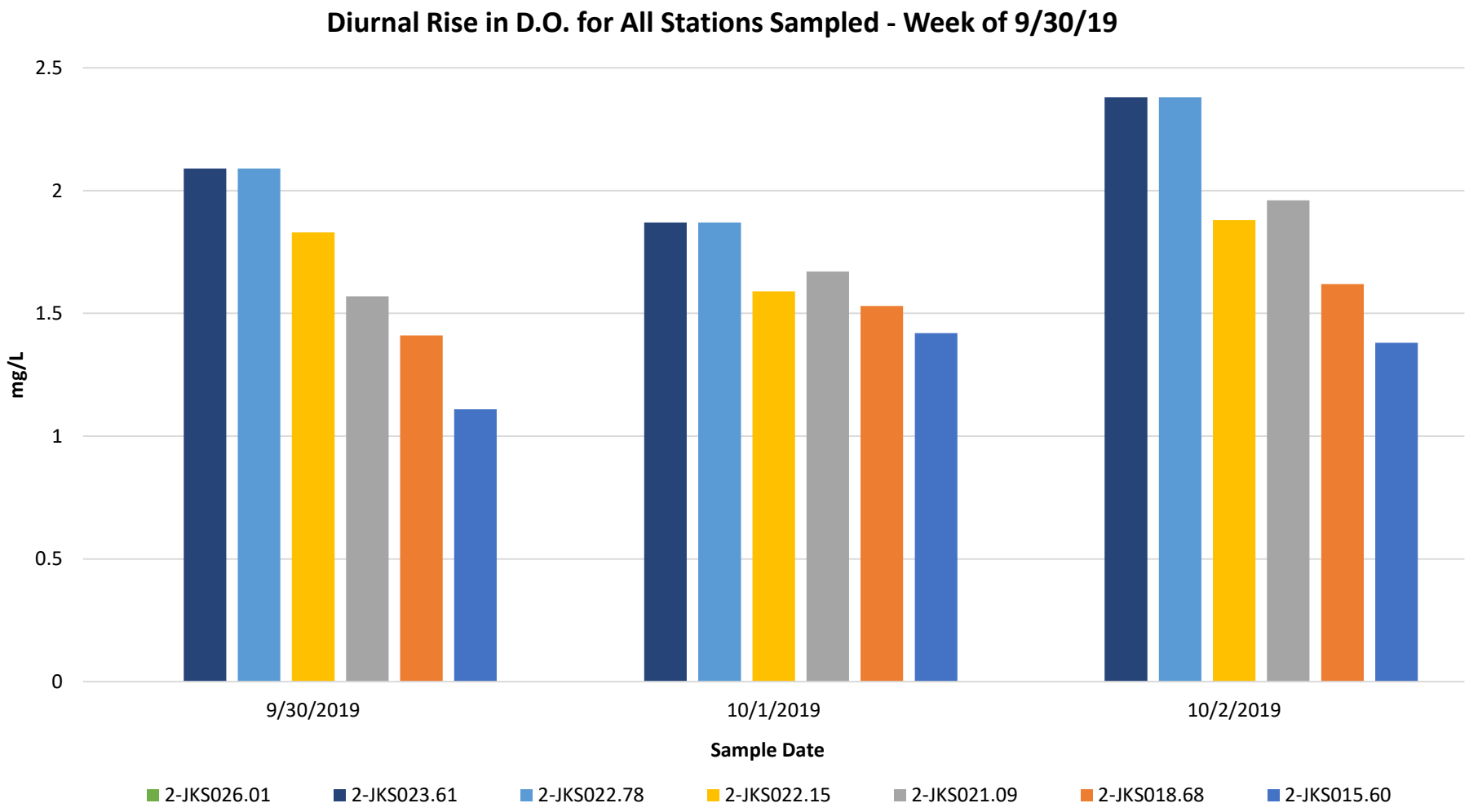

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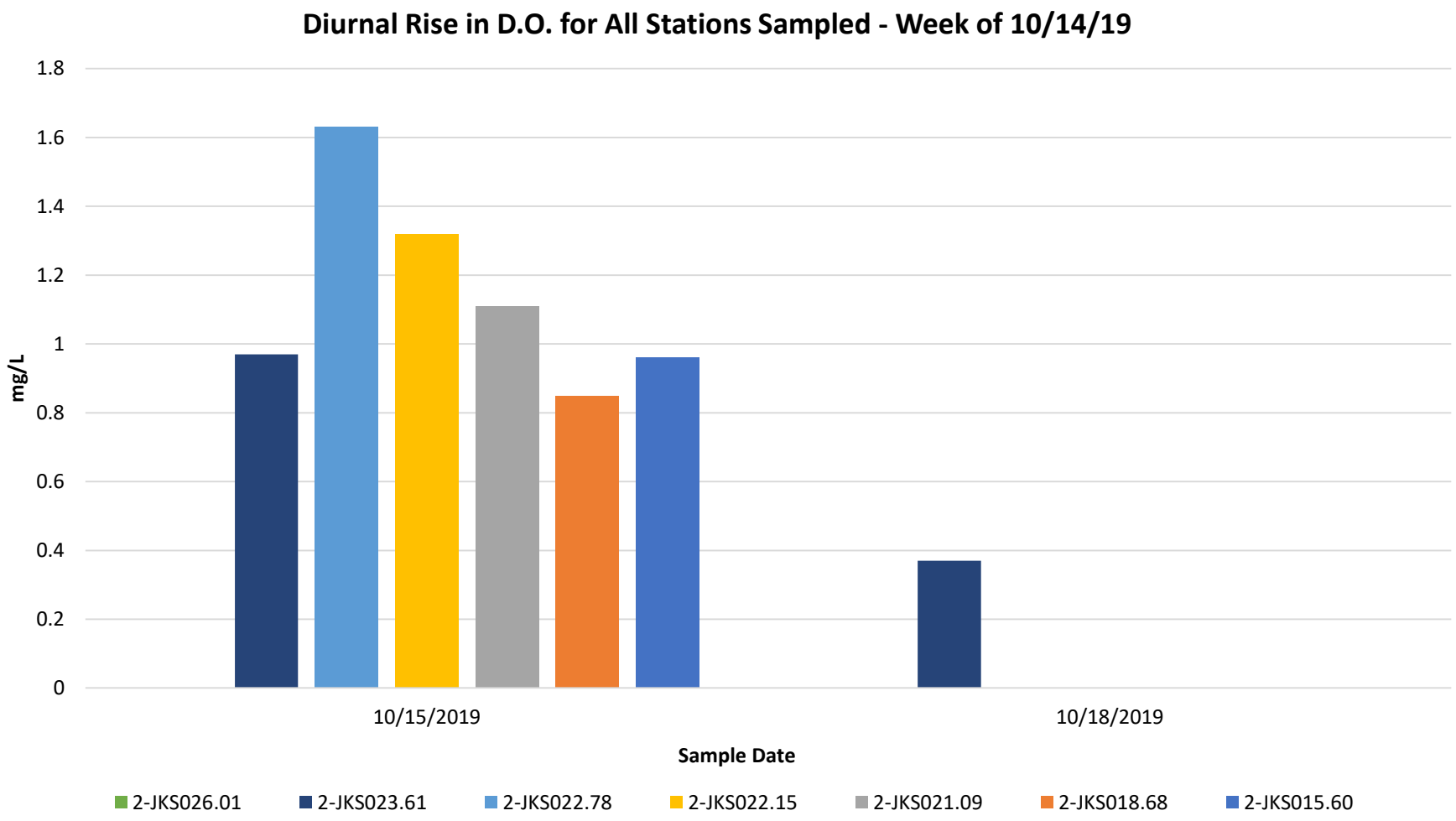

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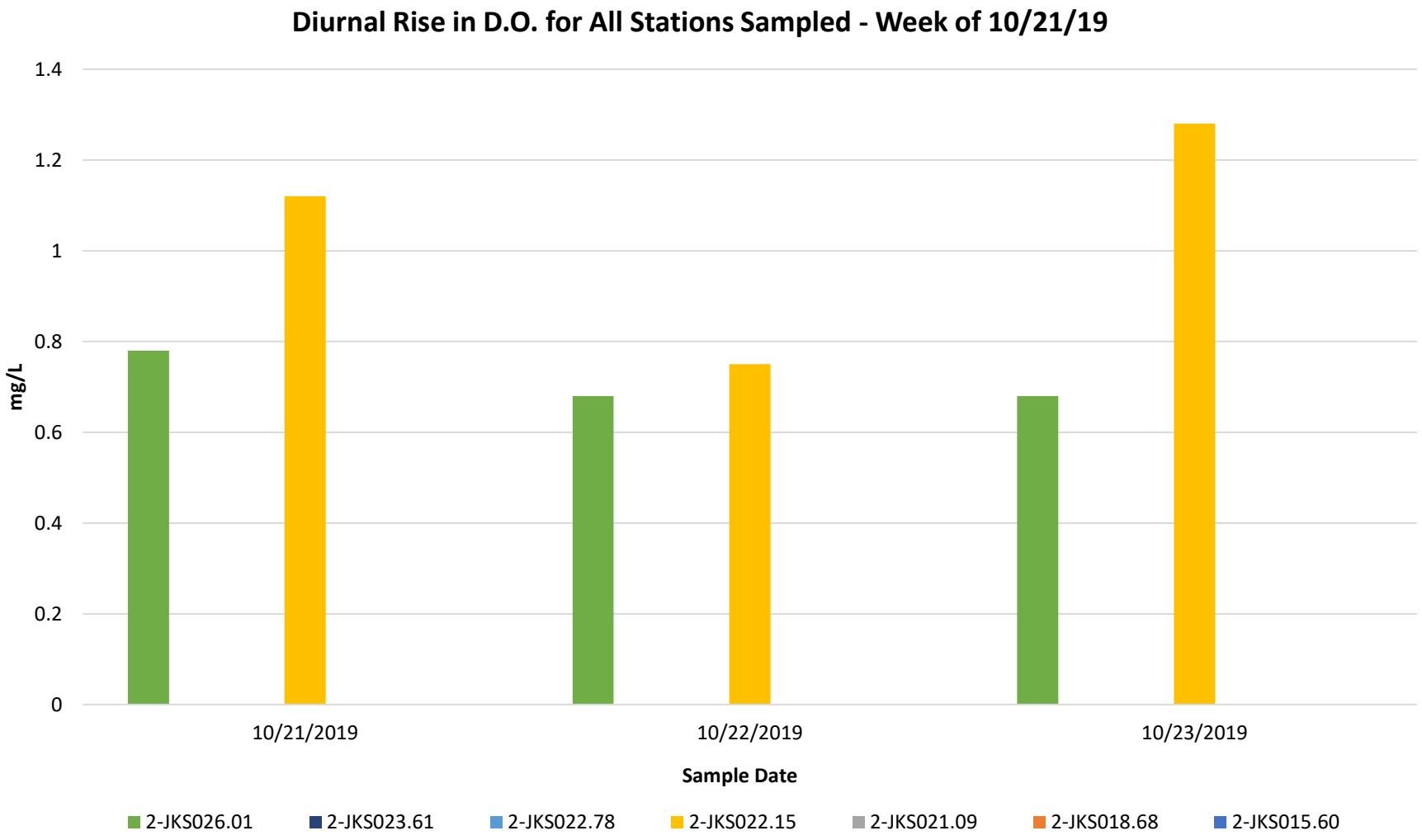

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2019 Flow Data – Compared to Average Flow from 2009-2018

Legend for USGS Gage Used for Flow Data:

- For Filtration Plant: Jackson Below Dunlap – Dunlap (FP)
- For Playground to Hercules: Jackson Below Dunlap (PL to HE)
- For Ildewilde to Mallow: Jackson Below Dunlap + Potts Creek (IL to MA)

Note:

- Flow data is the 24hr average flow from USGS gages for all dates of sample collection.
- For comparison purposes, the 2009 to 2018 average is from the Jackson Below Dunlap gage only.

	2019 Flow Higher than Last 10 Year Average
	2019 Flow Lower than Last 10 Year Average

Month/Day		2019	2009-2018 Average
		Flow (cfs)	
1/16	FP	450	
	PL to HE	573	780
	IL to MA	727	
1/22	FP	3463	
	PL to HE	3880	738
	IL to MA	4275	
2/5	FP	414	
	PL to HE	538	1044
	IL to MA	706	
2/25	FP	4480	
	PL to HE	5760	973
	IL to MA	7450	
3/5	FP	3233	
	PL to HE	4040	1604
	IL to MA	4806	
3/21	FP	556	
	PL to HE	698	1073
	IL to MA	864	
4/17	FP	1065	
	PL to HE	1530	1940
	IL to MA	2095	
4/25	FP	862	
	PL to HE	1130	1079
	IL to MA	1479	
4/29	FP	2231	
	PL to HE	2540	1401
	IL to MA	2826	
5/14	FP	460	
	PL to HE	594	1222
	IL to MA	854	
5/29	FP	303	
	PL to HE	354	938
	IL to MA	428	
6/3	FP	254	
	PL to HE	303	487
	IL to MA	373	
6/17	FP	250	
	PL to HE	301	487
	IL to MA	385	
6/18	FP	251	
	PL to HE	298	518
	IL to MA	375	

Month/Day		2019	2009-2018 Average
		Flow (cfs)	
6/25	FP	297	
	PL to HE	383	808
	IL to MA	479	
6/27	FP	288	
	PL to HE	340	736
	IL to MA	408	
7/1	FP	244	
	PL to HE	282	473
	IL to MA	340	
7/8	FP	288	
	PL to HE	344	535
	IL to MA	399	
7/11	FP	304	
	PL to HE	391	418
	IL to MA	449	
7/15	FP	257	
	PL to HE	300	438
	IL to MA	341	
7/22	FP	252	
	PL to HE	294	329
	IL to MA	363	
7/29	FP	265	
	PL to HE	294	331
	IL to MA	331	
8/5	FP	257	
	PL to HE	282	345
	IL to MA	315	
8/6	FP	255	
	PL to HE	281	337
	IL to MA	245	
8/12	FP	246	
	PL to HE	267	382
	IL to MA	295	
8/13	FP	254	
	PL to HE	277	385
	IL to MA	308	
8/15	FP	254	
	PL to HE	276	370
	IL to MA	307	
8/19	FP	244	
	PL to HE	262	330
	IL to MA	289	

Month/Day		2019	2009-2018 Average
		Flow (cfs)	
8/26	FP	254	
	PL to HE	273	312
	IL to MA	300	
9/3	FP	236	
	PL to HE	252	346
	IL to MA	274	
9/5	FP	237	
	PL to HE	253	341
	IL to MA	274	
9/6	FP	231	
	PL to HE	247	360
	IL to MA	267	
9/11	FP	226	
	PL to HE	242	299
	IL to MA	262	
9/12	FP	223	
	PL to HE	238	297
	IL to MA	258	
9/14	FP	225	
	PL to HE	242	288
	IL to MA	265	
9/16	FP	219	
	PL to HE	235	286
	IL to MA	260	
9/17	FP	221	
	PL to HE	237	390
	IL to MA	261	
9/18	FP	221	
	PL to HE	237	412
	IL to MA	261	
9/23	FP	218	
	PL to HE	234	476
	IL to MA	256	
9/24	FP	218	
	PL to HE	233	530
	IL to MA	254	
9/26	FP	232	
	PL to HE	247	422
	IL to MA	268	
9/27	FP	227	
	PL to HE	242	695
	IL to MA	262	

Month/Day		2019	2009-2018 Average
		Flow (cfs)	
9/30	FP	237	
	PL to HE	254	1057
	IL to MA	285	
10/1	FP	232	
	PL to HE	250	694
	IL to MA	281	
10/2	FP	215	
	PL to HE	232	497
	IL to MA	259	
10/7	FP	227	
	PL to HE	246	282
	IL to MA	271	
10/8	FP	255	
	PL to HE	283	307
	IL to MA	323	
10/9	FP	233	
	PL to HE	260	320
	IL to MA	308	
10/14	FP	212	
	PL to HE	232	526
	IL to MA	260	
10/15	FP	211	
	PL to HE	230	559
	IL to MA	258	
10/18	FP	201	
	PL to HE	229	347
	IL to MA	273	
10/21	FP	221	
	PL to HE	285	272
	IL to MA	376	
10/22	FP	225	
	PL to HE	281	264
	IL to MA	344	
10/23	FP	223	
	PL to HE	313	291
	IL to MA	402	
10/28	FP	211	
	PL to HE	250	352
	IL to MA	298	
10/29	FP	210	
	PL to HE	249	481
	IL to MA	300	

Month/Day		2019	2009-2018 Average
		Flow (cfs)	
10/30	FP	210	
	PL to HE	247	393
	IL to MA	291	
11/4	FP	192	
	PL to HE	247	302
	IL to MA	302	
11/5	FP	190	
	PL to HE	236	284
	IL to MA	285	
11/6	FP	183	
	PL to HE	223	281
	IL to MA	268	
11/11	FP	179	
	PL to HE	208	362
	IL to MA	245	
11/12	FP	180	
	PL to HE	208	745
	IL to MA	245	
11/13	FP	180	
	PL to HE	207	669
	IL to MA	243	