

Appendix C, Table C.1 - Summary of Groundwater Analytical Data - Total Petroleum Hydrocarbons

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
Cross-Gradient	KWB-13	Apr-17			0.0370 J	
	KWB-13	Apr-18			0.0567 J	
	KWB-13	Apr-19			<0.0247	
	KWB-13	Jun-20			0.0396 J	
	NP-5	Apr-13			<0.0530	
	NP-5	Apr-15			0.0387 J	
	NP-5	Apr-17			<0.0247	
	NP-5	Apr-19			<0.0247	
	RA-3156	Apr-17				
	RA-3156	Apr-18				
	RA-3156	Apr-19				
	RA-3156	Jun-20				
	MW-136	Apr-18		<0.0314	0.0596 J	
	MW-136	Oct-18		<0.0314	0.0676 J	
	MW-136	Apr-19		<0.0314	0.0741 J	
	MW-136	Oct-19		0.0731 JB	0.0254 J	
	MW-136	Jun-20		0.326 V3	0.0924 J	
	MW-136	Oct-20		0.0320 J	0.0873 JB	
Evaporation Ponds	MW-1R	Apr-17				0.0583 J
	MW-1R	Apr-18				0.0624 J
	MW-1R	Apr-19				0.0756 J
	MW-1R	Jun-20				<0.0247
	MW-2A	Apr-18		<0.0314		0.132
	MW-2A	Oct-18		<0.0314		0.175
	MW-2A	Apr-19		<0.0314		0.153
	MW-2A	Oct-19		0.0798 JB		0.0585 J
	MW-2A	Jun-20		0.0484 J		<0.0247
	MW-2A	Oct-20		<0.0314		0.153
	MW-3	Apr-18		0.245		5.43
	MW-3	Apr-18	FD	0.237		6.52
	MW-3	Oct-18		0.289		6.25
	MW-3	Oct-18	FD	0.381		5.62
	MW-3	Apr-19		0.0731 J		3.93
	MW-3	Apr-19	FD	0.192 B		3.77
	MW-3	Oct-19		0.659		8.93
	MW-3	Oct-19	FD	0.536 Q		9.30
	MW-3	Jun-20		<1.57		7.01
	MW-3	Jun-20	FD	0.691		7.98
	MW-3	Oct-20		4.06 JB		6.84
	MW-3	Oct-20	FD	0.491		7.08
	MW-4A	Apr-18		0.448		5.10
	MW-4A	Oct-18		0.803		5.23
	MW-4A	Apr-19		0.669		6.82
	MW-4A	Oct-19		0.417 B		4.88
	MW-4A	Jun-20		0.377		4.07
	MW-4A	Oct-20		0.586		4.93
	MW-4B	Apr-13		0.102		0.360
	MW-4B	Apr-15		0.119		1.31
	MW-4B	Apr-17		0.318		1.21
	MW-4B	Apr-19		0.181		1.13
	MW-5A	Apr-18		1.95		6.89
	MW-5A	Oct-18		3.29		7.51
	MW-5A	Apr-19		2.25		4.80
	MW-5A	Oct-19		1.72		4.01
	MW-5A	Jun-20		0.959		7.01
	MW-5A	Oct-20		1.75		6.72
	MW-5B	Apr-13		1.78		7.10
	MW-5B	Apr-15		1.14		11.0
	MW-5B	Apr-17		2.08		11.2
	MW-5B	Apr-19		1.82		11.5
	MW-5C	Apr-13		0.0652		0.220
	MW-5C	Apr-15		<0.0310		0.580
	MW-5C	Apr-17		<0.0314		0.500
	MW-5C	Apr-19		0.0423 JB		0.442
	MW-6A	Apr-17		0.335		14.2
	MW-6A	Apr-18		0.406		9.27
	MW-6A	Apr-19		0.315		11.0
	MW-6A	Jun-20		0.192		4.86
	MW-6B	Mar-13		<0.0500		<0.0530
	MW-6B	Mar-13	FD	<0.0500		<0.0540
	MW-6B	Apr-15		<0.0310		0.386
	MW-6B	Apr-17		<0.0314		0.276
	MW-6B	Apr-19		0.0356 J		0.427
	MW-7A	Apr-18		0.378		1.26
	MW-7A	Apr-18	FD	0.379		1.28
	MW-7A	Oct-18		0.755		1.29
	MW-7A	Oct-18	FD	0.649		1.13
	MW-7A	Apr-19		0.605		1.33
	MW-7A	Apr-19	FD	0.638		1.13
	MW-7A	Oct-19		0.325		1.09
	MW-7A	Oct-19	FD	0.317 Q		1.06
	MW-7A	Jun-20		0.240		0.928
	MW-7A	Jun-20	FD	0.337		0.915
	MW-7A	Oct-20		0.351 B		0.940
	MW-7A	Oct-20	FD	0.379		0.886
	MW-7B	Apr-13		<0.0500		<0.0530
	MW-7B	Apr-15		<0.0310		0.120
	MW-7B	Apr-17		<0.0314		0.0845 J
	MW-7B	Apr-19		0.0647 JB		0.0676 J
	MW-10	Apr-18		0.734		2.28
	MW-10	Oct-18		0.915		2.03
	MW-10	Apr-19		0.816		1.85
	MW-10	Oct-19		1.06		1.89
	MW-10	Jun-20		0.931		1.57
	MW-10	Oct-20		0.640		1.76
	MW-11A	Apr-18		<0.0314		<0.0247
	MW-11A	Oct-18				
	MW-11A	Apr-19		0.0422 JB		<0.0247
	MW-11A	Oct-19				
	MW-11A	Jun-20		<0.0314		<0.0247
	MW-11A	Oct-20				
	MW-11B	Mar-13		<0.0500		<0.0520
	MW-11B	Apr-15		<0.0310		<0.0250
	MW-11B	Apr-17		<0.0314		<0.0247
	MW-11B	Apr-19		0.0345 JB		<0.0247

Analyte Group:				TPH			
				Analyte:	GRO	DRO	DRO - EP
				Units:	mg/L	mg/L	mg/L
				CGWSL:	0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH	
Area	Well ID	Date	Dup				
Evaporation Ponds	MW-15	Apr-17		0.0940 J		0.251	
	MW-15	Apr-18		0.328		0.479	
	MW-15	Apr-19		0.136 B		0.475	
	MW-15	Jun-20		<0.0314		<0.0247	
	MW-18A	Apr-18				0.349	
	MW-18A	Oct-18				0.329	
	MW-18A	Apr-19				0.652	
	MW-18A	Oct-19				0.410	
	MW-18A	Jun-20				0.408	
	MW-18A	Oct-20				0.373 B	
	MW-18B	Apr-13		0.0995		<0.0520	
	MW-18B	Apr-15		<0.0310		0.280	
	MW-18B	Apr-17		0.0932 J		0.287	
	MW-18B	Apr-19		0.105 B		0.230	
	MW-22A	Apr-18		2.50		4.86	
	MW-22A	Apr-18	FD	3.30		5.22	
	MW-22A	Oct-18		3.61		5.13	
	MW-22A	Oct-18	FD	4.46		4.89	
	MW-22A	Apr-19		2.75		4.55	
	MW-22A	Apr-19	FD	3.22		4.41	
	MW-22A	Oct-19		0.599 B		1.54	
	MW-22A	Oct-19	FD	0.612 B		1.54	
	MW-22A	Jun-20		2.73		2.91	
	MW-22A	Jun-20	FD	2.10		2.72	
	MW-22A	Oct-20		1.68		3.45	
	MW-22A	Oct-20	FD	2.13		3.13	
	MW-22B	Apr-13		1.99		3.00	
	MW-22B	Apr-15		2.34		5.60	
	MW-22B	Apr-17		1.76		5.25	
	MW-22B	Apr-19		2.58		4.77	
	MW-70	Apr-18		1.97		0.749	
	MW-70	Oct-18		2.34		0.666	
	MW-70	Apr-19		1.92		0.688	
	MW-70	Oct-19		1.50		0.861	
	MW-70	Jun-20		1.29		0.833	
	MW-70	Oct-20		2.28		0.805	
	MW-72	Apr-17		0.118		1.03	
	MW-72	Apr-18		0.0713 J		0.555	
	MW-72	Apr-19		0.0396 J		0.497	
	MW-72	Jun-20		0.0544 J		0.303	
	MW-73	Apr-17		0.367		3.68	
	MW-73	Apr-18		0.575		2.85	
	MW-73	Apr-19		0.0435 J		2.56	
	MW-73	Jun-20		0.408		2.86	
	MW-74	Apr-18		1.18		14.1	
	MW-74	Oct-18		0.889		35.3	
	MW-74	Apr-19		0.674		39.4	
	MW-74	Oct-19		1.66		23.5	
	MW-74	Jun-20		0.490		21.9	
	MW-74	Oct-20		1.64		15.6	
	MW-75	Apr-18		1.41		9.88	
	MW-75	Oct-18		3.31		14.4	
	MW-75	Apr-19		1.64		12.0	
	MW-75	Oct-19		3.01		15.4	
	MW-75	Jun-20		2.44 J		12.2	
	MW-75	Oct-20		3.45		15.1	
	MW-76	Apr-18		1.52		15.1	
	MW-76	Oct-18		1.69		29.2	
	MW-76	Apr-19		1.67		25.3	
	MW-76	Oct-19		1.70		30.1	
	MW-76	Jun-20		1.89		20.8	
	MW-76	Oct-20		1.11		16.4	
	MW-77	Apr-17		1.11		57.5	
	MW-77	Apr-18		1.15		54.4	
	MW-77	Apr-19		1.04		72.5	
	MW-77	Jun-20		2.88 J		53.1	
	MW-78	Apr-17		<0.314		59.1	
	MW-78	Apr-18		<0.314		26.4	
	MW-78	Apr-19		<0.314		28.6	
	MW-78	Jun-20		<1.57		38.5	
	MW-79	Apr-18		0.0414 J		0.389	
	MW-79	Oct-18		0.0571 J		0.533	
	MW-79	Apr-19		<0.0314		0.584	
	MW-79	Oct-19		0.0662 JB		0.200	
	MW-79	Jun-20		0.0534 J		0.0762 J	
	MW-79	Oct-20		0.0582 J		0.333	
	MW-80	Apr-17		<0.0314		0.680	
	MW-80	Apr-18		<0.0314		0.150	
	MW-80	Apr-19		<0.0314		0.210	
	MW-80	Jun-20		<0.0314		<0.0247	
	MW-81	Apr-17		<0.0314		4.84	
	MW-81	Apr-18		<0.0314		0.922	
	MW-81	Apr-19		<0.0314		1.42	
	MW-81	Jun-20		0.0978 J		0.269	
	MW-82	Apr-17		0.660		6.40	
	MW-82	Apr-18		0.432		3.03	
	MW-82	Apr-19		0.0619 J		5.49	
	MW-82	Jun-20		0.689		2.58	
	MW-83	Apr-18		1.18		7.92	
	MW-83	Oct-18		0.597		19.5	
	MW-83	Apr-19		0.339		35.2	
MW-83	Oct-19		0.996 B		19.1		
MW-83	Jun-20		0.843		8.93		
MW-83	Oct-20		1.17		10.2		
MW-84	Apr-18		0.765		22.3		
MW-84	Oct-18		1.21		41.0		
MW-84	Apr-19		0.453		48.1		
MW-84	Oct-19		1.45		34.8		
MW-84	Jun-20		1.45		58.9		
MW-84	Oct-20		<3.14		59.2		
MW-86	Jun-20		1.77 J		93.9		
MW-86	Oct-20		<6.28		80.2		
MW-87	Apr-18		<0.0314		0.288		
MW-87	Oct-18		0.0326 J		0.222		
MW-87	Apr-19		0.0422 JB		0.364		
MW-87	Oct-19		0.0950 JB		0.247		
MW-87	Jun-20		<0.0314		0.260		
MW-87	Oct-20		0.0469 JB		0.270 B		

Appendix C, Table C.1 - Summary of Groundwater Analytical Data - Total Petroleum Hydrocarbons

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
Evaporation Ponds	MW-88	Apr-18		0.0540 J		0.508
	MW-88	Oct-18		0.0479 J		0.415
	MW-88	Apr-19		<0.0314		0.359
	MW-88	Oct-19		0.120 B		0.325
	MW-88	Jun-20		0.0434 J		0.317
	MW-88	Oct-20		0.0806 JB		0.405
	MW-120	Apr-18		0.124		0.540
	MW-120	Oct-18		0.133		0.664
	MW-120	Apr-19		0.102		0.554
	MW-120	Oct-19		0.611 B		0.463
	MW-120	Jun-20		0.0458 J		0.262
	MW-120	Oct-20		<0.0314		0.402
	MW-121	Apr-18		<0.0314		0.395
	MW-121	Oct-18		<0.0314		0.473
	MW-121	Apr-19		<0.0314		0.418
	MW-121	Oct-19		0.0537 JB		0.310
	MW-121	Jun-20		<0.0314		0.204
	MW-121	Oct-20		<0.0314		0.268
	MW-122	Apr-18		<0.0314		0.211
	MW-122	Oct-18		<0.0314		0.188
	MW-122	Apr-19		<0.0314		0.338
	MW-122	Oct-19		0.233 JB		0.111
	MW-122	Jun-20		<1.57		0.0398 J
	MW-122	Oct-20		<1.57		0.122
	MW-123	Apr-18		1.35		3.09
	MW-123	Oct-18		2.04		2.51
	MW-123	Apr-19		1.63		2.63
	MW-123	Oct-19		1.58		2.36
	MW-123	Jun-20		2.03		2.01
	MW-123	Oct-20		1.30		2.29
	MW-124	Apr-18		<0.0314		0.0328 J
	MW-124	Oct-18		<0.0314		<0.0247
	MW-124	Apr-19		0.0422 JB		0.0404 J
	MW-124	Oct-19		<0.0314 Q		0.0611 J
	MW-124	Jun-20		<0.0314		<0.0247
	MW-124	Oct-20		<0.0314		0.0406 JB
	OCD-1R	Apr-18		<0.0314		0.187
	OCD-1R	Oct-18		<0.0314		0.141
	OCD-1R	Apr-19		<0.0314		0.143
	OCD-1R	Oct-19		0.0869 JB		0.181
	OCD-1R	Jun-20		<0.0314		0.110
	OCD-1R	Oct-20		0.0461 JB		0.117
	OCD-2A	Apr-18		<0.0314		0.0703 J
	OCD-2A	Oct-18		<0.0314		0.0442 J
	OCD-2A	Apr-19		<0.0314		0.0563 J
	OCD-2A	Oct-19		0.0765 JB		0.0255 J
	OCD-2A	Jun-20		<0.0314		<0.0247
	OCD-2A	Oct-20		0.0374 JB		0.0650 J
	OCD-3	Apr-18		<0.0314		0.0510 J
	OCD-3	Oct-18		<0.0314		0.0262 J
	OCD-3	Apr-19		<0.0314		0.0267 J
	OCD-3	Oct-19		0.0771 JB		<0.0247
	OCD-3	Jun-20		<0.0314		<0.0247
	OCD-3	Oct-20		0.0381 JB		0.0499 J
	OCD-4	Apr-18		<0.0314		0.0255 J
	OCD-4	Oct-18		<0.0314		<0.0247
	OCD-4	Apr-19		<0.0314		<0.0247
	OCD-4	Oct-19		0.0736 JB		<0.0247
	OCD-4	Jun-20		<0.0314		<0.0247
	OCD-4	Oct-20		0.0326 JB		0.0404 J
	OCD-5	Apr-18		0.194		0.249
	OCD-5	Oct-18		0.312		0.259
	OCD-5	Apr-19		0.179 B		0.233
	OCD-5	Oct-19		0.912		0.954
	OCD-5	Jun-20		1.09		0.773
	OCD-5	Oct-20		0.724		0.917
	OCD-6	Apr-18		0.218		0.585
	OCD-6	Oct-18		0.293		0.651
	OCD-6	Apr-19		0.136		0.600
	OCD-6	Oct-19		0.145 B		0.390
	OCD-6	Jun-20		0.134		0.517
	OCD-6	Oct-20		0.159		0.622
	OCD-7AR	Apr-18		0.808		3.30
	OCD-7AR	Oct-18		1.32		3.89
	OCD-7AR	Apr-19		0.360		4.00
	OCD-7AR	Oct-19		1.14		3.46
	OCD-7AR	Jun-20		0.637		3.21
	OCD-7AR	Oct-20		0.878		3.45
	OCD-7B	Mar-13		<0.0500		<0.0520
	OCD-7B	Apr-15		<0.0310		0.120
	OCD-7B	Apr-17		<0.0314		0.0746 J
	OCD-7B	Apr-19		<0.0314		0.0638 J
	OCD-8A	Apr-18		0.861		3.15
	OCD-8A	Oct-18		1.39		2.95
	OCD-8A	Apr-19		1.36		3.75
	OCD-8A	Oct-19		0.128 B		0.648
	OCD-8A	Jun-20		0.419		2.19
	OCD-8A	Oct-20		0.644		2.17
	OCD-8B	Apr-13		0.298		0.890
	OCD-8B	Apr-15		<0.0310		0.840
	OCD-8B	Apr-17		<0.0314		0.585
	OCD-8B	Apr-19		0.0648 JB		0.612
Field East of Refinery	KWB-1A	Apr-18			0.0900 J	
	KWB-1A	Oct-18			0.0970 J	
	KWB-1A	Apr-19			0.0541 J	
	KWB-1A	Oct-19			0.0614 J	
	KWB-1A	Jun-20			0.123	
	KWB-1A	Oct-20			0.0960 JB	
	KWB-1C	Apr-13			<0.0440	
	KWB-1C	Apr-15			0.113	
	KWB-1C	Apr-17			0.140	
	KWB-1C	Apr-19			0.0921 J	
	KWB-7	Oct-17			1.69	
	KWB-7	Oct-18			0.444	
	KWB-7	Jun-20			7.29	
	KWB-7	Oct-20			1.05	

Analyte Group:				TPH		
				Analyte:		
				GRO	DRO	DRO - EP
				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
Field East of Refinery	KWB-8	Oct-16			3.02	
	KWB-8	Apr-17			3.41	
	KWB-9	Oct-17			3.30	
	KWB-10	Oct-20			6.80	
	KWB-10R	Apr-17			4.01	
	KWB-10R	Oct-17			5.18	
	KWB-10R	Apr-18			3.23	
	KWB-10R	Oct-18			3.35	
	KWB-11A	Apr-18		0.287	0.398	
	KWB-11A	Oct-18		0.369	1.20	
	KWB-11A	Apr-19		0.149	0.787	
	KWB-11A	Jun-20		0.444	2.28	
	KWB-11A	Oct-20		0.0992 J	0.376	
	KWB-11B	Apr-18		<0.0314	0.0406 J	
	KWB-11B	Oct-18		<0.0314	0.0382 J	
	KWB-11B	Apr-19		<0.0314	0.0418 J	
	KWB-11B	Oct-19		0.0747 JB	<0.0247	
	KWB-11B	Jun-20		<0.0314	0.0514 J	
	KWB-11B	Oct-20		<0.0314	0.0956 J	
	KWB-12A	Oct-18		<0.0314	0.132	
	KWB-12A	Oct-19		0.0748 JB	<0.0247	
	KWB-12A	Jun-20		<0.0314	0.0477 J	
	KWB-12A	Oct-20		0.0364 J	<0.0247	
	KWB-12B	Apr-18		<0.0314	0.0354 JB	
	KWB-12B	Apr-18	FD	<0.0314	<0.0247	
	KWB-12B	Oct-18		<0.0314	0.0425 J	
	KWB-12B	Oct-18	FD	<0.0314	0.0643 J	
	KWB-12B	Apr-19		<0.0314	<0.0247	
	KWB-12B	Apr-19	FD	0.0499 JB	<0.0247	
	KWB-12B	Oct-19		0.0739 JB	<0.0247	
	KWB-12B	Oct-19	FD	0.0768 JB	0.133	
	KWB-12B	Jun-20		<0.0314	0.0305 J	
	KWB-12B	Jun-20	FD	0.0359 JB	0.0415 J	
	KWB-12B	Oct-20		0.0358 J	<0.0247	
	KWB-12B	Oct-20	FD	<0.0314	0.0684 J	
	KWB-P4	Apr-13			<0.0520	
	KWB-P4	Apr-15			0.0820 J	
	KWB-P4	Apr-17			0.0526 J	
	KWB-P4	Apr-19			0.0361 J	
	MW-57	Apr-18		<0.0314	0.103 B	
	MW-57	Oct-18		<0.0314	0.0417 J	
	MW-57	Apr-19		<0.0314	0.139 J	
	MW-57	Oct-19		0.0894 JB	<0.0247	
	MW-57	Jun-20		<0.0314	0.0661 J	
	MW-57	Oct-20		0.0579 J	0.0475 JB	
	MW-58	Oct-17			9.77	
	MW-58	Apr-18			5.73	
	MW-58	Oct-18			4.86	
	MW-58	Oct-19			12.1	
	MW-111	Apr-18		1.69	1.52	
	MW-111	Oct-18		1.36	2.63	
	MW-111	Apr-19		1.88	1.54	
	MW-111	Oct-19		1.37	1.80	
	MW-111	Jun-20		3.86	1.77	
	MW-111	Jun-20		3.86	1.77	
	MW-112	Nov-14		28.0	2.20	
	MW-113	Apr-18		0.683	0.142 B	
	MW-113	Apr-18	FD	0.756	0.174	
	MW-113	Oct-18		0.285	0.100 J	
	MW-113	Oct-18	FD	0.259	0.215	
	MW-113	Apr-19		1.91	0.0450 J	
	MW-113	Apr-19	FD	1.83	0.113	
	MW-113	Oct-19		4.54	2.35	
	MW-113	Oct-19	FD	4.37	2.53	
	MW-113	Jun-20		1.30	0.226	
	MW-113	Jun-20	FD	0.798 v3	0.158	
	MW-113	Oct-20		3.18	0.784	
	MW-113	Oct-20	FD	3.30	0.814	
	MW-125	Apr-18		<0.0314	0.0475 J	
	MW-125	Oct-18		<0.0314	0.211	
	MW-125	Apr-19		<0.0314	0.0670 J	
	MW-125	Oct-19		0.0827 JB	0.101	
	MW-125	Jun-20		<0.0314	0.0700 J	
	MW-125	Oct-20		0.0382 J	0.0942 JB	
	MW-126A	Apr-18		0.0634 J	0.390	
	MW-126A	Oct-18		0.182	0.723	
	MW-126A	Apr-19		0.124 B	0.370	
	MW-126A	Oct-19		0.903	0.583	
	MW-126A	Jun-20		0.0319 J	0.461	
	MW-126A	Oct-20		0.0669 J	0.451 B	
	MW-126B	Apr-18		<0.0314	0.244	
	MW-126B	Oct-18		<0.0314	0.298	
	MW-126B	Apr-19		0.0325 JB	0.232	
	MW-126B	Oct-19		0.0766 JB	0.243	
MW-126B	Jun-20		<0.0314	0.461		
MW-126B	Oct-20		0.0343 J	0.312 B		
MW-127	Oct-17		1.68	1.41		
MW-127	Apr-18		5.15	1.06		
MW-127	Oct-18		3.13	1.30		
MW-127	Apr-19		5.94	1.11		
MW-127	Apr-19		5.94	1.11		
MW-128	Oct-17		1.14	2.37		
MW-128	Apr-18		0.932	1.58		
MW-128	Oct-18		2.76	2.04		
MW-128	Apr-19		3.13	1.81		
MW-128	Apr-19		3.13	1.81		
MW-129	Apr-16		2.70	1.68		
MW-129	Oct-16		2.17	1.68		
MW-129	Apr-17		1.79	2.13		
MW-129	Apr-18		4.33	1.40		
MW-130	Apr-18		0.0327 J	0.756 B		
MW-130	Oct-18		<0.0314	0.945		
MW-130	Apr-19		0.0395 JB	0.648		
MW-130	Oct-19		0.0828 JB	0.774		
MW-130	Jun-20		<0.0314	0.609		
MW-130	Oct-20		<0.0314	0.676		

Appendix C, Table C.1 - Summary of Groundwater Analytical Data - Total Petroleum Hydrocarbons

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
Field East of Refinery	MW-131	Apr-17		6.81	1.77	
	MW-131	Oct-17		4.95	1.58	
	MW-131	Oct-19		8.71	1.46	
	MW-131	Jun-20		8.68	1.83	
	MW-133	Nov-14		9.40	2.80	
	MW-133	Apr-15		11.3	3.10	
	MW-134	Apr-18		<0.0314	0.0533 J	
	MW-134	Apr-18	FD	<0.0314	0.0427 J	
	MW-134	Oct-18		<0.0314	0.0547 J	
	MW-134	Oct-18	FD	<0.0314	0.0883 J	
	MW-134	Apr-19		0.0450 JB	0.0911 J	
	MW-134	Apr-19	FD	<0.0314	0.0927 J	
	MW-134	Oct-19		0.0965 JB	0.0947 J	
	MW-134	Oct-19	FD	0.0939 JB	0.277	
	MW-134	Jun-20		0.0330 JB	0.0820 J	
	MW-134	Jun-20	FD	0.0332 J	<0.0247	
	MW-134	Oct-20		<0.0314	0.107 B	
	MW-134	Oct-20	FD	<0.0314	0.129	
	MW-135	Apr-18		<0.0314	0.0408 J	
	MW-135	Oct-18		<0.0314	0.0342 J	
	MW-135	Apr-19		0.0317 JB	0.0521 J	
	MW-135	Oct-19		0.0796 JB	0.0543 J	
	MW-135	Jun-20		0.0425 J	0.0380 J	
	MW-135	Oct-20		<0.0314	0.0723 JB	
	MW-145	Oct-20				
	MW-145	Oct-20	FD			
	MW-146	Oct-20				
	MW-147	Oct-20				
	MW-148	Oct-20				
	RA-4196	Apr-18				
	RA-4196	Oct-18				
	RA-4196	Apr-19				
	RA-4196	Oct-19				
	RA-4196	Jun-20				
	RA-4196	Oct-20				
	RA-4798	Apr-18				
	RA-4798	Oct-18				
	RA-4798	Apr-19				
	RA-4798	Oct-19				
	RA-4798	Jun-20				
	RA-4798	Oct-20				
	RW-12R	Apr-17			1.61	
	RW-12R	Apr-18			0.514 B	
	RW-12R	Apr-19			0.822	
	RW-12R	Jun-20			0.633	
	RW-13R	Apr-16			0.808	
	RW-13R	Apr-18			0.526 B	
	RW-18A	Apr-17				
	RW-18A	Apr-18				
	RW-18A	Apr-19				
	RW-18A	Jun-20				
	RW-20	Apr-15			2.10	
	RW-22	Apr-15			5.40	
NCL	MW-18	Apr-17			0.960	
	MW-18	Apr-18			0.672	
	MW-18	Apr-19			0.842	
	MW-18	Jun-20			0.812	
	MW-45	Apr-18			0.502	
	MW-45	Oct-18			1.30	
	MW-45	Apr-19			0.975	
	MW-45	Oct-19			0.983	
	MW-45	Jun-20			0.739	
	MW-45	Oct-20			0.728	
	MW-53	Apr-16			0.316	
	MW-53	Apr-17			0.258	
	MW-53	Apr-18			0.158	
	MW-53	Apr-19			0.229	
	MW-53R	Oct-20			0.206	
	MW-54A	Apr-18			2.51	
	MW-54A	Oct-18			2.18	
	MW-54A	Apr-19			3.63	
	MW-54A	Oct-19			2.54	
	MW-54A	Jun-20			1.97	
	MW-54A	Oct-20			2.82	
	MW-54B	Apr-13		<0.0500	0.630	
	MW-54B	Apr-15		<0.0310	2.47	
	MW-54B	Apr-17		<0.0314	0.881	
	MW-54B	Apr-19		<0.0314	1.84	
	MW-55	Apr-18		0.0479 J	0.518	
	MW-55	Oct-18		0.0888 J	1.09	
	MW-55	Apr-19		0.0547 J	1.18	
	MW-55	Oct-19		0.142 B	1.05	
	MW-55	Jun-20		0.140	0.950	
	MW-55	Oct-20		0.635	1.34	
	MW-56	Apr-17			1.15	
	MW-56	Apr-18			0.287	
	MW-56	Apr-19			0.583	
	MW-56	Jun-20			0.110	
	MW-108	Apr-18			8.78	
	MW-108	Oct-18			4.41	
	MW-108	Apr-19			5.86	
	MW-108	Oct-19			3.36	
	MW-108	Jun-20			2.79	
	MW-108	Oct-20			3.18	
	NCL-31	Apr-18			0.927	
	NCL-31	Oct-18			1.45	
	NCL-31	Apr-19			1.86	
	NCL-31	Oct-19			0.934	
	NCL-31	Jun-20			0.494	
	NCL-31	Oct-20			0.587	
	NCL-32	Apr-18			0.971	
	NCL-32	Oct-18			2.11	
	NCL-32	Apr-19			1.67	
	NCL-32	Oct-19			0.970	
	NCL-32	Jun-20			0.533	
	NCL-32	Oct-20			0.800	
	NCL-33	Apr-18			2.44	
	NCL-33	Oct-18			4.50	
	NCL-33	Apr-19			7.38	
	NCL-33	Oct-19			8.53	
	NCL-33	Jun-20			7.21	
	NCL-33	Oct-20			8.54	

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
NCL	NCL-34A	Apr-18			5.16	
	NCL-34A	Oct-18			7.41	
	NCL-34A	Apr-19			6.59	
	NCL-34A	Oct-19			5.90	
	NCL-34A	Jun-20			6.58	
	NCL-34A	Apr-18			3.65	
	NCL-44	Oct-18			8.38	
	NCL-44	Apr-19			7.31	
	NCL-44	Oct-19			5.80	
	NCL-44	Jun-20			4.52	
	NCL-44	Oct-20			5.12	
	NCL-49	Apr-18			0.0568 J	
	NCL-49	Apr-18	FD		0.0559 J	
	NCL-49	Oct-18			0.0922 J	
	NCL-49	Oct-18	FD		0.0672 J	
	NCL-49	Apr-19			0.0986 J	
	NCL-49	Apr-19	FD		0.0811 J	
	NCL-49	Oct-19			0.153	
	NCL-49	Oct-19	FD		0.119	
	NCL-49	Jun-20			0.0917 J	
	NCL-49	Jun-20	FD		0.0640 J	
	NCL-49	Oct-20			0.0702 J	
	NCL-49	Oct-20	FD		0.0750 J	
North Refinery	MW-23	Apr-18		19.3	13.6	
	MW-23	Oct-18		13.4	13.7	
	MW-23	Apr-19		15.0	13.4	
	MW-23	Oct-19		4.70 B	20.1	
	MW-23	Jun-20		8.73	13.0	
	MW-23	Oct-20		2.93	17.9	
	MW-29	Apr-18		<0.0314	1.03	
	MW-29	Oct-18		0.126	1.10	
	MW-29	Apr-19		0.0472 JB	0.961	
	MW-29	Oct-19		0.128 B	1.28	
	MW-29	Jun-20		0.0764 JB	2.75	
	MW-29	Oct-20		0.0886 J	2.28	
	MW-39	Apr-18		1.36	6.39	
	MW-39	Oct-18		0.758	4.99	
	MW-39	Apr-19		0.785	6.54	
	MW-39	Oct-19		0.736 B	5.64	
	MW-39	Jun-20		0.740	7.00	
	MW-39	Oct-20		0.412	6.28	
	MW-40	Apr-17		1.29	4.15	
	MW-40	Apr-18		1.18	2.45	
	MW-40	Apr-19		0.769	3.38	
	MW-40	Jun-20		0.500	2.45	
	MW-41	Apr-17		0.249	1.58	
	MW-41	Apr-18		0.111	3.30	
	MW-41	Apr-19		0.229	6.47	
	MW-41	Jun-20		0.309 B	3.53	
	MW-42	Apr-17		0.262	3.41	
	MW-42	Apr-18		0.626	2.98	
	MW-42	Apr-19		0.822	5.48	
	MW-42	Jun-20		1.26 J	4.95	
	MW-43	Apr-18		73.8	5.89	
	MW-43	Oct-18		35.8	6.37	
	MW-43	Apr-19		2.12	7.90	
	MW-43	Oct-19		32.6 B	13.5	
	MW-43	Jun-20		14.1	6.55	
	MW-43	Oct-20		34.2	7.74	
	MW-59	Apr-17		0.163	0.835	
	MW-59	Apr-18		0.232	0.576	
	MW-59	Apr-19		0.0605 JB	1.08	
	MW-59	Jun-20		0.302 B	2.97	
	MW-60	Apr-18		0.319	0.633	
	MW-60	Apr-18	FD	0.347	0.688	
	MW-60	Oct-18		0.593	1.23	
	MW-60	Oct-18	FD	0.502	1.09	
	MW-60	Apr-19		0.252	1.61	
	MW-60	Apr-19	FD	0.281	1.11	
	MW-60	Oct-19		0.646 B	1.01	
	MW-60	Oct-19	FD	0.632 B	1.00	
	MW-60	Jun-20		0.466	0.754	
	MW-60	Jun-20	FD	0.337	0.707	
	MW-60	Oct-20		0.528	1.03	
	MW-60	Oct-20	FD	0.587	0.930	
	MW-61	Apr-18		7.59	2.55	
	MW-61	Oct-18		13.4	4.40	
	MW-61	Apr-19		6.39	2.67	
	MW-61	Oct-19		11.1 B	4.75	
	MW-61	Jun-20		13.0 B	4.45	
	MW-61	Oct-20		11.7	4.58	
	MW-62	Apr-18		9.38	4.28	
	MW-62	Oct-18		11.6	7.19	
	MW-62	Apr-19		6.09	6.18	
	MW-62	Oct-19		10.6 B	8.55	
	MW-62	Jun-20		9.16	7.79	
	MW-62	Oct-20		7.35	7.46	
	MW-62R	Oct-20		7.74	11.4	
	MW-67	Oct-17		0.649	8.48 J3J4	
	MW-67	Apr-18		1.53	4.25	
	MW-67	Oct-18		0.562	7.73	
	MW-67	Apr-19		0.868	9.31	
	MW-90	Apr-18		0.354	3.29	

Appendix C, Table C.1 - Summary of Groundwater Analytical Data - Total Petroleum Hydrocarbons

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
North Refinery	MW-92	Apr-16		5.50	20.4	
	MW-92	Oct-16		6.05	22.8	
	MW-93	Apr-17		3.73	7.89	
	MW-93	Apr-18		3.59	5.05	
	MW-93	Apr-19		2.82	7.92	
	MW-93	Jun-20		6.28	8.54	
	MW-94	Oct-15		6.12	25.6	
	MW-94	Apr-16		7.91	8.69	
	MW-94	Oct-16		6.83	9.76	
	MW-94	Apr-17		10.2	9.96	
	MW-95	Apr-17		0.0826 J	6.96	
	MW-95	Apr-18		<0.0314	3.68	
	MW-95	Apr-19		<0.0314	7.34	
	MW-95	Jun-20		0.162 B	6.29	
	MW-96	Apr-18		36.5	4.65	
	MW-96	Oct-18		31.3	8.07	
	MW-96	Apr-19		17.0	9.67	
	MW-96	Oct-19		25.7 B	6.80	
	MW-96	Jun-20		30.4	8.28	
	MW-96	Oct-20		71.6	6.91	
	MW-98	Apr-18		25.4	4.78	
	MW-98	Oct-18		20.9	5.69	
	MW-98	Apr-19		25.0	5.64	
	MW-98	Oct-19		19.5 B	6.15	
	MW-98	Jun-20		16.7	6.31	
	MW-98	Oct-20		22.0	5.31	
	MW-137	Oct-17		33.1	11.3	
	MW-137	Apr-18		26.6	9.60	
	MW-137	Oct-18		32.6	8.76	
	MW-137	Apr-19		33.2	9.76	
	MW-138	Oct-17		2.20	15.0	
	MW-138	Apr-18		2.44	6.05	
	MW-138	Oct-18		4.06	6.00	
	MW-138	Apr-19		4.17	6.67	
	RW-1R	Apr-16		2.13	8.54	
	RW-1	Apr-17		2.20	21.5	
	RW-1	Apr-18		6.05	8.92	
	RW-1	Apr-19		5.13	16.1	
	RW-2	Apr-15		18.3	19.7	
	RW-2R	Apr-16		20.8	17.3	
	RW-2	Apr-17		17.2	11.6	
	RW-2	Apr-18		20.5	8.31	
	RW-7	Apr-17		<0.0314	1.15	
	RW-7	Apr-18		0.177	11.3	
	RW-7	Apr-19		0.230	19.1	
	RW-7	Jun-20		0.334 JB	7.54	
	RW-8	Apr-15			7.30	
	RW-8	Apr-17			11.6	
	RW-9	Apr-17		2.36	3.21	
	RW-9	Apr-18		2.20	2.31	
	RW-9	Apr-19		1.67	4.33	
	RW-9	Jun-20		0.821	4.02	
	RW-10	Apr-17		0.207	2.90	
	RW-10	Apr-18		0.380	2.81	
	RW-10	Apr-19		0.195	3.06	
	RW-10	Jun-20		0.219	3.33	
	RW-16B	Apr-17			1.08	
	RW-16B	Apr-18			0.350	
	RW-16B	Apr-19			0.744	
	RW-16B	Jun-20			2.12	
	RW-17A	Apr-17		0.0622 J	2.57	
	RW-17A	Apr-18		0.0927 J	1.57	
	RW-17A	Apr-19		<0.0314	1.45	
	RW-17A	Jun-20		0.0426 J	1.44	
North RO Reject Field	MW-117	Apr-18		<0.0314	<0.0247	
	MW-117	Oct-18		<0.0314	<0.0247	
	MW-117	Apr-19		0.0967 JB	<0.0247	
	MW-117	Oct-19		0.0732 JB	<0.0247	
	MW-117	Jun-20		<0.0314	0.109	
	MW-117	Oct-20		<0.0314	0.0997 JB	
	MW-118	Apr-18		<0.0314	<0.0282	
	MW-118	Oct-18		<0.0314	0.0325 J	
	MW-118	Apr-19		<0.0314	<0.0247	
	MW-118	Oct-19		0.0728 JB	<0.0247	
	MW-118	Jun-20		<0.0314	<0.0247	
	MW-118	Oct-20		<0.0314	0.0817 JB	
	MW-119	Apr-18		<0.0314	<0.0247	
	MW-119	Oct-18		<0.0314	0.0470 J	
	MW-119	Apr-19		<0.0314	<0.0247	
South Refinery	MW-119	Oct-19		0.0830 JB	<0.0247	
	MW-119	Jun-20		<0.0314	0.376	
	MW-119	Oct-20		<0.0314	0.215 B	
	MW-107	Oct-16		17.7	7.24	
	MW-107	Apr-17		6.67	7.91	
	MW-107	Apr-18		21.6	4.50	
	MW-107	Apr-19		23.3	7.93	
	MW-109	Apr-18		5.96	2.84	
	MW-109	Oct-18		6.56	3.76	
	MW-109	Apr-19		5.21 B	2.53	
	MW-109	Oct-19		5.46 B	2.84	
	MW-109	Jun-20		5.44	2.61	
	MW-109	Oct-20		3.77	2.33	
	MW-110	Apr-18		2.04	1.27	
	MW-110	Oct-18		0.377	0.774	
	MW-110	Apr-19		0.623	0.903	
	MW-110	Oct-19		0.506 B	0.630	
	MW-110	Jun-20		0.587	0.696	
	MW-110	Oct-20		0.406	0.721	
	MW-139	Oct-19		0.636 B	1.15	
	MW-139	Jun-20		0.411	1.55	
	MW-139	Oct-20		0.490	1.30	
	RA-313	Apr-17				
	RA-313	Apr-18				
	RA-313	Apr-19				
	RA-313	Jun-20				

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
South Refinery	RW-4	Apr-17			2.35	
	RW-4	Apr-18			1.02	
	RW-4	Apr-19			2.53	
	RW-4	Jun-20			1.63	
	RW-5R	Apr-15			6.42	
	RW-5R	Apr-16			7.39	
	RW-6	Apr-15			11.4	
	RW-6R	Apr-16			4.20	
	RW-6	Apr-18			3.04	
	RW-6	Apr-19			3.23	
	RW-15C	Apr-17			9.74	
	RW-15C	Apr-18			9.27	
	RW-15C	Apr-19			11.7	
	KWB-2R	Apr-17			1.35	
	KWB-2R	Oct-17			4.84	
	KWB-2R	Apr-19			0.887	
	KWB-2R	Oct-19			4.64	
	KWB-5	Oct-17			1.55	
	KWB-5	Apr-18			1.70	
	KWB-5	Oct-18			1.62	
	KWB-5	Apr-19			1.73	
	KWB-6	Apr-17			2.04	
	KWB-6	Oct-17			2.16	
	KWB-6	Apr-18			1.77	
	KWB-6	Oct-18			1.52	
	MW-28	Apr-18		5.55	3.62	
	MW-28	Oct-18		1.30	4.68	
	MW-28	Apr-19		5.37	8.80	
	MW-28	Oct-19		10.4 B	11.6	
	MW-28	Jun-20		3.94	3.91	
	MW-28	Oct-20		1.65	5.28	
	MW-48	Apr-18		45.6	6.50	
	MW-48	Oct-18		21.8	5.56	
	MW-48	Apr-19		17.7	6.53	
	MW-48	Oct-19		31.9 B	6.48	
	MW-50	Apr-18			0.489	
	MW-50	Oct-18			0.677	
	MW-50	Apr-19			0.632	
	MW-50	Oct-19			0.399	
	MW-50	Jun-20			0.522	
	MW-50	Oct-20			0.526	
	MW-52	Apr-18		<0.0314	0.231 B	
	MW-52	Oct-18		<0.0314	0.269	
	MW-52	Apr-19		0.0328 JB	0.146	
	MW-52	Oct-19		0.0776 JB	0.183	
	MW-52	Jun-20		<0.0314	0.294	
	MW-52	Oct-20		<0.0314	0.282	
	MW-64	Apr-18		102	8.37	
	MW-64	Oct-18		141	7.23	
	MW-64	Apr-19		130	9.22	
	MW-64	Oct-19		96.0	6.97	
	MW-64	Jun-20		102	8.18	
	MW-64	Oct-20		94.8	6.54	
	MW-65	Apr-18		15.5	5.05	
	MW-65	Oct-18		10.4	4.57	
	MW-65	Apr-19		16.9	4.86	
	MW-65	Oct-19		21.4 B	3.59	
	MW-66	Apr-18		9.68	2.97	
	MW-66	Oct-18		6.51	4.31	
	MW-66	Apr-19		6.03	3.25	
	MW-66	Oct-19		7.15 B	2.77	
	MW-66	Jun-20		8.44	2.19	
	MW-66	Oct-20		4.41	3.36	
	MW-99	Apr-18		11.9	1.52	
	MW-99	Oct-18		11.9	2.23	
	MW-99	Apr-19		14.9	2.93	
	MW-99	Oct-19		5.02	2.30	
	MW-99	Jun-20		3.97	4.19	
	MW-101	Apr-18		0.485 J	3.21	
	MW-101	Oct-18		0.452	5.05	
	MW-101	Apr-19		0.421	3.98	
	MW-101	Oct-19		0.440 B	4.58	
	MW-101	Jun-20		0.553	4.85	
	MW-101	Oct-20		5.37	6.07	
	MW-102	Apr-18		32.7	34.6	
	MW-102	Oct-18		41.8	10.4	
	MW-102	Apr-19		27.7	9.96	
	MW-102	Oct-19		34.7 B	13.6	
	MW-102	Jun-20		27.1	5.50	
	MW-102	Oct-20		28.9	9.97	
	MW-103	Apr-17		3.46	6.94	
	MW-103	Apr-18		6.45	6.23	
	MW-103	Apr-19		6.55	7.87	
	MW-103	Jun-20		5.15	6.08	
	MW-104	Apr-18		1.40	1.85	
	MW-104	Apr-18 FD		1.53	1.80	
	MW-104	Oct-18		1.44	3.05	
	MW-104	Oct-18 FD		1.38	2.87	
	MW-104	Apr-19		1.53	2.23	
	MW-104	Apr-19 FD		1.20	2.15	
	MW-104	Oct-19		1.34	1.26	
	MW-104	Oct-19 FD		1.30	1.36	
	MW-104	Jun-20		1.44	1.14	
	MW-104	Jun-20 FD		1.22	1.03	
	MW-104	Oct-20		1.32	1.04	
	MW-104	Oct-20 FD		1.15	1.10	

Appendix C, Table C.1 - Summary of Groundwater Analytical Data - Total Petroleum Hydrocarbons

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
South Refinery	MW-105	Apr-18		21.4	11.4	
	MW-105	Oct-18		17.7	13.4	
	MW-105	Apr-19		20.3	7.24	
	MW-105	Oct-19		17.1 B	7.63	
	MW-105	Jun-20		25.6	9.03	
	MW-105	Oct-20		32.8	9.39	
	MW-106	Apr-18		25.9	9.31	
	MW-106	Oct-18		33.9	11.2	
	MW-106	Apr-19		9.47	7.27	
	MW-106	Oct-19		60.5 B	16.1	
	MW-106	Jun-20		28.4 B	14.6	
	MW-106	Oct-20		54.4	16.5	
South RO Reject Field	MW-114	Apr-18		<0.0314	<0.0247	
	MW-114	Oct-18		<0.0314	<0.0247	
	MW-114	Apr-19		<0.0314	<0.0247	
	MW-114	Oct-19		0.0705 JB	0.0374 J	
	MW-114	Jun-20		<0.0314	0.436	
	MW-114	Oct-20		<0.0314	0.663	
	MW-115	Apr-18		<0.0314	0.0341 JB	
	MW-115	Oct-18		<0.0314	<0.0247	
	MW-115	Apr-19		<0.0314	0.0376 J	
	MW-115	Oct-19		0.0733 JB	<0.0247	
	MW-115	Jun-20		<0.0314	0.0430 J	
	MW-115	Oct-20		<0.0314	0.222 B	
	MW-116	Apr-18		<0.0314	0.0353 J	
	MW-116	Oct-18		<0.0314	0.0468 J	
	MW-116	Apr-19		0.0383 JB	0.172	
	MW-116	Oct-19		0.118 B	0.123	
	MW-116	Jun-20		<0.0314	<0.0247	
	MW-116	Oct-20		<0.0314	0.127 B	
TEL	MW-49	Apr-18		4.42	4.48	
	MW-49	Oct-18		2.99	4.24	
	MW-49	Apr-19		4.03	8.93	
	MW-49	Oct-19		5.13 B	6.47	
	MW-49	Jun-20		5.45	4.96	
	MW-49	Oct-20		5.05	5.44	
	TEL-1	Apr-18		0.415	8.29	
	TEL-1	Oct-18		0.381	8.36	
	TEL-1	Apr-19		0.357	8.30	
	TEL-1	Oct-19		0.736 JB	8.74	
	TEL-1	Jun-20		0.366 J	5.74	
	TEL-2	Apr-18		3.84	16.7	
	TEL-2	Oct-18		5.19	14.8	
	TEL-2	Apr-19		4.27	15.8	
	TEL-2	Oct-19		3.00 B	13.5	
	TEL-2	Jun-20		1.89	8.16	
	TEL-3	Apr-18		2.05	7.42	
	TEL-3	Apr-19		0.999	4.14	
	TEL-3	Oct-19		1.54 B	4.82	
	TEL-3	Oct-20		2.28	6.36	
	TEL-4	Apr-18		1.32	3.99	
	TEL-4	Apr-18	FD	1.16	4.24	
	TEL-4	Oct-18		0.815	1.15	
	TEL-4	Oct-18	FD	0.737	1.18	
	TEL-4	Apr-19		0.625	1.27	
	TEL-4	Apr-19	FD	0.664	1.31	
	TEL-4	Oct-19		0.919 B	4.16	
	TEL-4	Oct-19	FD	1.34 B	4.31	
	TEL-4	Jun-20		0.456 J	5.73	
	TEL-4	Jun-20	FD	0.976 J	5.68	
	TEL-4	Oct-20		0.837 J	5.91	
	TEL-4	Oct-20	FD	1.07	6.12	
TMD	MW-8	Apr-17		0.585	0.238	
	MW-8	Apr-18		0.0561 J	0.112	
	MW-8	Apr-19		0.127 B	0.0861 J	
	MW-8	Jun-20		0.300	0.0458 J	
	MW-16	Apr-17			0.275	
	MW-16	Apr-18			0.189	
	MW-16	Apr-19			0.156	
	MW-16	Jun-20			0.120	
	MW-20	Apr-17			0.280	
	MW-20	Apr-18			0.0810 J	
	MW-20	Apr-19			0.0561 J	
	MW-20	Jun-20			<0.0247	
	MW-20	Apr-19			0.0561 J	
	MW-20	Jun-20			<0.0247	
Analyte Group:				TPH		
Analyte:				GRO	DRO	DRO - EP
Units:				mg/L	mg/L	mg/L
CGWSL:				0.0101	0.0858	0.0167
CGWSL Source:				NMED TPH	NMED TPH	NMED TPH
Area	Well ID	Date	Dup			
TMD	MW-21	Apr-18		0.0452 J	0.0542 J	
	MW-21	Oct-18		0.0645 J	0.0958 J	
	MW-21	Apr-19		0.149 B	0.184	
	MW-21	Oct-19		0.229 B	0.0847 J	
	MW-21	Jun-20		0.284	0.149	
	MW-21	Oct-20		0.492	0.163	
	MW-25	Apr-17			0.107	
	MW-25	Apr-18			0.0327 J	
	MW-25	Apr-19			0.0401 J	
	MW-25	Jun-20			<0.0247	
	MW-26	Apr-17			0.0773 J	
	MW-26	Apr-18			0.0492 J	
	MW-26	Apr-19			0.0502 J	
	MW-26	Jun-20			0.0276 J	
	MW-27	Apr-17			0.0992 J	
	MW-27	Apr-18			0.0537 J	
	MW-27	Apr-19			0.0517 J	
	MW-27	Jun-20			<0.0247	
	MW-46R	Apr-18			<0.0247	
	MW-46R	Oct-18			<0.0247	
	MW-46R	Apr-19			<0.0247	
	MW-46R	Oct-19			0.0677 J	
	MW-46R	Jun-20			0.0408 J	
	MW-46R	Oct-20			0.111	
	MW-68	Apr-17			0.138	
	MW-68	Apr-18			0.0508 J	
	MW-68	Apr-19			0.0267 J	
	MW-68	Jun-20			0.0250 J	
	MW-71	Apr-17			0.0947 J	
	MW-71	Apr-18			<0.0247	
	MW-71	Apr-19			<0.0247	
	MW-71	Jun-20			0.0323 J	
	MW-89	Apr-17			2.15	
	MW-89	Apr-18			0.403	
	MW-89	Apr-19			0.611	
	MW-89	Jun-20			0.218	
	NP-1	Apr-18				
	NP-1	Oct-18				
	NP-1	Apr-19				
	NP-1	Oct-19				
	NP-1	Jun-20				
	NP-1	Oct-20				
	NP-6	Apr-13				
	NP-6	Apr-15				
	NP-6	Apr-17				
	NP-6	Apr-19				
Up-Gradient	UG-1	Apr-17		<0.0314	0.0484 J	
	UG-1	Apr-18		<0.0314	0.0723 J	
	UG-1	Apr-19		<0.0314	<0.0247	
	UG-1	Jun-20		<0.0314	<0.0247	
	UG-2	Apr-17		<0.0314	0.0818 J	
	UG-2	Apr-18		<0.0314	<0.0247	
	UG-2	Apr-19		<0.0314	0.0647 J	
	UG-2	Jun-20		<0.0314	<0.0247	
	UG-3R	Apr-17		<0.0314	0.0517 J	
	UG-3R	Apr-18		<0.0314	<0.0247	
	UG-3R	Apr-19		<0.0314	<0.0247	
	UG-3R	Jun-20		0.0421 J	0.0478 J	
	UG-4	Apr-17		<0.0314	0.0463 J	
	UG-4	Apr-18		<0.0314	<0.0247	
	UG-4	Apr-19		<0.0314	<0.0247	
	UG-4	Jun-20		<0.0314	<0.0247	

Definitions

X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
---	No applicable CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.

Abbreviations

CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
DRO	Diesel Range Organics
DRO-EP	Diesel Range Organics data from wells located in the Evaporation Ponds area
Dup	Duplicate sample
FD	Field duplicate sample
GRO	Gasoline Range Organics
mg/L	Milligrams per Liter
TPH	Total Petroleum Hydrocarbons
NMED TPH	NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2019, Rev 2 (6/19/19), Table 6-4 TPH Groundwater Screening Leve

Lab Footnote

B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
Q	Sample was prepared and/or analyzed past recommended holding time.
V3	Internal standard exhibited poor recovery due to sample matrix interference; analytical result biased high.

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 mg/L 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCClrr	WQCC HH	WQCClrr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCClrr	WQCC HH	WQCC HH	WQCC HH
Area	Well ID	Date	Dup														
Cross-Gradient	KWB-13	Apr-17		0.00286	0.0229	0.294	<0.000160	0.000487 J	0.00148 J	1.02	0.00107 J	0.0234	<0.0000490	0.00119 J	0.0130	0.0227	0.0213
	KWB-13	Apr-18		0.00395	0.0325	0.343	<0.000160	0.000953 J	0.00437 B	3.01	0.00292	0.0490	0.0000726 JB	0.00296	0.0131	0.0249	0.0261
	KWB-13	Apr-19		0.00485	0.0372	0.376	0.000325 J	0.00113 J	0.00514 B	2.18	0.00472	0.0829	<0.0000490	0.00325	0.0151	0.0250	0.0308
	KWB-13	Jun-20		0.00587	0.0485	0.306	<0.000478	0.00163 J	0.00721	4.41	0.00654	0.113	<0.000100	0.0110	0.0103	0.0260	0.0327
	MW-136	Apr-18		0.00245	0.0104	0.657	<0.000160	<0.000260	0.00403 B	0.0368 JB	<0.000240	0.00375 J	0.0000593 JB	0.00193 J	0.00759	0.0675	0.0163
	MW-136	Oct-18		0.00258 J	0.0115	0.697	<0.000160	<0.000520	<0.00108	0.0379 J	<0.000480	0.00900 JB	0.000168 J	0.00180 J	0.00759	0.0688	0.0176
	MW-136	Apr-19		0.00283	0.0153	0.699	<0.000160	0.000319 J	0.000696 J	0.163	0.000319 J	0.0206	<0.0000490	0.00143 J	0.00503	0.0729	0.0169
	MW-136	Oct-19		0.00256	0.0121	0.663	<0.000160	<0.000260	<0.000540	0.0670 J	0.000261 J	0.0127	0.0000659 JB	0.00108 J	0.00581	0.0599	0.0184
	MW-136	Jun-20		0.00245	0.0147 J	0.571	<0.000478	0.000685 J	<0.00149	0.171	<0.00249	0.0352	<0.000100	0.00183 J	0.00593	0.0639	0.0161
	MW-136	Oct-20		0.00247	0.0123 J	0.556	<0.000478	<0.000477	<0.00149	0.0705 J	<0.00249	0.0123 B	<0.000100	0.00248	0.00553	0.0558	0.0158
	NP-5	Apr-13		<0.0100	<0.0100				<0.0100	<0.400	<0.0100	<0.0100			0.0135		
	NP-5	Apr-15		0.00288	0.0159				0.00109 J	0.437	0.000415 J	0.00318 J			0.0125		
	NP-5	Apr-17		0.00305	0.00938				<0.000540	0.0632 J	<0.000240	0.000586 J			0.0124		
	NP-5	Apr-19		0.00313	0.00844				<0.000540	0.0278 J	0.000709 J	0.000563 J			0.0119		
RA-3156	Apr-17																
RA-3156	Apr-18																
RA-3156	Apr-19																
RA-3156	Jun-20																
Evaporation Ponds	MW-1R	Apr-17		0.00221	0.0258				<0.000540	4.50	<0.000240	2.38			<0.000380		
	MW-1R	Apr-18		0.00180 J	0.0224				<0.000540	3.42	0.000344 J	1.71			0.000380 J		
	MW-1R	Apr-19		0.00176 J	0.0213				<0.000540	2.17	<0.000240	0.995			<0.000380		
	MW-1R	Jun-20		0.00119 J	0.0219				<0.00149	1.87	<0.00249	1.30			<0.000657		
	MW-2A	Apr-18		0.00931	0.0225				0.000609 JB	2.94	<0.000240	1.28			0.00199 J		
	MW-2A	Oct-18		0.00892	0.0314				0.000784 J	0.617	<0.000240	1.24			0.000828 J		
	MW-2A	Apr-19		0.00824	0.0214				0.00139 J	2.14	0.000266 JB	1.03			0.00175 J		
	MW-2A	Oct-19		0.00661	0.0315				<0.000540	0.109	<0.000240	1.10			0.00186 J		
	MW-2A	Jun-20		0.0140	0.0200				<0.00149	2.78	<0.00249	1.74			<0.000657		
	MW-2A	Oct-20		0.00798	0.0148 J				<0.00149	0.700	<0.00249	0.491 V			0.000658 J		
	MW-3	Apr-18		0.0291	0.0143				0.00246	0.472 B	0.000534 J	0.694			0.00605		
	MW-3	Apr-18	FD	0.0281	0.0159				0.00326	0.418	0.000369 JB	0.686			0.00725		
	MW-3	Oct-18		0.0254	0.0151				<0.000540	0.0441 J	0.000448 JB	0.869			0.00889		
	MW-3	Oct-18	FD	0.0279	0.0169				<0.000540	0.0176 J	0.000706 JB	0.983			0.00932		
	MW-3	Apr-19		0.0238	0.0128				0.00140 J	0.0281 J	<0.000240	0.462			0.0143		
	MW-3	Apr-19	FD	0.0224	0.0128				0.00172 J	0.0281 J	0.000432 J	0.491			0.0131		
	MW-3	Oct-19		0.0976	0.0151				0.000655 J	3.73	0.000341 J	1.72			0.00316		
	MW-3	Oct-19	FD	0.101	0.0154				0.000666 J	3.79	0.000337 J	1.73			0.00323		
	MW-3	Jun-20		0.0278	0.0125 J				<0.00149	<0.0489	<0.00249	0.880			0.00995		
	MW-3	Jun-20	FD	0.0299	0.0152 J				<0.00149	<0.0489	<0.00249	0.913			0.0100		
	MW-3	Oct-20		0.0340	0.0142 J				<0.00149	0.0772 J	<0.00249	1.27			0.00722		
	MW-3	Oct-20	FD	0.0343	0.0150 J				<0.00149	0.0500 J	<0.00249	1.38			0.00646		
	MW-4A	Apr-18		0.105	0.0125				0.00444	9.18	0.00119 J	1.93			0.000515 J		
	MW-4A	Oct-18		0.183	0.0122 J				<0.000540	1.34	<0.00120	1.77			0.000579 J		
	MW-4A	Apr-19		0.132	0.0121				0.000785 J	1.67	0.000346 JB	1.82			0.000731 J		
	MW-4A	Oct-19		0.0758	0.0131				0.000785 J	1.88	<0.000240	2.01			<0.000380		
	MW-4A	Jun-20		0.111	0.0125 J				<0.00149	2.55	<0.00249	1.79			<0.000657		
	MW-4A	Oct-20		0.114	0.0133 J				0.00183 J	1.73	<0.00249	1.74			<0.000657		
	MW-4B	Apr-13		0.0371	<0.0250				<0.0250	<1.00	<0.0250	1.30			<0.0250		
	MW-4B	Apr-15		0.101	0.0349				<0.00110	3.60	0.00189 J	8.68			<0.000760		
	MW-4B	Apr-17		0.0371	0.0182				<0.000540	3.42	<0.000240	7.35			<0.000380		
	MW-4B	Apr-19		0.0699	0.0165				0.000725 J	1.54	0.000544 JB	11.1			<0.000380		

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 mg/L 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCCClr	WQCC HH	WQCCClr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCCClr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Evaporation Ponds	MW-15	Apr-17		0.0130	0.0180				<0.000540	0.0239 JB	<0.000240	0.173			0.000518 J		
	MW-15	Apr-18		0.0165	0.0225				0.00926	0.0730 J	0.000357 JB	0.394			0.00128 J		
	MW-15	Apr-19		0.0204	0.0242				<0.000540	0.0520 J	0.000401 J	0.166			0.00101 J		
	MW-15	Jun-20		0.00841	0.0175 J				<0.00149	<0.0489	<0.00249	0.547			<0.000657		
	MW-18A	Apr-18		0.00489	0.0173	2.31	<0.000160	0.00108 J	0.00488	0.148	<0.000240	0.533	<0.0000490	0.00947	0.00120 J	0.0314	0.000459 J
	MW-18A	Oct-18		0.00475	0.0160 J	2.34	<0.000800	0.000525 J	<0.000540	0.436	<0.00120	1.73	0.000145 J	0.00828	<0.000380	0.0243 J	0.000400 J
	MW-18A	Apr-19		0.00549	0.0172	2.14	<0.000160	0.00141 J	<0.000540	0.0468 J	0.000249 J	0.375	<0.0000490	0.0109	0.000716 J	0.0379	0.000813 J
	MW-18A	Oct-19		0.00524	0.0163	2.19	<0.000160	0.000751 J	<0.000540	0.786	0.000355 J	1.73	<0.0000490	0.00798	0.000613 J	0.0271	0.00120 JB
	MW-18A	Jun-20		0.00419 J	<0.0389 J5	1.88	<0.00239	<0.00238	<0.00745	1.65	<0.0124	1.13 O1V	<0.000100	0.00735 J	<0.00328	<0.0377 J5	<0.00493
	MW-18A	Oct-20		0.00468	0.0171 J	1.98	<0.000478	0.00139 J	<0.00149	0.348	<0.00249	1.39	<0.000100	0.00846	<0.000657	0.0226	<0.000986
	MW-18B	Apr-13		<0.0100	0.0126				<0.0100	<0.400	<0.0100	0.572			<0.0100		
	MW-18B	Apr-15		0.0120	0.0125				0.000942 J	0.139	0.000814 J	0.789			<0.000380		
	MW-18B	Apr-17		0.00883	0.0137				<0.000540	0.0793 J	0.00104 J	0.803			<0.000380		
	MW-18B	Apr-19		0.0115	0.0168				<0.000540	0.138	0.000778 J	1.26			<0.000380		
	MW-22A	Apr-18		0.0386	0.0170				0.00141 J	4.16	0.00101 J	6.12			0.000962 J		
	MW-22A	Apr-18	FD	0.0371	0.0165				<0.000540	3.68	<0.000240	6.18			0.000839 J		
	MW-22A	Oct-18		0.0463	0.0156 J				<0.000540	5.81	<0.00120	5.71			0.000677 J		
	MW-22A	Oct-18	FD	0.0496	0.0173				<0.000540	5.73	0.000489 JB	6.14			0.000707 J		
	MW-22A	Apr-19		0.0355	0.0149				0.00184 J	2.29	0.000242 J	5.39			0.00137 J		
	MW-22A	Apr-19	FD	0.0333	0.0152				0.00110 J	2.25	<0.000240	5.54			0.00101 J		
	MW-22A	Oct-19		0.0263	0.0315				<0.000540	0.769	0.000240 J	1.46			0.00842		
	MW-22A	Oct-19	FD	0.0256	0.0318				<0.000540	0.718	0.000294 J	1.46			0.00798		
	MW-22A	Jun-20		0.0299	0.0168 J				<0.00149	2.21	<0.00249	2.94			0.00271		
	MW-22A	Jun-20	FD	0.0311	0.0177 J				<0.00149	1.77	<0.00249	3.10			0.00171 J		
	MW-22A	Oct-20		0.0309	0.0163 J				<0.00149	3.96	<0.00249	3.57			0.00147 J		
	MW-22A	Oct-20	FD	0.0301	0.0165 J				<0.00149	4.02	<0.00249	3.69			0.00132 J		
	MW-22B	Apr-13		0.0343	<0.0250				<0.0250	1.78	<0.0250	3.37			<0.0250		
	MW-22B	Apr-15		0.0389	0.0160 J				<0.00270	2.32	0.00134 J	4.32			<0.00190		
	MW-22B	Apr-17		0.0255	0.0116				<0.000540	1.03	0.000313 J	3.35			0.000603 J		
	MW-22B	Apr-19		0.0316	0.0134				0.00173 J	1.99	<0.000240	4.31			0.000766 J		
	MW-70	Apr-18		0.0508	0.0212				<0.000540	46.3	0.000270 JB	0.425			0.000479 J		
	MW-70	Oct-18		0.0186	0.0161				<0.000540	4.49	0.000490 JB	0.270			<0.000380		
	MW-70	Apr-19		0.0191	0.0173				<0.000540	1.23	0.000601 J	0.508			<0.000380		
	MW-70	Oct-19		0.0177	0.0151				<0.000540	3.92	<0.000240	0.369			<0.000380		
	MW-70	Jun-20		0.0157	0.0156 J				<0.00149	4.07	<0.00249	0.257			<0.000657		
	MW-70	Oct-20		0.0166	0.0171 J				<0.00149	4.50	<0.00249	0.299			<0.000657		
	MW-72	Apr-17		0.0164	0.0213				<0.000540	1.62	<0.000240	3.88			0.00210		
	MW-72	Apr-18		0.0175	0.0155				0.000688 JB	2.04	<0.000240	3.04			0.00173 J		
	MW-72	Apr-19		0.0109	0.0123				0.000785 J	1.21	<0.000240	1.27			0.00232		
	MW-72	Jun-20		0.00851	0.0124 J				<0.00149	1.99	<0.00249	1.91			0.00175 J		
	MW-73	Apr-17		0.0650	0.00734				<0.000540	1.92	<0.000240	0.187			0.00184 J		
	MW-73	Apr-18		0.0614	0.00806				0.00109 JB	0.932	<0.000240	1.84			0.00147 J		
	MW-73	Apr-19		0.0806	0.0106				0.00152 J	0.315	<0.000240	0.0807			0.00616		
	MW-73	Jun-20		0.0493	0.00886 J				0.00186 J	2.78	<0.00249	1.89			0.00195 J		
	MW-74	Apr-18		0.0956	0.0129				0.00199 JB	0.0666 JB	<0.000240	1.22			0.0335		
	MW-74	Oct-18		0.0567	0.0133				<0.000540	0.0233 J	0.000376 J	0.926			0.227		
	MW-74	Apr-19		0.0613	0.0118				0.000701 J	<0.0150	<0.000240	1.59			0.0893		
	MW-74	Oct-19		0.0885	0.0185				0.000980 J	1.09	0.000594 J	1.94			0.0133		
	MW-74	Jun-20		0.0552	0.0160 J				0.00165 J	0.325	<0.00249	1.13			0.151		
	MW-74	Oct-20		0.0779	0.0153 J				<0.00149	0.0779 J	0.00433 J	1.39			0.0354		
	MW-75	Apr-18		0.104	0.0167				0.00325	0.523	0.000500 J	0.877			0.00178 J		
	MW-75	Oct-18		0.312	0.0149				0.000998 J	5.50	0.000372 J	0.884			0.00187 J		
	MW-75	Apr-19		0.110	0.0183												

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals														
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631	
CGWSL Source				WQCC HH	WQCC HH	WQCClrr	WQCC HH	WQCClrr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCClrr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
Evaporation Ponds	MW-87	Apr-18		0.00609	0.0145				<0.000540	0.924	0.000262 JB	0.686			0.000502 J			
	MW-87	Oct-18		0.00723	0.0168 J				<0.000540	1.27	<0.00120	1.18			<0.000380			
	MW-87	Apr-19		0.00484	0.0159				<0.000540	0.122	0.000477 J	0.189			<0.000380			
	MW-87	Oct-19		0.00577	0.0176				<0.000540	0.156	0.000308 J	0.808			0.000543 J			
	MW-87	Jun-20		0.00424	0.0145 J				0.00174 J	0.0502 J	<0.0124	2.65			<0.000657			
	MW-87	Oct-20		0.00783	0.0169 J				<0.00149	0.925	<0.00249	1.56 V			<0.000657			
	MW-88	Apr-18		0.00806	0.0112				0.00119 J	0.0352 J	0.000649 J	0.927 V			<0.000380			
	MW-88	Oct-18		0.00660	0.0109				<0.000540	0.0233 J	0.000531 JB	0.881			<0.000380			
	MW-88	Apr-19		0.00713	0.0109				0.00124 J	0.0221 J	<0.000240	0.929			0.000430 J			
	MW-88	Oct-19		0.00643	0.0110				<0.000540	0.0183 J	<0.000240	0.926			<0.000380			
	MW-88	Jun-20		0.00559	0.00971 J				<0.00149	0.0546 J	<0.00249	0.807			<0.000657			
	MW-88	Oct-20		0.00645	0.0106 J				<0.00149	<0.0489	<0.00249	0.898			<0.000657			
	MW-120	Apr-18		0.0117	0.0104					<0.000540	3.78	<0.000240	1.24			0.000466 J		
	MW-120	Oct-18		0.0118	0.0126					<0.000540	4.55 O1	0.000327 J	1.35 O1V			<0.000380		
	MW-120	Apr-19		0.0141	0.0112					<0.000540	5.86	0.000743 JB	1.21			0.000890 J		
	MW-120	Oct-19		0.00935	0.0115					<0.000540	4.05	<0.000240	1.28			0.000828 J		
	MW-120	Jun-20		0.00614	0.00971 J					<0.00149	2.94	<0.00249	0.973			<0.000657		
	MW-120	Oct-20		0.00769	0.0109 J					<0.00149	4.31	<0.00249	1.38			0.000719 J		
	MW-121	Apr-18		0.0373	0.0122					<0.000540	0.519	0.000325 J	2.57			0.00485		
	MW-121	Oct-18		0.0350	0.0123					<0.000540	0.118	0.000425 J	2.03			0.00619		
	MW-121	Apr-19		0.145	0.0122					<0.000540	2.10	0.000348 JB	2.02			0.00529		
	MW-121	Oct-19		0.0387	0.0126					0.000795 J	0.212	<0.000240	1.01			0.00749		
	MW-121	Jun-20		0.131	0.0115 J					<0.00149	2.33	<0.00249	2.29			0.00453		
	MW-121	Oct-20		0.105	0.0134 J					0.00380	1.88	<0.00249	2.51			0.00320		
	MW-122	Apr-18		0.00252	0.0198					0.00136 JB	0.860	<0.000240	0.763			<0.000380		
	MW-122	Oct-18		0.00349	0.0197					<0.000540	3.58	<0.000240	1.08			<0.000380		
	MW-122	Apr-19		0.00196 J	0.0250					0.000767 J	0.833	0.000610 JB	1.14			0.000524 J		
	MW-122	Oct-19		0.00452	0.0213					0.000756 J	5.96	0.000780 J	1.09			<0.000380		
	MW-122	Jun-20		0.00412	0.0194 J					<0.00149	3.11	<0.00249	1.02 V			0.000840 J		
	MW-122	Oct-20		0.00425	0.0223					<0.00149	4.97	<0.00249	1.01			<0.000657		
	MW-123	Apr-18		0.0226	0.0229					<0.000540	0.0493 J	0.000256 J	2.77			<0.000380		
	MW-123	Oct-18		0.0211	0.0249 J					<0.000540	0.0298 J	<0.00120	3.06			<0.000380		
	MW-123	Apr-19		0.0202	0.0235					0.000931 J	0.0411 J	0.000440 J	2.76			0.000559 J		
	MW-123	Oct-19		0.0263	0.0228					<0.000540	0.647	<0.000240	2.43 V			0.000672 J		
	MW-123	Jun-20		0.0185	0.0328					<0.00149	0.0870 J	<0.00249	3.19			<0.000657		
	MW-123	Oct-20		0.0195	0.0317					<0.00149	0.0586 J	<0.00249	3.23			<0.000657		
	MW-124	Apr-18		0.00179 J	0.0203					<0.000540	3.58	<0.000240	0.506			<0.000380		
	MW-124	Oct-18		0.00214	0.0216 O1					<0.000540	4.05	0.000355 JB	0.527			<0.000380		
	MW-124	Apr-19		0.00175 J	0.0207					<0.000540	3.87	<0.000240	0.535			<0.000380		
	MW-124	Oct-19		0.00152 J	0.0194					<0.000540	2.69	<0.000240	0.617			<0.000380		
	MW-124	Jun-20		<0.00368	<0.0389					<0.00745	6.01	<0.0124	0.440			<0.00328		
	MW-124	Oct-20		0.00195 J	0.0214					<0.00149	5.78	<0.00249	0.435			<0.000657		
	OCD-1R	Apr-18		0.00396	0.0155					0.00148 J	0.246	<0.000240	0.306			0.00143 J		
	OCD-1R	Oct-18		0.00423	0.0198 J					0.00104 J	0.679	<0.00120	1.47			0.000628 J		
	OCD-1R	Apr-19		0.00271	0.0172					<0.000540	0.146	0.000336 J	0.214			0.00143 J		
	OCD-1R	Oct-19		0.00398	0.0247					0.000914 J	0.646	0.000264 J	1.75			0.00268		
	OCD-1R	Jun-20		0.00374	0.0202					<0.00149	1.19	<0.00249	2.06			<0.000657		
	OCD-1R	Oct-20		0.00318	0.0176 J					0.00201	0.435	<0.00249	1.03			0.000844 J		
	OCD-2A	Apr-18		0.0112	0.0201					<0.000540	8.58	<0.000240	1.02			0.000730 J		
	OCD-2A	Oct-18		0.00227	0.0266					<0.000540	1.60	0.000247 JB	0.688			<0.000380		
OCD-2A	Apr-19		0.00207	0.0229					0.00138 J	0.860	<0.000240	0.180			<0.000380			
OCD-2A	Oct-19		0.00146 J	0.0232					<0.000540									

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2020 Annual Groundwater Monitoring Report

HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 mg/L 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCCClr	WQCC HH	WQCCClr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCCClr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Field East of Refinery	KWB-1C	Apr-13		<0.0100	0.0146				<0.0100	<0.400	<0.0100	<0.0100			<0.0100		
	KWB-1C	Apr-15		0.00338	0.00918				<0.000540	0.0537 J	0.000320 J	0.462			0.000549 J		
	KWB-1C	Apr-17		0.00303	0.00955				<0.000540	<0.0150	<0.000240	0.501			<0.000380		
	KWB-1C	Apr-19		0.00347	0.00925				0.00162 JB	0.0269 J	0.000292 JB	0.482			<0.000380		
	KWB-7	Oct-17		0.00415	0.0915	0.460	<0.000160	0.00247	0.000670 J	1.37	0.000698 J	3.22	<0.0000490	0.00875	0.00100 J	0.00142 J	0.00129 J
	KWB-7	Oct-18		0.000371 J	0.0513	0.491	<0.000160	0.000457 J	0.000570 J	0.432	0.000317 J	2.55	0.000134 J	0.00144 J	<0.000380	0.00120 J	0.00118 JB
	KWB-7	Jun-20		0.00153 J	0.0692	0.418	<0.000478	<0.000477	<0.00149	0.678	0.00545	2.57	<0.000100	0.00133 J	<0.000657	<0.00754	0.00412 J
	KWB-7	Oct-20		<0.00368	0.0528 J	0.439	<0.00239	<0.00238	<0.00745	<0.244	<0.0124	2.15	<0.000100	<0.00476	<0.00328	<0.0377	<0.00493
	KWB-8	Oct-16		0.00109 J	0.139	0.665	<0.000160	<0.000260	0.000710 JB	0.672	0.00387	0.997	<0.0000490 J6	0.00102 JB	0.000475 J	0.000746 J	0.00122 J
	KWB-8	Apr-17		0.00129 J	0.106	0.632	<0.000160	0.000264 J	0.000851 J	1.07	0.00495	1.83	<0.0000490	0.00120 J	<0.000380	<0.000330	0.00157 J
	KWB-8	Oct-17		0.00135 J	0.130	0.769	<0.000160	<0.000260	0.00153 J	0.0804 J	0.00296	0.510	<0.0000490	0.000997 J	0.0463	<0.000330	0.00112 J
	KWB-8	Oct-20		0.00348	0.0706	0.661	<0.000478	0.000490 J	0.00626	1.32	0.00678	0.0432	<0.000100	0.00306	<0.000657	<0.00754	0.00115
	KWB-10R	Apr-17		0.0157	3.82				<0.000540	5.21	0.000971 J	0.157			<0.000380		
	KWB-10R	Oct-17		0.0170	3.85				<0.000540	5.24	0.000996 J	0.163			<0.000380		
	KWB-10R	Apr-18		0.0169	3.91				<0.000540	4.57	0.00320	0.170			<0.000380		
	KWB-10R	Oct-18		0.0164	3.93				<0.00270	4.24	0.00124 J	0.168			<0.00190		
	KWB-11A	Apr-18		0.0112	0.0210	0.460	<0.000160	0.00532	<0.000540	0.595	0.00131 J	0.413	<0.0000490	0.00463	0.00246	0.0140	0.00760
	KWB-11A	Oct-18		0.0487	0.0379	0.423	<0.000160	0.0143	<0.000540	12.6	0.00226	1.98	0.000140 J	0.00485	0.00182 J	0.0119	0.00855
	KWB-11A	Apr-19		0.00966	0.0450	0.444	<0.000160	0.0108	<0.000540	3.95	0.00137 J	1.05	<0.0000490	0.0137	0.000527 J	0.0148	0.00424 J
	KWB-11A	Jun-20		0.0111	0.0329	0.380	<0.000478	0.00371	<0.00149	7.33	0.00307 J	0.570	<0.000100	0.00429	0.00104 J	0.0143 J	0.00286 J
	KWB-11A	Oct-20		0.00403	0.0227	0.387	<0.000478	0.00271	<0.00149	1.05	<0.00249	0.471	<0.000100	0.00413	0.00134 J	0.0118 J	0.00555
	KWB-11B	Apr-18		0.00154 J	0.0130	0.131 J	<0.000160	<0.000260	<0.000540	<0.0150	<0.000240	0.000543 J	0.0000648 JB	0.000350	0.0107	0.0111	0.00826
	KWB-11B	Oct-18		0.00122 J	0.0130	0.128 J	<0.000160	<0.000520	<0.00108	<0.0300	<0.000480	0.00248 JB	0.000180 J	0.00108 J	0.00911	0.0111 J	0.00776 J
	KWB-11B	Apr-19		0.00141 J	0.0137	0.161 JB	<0.000160	<0.000260	0.000800 J	<0.0150	0.000488 J	0.00172 J	<0.0000490	<0.000350	0.00969	0.0117	0.00783
	KWB-11B	Oct-19		0.00141 J	0.0137	0.100 J	<0.000160	<0.000260	0.000769 J	<0.0150	<0.000240	0.00109 J	0.0000867 JB	0.000350	0.00915	0.0108	0.00915
	KWB-11B	Jun-20		0.00119 J	0.0144 J	0.0989 J	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	0.00213 J	<0.000100	<0.000952	0.00865	0.0125 J	0.00855
	KWB-11B	Oct-20		<0.00368	<0.0389	0.111 J	<0.00239	<0.00238	<0.00745	<0.244	<0.0124	<0.00660	<0.000100	<0.00476	0.00750 J	<0.0377	0.00905 J
	KWB-12A	Oct-18		0.00135 J	0.0138	0.592	<0.000160	<0.000260	0.000549 J	<0.0150	<0.000240	0.000829 J	<0.0000490	0.000350 J	0.00302	0.0234	0.0120
	KWB-12A	Oct-19		0.00156 J	0.0144	0.568	<0.000160	<0.000260	<0.000540	0.0166 JB	0.000468 JB	0.00146 J	0.0000672 JB	0.000797 J	0.00368	0.0235	0.0113
	KWB-12A	Jun-20		0.00217	0.0182 J	0.552	<0.000478	<0.000477	<0.00149	0.195	<0.00249	0.0199	<0.000100	0.00213	0.00292	0.0268	0.0112
	KWB-12A	Oct-20		0.00148 J	0.0188 J	0.535	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	0.00279 JB	<0.000100	<0.000952	0.00371	0.0267	0.00976
	KWB-12B	Apr-18		0.00155 J	0.00991	0.609	<0.000160	<0.000260	0.00116 J	0.0689 JB	0.000700 JB	0.00277 JB	0.0000606 J	0.000382 J	0.00311 B	0.0301	0.0125
	KWB-12B	Apr-18	FD	0.00174 J	0.0102	0.607	<0.000160	<0.000260	<0.000540	0.0363 J	<0.000240	0.00120 J	<0.0000490	0.000364 J	0.00329	0.0304	0.0125
	KWB-12B	Oct-18		0.00155 J	0.00876	0.602	<0.000160	<0.000260	<0.000540	0.0949 J	<0.000240	0.000451 J	<0.0000490	<0.000350	0.00277	0.0248	0.0112
	KWB-12B	Oct-18	FD	0.00157 J	0.00884	0.585	<0.000160	<0.000260	0.000608 J	<0.0150	<0.000240	0.000456 J	<0.0000490	0.000531 J	0.00294	0.0269	0.0117
	KWB-12B	Apr-19		0.00195 J	0.0128	0.606	<0.000160	<0.000260	0.000875 JB	0.137	0.000534 JB	0.0110	<0.0000490	0.000567 JB	0.00355	0.0299	0.0141
	KWB-12B	Apr-19	FD	0.00186 J	0.0100	0.601	<0.000160	<0.000260	0.000663 J	0.0433 JB	<0.000240	0.00208 J	0.000152 J	0.00230	0.00310	0.0279	0.0121
	KWB-12B	Oct-19		0.00176 J	0.00924	0.580	<0.000160	<0.000260	<0.000540	0.0196 JB	0.000455 JB	0.00193 J	0.0000601 JB	0.000350	0.00343	0.0257	0.0123
	KWB-12B	Oct-19	FD														

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals														
				Arsenic	Barium	Boron	Cadmium	Cobalt	Chromium	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium	
				7440-38-2	7440-39-3	7440-42-8	7440-43-9	7440-48-4	7440-47-3	7439-89-6	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	7440-61-1	7440-62-2	
				CAS	Units	CGWSL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL Source				WQCC HH	WQCC HH	WQCCClr	WQCC HH	WQCCClr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCCClr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
Field East of Refinery	MW-130	Apr-18		0.00400	0.0179					<0.000540	0.0297 J	<0.000240	0.0937			0.0162		
	MW-130	Oct-18		0.00341	0.0159					<0.000540	0.0289 J	<0.000240	0.0888			0.00722		
	MW-130	Apr-19		0.00385	0.0203					<0.000540	0.0697 J	0.000361 JB	0.101			0.0137		
	MW-130	Oct-19		0.00400	0.0198					0.000858 J	0.346	0.000349 J	0.101			0.00478		
	MW-130	Jun-20		0.00375	0.0168 J					<0.00149	0.0745 J	<0.00249	0.0968			0.00436		
	MW-130	Oct-20		0.00374	0.0173 J					0.00174 J	0.0826 J	<0.00249	0.101			0.00581		
	MW-131	Apr-17		0.0214	2.75					<0.000540	1.29	<0.000240	0.294			<0.000380		
	MW-131	Oct-17		0.0223	1.98					<0.000540	1.56	<0.000240	0.283			<0.000380		
	MW-131	Oct-19		0.0261	1.65					<0.000540	1.55	0.000845 JB	0.293			<0.000380		
	MW-131	Jun-20		0.0241	2.39					<0.00149	1.35	<0.00249	0.294			<0.000657		
	MW-133	Nov-14		0.0190	0.130					0.000600 J	3.50	0.000800 J	0.380			<0.000380		
	MW-133	Apr-15		0.00897	0.157					<0.000540	5.53	0.00145 J	0.312			0.00124 J		
	MW-134	Apr-18		0.00410	0.00963					<0.000540	<0.0150	<0.000240	0.0144			0.00560		
	MW-134	Apr-18	FD	0.00465	0.0100					0.00883 J3J5	0.0683 J	0.000274 J	0.0135			0.00665		
	MW-134	Oct-18		0.00394	0.00921					<0.000540	<0.0150	<0.000240	0.0119			0.00564		
	MW-134	Oct-18	FD	0.00388	0.00989					<0.000540	<0.0150	<0.000240	0.0134			0.00539		
	MW-134	Apr-19		0.00471	0.0122					0.00278 B	0.193	0.000688 JB	0.0792			0.00747		
	MW-134	Apr-19	FD	0.00418	0.0122					0.00108 JB	0.183	0.00115 JB	0.0600			0.00829		
	MW-134	Oct-19		0.00417	0.00988					0.000807 J	0.0171 JB	0.000450 JB	0.0383			0.00818		
	MW-134	Oct-19	FD	0.00409	0.00949					0.00104 J	0.0163 J	<0.000240	0.0303			0.00704		
	MW-134	Jun-20		0.00368	0.00896 J					<0.00149	<0.0489	<0.00249	0.00741			0.00631		
	MW-134	Jun-20	FD	0.00384	0.00932 J					<0.00149	<0.0489	<0.00249	0.00677			0.00602		
	MW-134	Oct-20		0.00362	0.0101 J					<0.00149	0.0916 J	<0.00249	0.0370			0.00592		
	MW-134	Oct-20	FD	0.00356	0.0101 J					<0.00149	0.0671 J	<0.00249	0.0339			0.00527		
	MW-135	Apr-18		0.00348	0.0186					0.00386 B	0.205 B	0.000510 J	0.0114			0.0254		
	MW-135	Oct-18		0.00335 J	0.0422					0.00276 J	0.649	0.000966 J	0.0380			0.0298		
	MW-135	Apr-19		0.00383	0.0199					0.00245 B	0.205	0.000746 JB	0.0188			0.0334		
	MW-135	Oct-19		0.00335	0.00928					0.00140 J	0.221 B	0.00194 JB	0.0277			0.0200		
	MW-135	Jun-20		0.00326	0.0158 J					<0.00149	0.203	<0.00249	0.0119			0.0221		
	MW-135	Oct-20		<0.00368	<0.0389					<0.00745	0.745	<0.0124	0.0315			0.0186		
	MW-145	Oct-20																
	MW-145	Oct-20	FD															
	MW-146	Oct-20																
	MW-147	Oct-20																
	MW-148	Oct-20																
	RA-4196	Apr-18																
	RA-4196	Oct-18																
	RA-4196	Apr-19																
	RA-4196	Oct-19																
	RA-4196	Jun-20																
	RA-4196	Oct-20																
	RA-4798	Apr-18																
	RA-4798	Oct-18																
	RA-4798	Apr-19																
	RA-4798	Oct-19																
	RA-4798	Jun-20																
	RA-4798	Oct-20																
	RW-12R	Apr-17			0.000503 J	0.0409					0.0359	0.241	0.00193 J	0.398			<0.000380	
	RW-12R	Apr-18			0.000291 J	0.0387					0.00973	0.0459 J	0.00104 J	0.718			0.000554 J	
	RW-12R	Apr-19			0.00109 J	0.0354					0.00771 B	0.0800 J	0.00177 JB	1.28			0.000508 J	
	RW-12R	Jun-20			<0.000735	0.0342					0.0557	0.150	<0.00249	1.39			<0.000657	
	RW-13R	Apr-16			0.00922 J	0.0165					<0.00270	0.572	<0.00120	1.26			<0.00190	
	RW-13R	Apr-18			0.000839 J	0.0475					0.00357	0.349	0.000602 J	0.985			0.00161 J	
	RW-18A	Apr-17			0.00331	0.0107					<0.000540	<0.0150	<0.000240	0.000927 J			0.00406	
	RW-18A	Apr-18			0.00278	0.0105					<0.000540	<0.0150	<0.000240	0.00299 J			0.00321	
	RW-18A	Apr-19			0.00293	0.0117					0.00130 JB	0.0191 J	0.000246 JB	0.000480 J			0.00449	
	RW-18A	Jun-20			0.00451	0.0243					0.00223	3.06	0.00276 J	0.0307			0.00475	
	RW-20	Apr-15			0.00375 J	0.527					<0.00270	1.75	0.00354 J	0.872			<0.00190	
	RW-22	Apr-15			0.00248	0.816												

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals																		
2020 Annual Groundwater Monitoring Report																		
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico																		
Analyte Group				Total Metals														
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 mg/L 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631	
CGWSL Source				WQCC HH	WQCC HH	WQCCClr	WQCC HH	WQCCClr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCCClr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
NCL	NCL-32	Apr-18		0.00443	0.0199				0.000813 J	0.0806 J	0.000723 J	0.926			0.00138 J			
	NCL-32	Oct-18		0.00306	0.0198 B				0.00201	0.339	0.00224 B	1.34			0.00134 J			
	NCL-32	Apr-19		0.00257	0.0172				<0.000540	1.84	0.000470 J	1.14			0.00222			
	NCL-32	Oct-19		0.00213	0.0153				0.000548 J	0.0391 J	0.000373 J	1.50			0.00249			
	NCL-32	Jun-20		0.00203	0.0165 J				<0.00149	<0.0489	<0.00249	1.31			0.00321			
	NCL-32	Oct-20		0.00236	0.0160 J				<0.00149	0.0494 J	<0.00249	1.73			0.00271			
	NCL-33	Apr-18		0.00382	0.0223				<0.000540	1.64	<0.000240	0.117			0.000746 J			
	NCL-33	Oct-18		0.00303	0.0244				<0.000540	2.02	<0.000240	0.119			0.000474 J			
	NCL-33	Apr-19		0.00327	0.0280				<0.000540	1.97	0.000403 J	0.106			0.000405 J			
	NCL-33	Oct-19		0.00457	0.0280				0.000581 J	2.91	0.000470 J	0.157			0.00132 J			
	NCL-33	Jun-20		0.00452	0.0289				<0.00149	3.52	<0.00249	0.194			0.00130 J			
	NCL-33	Oct-20		0.00531	0.0231				<0.00149	4.03	<0.00249	0.188			0.00144 J			
	NCL-34A	Apr-18		0.00175 J	0.452				<0.000540	0.0183 J	0.000440 J	0.0204			0.000485 J			
	NCL-34A	Oct-18		0.000692 J	0.376				<0.000540	<0.0150	<0.000240	0.0191			0.000423 J			
	NCL-34A	Apr-19		0.000663 J6	0.966 V				<0.000540	0.0216 J	<0.000240	0.0158 O1			0.101 J3J6O1			
	NCL-34A	Oct-19		0.000719 J	0.293				0.000842 JB	0.0403 JB	0.000906 JB	0.0318			0.000403 J			
	NCL-34A	Jun-20		0.000811 J	0.242				<0.00149	<0.0489	<0.00249	0.0416			<0.000657			
	NCL-44	Apr-18		0.0387	0.0230				0.00120 J	1.03	0.000489 J	0.884			<0.000380			
	NCL-44	Oct-18		0.0301	0.0201 B				<0.000540	1.13	0.000618 JB	0.879			<0.000380			
	NCL-44	Apr-19		0.0245	0.0215				0.000595 J	0.792	0.000443 J	0.879			0.000878 J			
	NCL-44	Oct-19		0.0293	0.0205				<0.000540	1.16	<0.000240	0.912			0.000383 J			
	NCL-44	Jun-20		0.0305	0.0218				<0.00149	1.09	<0.00249	0.842			<0.000657			
	NCL-44	Oct-20		0.0211	0.0201				0.00369	0.641	<0.00249	0.820			<0.000657			
	NCL-49	Apr-18		0.00283	0.0138				0.000688 JJ3J4	<0.0150	0.000258 J	0.00310 J			0.0111			
	NCL-49	Apr-18	FD	0.00254	0.0136				<0.000540 JJ3J4	<0.0150	<0.000240	0.00462 J			0.0125			
	NCL-49	Oct-18		0.00156 J	0.0127				<0.000540	<0.0150	<0.000240	0.000358 J			0.00739			
	NCL-49	Oct-18	FD	0.00154 J	0.0115				<0.000540	<0.0150	<0.000240	<0.000250			0.00624			
	NCL-49	Apr-19		0.00148 J	0.0135				0.000545 J	0.0420 J	0.000438 J	0.000612 JB			0.00606			
	NCL-49	Apr-19	FD	0.00157 J	0.0128				<0.000540	0.128	<0.000240	0.00721			0.00630			
	NCL-49	Oct-19		0.00144 J	0.0136 B				0.00113 JB	0.0164 JB	0.000412 JB	0.000870 JB			0.00551			
	NCL-49	Oct-19	FD	0.00139 J	0.0133 J				<0.00270	<0.0750	<0.00120	<0.00125 JJ3J5			0.00652 J			
	NCL-49	Jun-20		0.00135 J	0.0145 J				<0.00149	<0.0489	<0.00249	0.0222			0.00832			
	NCL-49	Jun-20	FD	0.00123 J	0.0126 J				<0.00149	<0.0489	<0.00249	0.00204 J			0.00717			
	NCL-49	Oct-20		0.00141 J	0.0129 J				0.00153 J	<0.0489	<0.00249	<0.00132			0.00873			
	NCL-49	Oct-20	FD	0.00155 J	0.0123 J				<0.00149	<0.0489	<0.00249	<0.00132			0.00920			
North Refinery	MW-23	Apr-18		0.00511	9.72				0.000601 JB	0.0297 J	0.00227	0.0750			0.000496 J			
	MW-23	Oct-18		0.00455	8.55				<0.000540	0.0527 J	0.00657	0.0630			0.0661			
	MW-23	Apr-19		0.00499	9.47				0.000969 JB	0.0226 J	0.00230	0.0709			0.00135 J			
	MW-23	Oct-19		0.00587	9.44				<0.000540	0.0573 J	0.0150	0.0696			0.000501 J			
	MW-23	Jun-20		0.00595	9.81 V				<0.00149	0.0693 J	0.00484 J	0.0692			<0.000657			
	MW-23	Oct-20		0.00627	12.3				<0.00149	0.0501 J	0.00712	0.0769			<0.000657			
	MW-29	Apr-18		0.00154 J	0.0192				<0.000540	0.0804 J	0.000379 J	0.483			<0.000380			
	MW-29	Oct-18		0.00209	0.0289				<0.000540	<0.0150	<0.000240	0.341			0.0275			
	MW-29	Apr-19		0.00173 J	0.0169				<0.000540	0.174 B	<0.000240	0.534			<0.000380			
	MW-29	Oct-19		0.0161	0.0171				<0.000540	4.34	<0.000240	0.586			0.000458 J			
	MW-29	Jun-20		0.00842	0.0172 J				<0.00149	0.0632 J	<0.00249	0.258			<0.000657			
	MW-29	Oct-20		0.0170	0.0188 J				<0.00149	0.294	<0.00249	0.233 V			0.000944 J			
	MW-39	Apr-18		0.0110	0.0159				0.00126 JB	0.0868 J	0.00139 J	0.0181			<0.000380			
	MW-39	Oct-18		0.00800	0.0687				<0.000540	<0.0150	0.000324 J	0.0200			0.0389			
	MW-39	Apr-19		0.00933	0.0590				<0.000540	0.0175 J	0.000354 J	0.0267			0.000668 J			
	MW-39	Oct-19		0.00690	0.0118				<0.000540	<0.0150	<0.000240	0.0282			<0.000380			
	MW-39	Jun-20		0.00757	0.0145 J				<0.00149	<0.0489	<0.00249	0.0410			<0.000657			
	MW-39	Oct-20		0.00755	0.0													

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals

2020 Annual Groundwater Monitoring Report

HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCClrr	WQCC HH	WQCClrr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCClrr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
North Refinery	MW-90	Apr-18		0.00307	0.0170				<0.000540 J3J4	0.0329 J	<0.000240	0.0329			0.000532 J		
	MW-90	Oct-18		0.00274	0.0189				<0.000540	0.0894 J	0.000534 JB	0.0916			0.000461 J		
	MW-90	Apr-19		0.00236	0.0155				0.000889 JB	0.0179 J	0.000310 JB	0.0602			0.000671 J		
	MW-90	Oct-19		0.00423	0.0147				<0.000540	1.04	0.000315 JB	0.100			0.0141		
	MW-90	Jun-20		0.00299 B	0.0150 J				<0.00149	0.295	<0.00249	0.0909			<0.000657		
	MW-90	Oct-20		0.00318	0.0163 J				0.00157 J	0.495	<0.00249	0.124			<0.000657		
	MW-91	Apr-18		0.00800	0.0454				<0.000540 J3J4	0.0370 J	0.00365	0.00264 J			<0.000380		
	MW-91	Oct-18		0.00772	0.0484				0.000738 J	0.0472 J	0.00440 B	0.00539			0.000542 J		
	MW-91	Apr-19		0.00693	0.0460				<0.000540	0.0388 J	0.00412 B	0.00762			0.00460		
	MW-91	Oct-19		0.00392	0.0552				<0.000540	0.0186 J	0.00475	0.00710 B			0.0214		
	MW-91	Jun-20		0.00524 B	0.0561				<0.00149	0.197	0.00610	0.00381 J			<0.000657		
	MW-92	Apr-16		0.00316 J	3.44 oiv				<0.00270	0.328 J	<0.00120	0.0363			0.00207 J		
	MW-92	Oct-16		0.00732	2.81				0.00101 JB	0.0744 J	0.00183 J	0.0274			0.00172 J		
	MW-93	Apr-17		0.00456	0.0228				0.00367	0.278	0.00116 J	0.0258			0.00683		
	MW-93	Apr-18		0.00706	0.0304				0.00945	0.145 B	0.00152 JB	0.0325			0.00377 B		
	MW-93	Apr-19		0.00456	0.0394				0.00174 JB	0.110	0.00105 J	0.0615			0.0144		
	MW-93	Jun-20		0.00827	0.0351				0.00257	0.181	<0.00249	0.208			0.00412		
	MW-94	Oct-15		0.0215	1.57				0.00144 J	<0.0150	<0.000240	0.00194 J			0.000935 J		
	MW-94	Apr-16		0.0286	0.353				<0.00270	<0.0750	<0.00120	0.00666 J			<0.00190		
	MW-94	Oct-16		0.0115	0.635				0.00119 JB	0.0159 J	0.000255 J	0.00631			0.000962 J		
	MW-94	Apr-17		0.0170	0.873				0.00141 J	0.134	0.000298 J	0.00382 J			0.00304		
	MW-95	Apr-17		0.00173 J	0.0612				<0.000540	<0.0150	<0.000240	0.0330			0.000407 J		
	MW-95	Apr-18		0.00154 J	0.0691				<0.000540	0.0155 J	<0.000240	0.0556			<0.000380		
	MW-95	Apr-19		0.00141 J	0.0597				<0.000540	<0.0150	0.000528 JB	0.0904			<0.000380		
	MW-95	Jun-20		0.00135 JB	0.0431				<0.00149	0.0879 J	<0.00249	0.156			<0.000657		
	MW-96	Apr-18		0.00321	0.124				0.000908 JJ3J4	0.0251 J	0.000257 J	0.00146 J			<0.000380		
	MW-96	Oct-18		0.00251	0.111				<0.000540	0.0658 J	0.000673 JB	0.00158 J			<0.000380		
	MW-96	Apr-19		0.00237	0.161				<0.000540	0.0510 J	0.000267 JB	0.00103 JB			0.000465 J		
	MW-96	Oct-19		0.00199 J	0.149				<0.000540	0.0158 J	<0.000240	0.00648 B			0.00423		
	MW-96	Jun-20		0.00241 B	0.176				<0.00149	<0.0489	<0.00249	<0.00132			<0.000657		
	MW-96	Oct-20		0.00207	0.175				<0.00149	<0.0489	<0.00249	<0.00132			<0.000657		
	MW-98	Apr-18		0.00120 J	0.0156				0.000670 JJ3J4	<0.0150	0.00964	0.0246			0.000402 J		
	MW-98	Oct-18		0.000968 J	0.0182				0.000615 J	0.0174 J	0.00903 JB	0.0210			<0.000380		
	MW-98	Apr-19		0.000810 J	0.0409				<0.000540	<0.0150	0.00796	0.0220			<0.000380		
	MW-98	Oct-19		0.00231	0.0177				0.00153 J	0.0792 J	0.00771	0.0231			0.00508		
	MW-98	Jun-20		0.000895 J	0.0180 J				0.00316	0.0721 J	0.00815	0.0213			<0.000657		
	MW-98	Oct-20		0.000795 J	0.0176 J				<0.00149	<0.0489	0.00690	0.0208			<0.000657		
	MW-137	Oct-17		0.0156	0.0756	1.03	<0.000160	<0.000260	0.00109 J	0.260	0.00338	0.209	<0.0000490	0.0198	0.0393	<0.000330	0.00771
	MW-137	Apr-18		0.0512	0.0711	0.997	<0.000160	<0.000260	0.00132 J	0.0740 JB	0.00433	0.154	<0.0000490	0.0134	0.00240 B	<0.000330	0.00718
	MW-137	Oct-18		0.0129	0.0942	0.989	<0.000160	<0.000260	0.000586 J	0.0553 J	0.00318	0.183	<0.0000490	0.0126	0.341	<0.000330	0.00844
	MW-137	Apr-19		0.0285	0.103	1.02	<0.000160	<0.000260	0.000596 JB	0.0240 J	0.00268	0.157	<0.0000490	0.0133	0.00601	<0.000330	0.00838
	MW-138	Oct-17		0.00507	0.103	1.11	<0.000160	<0.000260	0.000747 J	0.0334 J	0.000271 J	0.0931	<0.0000490	0.00619	0.00945	<0.000330	0.00195 J
	MW-138	Apr-18		0.00514	0.124	0.984	<0.000160	<0.000260	0.000785 J	0.160 B	<0.000240	0.103	<0.0000490	0.00977	0.000667 JB	<0.000330	0.00169 J
	MW-138	Oct-18		0.00464	0.108	0.927	<0.000160	<0.000260	<0.000540	0.0235 J	0.000249 J	0.111	<0.0000490	0.00490	0.0973	<0.000330	0.00120 J
MW-138	Apr-19		0.00560	0.141	0.951	<0.000160	<0.000260	0.000855 JB	0.0228 J	0.000353 J	0.128	<0.0000490	0.00504	0.00102 J	<0.000330	0.00121 J	
RW-1R	Apr-16		0.00695 J	0.0414				<0.00270	17.1	0.00149 J	0.317			0.00246 J			
RW-1	Apr-17		0.0359	0.0243				0.00254	4.88	0.00492	0.240			0.00573 B			
RW-1	Apr-18		0.0204	0.0328				0.000826 JJ3J4	1.50	0.00156 J	0.0237			0.00213		</	

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte CAS Units CGWSL				Arsenic 7440-38-2 mg/L 0.0100	Barium 7440-39-3 mg/L 2.00	Boron 7440-42-8 mg/L 0.750	Cadmium 7440-43-9 mg/L 0.00500	Cobalt 7440-48-4 mg/L 0.0500	Chromium 7440-47-3 mg/L 0.0500	Iron 7439-89-6 mg/L 1.00	Lead 7439-92-1 mg/L 0.0150	Manganese 7439-96-5 mg/L 0.200	Mercury 7439-97-6 mg/L 0.00200	Nickel 7440-02-0 mg/L 0.200	Selenium 7782-49-2 mg/L 0.0500	Uranium 7440-61-1 mg/L 0.0300	Vanadium 7440-62-2 mg/L 0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCCClrr	WQCC HH	WQCCClrr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCClrr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
South Refinery	MW-28	Apr-18		0.00749	0.0581	1.29	<0.000160	<0.000260	<0.000540	0.156 B	0.0134	0.0370	<0.0000490	0.00415	0.000588 JB	<0.000330	0.00230 J
	MW-28	Oct-18		0.00486 J	0.0652	1.16	<0.000160	<0.00130	<0.00270	0.0971 J	0.00453 J	0.0509	0.000108 J	0.00659 J	<0.00190	<0.00165	0.00111 JB
	MW-28	Apr-19		0.00422	0.0660	1.48	<0.000160	<0.000260	0.00131 JB	0.0910 J	0.00990	0.0749	<0.0000490	0.00465	<0.000380	<0.000330	0.00270 J
	MW-28	Oct-19		0.00396	0.0522	1.53	<0.000160	<0.000260	0.000933 J	0.0502 JB	0.00717	0.0261	0.0000582 JB	0.00275	0.00329	<0.000330	0.00228 J
	MW-28	Jun-20		0.00705	0.0449	1.32	<0.000478	0.000802 J	<0.00149	0.122	0.0117	0.708	<0.000100 J6	0.00624	<0.000657	<0.00754	0.00364 J
	MW-28	Oct-20		0.00538	0.0371	1.32	<0.000478	<0.000477	<0.00149	0.0940 J	0.00540	0.389	<0.000100	0.00504	<0.000657	<0.00754	0.00375 JB
	MW-48	Apr-18		0.00554	1.82				<0.000540	0.105	0.00142 J	0.136			0.247		
	MW-48	Oct-18		0.00561	1.13 V				0.00119 J	0.231	0.00268	0.347			0.00132 J		
	MW-48	Apr-19		0.00395	1.04				0.000613 JB	0.195	0.00297	0.481			0.0405		
	MW-48	Oct-19		0.00646	1.04				0.00117 J	0.234	0.00232	0.604			0.000428 J		
	MW-50	Apr-18		0.00391	0.0130				<0.000540 J3J4	0.323	0.000419 J	0.968			0.00580		
	MW-50	Oct-18		0.00610	0.0137				<0.000540	1.59	0.000401 JB	0.898			0.00178 J		
	MW-50	Apr-19		0.00524	0.0143				0.00128 JB	1.30	0.000664 JB	1.03			0.00425		
	MW-50	Oct-19		0.00517	0.0155				<0.000540	0.773	0.000723 JB	1.02			0.00227		
	MW-50	Jun-20		0.00379 B	0.0113 J				<0.00149	0.226	<0.00249	0.536			0.0309		
	MW-50	Oct-20		0.00301	0.0128 J				<0.00149	0.0795 J	<0.00249	0.450			0.0377		
	MW-52	Apr-18		0.00363	0.0108	0.728	<0.000160	0.000378 J	<0.000540	<0.0150	<0.000240	0.0435	<0.0000490	0.00628	0.00799	0.0105	0.0259
	MW-52	Oct-18		0.00321	0.00897	0.723	<0.000160	0.000271 J	<0.000540	<0.0150	<0.000240	0.0433	<0.0000490	0.00504	0.00221	0.00888 J	0.0232
	MW-52	Apr-19		0.00357	0.0108	0.741	<0.000160	0.000338 J	0.00154 JB	<0.0150	0.000325 JB	0.0594	<0.0000490	0.00635	0.00537	0.0103	0.0262
	MW-52	Oct-19		0.00353	0.0113	0.732	<0.000160	0.000402 J	0.000693 J	<0.0150	0.000510 JB	0.0618	0.0000644 JB	0.00980	0.00628	0.0114	0.0235
	MW-52	Jun-20		0.00344	0.0149 J	0.767	<0.000478	0.000742 J	0.00273	0.252	<0.00249	0.0928	<0.000100	0.0260	0.00612	0.0131 J	0.0247
	MW-52	Oct-20		0.00361	0.0123 J	0.772	<0.000478	0.000636 J	<0.00149	<0.0489	<0.00249	0.0661	<0.000100	0.0304	0.00578	0.0125 J	0.0240
	MW-64	Apr-18		0.0394	2.17				<0.000540	0.179 B	0.00122 J	0.0638			0.000584 J		
	MW-64	Oct-18		0.0291	2.33				<0.00270	0.148 J	<0.00120	0.0644			<0.00190		
	MW-64	Apr-19		0.0266	2.43				<0.000540	0.180	0.000861 JB	0.0831			0.000582 J		
	MW-64	Oct-19		0.0230	2.03				<0.000540	0.487	0.000743 JB	0.0793			<0.000380		
	MW-64	Jun-20		0.0246	2.29				<0.00149	0.349	<0.00249	0.0920			<0.000657		
	MW-64	Oct-20		0.0249	2.15				<0.00149	0.0846 J	<0.00249	0.0742			<0.000657		
	MW-65	Apr-18		0.0108	2.60				<0.000540	2.18	0.000448 J	0.527			<0.000380		
	MW-65	Oct-18		0.00679 J	1.71				<0.00270	0.624	<0.00120	0.431			<0.00190		
	MW-65	Apr-19		0.00832	1.88				<0.000540	0.739	0.000373 JB	0.530			<0.000380		
	MW-65	Oct-19		0.00653	1.58				<0.000540	0.265	0.000311 JB	0.405			<0.000380		
	MW-66	Apr-18		0.00275	2.17	0.309	<0.000160	<0.000260	<0.000540	0.820	0.000939 JB	0.293	<0.0000490	0.00678	0.000509 JB	<0.000330	0.000530 J
	MW-66	Oct-18		0.00258	1.88	0.324	<0.000160	<0.000260	<0.000540	0.833	0.00280	0.278	<0.0000490	0.00661	<0.000380	<0.000330	0.000708 J
	MW-66	Apr-19		0.00257	2.75	0.333	<0.000160	<0.000260	0.00118 JB	1.20	0.00158 J	0.265	<0.0000490	0.00606	<0.000380	<0.000330	0.000996 J
	MW-66	Oct-19		0.00236	1.44	0.206	<0.000160	<0.000260	0.000717 J	0.426 B	0.00104 JB	0.283	0.0000567 JB	0.0131	0.00393	<0.000330	0.00180 J
	MW-66	Jun-20		0.00235	1.99	0.250	<0.000478	<0.000477	<0.00149	0.748	<0.00249	0.306	<0.000100	0.00565	<0.000657	<0.00754	<0.000986
	MW-66	Oct-20		0.00267	1.68	0.229	<0.000478	<0.000477	<0.00149	0.704	<0.00249	0.339	<0.000100	0.00675	<0.000657	<0.00754	0.00212 JB
	MW-99	Apr-18		0.00900	0.311				0.000544 J	0.143 B	0.000673 JB	0.244			<0.000380		
	MW-99	Oct-18		0.00821	0.452				0.000542 J	0.163	0.000718 J	0.224			0.00169 J		
	MW-99	Apr-19		0.00789	0.404				0.00207 B	0.346	0.00319	0.225			0.000538 J		
	MW-99	Oct-19		0.00338	0.200				0.00124 J	0.465 B	0.00301	0.193			0.00451		
	MW-99	Jun-20		0.00301	0.209				0.00275	0.168	<0.00249	0.229			<0.000657		
	MW-101	Apr-18		0.0754	0.0518				<0.000540	2.27	<0.000240	1.21			0.000442 JB		
	MW-101	Oct-18		0.0819	0.0374				<0.000540	2.68							

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals																			
2020 Annual Groundwater Monitoring Report																			
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico																			
Analyte Group				Total Metals															
Analyte				Arsenic	Barium	Boron	Cadmium	Cobalt	Chromium	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium		
CAS				7440-38-2	7440-39-3	7440-42-8	7440-43-9	7440-48-4	7440-47-3	7439-89-6	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	7440-61-1	7440-62-2		
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
CGWSL				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631		
CGWSL Source				WQCC HH	WQCC HH	WQCCClr	WQCC HH	WQCCClr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCCClr	WQCC HH	WQCC HH	NMED TW		
Area	Well ID	Date	Dup																
South Refinery	RW-4	Apr-17		0.00340	0.0732				<0.000540	0.192	0.000419 J	0.0261			<0.000380				
	RW-4	Apr-18		0.00293	0.0671				0.000673 J	0.0270 JB	0.000685 JB	0.0548			0.000499 JB				
	RW-4	Apr-19		0.00271	0.148				0.000959 JB	0.0510 J	0.000725 J	0.0379			0.000455 J				
	RW-4	Jun-20		0.00356	0.0676				<0.00149	0.238	<0.00249	0.133			<0.000657				
	RW-5R	Apr-15		0.00136 J	0.0259				<0.000540	0.0952 J	0.000336 J	0.0177			<0.000380				
	RW-5R	Apr-16		0.00183 J	0.0282				<0.00270	<0.0750	<0.00120	0.0191 J			<0.00190				
	RW-6	Apr-15		0.0332	1.66				<0.000540	13.8	0.000574 J	0.280			<0.000380				
	RW-6R	Apr-16		0.0712	0.480				<0.00270	3.70	<0.00120	0.553			<0.00190				
	RW-6	Apr-18		0.0170	1.94				0.00106 J	1.59	0.000764 JB	0.298			<0.000380				
	RW-6	Apr-19		0.00630	6.89				0.000826 JB	0.173	0.000482 J	0.156			<0.000380				
	RW-15C	Apr-17		0.0274	0.885				<0.000540	0.316	0.0116	0.358			0.000461 JB				
	RW-15C	Apr-18		0.0239	1.19				0.000699 J	0.264	0.000822 J	0.372			0.000836 J				
RW-15C	Apr-19		0.0135	1.70				0.00534 B	0.473	0.00106 JB	0.457			0.00895					
South RO Field	MW-114	Apr-18		0.00226	0.0129				0.00708	0.0871 J	<0.000240	0.900			0.0105				
	MW-114	Oct-18		0.00225	0.0133				<0.000540	<0.0150	<0.000240	0.867			0.00985				
	MW-114	Apr-19		0.00215	0.0150				<0.000540	0.170	0.000421 J	0.961			0.00532				
	MW-114	Oct-19		0.00274	0.0141				<0.000540	<0.0150	<0.000240	1.05			0.00389				
	MW-114	Jun-20		0.00348	0.0145 J				<0.00149	<0.0489	<0.00249	0.980			0.00355				
	MW-114	Oct-20		0.00400	0.0131 J				<0.00149	<0.0489	<0.00249	0.925			0.00293				
	MW-115	Apr-18		0.00333	0.00824				<0.000540	0.0246 J	<0.000240	0.0564			0.00159 J				
	MW-115	Oct-18		0.00298	0.00719				<0.000540	<0.0150	<0.000240	0.0425			0.00413				
	MW-115	Apr-19		0.00395	0.0133				<0.000540	0.189	0.000523 J	0.123			0.00497				
	MW-115	Oct-19		0.00434	0.0136				<0.000540	0.184	0.000400 J	0.146			0.00131 J				
	MW-115	Jun-20		0.00388	0.00892 J				<0.00149	<0.0489	<0.00249	0.115			0.00483				
	MW-115	Oct-20		0.00435	0.0112 J				<0.00149	<0.0489	<0.00249	0.0983			0.00844				
	MW-116	Apr-18		0.00492	0.00839				<0.000540	0.0594 J	<0.000240	0.0226			0.00743				
	MW-116	Oct-18		0.00304	0.00833				<0.000540	<0.0150	<0.000240	0.0211			0.00475				
	MW-116	Apr-19		0.00390	0.0121				0.00124 JB	0.0431 J	<0.000240	0.0234			0.00466				
	MW-116	Oct-19		0.00309	0.00893				0.000765 J	0.0209 J	0.000619 JB	0.00907			0.00768				
MW-116	Jun-20		0.00294	0.00939 J				<0.00149	0.161	<0.00249	0.0241			0.00730					
MW-116	Oct-20		0.00300	0.00929 J				<0.00149	0.0902 J	<0.00249	0.0150 B			0.00619					
TEL	MW-49	Apr-18		0.00627	0.0565	0.740	<0.000160	<0.000260	<0.000540	0.321	0.00122 JB	0.197	<0.0000490	0.00655	0.000591 J	<0.000330	0.00110 J		
	MW-49	Oct-18		0.00517	0.0506	0.693	<0.000160	<0.000260	<0.000540	0.0585 J	0.000826 J	0.211	<0.0000490	0.00660	0.000519 J	<0.000330	0.000439 J		
	MW-49	Apr-19		0.00488	0.0541	0.729	<0.000160	<0.000260	<0.000540	0.0354 JB	0.000752 J	0.209	0.0000959 J	0.00773	<0.000380	<0.000330	0.000224 J		
	MW-49	Oct-19		0.00532	0.0486	0.642	<0.000160	<0.000260	<0.000540	0.0155 JB	0.000821 JB	0.169	<0.0000490	0.00660 B	<0.000380	<0.000330	0.000786 J		
	MW-49	Jun-20		0.00514	0.0552	0.638	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	0.147	<0.000100	0.00696	<0.000657	<0.00754	<0.000986		
	MW-49	Oct-20		0.00538	0.0500	0.661	<0.000478	<0.000477	<0.00149	0.0526 J	<0.00249	0.220	<0.000100	0.00835	<0.000657	<0.00754	<0.000986		
	TEL-1	Apr-18		0.0132	0.0140				0.0103	0.107	<0.000240	0.0532			<0.000380				
	TEL-1	Oct-18		0.0173	0.0171				0.00240	0.0675 J	<0.000240	0.0419			<0.000380				
	TEL-1	Apr-19		0.0142	0.0203				0.00480	0.158	0.000325 J	0.0425			<0.000380				
	TEL-1	Oct-19		0.0136	0.0158				0.00444 B	0.0598 JB	0.000418 JB	0.0365			<0.000380				
	TEL-1	Jun-20		0.0116	0.0152 J				0.00273	0.120	<0.00249	0.0315			<0.000657				
	TEL-2	Apr-18		0.0183	0.221				0.00202	0.0568 J	0.00114 J	0.0154			0.000522 J				
	TEL-2	Oct-18		0.0152	0.101				0.00151 J	0.0287 J	0.000727 J	0.0273			0.000520 J				
	TEL-2	Apr-19		0.0117	0.111				0.00208	0.0688 J	0.00130 J	0.0190			0.00137 J				
	TEL-2	Oct-19		0.0115	0.0914				0.00295 B	0.0484 JB	0.000814 JB	0.0281			0.000498 J				
	TEL-2	Jun-20		0.00826	0.131				0.00193 J	0.0517 J	<0.00249	0.0341			<0.000657				
	TEL-3	Apr-18		0.0109	0.0248				0.334	1.47	0.000726 J	0.0114			<0.000380				
	TEL-3	Apr-19		0.00228	0.0214				0.0851	0.336	0.00111 J	0.0142			0.000982 J				
	TEL-3	Oct-19		0.00161 J	0.0														

Appendix C, Table C.2 - Summary of Groundwater Analytical Data - Total Metals

2020 Annual Groundwater Monitoring Report

HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Total Metals													
Analyte				Arsenic	Barium	Boron	Cadmium	Cobalt	Chromium	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
CAS				7440-38-2	7440-39-3	7440-42-8	7440-43-9	7440-48-4	7440-47-3	7439-89-6	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	7440-61-1	7440-62-2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631
CGWSL Source				WQCC HH	WQCC HH	WQCClrr	WQCC HH	WQCClrr	WQCC HH	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCClrr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Three Mile Ditch	MW-71	Apr-17		0.00387	0.00845	0.538	<0.000160	<0.000260	<0.000540	<0.0150	<0.000240	0.000841 J	<0.0000490	0.000916 J	0.0324	0.0587	0.0248
	MW-71	Apr-18		0.00500	0.00896	0.673	<0.000160	<0.000260	0.00106 J	<0.0150	<0.000240	0.000412 J	<0.0000490	0.00115 J	0.0321	0.0594	0.0255
	MW-71	Apr-19		0.00315	0.00901	0.670	<0.000160	<0.000260	0.000803 JB	0.0423 JB	<0.000240	0.00260 JB	<0.0000490	0.00130 J	0.0320	0.0654	0.0247
	MW-71	Jun-20		0.00391	0.00943 J	0.622	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	<0.00132	<0.000100	0.00111 J	0.0332	0.0698	0.0251
	MW-89	Apr-17		0.00657	0.0145				0.00102 J	<0.0150	<0.000240	0.0420			0.0534		
	MW-89	Apr-18		0.0112	0.0136				0.000638 JJ3J4	<0.0150	0.000617 J	0.628			0.00218		
	MW-89	Apr-19		0.00748	0.0140				0.000808 JB	0.0326 JB	0.000744 J	0.439			0.0299		
	MW-89	Jun-20		0.00857	0.0133 J				<0.00149	<0.0489	<0.00249	0.579			0.00476		
	NP-1	Apr-18															
	NP-1	Oct-18															
	NP-1	Apr-19															
	NP-1	Oct-19															
	NP-1	Jun-20															
	NP-1	Oct-20															
	NP-6	Apr-13															
	NP-6	Apr-15															
	NP-6	Apr-17															
	NP-6	Apr-19															
Upgradient	UG-1	Apr-17		0.00106 J	0.0135	0.548	<0.000160	<0.000260	0.000572 J	0.0561 J	<0.000240	0.00689	<0.0000490	0.00145 J	0.0100	0.0262	0.0118
	UG-1	Apr-18		0.00177 JB	0.0122	0.668	<0.000160	0.00130 J	<0.000540	<0.0150	<0.000240	0.000486 J	0.0000552 JB	0.00188 J	0.00692	0.0263	0.0153
	UG-1	Apr-19		0.00158 J	0.0165	0.727	<0.000160	0.000332 J	0.000624 JB	<0.0150	<0.000240	0.00109 J	<0.0000490	0.00226 B	0.0149	0.0353	0.0147
	UG-1	Jun-20		0.00139 J	0.0137 J	0.691	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	<0.00132	<0.000100	0.000984 J	0.0131	0.0385	0.0133
	UG-2	Apr-17		0.00197 J	0.0154	0.303	<0.000160	<0.000260	<0.000540	0.0172 J	<0.000240	0.0154	<0.0000490	0.00271	0.00572	0.0153	0.0154
	UG-2	Apr-18		0.00236 B	0.0142	0.303	<0.000160	<0.000260	<0.000540	0.0153 J	<0.000240	0.00678	0.0000684 JB	0.00188 J	0.00710	0.0131	0.0176
	UG-2	Apr-19		0.00227	0.0183	0.299	0.000295 J	0.000357 J	0.000732 JB	0.0286 J	0.00107 JB	0.0129	<0.0000490	0.00316 B	0.00766	0.0160	0.0174
	UG-2	Jun-20		0.00253	0.0141 J	0.274	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	0.00395 J	<0.000100	0.00250	0.00616	0.0161 J	0.0185
	UG-3R	Apr-17		0.00161 J	0.0185	0.256	<0.000160	0.000465 J	<0.000540	0.0316 J	<0.000240	0.00182 J	<0.0000490	0.00225	0.00325	0.0129	0.00961
	UG-3R	Apr-18		0.00202 B	0.0170	0.470	<0.000160	<0.000260	<0.000540	0.0377 J	<0.000240	0.000713 J	<0.0000490	0.00104 J	0.00418	0.0124	0.0111
	UG-3R	Apr-19		0.00164 J	0.0183	0.223	<0.000160	<0.000260	0.000713 JB	<0.0150	<0.000240	0.00132 J	<0.0000490	0.000581 JB	0.00266	0.0160	0.00947
	UG-3R	Jun-20		0.00126 J	0.0205	0.173 J	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	<0.00132	<0.000100	<0.000952	0.00389	0.0167 J	0.00867
	UG-4	Apr-17		0.00111 J	0.0164	1.06	<0.000160	<0.000260	<0.000540	0.0249 J	<0.000240	0.00935	<0.0000490	0.00143 J	0.0143	0.0361	0.00739
	UG-4	Apr-18		0.00177 JB	0.0158	1.07	<0.000160	<0.000260	<0.000540	0.0330 J	<0.000240	0.00117 J	0.0000571 JB	0.000467 J	0.0202	0.0324	0.00962 B
UG-4	Apr-19		0.00128 J	0.0171	1.07	<0.000160	<0.000260	<0.000540	0.0596 J	<0.000240	0.00792	<0.0000490	0.000696 JB	0.0167	0.0379	0.00813	
UG-4	Jun-20		0.00105 J	0.0164 J	1.02	<0.000478	<0.000477	<0.00149	<0.0489	<0.00249	0.00403 J	<0.000100	0.00177 J	0.00925	0.0357	0.00757	

Definitions	
X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.

Abbreviations	
CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
Dup	Duplicate sample
FD	Field duplicate sample
mg/L	Milligrams per Liter
NMED TW	NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2019, Rev 2 (6/19/19), Table A-1, Tap Water Screening Level
WQCC Dom	NMED Groundwater standard for domestic exposure, 20.6.2.3103.B NMAC
WQCC HH	NMED Groundwater standard for human health exposure, 20.6.2.3103.A NMAC
WQCC Irr	NMED Groundwater standard for irrigation exposure, 20.6.2.3103.C NMAC

Lab Footnote	
B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group: Analyte: Units: CGWSL: CGWSL Source:				Dissolved Metals													
				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Cross-Gradient	KWB-13	Apr-17		0.00251	0.0181	0.348	0.000738 J	0.000961 J	<0.000260	<0.0150	0.000617 J	0.000700 JB	<0.0000490	0.00154 JB	0.0126	0.0254	0.0197
	KWB-13	Apr-18		0.00325	0.0201	0.343	0.000440 J	0.142	0.00156 J	0.619	0.000566 J	0.00905	0.0000695 JB	0.0687	0.0133	0.0278	0.0206
	KWB-13	Apr-19		0.00250	0.0179	0.311	<0.000160	0.000721 J	<0.000260	<0.0150	<0.000240	0.000914 JB	<0.0000490	0.00165 J	0.0145	0.0238	0.0193
	KWB-13	Jun-20		0.00244	0.0141 J	0.326	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	<0.00132	<0.000100	<0.000952	0.00955	0.0240	0.0191
	MW-136	Apr-18		0.00258	0.0103	0.681	<0.000160	0.000582 J	<0.000260	<0.0150	<0.000240	0.00578	<0.0000490	0.00356	0.00755	0.0769	0.0176
	MW-136	Oct-18															
	MW-136	Apr-19		0.00290	0.0106	0.632	<0.000160	0.00692	0.000265 J	0.0306 J	<0.00240	0.00663	<0.0000490	0.00439	0.00913	0.0658 J	0.0170
	MW-136	Oct-19															
	MW-136	Jun-20		0.00256	0.0102 J	0.590	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00499 J	<0.000100	0.00214	0.00481	0.0624	0.0174
	MW-136	Oct-20															
	NP-5	Apr-13		<0.0100	<0.0100			<0.0100		<0.400	<0.0100	<0.0100			0.0148		
	NP-5	Apr-15		0.00306	0.00760			<0.000540		<0.0150	<0.000240	0.000511 J			0.0128		
	NP-5	Apr-17		0.00315	0.00738			<0.000540		<0.0150	<0.000240	<0.000250			0.0125		
	NP-5	Apr-19		0.00303	0.00741			<0.000540		<0.0150	0.000353 J	0.000297 J			0.0126		
	RA-3156	Apr-17															
	RA-3156	Apr-18															
RA-3156	Apr-19																
RA-3156	Jun-20																
Evaporation Ponds	MW-1R	Apr-17		0.000880 J	0.0254			0.000638 J		0.0387 J	<0.000240	2.34			<0.000380		
	MW-1R	Apr-18		0.00160 J	0.0232			<0.000540		3.40	0.000491 J	1.72 V			<0.000380		
	MW-1R	Apr-19		0.000828 J	0.0180			0.00170 J		<0.0150	<0.000240	0.876			<0.000380		
	MW-1R	Jun-20		0.00118 J	0.0199 J			<0.00149		1.62	<0.00249	1.37			<0.000657		
	MW-2A	Apr-18		0.00772	0.0232			<0.000540		2.71	<0.000240	1.23			0.00148 J		
	MW-2A	Oct-18															
	MW-2A	Apr-19		0.00251	0.0205			0.000654 JB		<0.0150	0.00155 J	1.01			0.00146 J		
	MW-2A	Oct-19															
	MW-2A	Jun-20		0.00932	0.0180 J			<0.00149		1.67	<0.00249	1.46			<0.000657		
	MW-2A	Oct-20															
	MW-3	Apr-18		0.0228	0.0125			<0.000540		0.213	0.000366 J	0.668			0.00562		
	MW-3	Apr-18	FD	0.0239	0.0153			<0.000540		0.239 B	0.000318 J	0.706			0.00414		
	MW-3	Oct-18															
	MW-3	Oct-18	FD														
	MW-3	Apr-19		0.0245	0.0135			0.00212		<0.0150	0.000432 J	0.485			0.0119		
	MW-3	Apr-19	FD	0.0219	0.0136			0.00110 J		<0.0150	0.000516 JB	0.516			0.0126		
	MW-3	Oct-19															
	MW-3	Oct-19	FD														
	MW-3	Jun-20		0.0276	0.0135 J			<0.00149		<0.0489	<0.00249	0.885			0.00866		
	MW-3	Jun-20	FD	0.0301	0.0134 J			<0.00149		<0.0489	<0.00249	0.936			0.00844		
	MW-3	Oct-20															
	MW-3	Oct-20	FD														
	MW-4A	Apr-18		0.106	0.0120			<0.000540		1.49	<0.000240	1.98			<0.000380		
	MW-4A	Oct-18															
	MW-4A	Apr-19		0.104	0.0109			0.000584 JB		<0.0150	0.000927 J	1.88			0.000783 J		
	MW-4A	Oct-19															
	MW-4A	Jun-20		0.104	0.0125 J			<0.00149		2.43	<0.00249	1.84			0.00109 J		
	MW-4A	Oct-20															
	MW-4B	Apr-13		0.0428	0.00976			<0.00500		1.18	<0.00500	1.52			<0.00500		
	MW-4B	Apr-15		0.0930	0.0202			<0.000540		2.05	<0.000240	8.49 J			0.000414 J		
	MW-4B	Apr-17		0.0471	0.0188			<0.000540		0.0449 J	<0.000240	9.32			<0.000380		
	MW-4B	Apr-19		0.0455	0.0169			0.000548 JB		<0.0150	0.000686 J	9.36			<0.000380		
	MW-5A	Apr-18		0.128	0.0135			<0.000540		5.93	<0.000240	1.14			0.00153 J		
	MW-5A	Oct-18															
	MW-5A	Apr-19		0.0378	0.0120			0.000935 JB		0.0277 JB	0.00324	1.48			0.00107 J		
	MW-5A	Oct-19															
	MW-5A	Jun-20		0.192	0.0150 J			<0.00149		3.70	<0.00249	0.725			0.00136 J		
	MW-5A	Oct-20															
	MW-5B	Apr-13		0.109	<0.0100			<0.0100		0.618	<0.0100	2.17			<0.0100		
	MW-5B	Apr-15		0.198	0.0104			0.000978 J		4.71	<0.000240	3.49			0.00197 J		
	MW-5B	Apr-17		0.127	0.0111			<0.000540		0.0226 J	<0.000240	3.51			0.00155 J		
	MW-5B	Apr-19		0.131	0.0118			0.000965 JB		0.0237 JB	0.000840 J	3.16			0.00217		
	MW-5C	Apr-13		0.0137	0.0140			<0.00500		1.08	<0.00500	0.900			<0.00500		
	MW-5C	Apr-15		0.0124	0.0172			0.00115 J		0.770	0.000449 J	0.687			<0.000380		
	MW-5C	Apr-17		0.00981	0.0140			<0.000540		<0.0150	<0.000240	0.906			<0.000380		
	MW-5C	Apr-19		0.00761	0.0128			0.000815 JB		<0.0150	<0.000240	0.956			<0.000380		
	MW-6A	Apr-17		0.00999	0.0137			<0.000540		<0.0150	<0.000240	0.416			0.000824 J		
	MW-6A	Apr-18		0.00829	0.0127			0.000902 J		0.186	0.000497 J	0.294			0.000905 J		
	MW-6A	Apr-19		0.00735	0.0133			0.000814 JB		<0.0150	0.000483 J	0.302			0.000398 J		
	MW-6A	Jun-20		0.00472	0.0127 J			<0.00149		0.378	<0.00249	0.262			<0.000657		
	MW-6B	Mar-13		0.0320	0.0145			<0.00500		1.24	<0.00500	2.84			<0.00500		
	MW-6B	Mar-13	FD	0.0336	0.0173			<0.00500		1.23	<0.00500	3.03			<0.00500		
	MW-6B	Apr-15		0.0319	0.0186			<0.000540		1.21	<0.000240	3.52			<0.000380		
	MW-6B	Apr-17		0.00863	0.0141			<0.000540		<0.0150	<0.000240	1.01			<0.000380		
	MW-6B	Apr-19		0.0303	0.0141			<0.000540		<0.0150	0.000822 J	2.38			<0.000380		
	MW-7A	Apr-18		0.0254	0.0152			<0.000540		4.66	<0.000240	0.499			<0.000380		
	MW-7A	Apr-18	FD	0.0251	0.0160			<0.000540		4.57	<0.000240	0.516			<0.000380		
	MW-7A	Oct-18															
	MW-7A	Oct-18	FD														
	MW-7A	Apr-19		0.0118	0.0145			0.000941 JB		<0.0150	0.000874 J	0.429			0.000459 J		
MW-7A	Apr-19	FD	0.0126	0.0147			0.000879 J		0.0183 J	<0.000240	0.429			<0.000380			
MW-7A	Oct-19																
MW-7A	Oct-19	FD															
MW-7A	Jun-20		0.0163	0.0139 J			<0.00149		1.99	<0.00249	0.421			<0.000657			
MW-7A	Jun-20	FD	0.0175	0.0148 J			<0.00149		2.16	<0.00249	0.447			<0.000657			
MW-7A	Oct-20																
MW-7A	Oct-20	FD															
MW-7B	Apr-13		<0.0100	0.0114			<0.0100		<0.400	<0.0100	0.358			<0.0100			
MW-7B	Apr-15		0.00529	0.0110			<0.000540		0.0879 J	<0.000240	0.541 J			<0.000380			
MW-7B	Apr-17		0.00373	0.0118			<0.000540		<0.0150	<0.000240	0.493			<0.000380			
MW-7B	Apr-19		0.00346	0.0107			<0.000540		<0.0150	0.000722 J	0.486			<0.000380			
MW-10	Apr-18		0.0149	0.0138			0.00545		0.113	0.000258 J	2.73			<0.000380			
MW-10	Oct-18																
MW-10	Apr-19		0.0159	0.0125			0.00112 J		<0.0150	0.000444 J	2.59			0.000549 J			
MW-10	Oct-19																
MW-10	Jun-20		0.0142	0.0131 J			<0.00149		0.176	<0.00249	2.11			<0.000657			
MW-10	Oct-20																

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group: Analyte: Units: CGWSL: CGWSL Source:				Dissolved Metals													
				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631
				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Evaporation Ponds	MW-15	Apr-17		0.0132	0.0182			0.000671 J		<0.0150	0.000257 J	0.180			0.000506 J		
	MW-15	Apr-18		0.0171	0.0210			<0.000540		<0.0150	0.000498 J	0.388			0.00122 J		
	MW-15	Apr-19		0.0195	0.0203			0.00141 J		<0.0150	0.00107 JB	0.125			0.000792 J		
	MW-15	Jun-20		0.00780	0.0156 J			<0.00149		<0.0489	<0.00249	0.543			<0.000657		
	MW-18A	Apr-18		0.00509	0.0165	2.23	<0.000160	<0.000540	0.00107 J	0.0239 JB	<0.000240	0.527	<0.0000490	0.00883	<0.000380	0.0362	0.000373 J
	MW-18A	Oct-18															
	MW-18A	Apr-19		0.00472	0.0161	2.05	<0.000160	<0.000540	0.00121 J	<0.0150	<0.000240	0.330	<0.0000490	0.00985	0.00222	0.0314	0.000714 J
	MW-18A	Oct-19															
	MW-18A	Jun-20		0.00447	0.0168 J	1.92	<0.000478	<0.00149	<0.000477	1.74	<0.00249	1.23	<0.000100	0.00766	<0.000657	0.0258	<0.000986
	MW-18A	Oct-20															
	MW-18B	Apr-13		0.00781	0.0119			<0.00500		<0.200	<0.00500	0.657			<0.00500		
	MW-18B	Apr-15		0.0104	0.0116			<0.000540		0.0398 J	<0.000240	0.723			<0.000380		
	MW-18B	Apr-17		0.00962	0.0130			<0.000540		<0.0150	<0.000240	0.897			<0.000380		
	MW-18B	Apr-19		0.0105	0.0136			0.00157 J		0.0189 J	<0.000240	0.896			0.000617 J		
	MW-22A	Apr-18		0.0298	0.0161			<0.000540		1.29	<0.000240	6.15			0.000519 J		
	MW-22A	Apr-18	FD	0.0308	0.0156			<0.000540		1.06	<0.000240	6.27			0.000837 J		
	MW-22A	Oct-18															
	MW-22A	Oct-18	FD														
	MW-22A	Apr-19		0.0285	0.0151			0.000917 J		0.0233 J	<0.000240	5.36			0.000471 J		
	MW-22A	Apr-19	FD	0.0265	0.0153			0.000816 J		0.0283 J	0.000472 JB	5.73			0.000831 J		
	MW-22A	Oct-19															
	MW-22A	Oct-19	FD														
	MW-22A	Jun-20		0.0260	0.0181 J			<0.00149		0.559	<0.00249	2.95			0.00318		
	MW-22A	Jun-20	FD	0.0281	0.0163 J			<0.00149		0.565	<0.00249	3.08			0.00238		
	MW-22A	Oct-20															
	MW-22A	Oct-20	FD														
	MW-22B	Apr-13		0.0288	<0.0250			<0.0250		1.98	<0.0250	3.41			<0.0250		
	MW-22B	Apr-15		0.0383	0.0154 J			<0.00270		2.20	<0.00120	4.64			<0.00190		
	MW-22B	Apr-17		0.0242	0.0109			<0.000540		<0.0150	<0.000240	3.53			0.000555 J		
	MW-22B	Apr-19		0.0270	0.0130			0.00147 J		0.0304 J	<0.000240	4.13			0.000414 J		
	MW-70	Apr-18		0.0179	0.0165			<0.000540		0.780	<0.000240	0.420			<0.000380		
	MW-70	Oct-18															
	MW-70	Apr-19		0.0174	0.0164			0.00190 J		<0.0150	0.000320 JB	0.00434 J			<0.000380		
	MW-70	Oct-19															
	MW-70	Jun-20		0.0192	0.0150 J			<0.00149		3.48	<0.00249	0.257			<0.000657		
	MW-70	Oct-20															
	MW-72	Apr-17		0.0151	0.0217			<0.000540		<0.0150	<0.000240	4.20			0.00180 J		
	MW-72	Apr-18		0.0149	0.0148			0.000774 J		1.78	<0.000240	3.04			0.00213		
	MW-72	Apr-19		0.00752	0.0142			0.00117 JB		<0.0150	0.000746 J	1.17			0.00165 J		
	MW-72	Jun-20		0.00634	0.0141 J			<0.00149		1.01	<0.00249	2.14			0.000890 J		
	MW-73	Apr-17		0.0642	0.00740			<0.000540		0.0403 J	<0.000240	0.222			0.00189 J		
	MW-73	Apr-18		0.0639	0.00845			0.000722 J		1.07	<0.000240	1.97			0.00148 J		
	MW-73	Apr-19		0.0804	0.00903			0.00126 J		0.0212 J	<0.000240	0.0172			0.00547		
	MW-73	Jun-20		0.0496	0.00883 J			<0.00149		2.27	<0.00249	2.12			0.00193 J		
	MW-74	Apr-18		0.0944	0.0129			0.000610 J		<0.0150	<0.000240	1.22			0.0323		
	MW-74	Oct-18															
	MW-74	Apr-19		0.0567	0.0118			<0.000540		0.358	<0.000240	1.45			0.0870		
	MW-74	Oct-19															
	MW-74	Jun-20		0.0563	0.0140 J			<0.00149		<0.0489	<0.00249	1.20			0.160		
	MW-74	Oct-20															
MW-75	Apr-18		0.0891	0.0160			0.000835 J		0.175	0.000466 JB	0.876			0.00218			
MW-75	Oct-18																
MW-75	Apr-19		0.0933	0.0170			0.00156 J		0.0382 J	<0.000240	0.930			0.00227			
MW-75	Oct-19																
MW-75	Jun-20		0.268	0.0166 J			<0.00149		4.51	<0.00249	1.14			0.00286			
MW-75	Oct-20																
MW-76	Apr-18		0.0504	0.0109			0.00187 J		3.00	<0.000240	0.686			0.00271			
MW-76	Oct-18																
MW-76	Apr-19		0.0369	0.0148			0.00197 J		0.0880 J	<0.000240	0.659			0.00350			
MW-76	Oct-19																
MW-76	Jun-20		0.0374	0.0113 J			0.00180 J		3.20	<0.00249	0.764			0.00314			
MW-76	Oct-20																
MW-77	Apr-17		0.0336	0.0101			0.00772		0.158	<0.000240	0.563			0.0101	</		

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals											
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH
Area	Well ID	Date	Dup												
Evaporation Ponds	MW-87	Apr-18		0.00587	0.0158			0.000970 JB		0.986	<0.000240	0.689			<0.000380
	MW-87	Oct-18													
	MW-87	Apr-19		0.00466	0.0143			0.000941 J		<0.0150	0.000335 JB	0.165			0.000566 J
	MW-87	Oct-19													
	MW-87	Jun-20		0.00454	0.0162 J			<0.00149		<0.0489	<0.00249	3.02			<0.000657
	MW-87	Oct-20													
	MW-88	Apr-18		0.00679	0.0111			<0.000540		<0.0150	<0.000240	0.922			<0.000380
	MW-88	Oct-18													
	MW-88	Apr-19		0.00740	0.00970			0.00240		<0.0150	0.000289 J	0.952			<0.000380
	MW-88	Oct-19													
	MW-88	Jun-20		0.00595	0.0115 J			<0.00149		<0.0489	<0.00249	0.869			<0.000657
	MW-88	Oct-20													
	MW-120	Apr-18		0.0107	0.0110			<0.000540		3.72	0.000518 J	1.25			<0.000380
	MW-120	Oct-18													
	MW-120	Apr-19		0.00471	0.0107			<0.000540		<0.0150	0.000741 J	1.22			0.00136 J
	MW-120	Oct-19													
	MW-120	Jun-20		0.00646	0.00974 J			<0.00149		3.08	<0.00249	1.06			<0.000657
	MW-120	Oct-20													
	MW-121	Apr-18		0.0291	0.0107			<0.000540		0.235	<0.000240	2.42			0.00498
	MW-121	Oct-18													
	MW-121	Apr-19		0.0310	0.0117			0.000893 JB		<0.0150	0.000902 J	2.13 ^{OV}			0.00647
	MW-121	Oct-19													
	MW-121	Jun-20		0.0253	0.0109 J			<0.00149		<0.0489	<0.00249	2.16			0.00388
	MW-121	Oct-20													
	MW-122	Apr-18		0.00138 J	0.0201			<0.000540		0.305	<0.000240	0.741			0.000579 J
	MW-122	Oct-18													
	MW-122	Apr-19		0.00118 J	0.0227			<0.000540		<0.0150	0.000932 J	1.05			0.000967 J
	MW-122	Oct-19													
	MW-122	Jun-20		0.00365	0.0194 J			<0.00149		1.85	<0.00249	1.05			<0.000657
	MW-122	Oct-20													
	MW-123	Apr-18		0.0216	0.0220			<0.000540		<0.0150	<0.000240	2.87			0.000629 J
	MW-123	Oct-18													
	MW-123	Apr-19		0.0208	0.0248			0.00259		<0.0150	0.000588 J	2.68			<0.000380
	MW-123	Oct-19													
	MW-123	Jun-20		0.0178	0.0316			<0.00149		<0.0489	<0.00249	3.21			<0.000657
	MW-123	Oct-20													
	MW-124	Apr-18		0.00155 J	0.0185			0.000834 JB		3.49	<0.000240	0.530			<0.000380
	MW-124	Oct-18													
	MW-124	Apr-19		0.000279 J	0.0182			0.000833 J		<0.0150	<0.000240	0.461			<0.000380
	MW-124	Oct-19													
	MW-124	Jun-20		0.00127 J	0.0182 J			<0.00149		4.91	<0.00249	0.411			<0.000657
	MW-124	Oct-20													
	OCD-1R	Apr-18		0.00359	0.0154			<0.000540		0.0172 JB	<0.000240	0.288			0.00152 J
	OCD-1R	Oct-18													
	OCD-1R	Apr-19		0.00260	0.0165			0.00266		<0.0150	<0.000240	0.310			0.000567 J
	OCD-1R	Oct-19													
	OCD-1R	Jun-20		0.00322	0.0186 J			<0.00149		1.07	<0.00249	1.98			<0.000657
	OCD-1R	Oct-20													
	OCD-2A	Apr-18		0.00192 J	0.0167			<0.000540		1.93	<0.000240	0.651			0.000595 J
	OCD-2A	Oct-18													
	OCD-2A	Apr-19		0.000734 J	0.0232			0.00205		<0.0150	<0.000240	0.241			<0.000380
	OCD-2A	Oct-19													
	OCD-2A	Jun-20		0.00138 J	0.0201			<0.00149		1.95	<0.00249	1.48 V			<0.000657
	OCD-2A	Oct-20													
	OCD-3	Apr-18		0.000894 J	0.0236			<0.000540		0.823	<0.000240	0.392			0.000544 J
	OCD-3	Oct-18													
	OCD-3	Apr-19		0.000590 J	0.0192			0.00283		<0.0150	0.000333 J	0.123			<0.000380
	OCD-3	Oct-19													
	OCD-3	Jun-20		0.000822 J	0.0181 J			<0.00149		0.102	<0.00249	0.511			<0.000657
	OCD-3	Oct-20													
	OCD-4	Apr-18		0.00102 J	0.0231			<0.000540		0.519	<0.000240	0.0541			0.000539 J
	OCD-4	Oct-18													
	OCD-4	Apr-19		0.000292 J	0.0220			0.00199 J		<0.0150	<0.000240	0.166			<0.000380
	OCD-4	Oct-19													
	OCD-4	Jun-20		0.00262	0.0233			<0.00149		2.66	<0.00249	0.293			<0.000657
	OCD-4	Oct-20													
	OCD-5	Apr-18		0.00319	0.0233			<0.000540		0.830	<0.000240	0.176			<0.000380
	OCD-5	Oct-18													
	OCD-5	Apr-19		0.00290	0.0246			<0.000540		<0.0150	0.000642 JB	0.202			<0.000380
	OCD-5	Oct-19													
	OCD-5	Jun-20		0.0123	0.0239			<0.00149		3.04	<0.00249	0.293			<0.000657
	OCD-5	Oct-20													
	OCD-6	Apr-18		0.00734	0.0217			0.00324		1.03	<0.000240	2.25			<0.000380
	OCD-6	Oct-18													
	OCD-6	Apr-19		0.00551	0.0224			0.000575 JB		<0.0150	0.000251 J	2.22			0.000975 J
	OCD-6	Oct-19													
	OCD-6	Jun-20		0.00577	0.0228			<0.00149		2.32	<0.00249	2.52			<0.000657
	OCD-6	Oct-20													
	OCD-7AR	Apr-18		0.103	0.0131			0.000685 J		0.471	0.000266 J	2.53			0.00179 J
	OCD-7AR	Oct-18													
	OCD-7AR	Apr-19		0.0575	0.0114			<0.000540		0.0429 JB	0.000543 J	0.0525			0.00206
	OCD-7AR	Oct-19													
	OCD-7AR	Jun-20		0.101	0.0154 J			<0.00149		10.3	<0.00249	2.92			0.00126 J
	OCD-7AR	Oct-20													
	OCD-7B	Mar-13		<0.00500	0.0155			<0.00500		<0.200	<0.00500	<0.00500			<0.00500
	OCD-7B	Apr-15		0.00304	0.0178			0.000838 J		2.72	<0.000240	0.626			<0.000380
	OCD-7B	Apr-17		0.00131 J	0.0195			<0.000540		<0.0150	<0.000240	0.667			<0.000380
	OCD-7B	Apr-19		0.000838 J	0.0163			<0.000540		<0.0150	<0.000240	0.561			0.000672 J
	OCD-8A	Apr-18		0.0830	0.0186	0.798	<0.000160	<0.000540	0.000836 J	6.88	<0.000240	3.87	<0.0000490	0.0216	0.000965 J
	OCD-8A	Oct-18													0.000903 J
	OCD-8A	Apr-19		0.0639	0.0138	0.731 O1	<0.000160	0.00304 B	0.000851 J	0.133 B	0.000837 J	3.28	<0.0000490	0.0195	0.00118 J
	OCD-8A	Oct-19													0.000730 J
	OCD-8A	Jun-20		0.0537	0.0180 J	0.980	<0.000478	<0.00149	0.00167 J	3.53	<0.00249	2.00	<0.000100	0.0379	0.00187 J
	OCD-8A	Oct-20													<0.000986
	OCD-8B	Apr-13		<0.0250	<0.0250			<0.0250		<1.00	<0.0250	0.617			<0.0250
	OCD-8B	Apr-15		0.0113	0.0120			0.000653 J		0.200	<0.000240	5.18			0.000497 J
	OCD-8B	Apr-17		0.00910	0.0127			<0.000540		0.0155 J	<0.000240	6.46			<0.000380
	OCD-8B	Apr-19		0.00878	0.0133			0.000655 J		<0.0150	0.000266 JB	6.75 V			0

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HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals													
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
Field East of Refinery	KWB-1C	Apr-13		<0.0100	0.0131			<0.0100		<0.400	<0.0100	<0.0100			<0.0100		
	KWB-1C	Apr-15		0.00297	0.00870			<0.000540		<0.0150	0.000528 J	0.451			0.00155 J		
	KWB-1C	Apr-17		0.00303	0.00839			<0.000540		<0.0150	<0.000240	0.472			<0.000380		
	KWB-1C	Apr-19		0.00331	0.00878			0.000616 J		<0.0150	0.000282 J	0.461			0.000518 J		
	KWB-7	Oct-17															
	KWB-7	Oct-18															
	KWB-7	Jun-20		0.00116 J	0.0589	0.439	<0.000478	<0.00149	<0.000477	0.400	<0.00249	2.40	<0.000100	0.00117 J	<0.000657	<0.00754	0.00370 J
	KWB-7	Oct-20															
	KWB-8	Oct-16															
	KWB-8	Apr-17		0.000904 J	0.0870	0.600	<0.000160	<0.000540	<0.000260	0.0772 J	0.000556 J	1.77	<0.0000490	0.000663 J	<0.000380	<0.000330	0.00112 J
	KWB-8	Oct-17															
	KWB-8	Oct-20															
	KWB-10R	Apr-17		0.0115	3.39			<0.000540		0.281	0.000478 J	0.145			<0.000380		
	KWB-10R	Oct-17															
	KWB-10R	Apr-18		0.0178	4.22			0.00201		4.73	0.00295	0.182			<0.000380		
	KWB-10R	Oct-18															
	KWB-11A	Apr-18		0.00547	0.0231	0.473	<0.000160	0.000575 J	0.00616	0.315	0.00129 J	0.423	<0.0000490	0.00639	0.00257	0.0159	0.00659
	KWB-11A	Oct-18															
	KWB-11A	Apr-19		0.00124 J	0.0410	0.388	<0.000160	<0.000540	0.00912	<0.0150	0.000399 J	1.03	<0.0000490	0.00985	0.00114 J	0.0124	0.000252 J
	KWB-11A	Jun-20		0.0103	0.0297	0.390	<0.000478	<0.00149	0.00386	7.20	<0.00249	0.580	<0.000100	0.00423	0.000928 J	0.0136 J	0.00207 J
	KWB-11A	Oct-20															
	KWB-11B	Apr-18		0.00145 J	0.0131	0.171 J	<0.000160	0.0320	0.000364 J	0.137 B	<0.000240	0.00464 J	<0.0000490	0.0157	0.0108	0.0125	0.00884
	KWB-11B	Oct-18															
	KWB-11B	Apr-19		0.00143 J	0.0156	0.100 J	<0.000160	0.00114 J	<0.000260	<0.0150	<0.000240	0.00387 J	<0.0000490	0.00108 J	0.00951	0.0121	0.00893
	KWB-11B	Oct-19															
	KWB-11B	Jun-20		0.00138 J	0.0130 J	0.115 J	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00148 J	<0.000100	<0.000952	0.00822	0.0117 J	0.00849
	KWB-11B	Oct-20															
	KWB-12A	Oct-18															
	KWB-12A	Oct-19															
	KWB-12A	Jun-20		0.00223	0.0177 J	0.561	<0.000478	<0.00149	<0.000477	0.180	<0.00249	0.0179	<0.000100	0.00126 J	0.00343	0.0265	0.0117
	KWB-12A	Oct-20															
	KWB-12B	Apr-18		0.00167 J	0.00890	0.594	0.000179 J	<0.000540	<0.000260	<0.0150	0.000469 JB	0.00191 J	<0.0000490	0.00122 J	0.00352	0.0294	0.0122
	KWB-12B	Apr-18	FD	0.00159 J	0.00958	0.573	<0.000160	0.000621 JB	<0.000260	<0.0150	<0.000240	0.000411 JB	<0.0000490	0.000357 J	0.00298	0.0301	0.0125
	KWB-12B	Oct-18															
	KWB-12B	Oct-18	FD														
	KWB-12B	Apr-19		0.00168 J	0.00943	0.787	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.000522 J	<0.0000490	0.00213	0.00320	0.0273	0.0119
	KWB-12B	Apr-19	FD	0.00159 J	0.00796	0.644	<0.000160	<0.000540	<0.000260	<0.0150	0.000544 JB	0.000304 J	<0.0000490	0.000651 J	0.00375	0.0289	0.0120
	KWB-12B	Oct-19															
	KWB-12B	Oct-19	FD														
	KWB-12B	Jun-20		0.00162 J	0.00864 J	0.613	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	<0.00132	<0.000100	<0.000952	0.00286	0.0276	0.0127
	KWB-12B	Jun-20	FD	0.00163 J	0.00779 J	0.605	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00177 J	<0.000100	<0.000952	0.00391	0.0271	0.0129
	KWB-12B	Oct-20															
	KWB-12B	Oct-20	FD														
	KWB-P4	Apr-13															
	KWB-P4	Apr-15															
	KWB-P4	Apr-17															
	KWB-P4	Apr-19															
	MW-57	Apr-18		0.00602	0.0145			<0.000540		0.0979 JB	0.000638 JB	0.525			0.0108		
	MW-57	Oct-18															
	MW-57	Apr-19		0.00472	0.0174			<0.000540		<0.0150	0.000713 JB	0.458			0.0111		
	MW-57	Oct-19															
	MW-57	Jun-20		0.00282	0.0136 J			<0.00149		<0.0489	<0.00249	0.0458			0.0126		
	MW-57	Oct-20															
	MW-58	Oct-17															
	MW-58	Apr-18		0.00405	1.47	0.517	<0.000160	<0.000540	<0.000260	0.160 B	0.000816 J	0.219	<0.0000490	0.000927 J	0.000412 J	<0.000330	0.00108 J
	MW-58	Oct-18															
	MW-58	Oct-19															
	MW-111	Apr-18		0.00961	0.0522			<0.000540		4.79	0.000253 J	1.25			<0.000380		
	MW-111	Oct-18															
	MW-111	Apr-19		0.00770	0.205			<0.000540		<0.0150	0.000380 JB	1.39			0.000475 J		
	MW-111	Oct-19															

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals														
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631	
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
Field East of Refinery	MW-130	Apr-18		0.00432	0.0195			<0.000540		0.0377 J	0.000283 J	0.103			0.00698			
	MW-130	Oct-18																
	MW-130	Apr-19		0.00368	0.0196			0.000943 J		<0.0150	0.000292 J	0.100			0.00873			
	MW-130	Oct-19																
	MW-130	Jun-20		0.00369	0.0169 J			<0.00149		<0.0489	<0.00249	0.102			0.00498			
	MW-130	Oct-20																
	MW-131	Apr-17		0.0183	2.48			<0.000540		<0.0150	<0.000240	0.309			0.000632 JB			
	MW-131	Oct-17																
	MW-131	Oct-19																
	MW-131	Jun-20		0.0237	2.32			<0.00149		1.30	<0.00249	0.300			<0.000657			
	MW-133	Nov-14																
	MW-133	Apr-15		0.0102	0.138			<0.000540		2.59	0.000513 J	0.290			0.00325			
	MW-134	Apr-18		0.00542 J	0.0102 J			0.00337 J		<0.0750	0.00129 J	0.0157 J			0.00603 J			
	MW-134	Apr-18	FD	0.00435	0.00947			0.000575 JB		<0.0150	<0.000240	0.0110			0.00638			
	MW-134	Oct-18																
	MW-134	Oct-18	FD															
	MW-134	Apr-19		0.00396	0.0104			0.000776 J		<0.0150	<0.000240	0.00840 B			0.00820			
	MW-134	Apr-19	FD	0.00420	0.0102			0.00109 J		<0.0150	0.000274 J	0.00598			0.00724			
	MW-134	Oct-19																
	MW-134	Oct-19	FD															
	MW-134	Jun-20		0.00399	0.00946 J			<0.00149		<0.0489	<0.00249	0.00664			0.00596			
	MW-134	Jun-20	FD	0.00383	0.00852 J			0.00150 J		<0.0489	<0.00249	0.00608			0.00661			
	MW-134	Oct-20																
	MW-134	Oct-20	FD															
	MW-135	Apr-18		0.00335	0.00908			0.00103 J		0.0191 JB	0.000295 J	0.00153 J			0.0275			
	MW-135	Oct-18																
	MW-135	Apr-19		0.00284	0.00769			0.000910 J		<0.0150	0.000434 J	0.00122 JB			0.0285			
	MW-135	Oct-19																
	MW-135	Jun-20		0.00314	<0.00778			<0.00149		<0.0489	<0.00249	<0.00132			0.0224			
	MW-135	Oct-20																
	MW-145	Oct-20																
	MW-145	Oct-20	FD															
	MW-146	Oct-20																
	MW-147	Oct-20																
	MW-148	Oct-20																
	RA-4196	Apr-18																
	RA-4196	Oct-18																
	RA-4196	Apr-19																
	RA-4196	Oct-19																
	RA-4196	Jun-20																
	RA-4196	Oct-20																
	RA-4798	Apr-18																
	RA-4798	Oct-18																
	RA-4798	Apr-19																
	RA-4798	Oct-19																
	RA-4798	Jun-20																
	RA-4798	Oct-20																
	RW-12R	Apr-17		0.000617 J	0.0410			0.0230		<0.0150	0.000776 J	0.425			0.000720 JB			
	RW-12R	Apr-18		<0.00125	0.0341			0.00339 J		<0.0750	<0.00120	0.760			<0.00190			
	RW-12R	Apr-19		<0.000250	0.0317 O1			0.00286		<0.0150	0.000497 JB	1.20 O1V			<0.000380			
	RW-12R	Jun-20		<0.000735	0.0348			0.0266		<0.0489	<0.00249	1.41			<0.000657			
	RW-13R	Apr-16		0.00890 J	0.0888			<0.00270		0.470 J	<0.00120	1.36			<0.00190			
	RW-13R	Apr-18		<0.00125	0.0490			<0.00270		0.352 J	<0.00120	1.03			<0.00190			
	RW-18A	Apr-17		0.00331	0.0105			<0.000540		0.0200 J	<0.000240	0.00103 J			0.00340			
	RW-18A	Apr-18		0.00355	0.0118			<0.000540		<0.0150	<0.000240	0.00395 J			0.00389			
	RW-18A	Apr-19		0.00289	0.0116			<0.000540		<0.0150	<0.000240	0.00167 JB			0.00404			
	RW-18A	Jun-20		0.00253	0.0103 J			<0.00149		0.0508 J	<0.00249	0.00789			0.00517			
	RW-20	Apr-15		0.00171 J	0.464			<0.000540		0.270	<0.000240	0.717			0.00488			
	RW-22	Apr-15		<0.00250	0.802			<0.00540		0.394 J	0.00305 J	0.886			0.0326			
NCL	MW-18	Apr-17		0.00373	0.0211	1.50	<0.000160	0.00176 JB	0.000362 J	<0.0150	<0.000240	0.00248 J	<0.0000490	0.00198 JB	0.0155	0.0242	0.0198	
	MW-18	Apr-18		0.00297	0.0148	1.39	<0.000160	0.0156	<0.000260	0.113 B	<0.000240	0.00722	<0.0000490	0.00204	0.0155	0.0403	0.0177	
	MW-18	Apr-19		0.00296	0.0180	1.56	<0.000160	0.00272 B	<0.000260	<0.0150	0.000333 J	0.00172 JB	<0.0000490	0.00142 J	0.0154	0.0255	0.0159	
	MW-18	Jun-20		0.00297	0.0128 J	2.49	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.0131	<0.000100	0.00166 J	0.00785	0.0442	0.0181	
	MW-45	Apr-18		0.00359	0.0158	0.631	<0.000160	<0.000540	<0.000260	0.734	0.000338 J	0.474	<0.0000490	0.00				

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals														
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631	
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
NCL	NCL-32	Apr-18		0.00327	0.0189			0.00348 B		0.0315 JB	0.000265 J	0.954			0.00189 J			
	NCL-32	Oct-18																
	NCL-32	Apr-19		0.00226	0.0168			<0.000540		<0.0150	0.000317 JB	1.11			0.00261			
	NCL-32	Oct-19																
	NCL-32	Jun-20		0.00233	0.0169 J			<0.00149		<0.0489	<0.00249	1.31			0.00326			
	NCL-32	Oct-20																
	NCL-33	Apr-18		0.00221	0.0217			<0.000540		0.695	<0.000240	0.117			0.000554 J			
	NCL-33	Oct-18																
	NCL-33	Apr-19		0.00168 J	0.0261			<0.000540		0.0284 J	0.000524 J	0.0983			<0.000380			
	NCL-33	Oct-19																
	NCL-33	Jun-20		0.00369	0.0263			<0.00149		2.79	<0.00249	0.205			0.00192 J			
	NCL-33	Oct-20																
	NCL-34A	Apr-18		0.000682 J	0.472			<0.000540		<0.0150	<0.000240	0.0224			<0.000380			
	NCL-34A	Oct-18																
	NCL-34A	Apr-19		0.000603 J	0.947			<0.000540		<0.0150	<0.000240	0.0159			<0.000380			
	NCL-34A	Oct-19																
	NCL-34A	Jun-20		<0.000735	0.229			<0.00149		<0.0489	<0.00249	0.0415			<0.000657			
	NCL-44	Apr-18		0.0310	0.0234			<0.000540		0.828	<0.000240	0.887			<0.000380			
	NCL-44	Oct-18																
	NCL-44	Apr-19		0.0183	0.0197			<0.000540		<0.0150	0.000409 JB	0.891			0.000410 J			
	NCL-44	Oct-19																
	NCL-44	Jun-20		0.0273	0.0214			<0.00149		0.787	<0.00249	0.905 V			<0.000657			
	NCL-44	Oct-20																
	NCL-49	Apr-18		0.00167 J	0.0126			<0.000540		<0.0150	0.000260 J	0.00138 J			0.0115			
	NCL-49	Apr-18	FD	0.00149 J	0.0127			<0.000540		<0.0150	<0.000240	0.00114 J			0.0122			
	NCL-49	Oct-18																
	NCL-49	Oct-18	FD															
	NCL-49	Apr-19		0.00148 J	0.0124			<0.000540		<0.0150	0.00105 JB	0.000453 J			0.00801			
	NCL-49	Apr-19	FD	0.00131 J	0.0125			<0.000540		<0.0150	<0.000240	<0.000250			0.00728			
	NCL-49	Oct-19																
	NCL-49	Oct-19	FD															
	NCL-49	Jun-20		0.00149 J	0.0135 J			<0.00149		<0.0489	<0.00249	0.00448 J			0.00782			
	NCL-49	Jun-20	FD	0.00165 J	0.0138 J			<0.00149		<0.0489	<0.00249	0.00492 J			0.00785			
	NCL-49	Oct-20																
	NCL-49	Oct-20	FD															
North Refinery	MW-23	Apr-18		0.00502	9.89			0.000579 JB		0.0160 J	0.000791 J	0.0741			0.000725 J			
	MW-23	Oct-18																
	MW-23	Apr-19		0.00417	7.78			<0.000540		<0.0150	0.000775 J	0.0646			0.000900 J			
	MW-23	Oct-19																
	MW-23	Jun-20		0.00639	9.73			<0.00149		<0.0489	<0.00249	0.0725			<0.000657			
	MW-23	Oct-20																
	MW-29	Apr-18		0.00138 J	0.0197			0.00128 JB		0.0666 J	<0.000240	0.474			<0.000380			
	MW-29	Oct-18																
	MW-29	Apr-19		0.00187 J	0.0170			0.000726 J		<0.0150	0.000664 JB	0.540 V			0.000515 J			
	MW-29	Oct-19																
	MW-29	Jun-20		0.00598	0.0170 J			<0.00149		<0.0489	<0.00249	0.249			0.00119 J			
	MW-29	Oct-20																
	MW-39	Apr-18		0.0105	0.0190			<0.000540		<0.0150	0.000243 J	0.0186			<0.000380			
	MW-39	Oct-18																
	MW-39	Apr-19		0.00759	0.0118			<0.000540		<0.0150	<0.000240	0.0227			0.000391 J			
	MW-39	Oct-19																
	MW-39	Jun-20		0.00754	0.0141 J			<0.00149		<0.0489	<0.00249	0.0417			<0.000657			
	MW-39	Oct-20																
	MW-40	Apr-17		0.00103 J	0.0255			<0.000540		<0.0150	<0.000240	0.0249			<0.000380			
	MW-40	Apr-18		0.00213	0.0247			0.0314		0.143	0.00213	0.0190			0.00164 J			
	MW-40	Apr-19		0.000780 J	0.0199			<0.000540		<0.0150	<0.000240	0.0133			<0.000380			
	MW-40	Jun-20		<0.000735	0.0204			<0.00149		<0.0489	<0.00249	0.0260			<0.000657			
	MW-41	Apr-17		0.00393	0.0145			<0.000540		<0.0150	<0.000240	0.790			0.00126 J			
	MW-41	Apr-18		0.00774	0.0206			0.00773		0.0416 J	0.000558 J	0.996			0.000464 J			
	MW-41	Apr-19		0.00703	0.0275			<0.000540		<0.0150	0.000393 JB	0.819			<0.000380			
	MW-41	Jun-20		0.0101	0.0175 J			<0.00149		<0.0489	<0.00249	0.838			<0.000657			
	MW-42	Apr-17		0.00487	0.0179			<0.000540		0.0328 J	0.000254 J	0.180			0.00156 J			
	MW-42	Apr-18		0.00531	0.0204			0.000739 JB		<0.0150	0.000575 J	0.118			0.000448 J			
	MW-42	Apr-19		0.00472	0.0201													

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group: Analyte: Units: CGWSL: CGWSL Source:				Dissolved Metals													
				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631
				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
North Refinery	MW-90	Oct-19															
	MW-90	Jun-20		0.00285	0.0146 J			<0.00149		0.273	<0.00249	0.0892			<0.000657		
	MW-90	Oct-20															
	MW-91	Apr-18		0.00616	0.0432			0.00125 J		<0.0150	0.00312	0.00285 J			0.000491 J		
	MW-91	Oct-18															
	MW-91	Apr-19		0.00427	0.0470			0.000589 J		<0.0150	0.00196 J	0.00753			0.0188		
	MW-91	Oct-19															
	MW-91	Jun-20		0.00555	0.0603			<0.00149		<0.0489	0.00498 J	0.00244 J			<0.000657		
	MW-92	Apr-16		0.00285 J	3.57			<0.00270		0.217 J	<0.00120	0.0349			<0.00190		
	MW-92	Oct-16															
	MW-93	Apr-17		0.00375	0.0210			0.00235		0.0197 J	0.000486 J	0.0255			0.0145		
	MW-93	Apr-18		0.00554	0.0288			0.00278		<0.0150	0.000746 JB	0.0282			0.00375		
	MW-93	Apr-19		0.00774	0.0326			0.00134 J		<0.0150	0.000308 J	0.0551			0.00347		
	MW-93	Jun-20		0.00919	0.0340			0.00291		<0.0489	<0.00249	0.213			0.00299		
	MW-94	Oct-15															
	MW-94	Apr-16		0.0163	0.356			<0.00270		<0.0750	<0.00120	0.00601 J			0.0334		
	MW-94	Oct-16															
	MW-94	Apr-17		0.0106	0.771			0.00124 J		<0.0150	0.000343 J	0.00235 J			0.00973		
	MW-95	Apr-17		0.00162 J	0.0592			<0.000540		<0.0150	0.000323 J	0.0285			0.00164 J		
	MW-95	Apr-18		0.00135 J	0.0690			<0.000540		<0.0150	<0.000240	0.0559			0.000786 J		
	MW-95	Apr-19		0.00113 J	0.0570			0.000653 J		<0.0150	<0.000240	0.0902			0.000845 J		
	MW-95	Jun-20		0.00135 J	0.0434			<0.00149		<0.0489	<0.00249	0.151			0.000657 J		
	MW-96	Apr-18		0.00269	0.121			<0.000540		<0.0150	<0.000240	0.000674 J			<0.000380		
	MW-96	Oct-18															
	MW-96	Apr-19		0.00247	0.165			0.000920 J		<0.0150	<0.000240	0.00104 J			0.000440 J		
	MW-96	Oct-19															
	MW-96	Jun-20		0.00225	0.166			<0.00149		<0.0489	<0.00249	<0.00132			0.000663 J		
	MW-96	Oct-20															
	MW-98	Apr-18		0.000942 J	0.0273			0.00591		0.0464 JB	0.00903	0.0255			0.000756 J		
	MW-98	Oct-18															
	MW-98	Apr-19		0.00122 J	0.0155			<0.000540		<0.0150	0.00567	0.0200			0.000575 J		
	MW-98	Oct-19															
	MW-98	Jun-20		0.000790 J	0.0165 J			<0.00149		<0.0489	0.00616	0.0201			<0.000657		
	MW-98	Oct-20															
	MW-137	Oct-17															
	MW-137	Apr-18		0.0491	0.0727	0.973	<0.000160	<0.000540	<0.000260	<0.0150	0.00404	0.147	<0.000490	0.0110	0.00248	<0.000330	0.00694
	MW-137	Oct-18															
	MW-137	Apr-19		0.0453	0.0818	0.971	<0.000160	<0.000540	<0.000260	<0.0150	0.00243	0.145	<0.0000490	0.0125	0.000905 J	<0.000330	0.00708
	MW-138	Oct-17															
	MW-138	Apr-18		0.00517	0.133	0.955	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.111	<0.0000490	0.00593	<0.000380	<0.000330	0.00128 J
	MW-138	Oct-18															
	MW-138	Apr-19		0.00428	0.121	0.878	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.124	<0.0000490	0.00524	0.000668 J	<0.000330	0.000806 J
	RW-1R	Apr-16		0.00435 J	0.0367			<0.00270		11.3	<0.00120	0.301			<0.00190		
	RW-1	Apr-17		0.0234	0.0229			0.00338		0.184	<0.000240	0.218			0.00286		
RW-1	Apr-18		0.00532	0.0308			0.000552 J		0.0584 J	0.000322 J	0.0124			0.00122 J			
RW-1	Apr-19		0.00919	0.0308			0.00100 J		<0.0150	0.000281 J	0.00768			0.00148 J			
RW-2	Apr-15		0.0194	0.0174			0.00494		0.0471 J	0.000546 J	0.285			0.00133 J			
RW-2R	Apr-16		0.00883 J	0.0206 J			0.00400 JB		0.770	<0.00120	0.0466			0.00516 J			
RW-2	Apr-17		0.00230	0.0530			0.00131 J		0.0200 J	0.000647 J	0.0157			0.0364			
RW-2	Apr-18		0.00314	0.131			0.000882 J		<0.0150	0.000739 JB	0.0203			0.000515 J			
RW-7	Apr-17		0.00273	0.0191			<0.000540		0.0228 J	<0.000240	1.12			0.00142 J			
RW-7	Apr-18		0.00798	0.138			0.00243 B		0.0450 J	<0.000240	0.0650			0.000791 J			
RW-7	Apr-19		0.0145	0.120			0.00172 J		0.0780 J	<0.000240	0.161			<0.000380			
RW-7	Jun-20		0.00695	0.174			<0.00149		<0.0489	<0.00249	0.113			<0.000657			
RW-8	Apr-15		0.00521	0.0797			<0.000540		0.163	0.000591 J	0.0744			<0.000380			
RW-8	Apr-17		0.0346	0.0661			<0.000540		2.13	<0.000240	1.14			<0.000380			
RW-9	Apr-17		0.00324	0.0415			<0.000540		<0.0150	0.000371 J	0.745			<0.000380			
RW-9	Apr-18		0.00305	0.0452			0.000544 JB		<0.0150	0.000890 J	0.511			0.000670 J			
RW-9	Apr-19		0.00295	0.0400			<0.000540		<0.0150	0.000632 J	0.474			0.000477 J			
RW-9	Jun-20		0.00428	0.0370			<0.00149		<0.0489	<0.00249	0.354			<0.000657			
RW-10	Apr-17																

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HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals													
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW
Area	Well ID	Date	Dup														
South Refinery	MW-28	Apr-18		0.00632	0.0625	1.27	<0.000160	<0.000540	<0.000260	0.0591 JB	0.00618	0.0349	<0.0000490	0.00445	<0.000380	0.000368 J	0.00160 J
	MW-28	Oct-18															
	MW-28	Apr-19		0.00520	0.0488	1.43	<0.000160	<0.000540	<0.000260	<0.0150	0.00181 J	0.0672	<0.0000490	0.00359	0.000720 J	<0.000330	0.00104 J
	MW-28	Oct-19															
	MW-28	Jun-20		0.00684	0.0421	1.35	<0.000478	<0.00149	<0.000477	0.0711 J	<0.00249	0.743	<0.000100	0.00559	<0.000657	<0.00754	0.00388 J
	MW-28	Oct-20															
	MW-48	Apr-18		0.00747	1.97			<0.000540		<0.0150	0.000847 J	0.154			0.000669 J		
	MW-48	Oct-18															
	MW-48	Apr-19		0.00380	1.04			<0.000540		<0.0150	0.000304 J	0.407			0.000451 J		
	MW-48	Oct-19															
	MW-50	Apr-18		0.00326	0.0128			<0.000540		0.165	<0.000240	1.01			0.00415		
	MW-50	Oct-18															
	MW-50	Apr-19		0.00223	0.0129			<0.000540		<0.0150	0.000440 J	1.00			0.00445		
	MW-50	Oct-19															
	MW-50	Jun-20		0.00399	0.0125 J			<0.00149		0.253	<0.00249	0.621			0.0354		
	MW-50	Oct-20															
	MW-52	Apr-18		0.00390	0.0114	0.724	<0.000160	<0.000540	0.000509 J	<0.0150	0.000369 J	0.0472	<0.0000490	0.00721	0.00412	0.0112	0.0280
	MW-52	Oct-18															
	MW-52	Apr-19		0.00375	0.0114	0.700	<0.000160	<0.000540	0.000286 J	<0.0150	<0.000240	0.0479	<0.0000490	0.00672	0.00468	0.0105	0.0249
	MW-52	Oct-19															
	MW-52	Jun-20		0.00379	0.0136 J	0.792	<0.000478	<0.00149	0.000478 J	<0.0489	<0.00249	0.0738	<0.000100	0.0252	0.00633	0.0123 J	0.0251
	MW-52	Oct-20															
	MW-64	Apr-18		0.0391	2.32			<0.000540		<0.0150	0.000331 J	0.0656			0.000382 J		
	MW-64	Oct-18															
	MW-64	Apr-19		0.0270	2.33			<0.000540		<0.0150	<0.000240	0.0755			<0.000380		
	MW-64	Oct-19															
	MW-64	Jun-20		0.0247	2.27 ^{01V}			<0.00149		<0.0489	<0.00249	0.0932			<0.000657 J ⁵		
	MW-64	Oct-20															
	MW-65	Apr-18		0.0108	2.75			0.00329		1.52	0.000368 J	0.559			<0.000380		
	MW-65	Oct-18															
	MW-65	Apr-19		0.00653	1.71			<0.000540		0.0315 J	<0.000240	0.456			<0.000380		
	MW-65	Oct-19															
	MW-66	Apr-18		0.00247	2.18	0.306	<0.000160	<0.000540	<0.000260	0.683	0.000405 JB	0.277	<0.0000490	0.00666	<0.000380	<0.000330	0.000478 J
	MW-66	Oct-18															
	MW-66	Apr-19		0.00235	2.34	0.274	<0.000160	<0.000540	<0.000260	0.0333 J	0.000270 J	0.240	<0.0000490	0.00568	<0.000380	<0.000330	0.000391 J
	MW-66	Oct-19															
	MW-66	Jun-20		0.00213	1.92	0.263	<0.000478	<0.00149	<0.000477	0.615	<0.00249	0.303	<0.000100	0.00624	<0.000657	<0.00754	0.00117 J
	MW-66	Oct-20															
	MW-99	Apr-18		0.00813	0.323			<0.000540		<0.0150	0.000684 JB	0.233			<0.000380		
	MW-99	Oct-18															
	MW-99	Apr-19		0.00720	0.375 V			<0.000540		<0.0150	<0.000240	0.219 V			<0.000380		
	MW-99	Oct-19															
	MW-99	Jun-20		0.00295	0.207			0.00258		0.169	<0.00249	0.227			0.000815 J		
	MW-101	Apr-18		0.0700	0.0506			<0.000540		1.89	<0.000240	1.18			<0.000380		
	MW-101	Oct-18															
	MW-101	Apr-19		0.0531	0.0391			<0.000540		<0.0150	<0.000240	1.17			<0.000380		
	MW-101	Oct-19															
	MW-101	Jun-20		0.0487	0.0614			<0.00149		0.623	<0.00249	1.18			<0.000657		
	MW-101	Oct-20															
	MW-102	Apr-18		0.0139	5.87			0.00158 J		0.146 B	0.00227	0.0315			0.000441 J		
MW-102	Oct-18																
MW-102	Apr-19		0.0147	8.31			<0.000540		0.139	0.00368	0.0398			0.000516 J			
MW-102	Oct-19																
MW-102	Jun-20		0.0122	8.83			<0.00149		0.0939 J	0.00325 J	0.0371			<0.000657			
MW-102	Oct-20																
MW-103	Apr-17		0.00797	6.62			<0.000540		<0.0150	<0.0240	0.00621			<0.000380			
MW-103	Apr-18		0.00564	3.80			0.000882 J		<0.0150	0.00107 J	0.00187 J			<0.000380			
MW-103	Apr-19		0.00608	1.25			<0.000540		<0.0150	0.000544 JB	0.00173 J			<0.000380			
MW-103	Jun-20		0.00189 J	2.37			<0.00149		<0.0489	<0.00249	0.00496 J			<0.000657			
MW-104	Apr-18		0.0209	0.0358			0.00115 J		0.0187 JB	<0.000240	0.00414 J			<0.000380			
MW-104	Apr-18	FD	0.0205	0.0322			0.000578 J		<0.0150	<0.0002							

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Analyte Group:				Dissolved Metals														
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Uranium	Vanadium	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500	0.0300	0.0631	
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	NMED TW	
Area	Well ID	Date	Dup															
South Refinery	RW-4	Apr-17		0.00381	0.0709			0.000690 J		<0.0150	<0.000240	0.0245 O1			<0.000380			
	RW-4	Apr-18		0.00301	0.0675			<0.000540		<0.0150	0.000410 JB	0.0535			<0.000380			
	RW-4	Apr-19		0.00355	0.135			<0.000540		<0.0150	0.000712 J	0.0375			<0.000380			
	RW-4	Jun-20		0.00328	0.0680			<0.00149		<0.0489	<0.00249	0.124			<0.000657			
	RW-5R	Apr-15		0.00136 J	0.0275			<0.000540		0.0247 J	<0.000240	0.0167			<0.000380			
	RW-5R	Apr-16		0.00182 J	0.0307			<0.00270		0.146 J	<0.00120	0.0193 J			0.00542 J			
	RW-6	Apr-15		0.0354	0.857			0.000677 J		17.5	0.00129 J	0.284			<0.000380			
	RW-6R	Apr-16		0.0615	0.384			<0.00270		3.37	<0.00120	0.537			0.00213 J			
	RW-6	Apr-18		0.0141	1.90			<0.000540		1.32	0.000568 JB	0.279			0.000513 J			
	RW-6	Apr-19		0.00656	6.17 V			<0.000540		0.0878 J	0.000368 JP1	0.161			0.000690 J			
	RW-15C	Apr-17		0.0306	0.896			<0.000540		0.137	0.000501 J	0.376			<0.000380			
	RW-15C	Apr-18		0.0264	1.27 V			<0.000540		0.197	0.000585 J	0.399			0.000675 J			
South RO Field	RW-15C	Apr-19		0.0128	1.61			0.00263		0.216	0.000416 J	0.463			0.000987 J			
	MW-114	Apr-18		0.00169 J	0.0106			<0.000540		<0.0150	0.000269 J	0.672			0.00926			
	MW-114	Oct-18																
	MW-114	Apr-19		0.00231	0.0127			<0.000540		0.0161 J	0.000567 J	0.912			0.00717			
	MW-114	Oct-19																
	MW-114	Jun-20		0.00334	0.0138 J			<0.00149		<0.0489	<0.00249	0.997			0.00352			
	MW-114	Oct-20																
	MW-115	Apr-18		0.00249	0.00618			<0.000540		<0.0150	0.000247 J	0.0439			<0.000380			
	MW-115	Oct-18																
	MW-115	Apr-19		0.00376	0.0103			<0.000540		<0.0150	0.000387 J	0.102			0.00553			
	MW-115	Oct-19																
	MW-115	Jun-20		0.00415	0.00879 J			<0.00149		<0.0489	<0.00249	0.109			0.00556			
TEL	MW-115	Oct-20																
	MW-116	Apr-18		0.00431	0.00837			<0.000540		<0.0150	0.000315 J	0.0218			0.00602			
	MW-116	Oct-18																
	MW-116	Apr-19		0.00324	0.00833			<0.000540		<0.0150	<0.000240	0.0172			0.00499			
	MW-116	Oct-19																
	MW-116	Jun-20		0.00285	0.00796 J			<0.00149		<0.0489	<0.00249	0.00841			0.00674			
	MW-116	Oct-20																
	MW-49	Apr-18		0.00484	0.0515	0.764	<0.000160	0.00163 JB	<0.000260	0.0200 JB	0.000500 J	0.196	<0.0000490	0.00712	<0.000380	<0.000330	0.000384 J	
	MW-49	Oct-18																
	MW-49	Apr-19		0.00479	0.0525	0.662	<0.000160	0.000887 JB	<0.000260	0.0357 J	0.000563 J	0.196	<0.0000490	0.00648	<0.000380	<0.000330	0.000260 J	
	MW-49	Oct-19																
	MW-49	Jun-20		0.00575	0.0545	0.664	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.185	<0.000100	0.00770	<0.000657	<0.00754	<0.000986	
TEL	MW-49	Oct-20																
	TEL-1	Apr-18		0.0132	0.0145			0.00212		0.0315 J	<0.000240	0.0540			<0.000380			
	TEL-1	Oct-18																
	TEL-1	Apr-19		0.0128	0.0196			0.00285		0.0400 JB	<0.000240	0.0405			<0.000380			
	TEL-1	Oct-19																
	TEL-1	Jun-20		0.0134	0.0162 J			0.00317		0.113	<0.00249	0.0390			<0.000657			
	TEL-2	Apr-18		0.0166	0.0431			0.000859 J		<0.0150	0.00255 B	0.0149			0.000571 J			
	TEL-2	Oct-18																
	TEL-2	Apr-19		0.00309	0.0191			0.00660		0.0268 JB	<0.000240	0.0153			<0.000380			
	TEL-2	Oct-19																
	TEL-2	Jun-20		0.00940	0.0307			<0.00149		<0.0489	<0.00249	0.0377			<0.000657			
	TEL	TEL-3	Apr-18		0.00964	0.0219			0.0263		0.0526 J	0.000337 J	0.00609			0.000457 J		
TEL-3		Apr-19		0.00129 J	0.0138			0.00225		0.0489 JB	<0.000240	1.09			<0.000380			
TEL-3		Oct-19																
TEL-3		Oct-20																
TEL-4		Apr-18		0.00619	0.0207			0.0734		0.233	0.000648 J	1.46			0.000680 J			
TEL-4		Apr-18	FD	0.00629	0.0205			0.0748		0.229	0.000498 J	1.45			0.000471 J			
TEL-4		Oct-18																
TEL-4		Oct-18	FD															
TEL-4		Apr-19		0.00233	0.0151			0.00235 B		0.0270 JB	0.00199 J	0.979			0.00168 J			
TEL-4		Apr-19	FD	0.00167 J	0.0125			0.00267		0.0194 JB	<0.00120	1.08			0.000390 JB			
TEL-4		Oct-19																
TEL-4		Oct-19	FD															
Three Mile Ditch	TEL-4	Jun-20		0.00668	0.0183 J			0.00662		0.151	<0.00249	1.35			<0.000657			
	TEL-4	Jun-20	FD	0.00635	0.0173 J			0.00568		0.157	<0.00249	1.24 V			<0.000657			
	TEL-4	Oct-20																
	TEL-4	Oct-20	FD															

Appendix C, Table C.3 - Summary of Groundwater Analytical Data - Dissolved Metals
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Dissolved Metals											
Analyte:				Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Iron	Lead	Manganese	Mercury	Nickel	Selenium
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0100	2.00	0.750	0.00500	0.0500	0.0500	1.00	0.0150	0.200	0.00200	0.200	0.0500
CGWSL Source:				WQCC HH	WQCC HH	WQCC Irr	WQCC HH	WQCC HH	WQCC Irr	WQCC Dom	WQCC HH	WQCC Dom	WQCC HH	WQCC Irr	WQCC HH
Area	Well ID	Date	Dup												
Three Mile Ditch	MW-71	Apr-17		0.00408	0.00978	0.606	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.000265 J	<0.0000490	0.000892 J	0.0331
	MW-71	Apr-18		0.00370	0.00985	0.662	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.00159 J	<0.0000490	0.00168 J	0.0328
	MW-71	Apr-19		0.00354	0.00909	0.216	<0.000160	0.000984 J	<0.000260	<0.0150	0.000281 JB	0.00267 J	<0.0000490 J6	0.00401	0.0315
	MW-71	Jun-20		0.00372	0.00839 J	0.620	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	<0.00132	<0.000100	0.00119 J	0.0300
	MW-89	Apr-17		0.00684	0.0160			<0.000540		<0.0150	<0.000240	0.0452			0.0559
	MW-89	Apr-18		0.00953	0.0138			0.00168 JB		0.0243 JB	0.000551 J	0.605			0.00261
	MW-89	Apr-19		0.00690	0.0122			<0.000540		<0.0150	<0.000240	0.432			0.0314
	MW-89	Jun-20		0.00880	0.0117 J			0.00153 J		<0.0489	<0.00249	0.567			0.00409
	NP-1	Apr-18													
	NP-1	Oct-18													
	NP-1	Apr-19													
	NP-1	Oct-19													
	NP-1	Jun-20													
	NP-1	Oct-20													
	NP-6	Apr-13													
Upgradient	UG-1	Apr-17		0.00113 J	0.0118	0.502	<0.000160	0.000688 J	<0.000260	<0.0150	<0.000240	0.00476 J	<0.0000490	0.00225	0.00938
	UG-1	Apr-18		0.00131 J	0.0119	0.756	<0.000160	0.000981 J	0.00125 J	<0.0150	<0.000240	0.000405 J	<0.0000490	0.00218	0.00579
	UG-1	Apr-19		0.00123 J	0.0149	0.794	<0.000160	<0.000540	0.000404 J	<0.0150	0.000301 JB	0.00124 J	<0.0000490	0.00167 J	0.0125
	UG-1	Jun-20		0.00113 J	0.0141 J	0.718	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00154 J	<0.000100	0.00119 J	0.0153
	UG-2	Apr-17		0.00206	0.0137	0.265	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.00390 J	<0.0000490	0.00342	0.00522
	UG-2	Apr-18		0.00194 J	0.0135	0.421	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	<0.000250	<0.0000490	0.00146 J	0.00622
	UG-2	Apr-19		0.00200	0.0156	0.280	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.000681 J	<0.0000490	0.00302	0.00626
	UG-2	Jun-20		0.00241	0.0140 J	0.296	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00441 J	<0.000100	0.00278	0.00842
	UG-3R	Apr-17		0.00165 J	0.0167	0.219	<0.000160	0.000573 J	0.000421 J	<0.0150	<0.000240	0.00217 J	<0.0000490	0.00316	0.00371
	UG-3R	Apr-18		0.00161 J	0.0167	0.597	<0.000160	0.000691 J	<0.000260	0.0186 JB	<0.000240	0.000475 J	<0.0000490	0.000962 J	0.00298
	UG-3R	Apr-19		0.00143 J	0.0165	0.332	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.000430 J	<0.0000490	0.000953 J	0.00264
	UG-3R	Jun-20		0.00132 J	0.0200	0.184 J	<0.000478	0.00240	<0.000477	<0.0489	<0.00249	0.00488 J	<0.000100	0.00177 J	0.00421
	UG-4	Apr-17		0.00103 J	0.0149	0.958 OIV	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.00620	<0.0000490	0.00255	0.0142
	UG-4	Apr-18		0.00109 J	0.0163	1.17	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	<0.000250	<0.0000490	<0.000350	0.0173
	UG-4	Apr-19		0.000962 J	0.0165	1.14	<0.000160	<0.000540	<0.000260	<0.0150	<0.000240	0.000298 J	<0.0000490	0.00109 J	0.0169
	UG-4	Jun-20		0.00112 J	0.0156 J	1.07	<0.000478	<0.00149	<0.000477	<0.0489	<0.00249	0.00149 J	<0.000100	0.00108 J	0.0104
	UG-4	Apr-16		0.00144 J											
	UG-4	Apr-17		0.00103 J											
	UG-4	Apr-18		0.00109 J											
	UG-4	Apr-19		0.000962 J											

Definitions

X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.

Abbreviations

CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
Dup	Duplicate sample
FD	Field duplicate sample
mg/L	Milligrams per Liter
NMED TW	NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2019, Rev 2 (6/19/19), Table A-1, Tap Water Screening Level
WQCC Dom	NMED Groundwater standard for domestic exposure taken from 20.6.2.3103.B NMAC
WQCC HH	NMED Groundwater standard for human health exposure, 20.6.2.3103.A NMAC
WQCC Irr	NMED Groundwater standard for irrigation exposure, 20.6.2.3103.C NMAC

Lab Footnote

B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
				Analyte:		1,1,1,2-Tetra- chloroethane	1,1,1-Tri- chloroethane	1,1,2,2-Tetra- chloroethane	1,1,2-Tri- chloroethane	1,1-Di- chloroethane	1,1-Di- chloroethene	1,2,4-Trimethyl- benzene	1,2-Dibromo- ethane (Ethylene dibromide)	1,2-Di- chloroethane	1,3,5-Trimethyl- benzene	2-Butanone (MEK)
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				Units:	---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56	
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW		
Area	Well ID	Date	Dup													
Cross-Gradient	KWB-13	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	KWB-13	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	KWB-13	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00191	<0.000381	<0.000361	<0.000387	<0.00393		
	KWB-13	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
	MW-136	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	MW-136	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	MW-136	Apr-19		<0.000385 J4	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393		
	MW-136	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	MW-136	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
	MW-136	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
	NP-5	Apr-13			<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500		<0.00500	<0.00500	<0.0100		
	NP-5	Apr-15		<0.000380	<0.000319	<0.000130	<0.000380	<0.000260	<0.000400	0.000804 J		<0.000360	<0.000390	<0.00390		
	NP-5	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	NP-5	Apr-19		<0.000385 J4	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393		
	RA-3156	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	RA-3156	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	RA-3156	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	RA-3156	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
	MW-1R	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383 J4	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
	MW-1R	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393		
MW-1R	Apr-19		<0.000385	<0.000319 J4	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-1R	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104 J4	<0.00119			
MW-2A	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-2A	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-2A	Apr-19		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	<0.00186	<0.00190	<0.00180	<0.00194	<0.0196			
MW-2A	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-2A	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104 J4	<0.00119			
MW-2A	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119			
MW-3	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Apr-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Oct-18		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	<0.00186	<0.00190	<0.00180	<0.00194	<0.0196			
MW-3	Oct-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Apr-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Oct-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398 J3	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-3	Jun-20		<0.00368	<0.00373	<0.00333	<0.00395	<0.00250	<0.00470	<0.00805	<0.00315	<0.00205	<0.00260	<0.0298			
MW-3	Jun-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119			
MW-3	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119			
MW-3	Oct-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119			
MW-4A	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000492 J	<0.000381	<0.000361	<0.000387	<0.00393			
MW-4A	Oct-18		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	<0.00186	<0.00190	<0.00180	<0.00194	<0.0196			
MW-4A	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-4A	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393			
MW-4A	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119			
MW-4A	Oct-20		<0.000147	<0.000149	<0.000133	<0.000										

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Evaporation Ponds

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Evaporation Ponds

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

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HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,2,4-Trimethyl-benzene	1,2-Dibromo-ethane (Ethylene dibromide)	1,2-Di-chloroethane	1,3,5-Trimethyl-benzene	2-Butanone (MEK)
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup											
Field East of Refinery	KWB-1C	Apr-13			<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500		<0.00500	<0.00500	<0.0100
	KWB-1C	Apr-15		<0.000380	<0.000319	<0.000130	<0.000380	<0.000260	<0.000400	<0.000370		<0.000360	<0.000390	<0.00390
	KWB-1C	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-1C	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-7	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.0258	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-7	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00186	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-7	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.0876	<0.000126	<0.0000819	<0.000104	0.160
	KWB-7	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.00287	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-8	Oct-16		<0.0770	<0.0638	<0.0260	<0.0766	<0.0518	<0.0796	0.170 J	<0.0762	<0.0722	<0.0774	<0.786
	KWB-8	Apr-17		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.380	<0.0381	<0.0361	0.0863 J	<0.393
	KWB-8	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.114	<0.000381	<0.000361	0.0225	0.0885 V3
	KWB-8	Oct-20		<0.0294	<0.0298	<0.0266	<0.0316	<0.0200	<0.0376	0.833	<0.0252	<0.0164	0.191 J	<0.238
	KWB-10R	Apr-17		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.360	<0.0190	<0.0180	0.0907	<0.196
	KWB-10R	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.302	<0.000381	<0.000361	0.0759	<0.00393
	KWB-10R	Apr-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.214 J	<0.0952	<0.0902	<0.0968	<0.982
	KWB-10R	Oct-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.215 J	<0.0952	<0.0902	<0.0968	<0.982
	KWB-11A	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00290	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-11A	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00500	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-11A	Apr-19		<0.000385 J4	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000467 J	<0.000381 J4	<0.000361	<0.000387	<0.00393
	KWB-11A	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.0486	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-11A	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.00151	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-11B	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-11B	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-11B	Apr-19		<0.000385 J4	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393
	KWB-11B	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-11B	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	0.000210 J	<0.000104	<0.00119
	KWB-11B	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12A	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	KWB-12A	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12A	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12A	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12B	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Apr-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	KWB-12B	Oct-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Apr-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Oct-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000508 J	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-12B	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12B	Jun-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12B	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-12B	Oct-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-P4	Apr-13			<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500		<0.00500	<0.00500	<0.0100
	KWB-P4	Apr-15		<0.000380	<0.000319	<0.000130	<0.000380	<0.000260	<0.000400	<0.000370		<0.000360	<0.000390	<0.00390
	KWB-P4	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-P4	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-57	Apr-18		<0.000385	<0.000319									

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,2,4-Trimethyl-benzene	1,2-Dibromo-ethane (Ethylene dibromide)	1,2-Di-chloroethane	1,3,5-Trimethyl-benzene	2-Butanone (MEK)
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup											
Field East of Refinery	MW-128	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00233	<0.000381	<0.000361	<0.000387	<0.00393
	MW-128	Apr-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786
	MW-128	Oct-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786
	MW-128	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786
	MW-129	Apr-16		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00382	<0.000381	<0.000361	0.000880 J	<0.00393 J4
	MW-129	Oct-16		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00143	<0.000381	<0.000361	0.000479 J	<0.00393
	MW-129	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00101	<0.000381	<0.000361	<0.000387	<0.00393
	MW-129	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000452 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-130	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-130	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-130	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-130	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-130	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-130	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-131	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.0137	<0.000381	<0.000361	0.00348	<0.00393
	MW-131	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.0932	<0.000381	<0.000361	0.00174	<0.00393
	MW-131	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.167	<0.000381	<0.000361	0.0432	<0.00393
	MW-131	Jun-20		<0.00735	<0.00745	<0.00665	<0.00790	<0.00500	<0.00940	0.110	<0.00630	<0.00409	0.0408 J	<0.0595
	MW-133	Nov-14		<0.0380	<0.0320	<0.0130	<0.0380	<0.0260	<0.0400	0.280		<0.0360	0.0530 J	<0.390
	MW-133	Apr-15		<0.0380	<0.0319	<0.0130	<0.0380	<0.0260	<0.0400	0.138		<0.0360	<0.0390	<0.390
	MW-134	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Apr-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-134	Oct-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000846 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Apr-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000471 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000835 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Oct-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-134	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-134	Jun-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-134	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-134	Oct-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-135	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-135	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-135	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-135	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-135	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-135	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-145	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-145	Oct-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-146	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-147	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-148	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	RA-4196	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	RA-4196	Oct-18		<0.000385	<0.000319	<0.000								

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,2,4-Trimethyl-benzene	1,2-Dibromo-ethane (Ethylene dibromide)	1,2-Di-chloroethane	1,3,5-Trimethyl-benzene	2-Butanone (MEK)	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56	
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup												
NCL	NCL-31	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000514 J	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-31	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-31	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000429 J	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-31	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000439 J	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-31	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.000542 J	<0.000126	<0.0000819	0.000195 J	<0.00119	
	NCL-31	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.000771 J	<0.000126	<0.0000819	0.000160 J	<0.00119	
	NCL-32	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-32	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-32	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-32	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393	
	NCL-32	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-32	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-33	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-33	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-33	Apr-19		<0.000385	<0.000319 J4	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-33	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393	
	NCL-33	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-33	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-34A	Apr-18		<0.00385	<0.00319	<0.00130	<0.00383	<0.00259	<0.00398	0.0123	<0.00381	<0.00361	<0.00387	<0.0393	
	NCL-34A	Oct-18		<0.00385	<0.00319	<0.00130	<0.00383	<0.00259	<0.00398	0.00612 J	<0.00381	<0.00361	<0.00387	<0.0393	
	NCL-34A	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786	
	NCL-34A	Oct-19		<0.00193	<0.00159	<0.000650 J4	<0.00192	<0.00130	<0.00199	0.00369 J	<0.00191	<0.00181	0.00207 J	<0.0197	
	NCL-34A	Jun-20		<0.00294	<0.00298	<0.00266	<0.00316	<0.00200	<0.00376	0.0113 J	<0.00252	<0.00164	0.00286 J	<0.0238	
	NCL-44	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-44	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-44	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-44	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393	
	NCL-44	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-44	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119	
	NCL-49	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Apr-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Oct-18	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Apr-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393	
	NCL-49	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393	
NCL-49	Oct-19	FD	<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393		
NCL-49	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
NCL-49	Jun-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
NCL-49	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
NCL-49	Oct-20	FD	<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119		
North Refinery	MW-23	Apr-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361	<0.0387	<0.393	
	MW-23	Oct-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361	<0.0387	<0.393	
	MW-23	Apr-19		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361	<0.0387	<0.393	
	MW-23	Oct-19		<0.00385	<0.00319	<0.00130	<0.00383	<0.00259	<0.00398	<0.00373	<0.00381	<0.00361	<0.00387	<0.00393	
	MW-23	Jun-20		<0.00147	<0.00149	<0.00133	<0.00158	<0.00100	<0.00188	<0.00322	<0.00126	<0.000819	<0.00104	<0.0119	
	MW-23	Oct-20		<0.00147	<0.00149										

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				1,1,1,2-Tetra- chloroethane	1,1,1-Tri- chloroethane	1,1,2,2-Tetra- chloroethane	1,1,2-Tri- chloroethane	1,1-Di- chloroethane	1,1-Di- chloroethene	1,2,4-Trimethyl- benzene	1,2-Dibromo- ethane (Ethylene dibromide)	1,2-Di- chloroethane	1,3,5-Trimethyl- benzene	2-Butanone (MEK)
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup											
North Refinery	MW-62	Apr-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.715	<0.0381	<0.0361	0.166	<0.393
	MW-62	Oct-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.602	<0.0381	<0.0361	0.144	<0.393
	MW-62	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.536	<0.00762	<0.00722	0.129	<0.0786
	MW-62	Oct-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.537	<0.00762	<0.00722	0.123	<0.0786
	MW-62	Jun-20		<0.00294	<0.00298	<0.00266	<0.00316	<0.00200	<0.00376	0.382	<0.00252	<0.00164	0.0782	<0.0238
	MW-62	Oct-20		<0.00294	<0.00298	<0.00266	<0.00316	<0.00200	<0.00376	0.347	<0.00252	<0.00164	0.0783	<0.0238
	MW-62R	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.0775	<0.000126	<0.0000819	0.0117	<0.00119
	MW-67	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00119	<0.000381	<0.000361	<0.000387	<0.00393
	MW-67	Apr-18		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	0.00206 J	<0.00190	<0.00180	<0.00194	<0.0196
	MW-67	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000557 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-67	Apr-19		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	<0.00186	<0.00190	<0.00180	<0.00194	<0.0196
	MW-90	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-90	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-90	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-90	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383 J4	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393
	MW-90	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-90	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-91	Apr-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.214	<0.0381	<0.0361	0.0671 J	<0.393
	MW-91	Oct-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.182	<0.0381	<0.0361	0.0510 J	<0.393
	MW-91	Apr-19		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	0.216	<0.0381	<0.0361	0.0571 J	<0.393
	MW-91	Oct-19		<0.0385	<0.0319	<0.0130	<0.0383 J4	<0.0259	<0.0398	0.239	<0.0381 J4	<0.0361	0.0675 J	<0.393
	MW-91	Jun-20		<0.0147	<0.0149	<0.0133	<0.0158	<0.0100	<0.0188	0.234	<0.0126	<0.00819	0.0671 J	<0.119
	MW-92	Apr-16		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.0588	<0.000381	<0.000361	0.0174	<0.00393
	MW-92	Oct-16		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.0308	<0.00762	<0.00722	0.00835 J	<0.0786
	MW-93	Apr-17		<0.00962	<0.00798	<0.00325	<0.00958	<0.00648	<0.00995	0.148	<0.00952	<0.00902	0.0236 J	<0.0982
	MW-93	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.116	<0.000381	<0.000361	0.0260	<0.00393
	MW-93	Apr-19		<0.000385	<0.000319	<0.000130	0.000927 J	<0.000259	<0.000398	0.187	<0.000381	<0.000361	0.0356	<0.00393
	MW-93	Jun-20		<0.00294	<0.00298	<0.00266	<0.00316	<0.00200	<0.00376	0.111	<0.00252	<0.00164	0.0243	<0.0238
	MW-94	Oct-15		<0.00385	<0.00319	<0.00130	<0.00383	<0.00259	<0.00398	0.432		<0.00361	0.0857	<0.0393
	MW-94	Apr-16		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.489	<0.0190	<0.0180	0.100	<0.196 J4
	MW-94	Oct-16		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	0.458	<0.00190	<0.00180	0.0917	<0.0196
	MW-94	Apr-17		<0.00962	<0.00798	<0.00325	<0.00958	<0.00648	<0.00995	0.398	<0.00952	<0.00902	0.0785	<0.0982
	MW-95	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-95	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-95	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-95	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-96	Apr-18		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	<0.0186	<0.0190	<0.0180	<0.0194	<0.196
	MW-96	Oct-18		<0.385	<0.319	<0.130	<0.383	<0.259	<0.398	<0.373	<0.381	<0.361	<0.387	<3.93
	MW-96	Apr-19		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	<0.0186	<0.0190	<0.0180	<0.0194	<0.196
	MW-96	Oct-19		<0.0193	<0.0159	<0.00650	<0.0192	<0.0130	<0.0199	<0.0187	<0.0191	<0.0181	<0.0194	<0.197
	MW-96	Jun-20		<0.0368	<0.0373	<0.0333	<0.0395	<0.0250	<0.0470	<0.0805	<0.0315	<0.0205	<0.0260	<0.298
	MW-96	Oct-20		<0.0368	<0.0373	<0.0333	<0.0395	<0.0250	<0.0470	<0.0805	<0.0315	<0.0205	<0.0260	<0.298
	MW-98	Apr-18		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.475	<0.0190	<0.0180	0.116	<0.196
	MW-98	Oct-18		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.480	<0.0190	<0.0180	0.103	<0.196
	MW-98	Apr-19		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.618	<0.0190	<0.0180	0.138	<0.196
	MW-98	Oct-19		<0.0193	<0.0159	<0.00650	<0.0192	<0.0130	<0.0199	0.453	<0.0191	<0.0181	0.112	<0.197
	MW-98	Jun-20		<0.00735	<0.00745	<0.00665	<0.00790	<0.00500	<0.00940	0.646	<0.00630	<0.00409	0.110	<0.0595
	MW-98	Oct-20		<0.00735	<0.00745	<0.00665	<0.00790	<0.00500	<0.00940	0.371	<0.00630	<0.00409	0.0820	<0.0595
	MW-137	Oct-17		<0.0770	<0.0638	<0.0260	<0.0766	<0.0518	<0.0796	0.559	<0.0762	<0.0722	0.137 J	<0.786
	MW-137	Apr-18		<0.0770	<0.0638	<0.0260	<0.0766	<0.0518	<0.0796	0.531	<0.0762	<0.0722	0.125 J	<0.786
	MW-137	Oct-18		<0.0770	<0.0638	<0.0260	<0.0766	<0.0518	<0.0796	0.342	<0.0			

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				1,1,1,2-Tetra- chloroethane	1,1,1-Tri- chloroethane	1,1,2,2-Tetra- chloroethane	1,1,2-Tri- chloroethane	1,1-Di- chloroethane	1,1-Di- chloroethene	1,2,4-Trimethyl- benzene	1,2-Dibromo- ethane (Ethylene dibromide)	1,2-Di- chloroethane	1,3,5-Trimethyl- benzene	2-Butanone (MEK)
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup											
North RO Field	MW-119	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-119	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-119	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-119	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-119	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
North RO Field	MW-119	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	KWB-2R	Apr-17		<0.000385	<0.000319	0.000160 J	<0.000383	<0.000259	<0.000398	0.0341	<0.000381	<0.000361	<0.000387	0.0164
	KWB-2R	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.150	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-2R	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.148	<0.000381	<0.000361	0.00172	<0.00393
	KWB-2R	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383 J4	<0.000259	<0.000398	0.139	<0.000381 J4	<0.000361	0.00233	<0.00393
North RO Field	KWB-5	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.0932	<0.000381	<0.000361	<0.000387	<0.00393
	KWB-5	Apr-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	<0.0932	<0.0952	<0.0902	<0.0968	<0.982
	KWB-5	Oct-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	<0.0932	<0.0952	<0.0902	<0.0968	<0.982
	KWB-5	Apr-19		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	<0.0932	<0.0952	<0.0902	<0.0968	<0.982
	KWB-6	Apr-17		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	0.399	<0.00190	0.00451 J	0.0517	<0.0196
North RO Field	KWB-6	Oct-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.206	<0.000381	<0.000361	0.0302	<0.00393
	KWB-6	Apr-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.164	<0.00762	<0.00722	0.0557	<0.0786
	KWB-6	Oct-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.122	<0.00762	<0.00722	0.0611	<0.0786 J3J4
	MW-28	Apr-18		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	0.110	<0.0190	<0.0180	<0.0194	<0.196
	MW-28	Oct-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.0165 J	<0.00762	<0.00722	<0.00774	<0.0786
North RO Field	MW-28	Apr-19		<0.0192	<0.0160	<0.00650	<0.0192 J4	<0.0130	<0.0199	0.107	<0.0190	<0.0180	<0.0194	<0.196
	MW-28	Oct-19		<0.0193	<0.0159	<0.00650	<0.0192	<0.0130	<0.0199	0.213	<0.0191	<0.0181	0.0243 J	<0.197
	MW-28	Jun-20		<0.000735	<0.000745	<0.000665	<0.000790	<0.000500	<0.000940	0.0527	<0.000630	<0.000409	<0.000520	<0.00595
	MW-28	Oct-20		<0.000735	<0.000745	<0.000665	<0.000790	<0.000500	<0.000940	0.0430	<0.000630	<0.000409	0.00133 J	<0.00595
	MW-48	Apr-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.381	<0.0952	<0.0902	<0.0968	<0.982
North RO Field	MW-48	Oct-18		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.377	<0.0952	<0.0902	<0.0968	<0.982 J3J4
	MW-48	Apr-19		<0.0962	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.564	<0.0952	<0.0902	<0.0968	<0.982
	MW-48	Oct-19		<0.0963	<0.0798	<0.0325	<0.0958	<0.0648	<0.0995	0.240 J	<0.0953	<0.0903	<0.0967	<0.983
	MW-50	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-50	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
North RO Field	MW-50	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-50	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383 J4	<0.000259	<0.000398	<0.000373	<0.000381 J4	<0.000361	<0.000387	<0.00393
	MW-50	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-50	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-52	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
North RO Field	MW-52	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-52	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-52	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-52	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-52	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
North RO Field	MW-64	Apr-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.0519	<0.00762	<0.00722	0.0107 J	<0.0786
	MW-64	Oct-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.620	<0.00762	<0.00722	0.123	<0.0786
	MW-64	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.592	<0.00762	<0.00722	0.117	<0.0786
	MW-64	Oct-19		<0.00963	<0.00797	<0.00325	<0.00958 J4	<0.00648	<0.00995	0.522	<0.00953 J4	<0.00903	0.102	<0.0983
	MW-64	Jun-20		<0.0735	<0.0745	<0.0665	<0.0790	<0.0500	<0.0940	0.453 J	<0.0630	<0.0409	0.0760 J	<0.595
North RO Field	MW-64	Oct-20		<0.0735	<0.0745	<0.0665	<0.0790	<0.0500	<0.0940	0.252 J	<0.0630	<0.0409	<0.0520	<0.595
	MW-65	Apr-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361	<0.0387	<0.393
	MW-65	Oct-18		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361	<0.0387	<0.393
	MW-65	Apr-19		<0.0385	<0.0319	<0.0130	<0.0383	<0.0259	<0.0398	<0.0373	<0.0381	<0.0361		

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds														
2020 Annual Groundwater Monitoring Report														
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico														
Analyte Group:				Volatile Organic Compounds										
Analyte:				1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,2,4-Trimethyl-benzene	1,2-Dibromo-ethane (Ethylene dibromide)	1,2-Di-chloroethane	1,3,5-Trimethyl-benzene	2-Butanone (MEK)
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	0.200	0.01	0.005	0.025	0.00700	0.0560	0.0000500	0.00500	0.0600	5.56
CGWSL Source:				---	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	NMED TW
Area	Well ID	Date	Dup											
South Refinery	MW-106	Apr-18		<0.0770	<0.0638	<0.0260	<0.0766	<0.0518	<0.0796	0.110 J	<0.0762	<0.0722	<0.0774	<0.786
	MW-106	Oct-18		<0.192	<0.160	<0.0650	<0.192	<0.130	<0.199	<0.186	<0.190	<0.180	<0.194	<1.96
	MW-106	Apr-19		<0.192 J4	<0.160	<0.0650	<0.192	<0.130	<0.199	0.554	<0.190 J4	<0.180	0.281 J	<1.96
	MW-106	Oct-19		<0.0193	<0.0159	<0.00650	<0.0192	<0.0130	<0.0199	0.0848	<0.0191	<0.0181	<0.0194	<0.197
	MW-106	Jun-20		<0.0147	<0.0149	<0.0133	<0.0158	<0.0100	<0.0188	0.0861 J	<0.0126	<0.00819	0.0146 J	<0.119
	MW-106	Oct-20		<0.0294	<0.0298	<0.0266	<0.0316	<0.0200	<0.0376	0.0943 J	<0.0252	<0.0164	<0.0208	<0.238
	MW-107	Oct-16		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	0.00205 J	<0.00190	<0.00180	<0.00194	<0.0196
	MW-107	Apr-17		<0.0192	<0.0160	<0.00650	<0.0192	<0.0130	<0.0199	<0.0186	<0.0190	<0.0180	<0.0194	<0.196
	MW-107	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00228	<0.000381	<0.000361	0.00425	<0.00393
	MW-107	Apr-19		<0.0962	<0.0798	<0.0325	<0.0958 J4	<0.0648	<0.0995	<0.0932	<0.0952	<0.0902	<0.0968	<0.982
	MW-109	Apr-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786
	MW-109	Oct-18		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786 J3J4
	MW-109	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	<0.00746	<0.00762	<0.00722	<0.00774	<0.0786
	MW-109	Oct-19		<0.00193	<0.00159	<0.000650	<0.00192 J4	<0.00130	<0.00199	0.00288 J	<0.00191	<0.00181	<0.00194	<0.0197
	MW-109	Jun-20		<0.00147	<0.00149	<0.00133	<0.00158	<0.00100	<0.00188	<0.00322	<0.00126	<0.000819	<0.00104	<0.0119
	MW-109	Oct-20		<0.00147	<0.00149	<0.00133	<0.00158	<0.00100	<0.00188	<0.00322	<0.00126	<0.000819	<0.00104	<0.0119
	MW-110	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.0445	<0.000381	<0.000361	0.00247	<0.00393
	MW-110	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-110	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000560 J	<0.000381	<0.000361	<0.000387	<0.00393
	MW-110	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-110	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.00293	<0.000126	<0.0000819	0.000744 J	<0.00119
	MW-110	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-139	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	0.00846 J
	MW-139	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-139	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	RA-313	Apr-17		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	RA-313	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	RA-313	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	RA-313	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	RW-4	Apr-17		<0.00192	<0.00160	<0.000650	<0.00192	<0.00130	<0.00199	<0.00186	<0.00190	<0.00180	<0.00194	<0.0196
	RW-4	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.000659 J	<0.000381	<0.000361	<0.000387	<0.00393
	RW-4	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383 J4	<0.000259	<0.000398	0.00105	<0.000381	<0.000361	0.000400 J	<0.00393
	RW-4	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	0.000958 J	<0.000126	<0.0000819	0.000329 J	<0.00119
	RW-5R	Apr-15		<0.00380	<0.00319	<0.00130	<0.00380	<0.00260	<0.00400	0.298		<0.00360	0.0558	<0.0390
	RW-5R	Apr-16		<0.00770	<0.00638	<0.00260	<0.00766	<0.00518	<0.00796	0.437	<0.00762	<0.00722	0.100	<0.0786
	RW-6	Apr-15		<0.00380	<0.00319	<0.00130	<0.00380	<0.00260	<0.00400	0.134		<0.00360	0.0280	<0.0390
RW-6R	Apr-16		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.00555	<0.000381	<0.000361	0.00111	<0.00393	
RW-6	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	0.0143	<0.000381	<0.000361	0.00259	<0.00393	
RW-6	Apr-19		<0.00770	<0.00638	<0.00260	<0.00766 J4	<0.00518	<0.00796	0.0110 J	<0.00762	<0.00722	<0.00774	<0.0786	
RW-15C	Apr-17		<0.00962	<0.00798	<0.00325	<0.00958	<0.00648	<0.00995	1.46	<0.00952	<0.00902	0.231	<0.0982	
RW-15C	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	1.06	<0.000381	<0.000361	0.138	<0.00393	
RW-15C	Apr-19		<0.00385	<0.00319	<0.00130	<0.00383	<0.00259	<0.00398	0.728	<0.00381	<0.00361	0.0476	<0.0393	
South RO Field	MW-114	Apr-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-114	Oct-18		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393 J3J4
	MW-114	Apr-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-114	Oct-19		<0.000385	<0.000319	<0.000130	<0.000383	<0.000259	<0.000398	<0.000373	<0.000381	<0.000361	<0.000387	<0.00393
	MW-114	Jun-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126	<0.0000819	<0.000104	<0.00119
	MW-114	Oct-20		<0.000147	<0.000149	<0.000133	<0.000158	<0.000100	<0.000188	<0.000322	<0.000126</			

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9	
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW	
Area	Well ID	Date	Dup													
Cross-Gradient	KWB-13	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	KWB-13	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	KWB-13	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	KWB-13	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000205	J <0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	J4 <0.000192	
	MW-136	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-136	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	J4
	MW-136	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	J4 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-136	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-136	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000273	JB <0.000128	<0.000116	<0.000192	
	MW-136	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J4 <0.0000962	<0.000128	<0.000116	<0.000192	
	NP-5	Apr-13		<0.0100	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	
	NP-5	Apr-15		<0.00380	<0.000350	<0.00210	<0.0100	<0.000330	<0.000380	<0.000470	<0.000870	<0.000280	<0.000380	<0.000350	<0.000450	
	NP-5	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NP-5	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	J4 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	RA-3156	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	RA-3156	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	RA-3156	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	RA-3156	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000520	JB <0.000128	<0.000116	<0.000192	
	MW-1R	Apr-17		<0.00382	J3,J4 <0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-1R	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-1R	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-1R	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-2A	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-2A	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-2A	Apr-19		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226	
	MW-2A	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-2A	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-2A	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-3	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-3	Apr-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	J4
	MW-3	Oct-18		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226	
	MW-3	Oct-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-3	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-3	Apr-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-3	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-3	Oct-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3 <0.000275	J3 <0.000379	J3 <0.000348	<0.000453	
MW-3	Jun-20		<0.0197	<0.00300	<0.0120	<0.282	<0.00235	<0.00340	<0.00322	<0.0151	<0.00241	<0.00320	<0.00290	<0.00480		
MW-3	Jun-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J3 <0.0000962	<0.000128	<0.000116	<0.000192		
MW-3	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000107	J <0.000128	<0.000116	<0.000192		
MW-3	Oct-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192		
MW-4A	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Evaporation Ponds

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW
Area	Well ID	Date	Dup												
Evaporation Ponds	MW-86	Jun-20		<0.0157	<0.00240	<0.00956	<0.226	0.0242	<0.00272	<0.00258	<0.0121	0.00254 J	<0.00256	<0.00232 J4	<0.00384
	MW-86	Oct-20		<0.0157	<0.00240	<0.00956	<0.226	0.0313	<0.00272	<0.00258	<0.0121	<0.00192	<0.00256	<0.00232	<0.00384
	MW-87	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4
	MW-87	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-87	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-87	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-87	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-87	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-88	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-88	Oct-18		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226
	MW-88	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-88	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-88	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-88	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128 J4	<0.000116	<0.000192
	MW-120	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4
	MW-120	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-120	Apr-19		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226
	MW-120	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.000577 JB	<0.000379	<0.000348	<0.000453
	MW-120	Jun-20		<0.00394	<0.000600	<0.00239	<0.0565	<0.000471	<0.000680	<0.000645	<0.00303	<0.000481	<0.000640	<0.000580	<0.000960
	MW-120	Oct-20		<0.00394	<0.000600	<0.00239	<0.0565	<0.000471	<0.000680	<0.000645	<0.00303	<0.000481	<0.000640	<0.000580	<0.000960
	MW-121	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4
	MW-121	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-121	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-121	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-121	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-121	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-122	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-122	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-122	Apr-19		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226
	MW-122	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.000536 JB	<0.000379	<0.000348	<0.000453
	MW-122	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116 J4	<0.000192
	MW-122	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-123	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-123	Oct-18		<0.0191	<0.00175	<0.0107	<0.0500	<0.00166	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226
	MW-123	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-123	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-123	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-123	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-124	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4
	MW-124	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-124	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-124	Oct-19		<0.00382	<0.000350	<0.00214	&								

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds														
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane			
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9			
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW			
Area	Well ID	Date	Dup															
Field East of Refinery	KWB-1C	Apr-13		<0.0100	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500			
	KWB-1C	Apr-15		<0.00380	<0.000350	<0.00210	<0.0100	<0.000330	<0.000380	<0.000470	<0.000870	<0.000280	<0.000380	<0.000350	<0.000450			
	KWB-1C	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-1C	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-7	Oct-17		<0.00382	0.000418	J	<0.00214	<0.0100	0.0363	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-7	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	0.0247	<0.000380	<0.000469	<0.000866	0.00891	<0.000379	<0.000348	<0.000453	J4		
	KWB-7	Jun-20		<0.000787	0.00161	<0.000478	<0.0113	0.0545	<0.000136	<0.000129	<0.000605	0.00118	<0.000128	<0.000116	<0.000192			
	KWB-7	Oct-20		<0.000787	0.000201	J	<0.000478	<0.0113	0.00789	<0.000136	<0.000129	<0.000605	0.000319	JB	<0.000128	<0.000116	<0.000192	
	KWB-8	Oct-16		<0.764	<0.0700	<0.428	<2.00	11.5	<0.0760	<0.0938	<0.173	<0.0550	<0.0758	<0.0696	<0.0906			
	KWB-8	Apr-17		<0.382	<0.0350	<0.214	<1.00	5.62	<0.0380	<0.0469	<0.0866	<0.0275	<0.0379	<0.0348	<0.0453			
	KWB-8	Oct-17		0.00515	J	0.00112	<0.00214	0.0801	V3	12.5	<0.000380	<0.000469	<0.000866	0.00427	V3	<0.000379	<0.000348	<0.000453
	KWB-8	Oct-20		<0.157	<0.0240	<0.0956	<2.26	17.8	<0.0272	<0.0258	<0.121	0.0664	JB	<0.0256	<0.0232	<0.0384		
	KWB-10R	Apr-17		<0.191	<0.0175	<0.107	<0.500	4.95	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190	<0.0174	<0.0226			
	KWB-10R	Oct-17		<0.00382	0.0184	<0.00214	<0.0100	7.06	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-10R	Apr-18		<0.955	<0.0875	<0.535	<2.50	3.06	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113			
	KWB-10R	Oct-18		<0.955	<0.0875	<0.535	<2.50	3.81	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113	J4		
	KWB-11A	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	0.000985	J	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-11A	Oct-18		<0.00382	0.000647	J	<0.00214	<0.0100	0.00333	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	J4	
	KWB-11A	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	J4	0.000898	J	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	KWB-11A	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000492	J	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192		
	KWB-11A	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.00234	<0.000136	<0.000129	<0.000605	0.000169	JB	<0.000128	<0.000116	<0.000192		
	KWB-11B	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-11B	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	J4		
	KWB-11B	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-11B	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-11B	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192			
	KWB-11B	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.00192	<0.000136	<0.000129	<0.000605	0.000191	JB	<0.000128	<0.000116	<0.000192		
	KWB-12A	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-12A	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12A	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	J4	<0.000192		
	KWB-12A	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J4	<0.0000962	<0.000128	<0.000116	<0.000192		
	KWB-12B	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Apr-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	J4		
	KWB-12B	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
	KWB-12B	Oct-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Apr-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Oct-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453			
	KWB-12B	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	J4	<0.000192		
	KWB-12B	Jun-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192			
	KWB-12B	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J4	<0.0000962	<0.000128	<0.000116	<0.000192		
	KWB-12B	Oct-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192			
	KWB-P4	Apr-13		<0.0100	<0.00500	&lt												

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL: ---				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9	
CGWSL Source: ---				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW	
Area	Well ID	Date	Dup													
Field East of Refinery	MW-128	Oct-17		<0.00382	<0.000350	<0.00214	<0.0100	0.0701	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-128	Apr-18		<0.0764	<0.00700	<0.0428	<0.200	0.122	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-128	Oct-18		<0.0764	<0.00700	<0.0428	<0.200	0.729	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-128	Apr-19		<0.0764	<0.00700	<0.0428	<0.200 J4	0.643	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-129	Apr-16		<0.00382	<0.000350	<0.00214	<0.0100	<0.0166	<0.000380	<0.000469	<0.000866	0.000295 J	<0.000379	<0.000348	<0.000453	
	MW-129	Oct-16		<0.00382	<0.000350	<0.00214	<0.0100	0.00791	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-129	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	0.00299	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-129	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	0.00731	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-130	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-130	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100 J3	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-130	Apr-19		<0.00382	<0.000350	<0.00214	0.0116 J	0.000351 J	<0.000380	<0.000469	<0.000866 J3	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-130	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-130	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000332 JB	<0.000128	<0.000116	<0.000192	
	MW-130	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-131	Apr-17		<0.00382	0.000554 J	<0.00214	<0.0100	3.09	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-131	Oct-17		<0.00382	0.000701 J	<0.00214	<0.0100	1.39	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-131	Oct-19		<0.00382	0.00141	<0.00214	<0.0100	0.796	<0.000380	<0.000469	<0.000866	<0.0138	<0.00379	<0.000348	<0.000453	
	MW-131	Jun-20		<0.0394	<0.00600	<0.0239	<0.565	0.907	<0.00680	<0.00645	<0.0303	<0.00481	<0.00640	<0.00580	<0.00960	
	MW-133	Nov-14		<0.380	<0.0350	<0.210	<1.00	0.620	<0.0380	<0.0470	<0.0870	<0.0280	<0.0380	<0.0350	<0.0450	
	MW-133	Apr-15		<0.380	<0.0350	<0.210	<1.00	0.788	<0.0380	<0.0470	<0.0870	<0.0280	<0.0380	<0.0350	<0.0450	
	MW-134	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.000386 J	<0.000379	<0.000348	<0.000453	
	MW-134	Apr-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4	
	MW-134	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100 J3	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Oct-18	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	0.000947 J	<0.000380	<0.000469	<0.000866 J3	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Apr-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	0.00279	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	0.000392 J	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Oct-19	FD	<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-134	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000449 JB	<0.000128	<0.000116	<0.000192	
	MW-134	Jun-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-134	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605 J4	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-134	Oct-20	FD	<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-135	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-135	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453 J4	
	MW-135	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866 J3	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-135	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-135	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000301 JB	<0.000128	<0.000116	<0.000192	
	MW-135	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.00250	<0.000136	<0.000129	<0.000605	0.000188 JB	<0.000128	<0.000116	<0.000192	
	MW-145	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113 J4	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-145	Oct-20	FD	<0.000787	<0.000120	<0.000478	<0.0113 J4	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-146	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113 J4	<0.0000941	<0.000							

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9	
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW	
Area	Well ID	Date	Dup													
NCL	NCL-31	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-31	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-31	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-31	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-31	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-31	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-32	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-32	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-32	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-32	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-32	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-32	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-33	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-33	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.000673 JB	<0.000379	<0.000348	<0.000453	
	NCL-33	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-33	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	NCL-33	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-33	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	NCL-34A	Apr-18			<0.0382	0.00522 J	<0.0214	<0.100	1.02	<0.00380	<0.00469	<0.00866	<0.00275	<0.00379	<0.00348	<0.00453
	NCL-34A	Oct-18			<0.0382	<0.00350	<0.0214	<0.100	1.11	<0.00380	<0.00469	<0.00866	0.0105 B	<0.00379	<0.00348	<0.00453
	NCL-34A	Apr-19			<0.0764	<0.00700	<0.0428	<0.200	0.479	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906
	NCL-34A	Oct-19			<0.0191	0.00219 J	<0.0107	<0.0500	0.562	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00227
	NCL-34A	Jun-20			<0.0157	<0.00240	<0.00956	<0.226	1.10	<0.00272	<0.00258	<0.0121	<0.00192	<0.00256	<0.00232	<0.00384
	NCL-44	Apr-18			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-44	Oct-18			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-44	Apr-19			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-44	Oct-19			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-44	Jun-20			<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	NCL-44	Oct-20			<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	NCL-49	Apr-18			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Apr-18	FD		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Oct-18			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.00152 B	<0.000379	<0.000348	<0.000453
	NCL-49	Oct-18	FD		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	0.000727 JB	<0.000379	<0.000348	<0.000453
	NCL-49	Apr-19			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Apr-19	FD		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Oct-19			<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Oct-19	FD		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	NCL-49	Jun-20			<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	NCL-49	Jun-20	FD		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	NCL-49	Oct-20			<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	NCL-49	Oct-20	FD		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
North Refinery	MW-23	Apr-18		<0.382	<0.0350	<0.214	<1.00	9.68	<0.0380	<0.0469	<0.0866	<0.0275	<0.0379	<0.0348	<0.0453	
	MW-23	Oct-18		<0.382	<0.0350	&										

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds													
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane		
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9		
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW		
Area	Well ID	Date	Dup														
North Refinery	MW-62	Apr-18		<0.382	<0.0350	<0.214	<1.00	1.59	<0.0380	<0.0469	<0.0866	0.0289	J	<0.0379	<0.0348	<0.0453	
	MW-62	Oct-18		<0.382	<0.0350	<0.214	<1.00	1.54	<0.0380	<0.0469	<0.0866	<0.0275		<0.0379	<0.0348	<0.0453	J4
	MW-62	Apr-19		<0.0764	<0.00700	<0.0428	<0.200	1.87	<0.00760	<0.00938	<0.0173	<0.00550		<0.00758	<0.00696	<0.00906	
	MW-62	Oct-19		<0.0764	<0.00700	<0.0428	<0.200	1.77	<0.00760	<0.00938	<0.0173	<0.00550		<0.00758	<0.00696	<0.00906	
	MW-62	Jun-20		<0.0157	<0.00240	<0.00956	<0.226	1.09	<0.00272	<0.00258	<0.0121	<0.00192		<0.00256	<0.00232	<0.00384	
	MW-62	Oct-20		<0.0157	0.00397	J	<0.00956	<0.226	1.24	<0.00272	<0.00258	<0.0121	0.00520	J	<0.00256	<0.00232	<0.00384
	MW-62R	Oct-20		<0.000787	0.00274		<0.000478	<0.0113	1.92	<0.000136	<0.000129	<0.000605	0.00126		<0.000128	<0.000116	<0.000192
	MW-67	Oct-17		<0.00382	0.000487	J	<0.00214	<0.0100	0.130	<0.000380	<0.000469	<0.000866	0.000547	J	<0.000379	<0.000348	<0.000453
	MW-67	Apr-18		<0.0191	0.00191	J	<0.0107	<0.0500	0.147	<0.00190	<0.00234	<0.00433	<0.00138		<0.00190	<0.00174	<0.00226
	MW-67	Oct-18		<0.00382	0.000513	J	<0.00214	<0.0100	0.00480	<0.000380	<0.000469	<0.000866	0.000465	J	<0.000379	<0.000348	<0.000453
	MW-67	Apr-19		<0.0191	<0.00175		<0.0107	<0.0500	0.122	<0.00190	<0.00234	<0.00433	<0.00138		<0.00190	<0.00174	<0.00226
	MW-90	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	0.000758	J	<0.000380	<0.000469	<0.000866	0.000427	J	<0.000379	<0.000348	<0.000453
	MW-90	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	0.00103		<0.000380	<0.000469	<0.000866	0.000349	J	<0.000379	<0.000348	<0.000453
	MW-90	Apr-19		<0.00382	0.00153		<0.00214	<0.0100	0.00125	<0.000380	<0.000469	<0.000866	<0.000275		<0.000379	<0.000348	<0.000453
	MW-90	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	0.00267		<0.000380	<0.000469	<0.000866	0.00139		<0.000379	<0.000348	<0.000453
	MW-90	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	0.00305		<0.000136	<0.000129	<0.000605	0.000600	J	<0.000128	<0.000116	<0.000192
	MW-90	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.00334		<0.000136	<0.000129	<0.000605	<0.0000962		<0.000128	<0.000116	<0.000192
	MW-91	Apr-18		<0.382	<0.0350	<0.214	<1.00	2.41	<0.0380	<0.0469	<0.0866	0.0336	J	<0.0379	<0.0348	<0.0453	
	MW-91	Oct-18		<0.382	<0.0350	<0.214	<1.00	2.86	<0.0380	<0.0469	<0.0866	<0.0275		<0.0379	<0.0348	<0.0453	
	MW-91	Apr-19		<0.382	<0.0350	<0.214	<1.00	2.89	<0.0380	<0.0469	<0.0866	<0.0275		<0.0379	<0.0348	<0.0453	
	MW-91	Oct-19		<0.382	<0.0350	<0.214	<1.00	4.07	<0.0380	<0.0469	<0.0866	<0.0275		<0.0379	<0.0348	<0.0453	
	MW-91	Jun-20		<0.0787	<0.0120	<0.0478	<1.13	4.12	<0.0136	<0.0129	<0.0605	0.0254	J	<0.0128	<0.0116	<0.0192	
	MW-92	Apr-16		<0.00382	0.00344	<0.00214	<0.0100	2.87	<0.000380	<0.000469	<0.000866	0.000589	J	<0.000379	<0.000348	<0.000453	
	MW-92	Oct-16		<0.0764	<0.00700	<0.0428	<0.200	J3	2.05	<0.00760	<0.00938	<0.0173	<0.00550		<0.00758	<0.00696	<0.00906
	MW-93	Apr-17		<0.0955	<0.00875	<0.0535	<0.250	0.633	<0.00950	<0.0117	<0.0216	J4	<0.00688	<0.00948	<0.00870	<0.0113	
	MW-93	Apr-18		<0.00382	0.00268	<0.00214	<0.0100	0.857	<0.000380	<0.000469	<0.000866	0.00180		<0.000379	<0.000348	<0.000453	
	MW-93	Apr-19		<0.00382	0.00345	<0.00214	<0.0100	0.673	<0.000380	<0.000469	<0.000866	0.00136		<0.000379	<0.000348	<0.000453	
	MW-93	Jun-20		<0.0157	<0.00240	<0.00956	<0.226	1.21	<0.00272	<0.00258	<0.0121	<0.00192		<0.00256	<0.00232	<0.00384	
	MW-94	Oct-15		<0.0382	0.0301	<0.0214	<0.100	0.339	<0.00380	<0.00469	<0.00866	0.00445	J	<0.00379	<0.00348	<0.00453	
	MW-94	Apr-16		<0.191	<0.0175	<0.107	<0.500	0.417	<0.0190	<0.0234	<0.0433	0.0155	J	<0.0190	<0.0174	<0.0226	
	MW-94	Oct-16		<0.0191	0.0163	<0.0107	<0.0500	J3	0.297	<0.00190	<0.00234	<0.00433	0.00479	J	<0.00190	<0.00174	<0.00226
	MW-94	Apr-17		<0.0955	0.0477	<0.0535	<0.250	0.284	<0.00950	<0.0117	<0.0216	J4	0.0101	J	<0.00948	<0.00870	<0.0113
	MW-95	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379		<0.000348	<0.000453	
	MW-95	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379		<0.000348	<0.000453	J4
	MW-95	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379		<0.000348	<0.000453	
	MW-95	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000603	J	<0.000136	<0.000129	<0.000605	0.000192	J	<0.000128	<0.000116	<0.000192
	MW-96	Apr-18		<0.191	<0.0175	<0.107	<0.500	<0.0166	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190		<0.0174	<0.0226	
	MW-96	Oct-18		<3.82	<0.350	<2.14	<10.0	<0.331	<0.380	<0.469	<0.866	<0.275	<0.379		<0.348	<0.453	
	MW-96	Apr-19		<0.191	<0.0175	<0.107	<0.500	<0.0166	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190		<0.0174	<0.0226	
	MW-96	Oct-19		<0.191	<0.0175	<0.107	<0.500	<0.0166	<0.0190	<0.0235	<0.0433	0.0430	JB	<0.0190	<0.0174	<0.0227	
	MW-96	Jun-20		<0.197	<0.0300	<0.120	<2.82	<0.0235	<0.0340	<0.0323	<0.151	<0.0241	<0.0320		<0.0290	<0.0480	
	MW-96	Oct-20		<0.197	<0.0300	<0.120	<2.82	0.0424	J	<0.0340	<0.0323	<0.151	<0.0241	<0.0320	<0.0290	<0.0480	
	MW-98	Apr-18		<0.191	<0.0175	<0.107	<0.500	3.17	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190		<0.0174	<0.0226	
	MW-98	Oct-18		<0.191	<0.0175	<0.107	<0.500	2.64	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190		<0.0174	<0.0226	
	MW-98	Apr-19		<0.191	<0.0175	<0.107	<0.500	2.69	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190		<0.0174	<0.0226	

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9	
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW	
Area	Well ID	Date	Dup													
North RO Field	MW-119	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-119	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-119	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-119	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-119	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-119	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J4 <0.0000962	<0.000128	<0.000116	<0.000192	
	KWB-2R	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	0.0260	<0.000380	<0.000469	<0.000866	0.000332	J <0.000379	<0.000348	<0.000453	
	KWB-2R	Oct-17		<0.00382	0.00198	<0.00214	<0.0100	1.12	<0.000380	<0.000469	<0.000866	0.000367	J <0.000379	<0.000348	<0.000453	
	KWB-2R	Apr-19		<0.00382	0.00160	<0.00214	<0.0100	0.177	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	KWB-2R	Oct-19		<0.00382	0.00115	<0.00214	<0.0100	0.920	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
South Refinery	KWB-5	Oct-17		<0.00382	<0.000350	<0.00214	<0.0100	0.336	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	KWB-5	Apr-18		<0.955	<0.0875	<0.535	<2.50	0.411	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113	
	KWB-5	Oct-18		<0.955	<0.0875	<0.535	<2.50	0.278	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	J4 <0.113	
	KWB-5	Apr-19		<0.955	<0.0875	<0.535	<2.50	0.425	<0.0950	<0.117	<0.216	J3 <0.0688	<0.0948	<0.0870	<0.113	
	KWB-6	Apr-17		<0.0191	0.00450	J <0.0107	<0.0500	4.67	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226	
	KWB-6	Oct-17		<0.00382	0.00825	<0.00214	<0.0100	3.22	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	KWB-6	Apr-18		<0.0764	0.00807	J <0.0428	<0.200	3.88	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	KWB-6	Oct-18		<0.0764	0.00755	J <0.0428	<0.200	J3 2.64	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-28	Apr-18		<0.191	<0.0175	<0.107	<0.500	0.959	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190	<0.0174	<0.0226	
	MW-28	Oct-18		<0.0764	<0.00700	<0.0428	<0.200	0.356	<0.00760	<0.00938	<0.0173	0.00753	J <0.00758	<0.00696	<0.00906	
	MW-28	Apr-19		<0.191	<0.0175	<0.107	<0.500	J4 1.43	<0.0190	<0.0234	<0.0433	<0.0138	<0.0190	<0.0174	<0.0226	
	MW-28	Oct-19		<0.191	<0.0175	<0.107	<0.500	1.51	<0.0190	<0.0235	<0.0433	0.0372	J <0.0190	<0.0174	<0.0227	
	MW-28	Jun-20		<0.00394	0.00154	J <0.00239	<0.0565	0.397	<0.000680	<0.000645	<0.00303	0.000607	J <0.000640	<0.000580	J4 <0.000960	
	MW-28	Oct-20		<0.00394	0.00110	J <0.00239	<0.0565	0.362	<0.000680	<0.000645	<0.00303	<0.000481	<0.000640	<0.000580	<0.000960	
	MW-48	Apr-18		<0.955	<0.0875	<0.535	<2.50	14.9	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113	
	MW-48	Oct-18		<0.955	<0.0875	<0.535	<2.50	J3 7.97	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113	
	MW-48	Apr-19		<0.955	<0.0875	<0.535	<2.50	4.87	<0.0950	<0.117	<0.216	J3 <0.0688	<0.0948	<0.0870	<0.113	
	MW-48	Oct-19		<0.955	<0.0875	<0.535	<2.50	5.04	<0.0950	<0.117	<0.217	<0.0688	<0.0948	<0.0870	<0.113	
	MW-50	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-50	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-50	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-50	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-50	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-50	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	J4 <0.0000962	<0.000128	<0.000116	<0.000192	
	MW-52	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-52	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-52	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	MW-52	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-52	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000318	JB <0.000128	<0.000116	<0.000192	
	MW-52	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-64	Apr-18		<0.0764	<0.00700	<0.0428	<0.200	2.37	<0.00760	<0.00938	<0.0173	0.00554	J <0.00758	<0.00696	<0.00906	
	MW-64	Oct-18		<0.0764	0.00781	J <0.0428	<0.200	38.6	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	J4 <0.00906
	MW-64	Apr-19		<0.0764	<0.00700	<0.0428	<0.200	33.6	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-64	Oct-19		<0.0955	<0.00875	<0.0535	<0.250	35.7	<0.00950	<0.0117	<0.0217	<0.00688	<0.00948	<0.00870	<0.0113	
	MW-64	Jun-20		<0.394	<0.0600	<0.239	<5.65	27.5	<0.0680	<0.0645	<0.303	<0.0481	<0.0640			

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

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HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- toluene (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9	
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW	
Area	Well ID	Date	Dup													
South Refinery	MW-106	Apr-18		<0.764	<0.0700	<0.428	<2.00	8.13	<0.0760	<0.0938	<0.173	<0.0550	<0.0758	<0.0696	<0.0906	
	MW-106	Oct-18		<1.91	<0.175	<1.07	<5.00	11.6	<0.190	<0.234	<0.433	<0.138	<0.190	<0.174	<0.226	
	MW-106	Apr-19		<1.91	<0.175	<1.07	<5.00	J4 5.92	<0.190	<0.234	<0.433	<0.138	<0.190	<0.174	<0.226	
	MW-106	Oct-19		<0.191	<0.0175	<0.107	<0.500	9.61	<0.0190	<0.0235	<0.0433	0.0343	J <0.0190	<0.0174	<0.0227	
	MW-106	Jun-20		<0.0787	<0.0120	<0.0478	<1.13	9.39	<0.0136	<0.0129	<0.0605	<0.00962	<0.0128	<0.0116	<0.0192	
	MW-106	Oct-20		<0.157	<0.0240	<0.0956	<2.26	14.9	<0.0272	<0.0258	<0.121	<0.0192	<0.0256	<0.0232	<0.0384	
	MW-107	Oct-16		<0.0191	<0.00175	<0.0107	<0.0500	6.35	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00226	
	MW-107	Apr-17		<0.191	<0.0175	<0.107	<0.500	3.37	<0.0190	<0.0234	<0.0433	J4 <0.0138	<0.0190	<0.0174	<0.0226	
	MW-107	Apr-18		<0.00382	0.000710	J 0.00375	<0.0100	6.55	<0.000380	<0.000469	<0.000866	0.000332	J <0.000379	<0.000348	<0.000453	
	MW-107	Apr-19		<0.955	<0.0875	<0.535	<2.50	J4 6.43	<0.0950	<0.117	<0.216	<0.0688	<0.0948	<0.0870	<0.113	
	MW-109	Apr-18		<0.0764	<0.00700	<0.0428	<0.200	1.54	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-109	Oct-18		<0.0764	<0.00700	<0.0428	<0.200	J3 1.64	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	MW-109	Apr-19		<0.0764	<0.00700	<0.0428	<0.200	1.03	<0.00760	<0.00938	<0.0173	J3 <0.00550	<0.00758	<0.00696	<0.00906	
	MW-109	Oct-19		<0.0191	<0.00175	<0.0107	<0.0500	1.11	<0.00190	<0.00234	<0.00433	<0.00138	<0.00190	<0.00174	<0.00227	
	MW-109	Jun-20		<0.00787	<0.00120	<0.00478	<0.113	1.78	<0.00136	<0.00129	<0.00605	0.00454	JB <0.00128	<0.00116	<0.00192	
	MW-109	Oct-20		<0.00787	<0.00120	<0.00478	<0.113	1.11	<0.00136	<0.00129	<0.00605	<0.000962	<0.00128	<0.00116	<0.00192	
	MW-110	Apr-18		<0.00382	0.00136	<0.00214	0.0253	J 0.173	<0.000380	<0.000469	<0.000866	0.000511	J <0.000379	<0.000348	<0.000453	
	MW-110	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-110	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	0.0117	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	MW-110	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	0.000530	J <0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-110	Jun-20		<0.000787	0.00103	<0.000478	<0.0113	0.00152	<0.000136	<0.000129	<0.000605	0.000346	JB <0.000128	<0.000116	<0.000192	
	MW-110	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000146	J <0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	MW-139	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	0.00153	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-139	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000275	J <0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	0.000626	J <0.000192	
	MW-139	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	0.000206	J <0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
	RA-313	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	RA-313	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	RA-313	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	J3 <0.000275	<0.000379	<0.000348	<0.000453	
	RA-313	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000433	JB <0.000128	<0.000116	<0.000192	
	RW-4	Apr-17		<0.0191	<0.00175	<0.0107	0.0509	J 0.0294	<0.00190	<0.00234	<0.00433	J4 0.00239	J <0.00190	<0.00174	<0.00226	
	RW-4	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	0.00821	<0.000380	<0.000469	<0.000866	0.000447	J <0.000379	<0.000348	<0.000453	
	RW-4	Apr-19		<0.00382	0.000386	J <0.00214	<0.0100	J4 0.0854	<0.000380	<0.000469	<0.000866	0.00131	<0.000379	<0.000348	<0.000453	
	RW-4	Jun-20		<0.000787	0.000341	J <0.000478	<0.0113	0.0184	<0.000136	<0.000129	<0.000605	0.00108	B <0.000128	<0.000116	<0.000192	
	RW-5R	Apr-15		<0.0380	<0.00350	<0.0210	<0.100	2.92	<0.00380	<0.00470	<0.00870	<0.00280	<0.00380	<0.00350	<0.00450	
	RW-5R	Apr-16		<0.0764	<0.00700	<0.0428	<0.200	3.48	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906	
	RW-6	Apr-15		<0.0380	<0.00350	<0.0210	<0.100	0.636	<0.00380	<0.00470	<0.00870	0.00771	J <0.00380	<0.00350	<0.00450	
RW-6R	Apr-16		<0.00382	0.000401	J <0.00214	<0.0100	0.218	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453		
RW-6	Apr-18		<0.00382	0.000996	J <0.00214	<0.0100	2.67	<0.000380	<0.000469	<0.000866	0.000533	J <0.000379	<0.000348	<0.000453		
RW-6	Apr-19		<0.0764	<0.00700	<0.0428	<0.200	J4 1.18	<0.00760	<0.00938	<0.0173	<0.00550	<0.00758	<0.00696	<0.00906		
RW-15C	Apr-17		<0.0955	<0.00875	<0.0535	<0.250	19.1	<0.00950	<0.0117	<0.0216	<0.00688	<0.00948	<0.00870	<0.0113		
RW-15C	Apr-18		<0.00382	0.00545	<0.00214	<0.0100	21.9	<0.000380	<0.000469	<0.000866	0.000650	JV3 <0.000379	<0.000348	<0.000453		
RW-15C	Apr-19		<0.0382	0.00722	J <0.0214	<0.100	<0.00331	<0.00380	<0.00469	<0.00866	J3 <0.00275	<0.00379	<0.00348	<0.00453		
South RO Field	MW-114	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
	MW-114	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	J3 <0.000331	<0.000380	<0.000469	<0.000866	<0.000275				

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Analyte Group:				Volatile Organic Compounds											
Analyte:				2-Hexanone (Methyl N-Butyl Ketone)	4-Isopropyl- (p-Cymene)	4-Methyl-2- pentanone	Acetone	Benzene	Bromo- dichloro- methane	Bromoform (Tribromo- methane)	Bromo- methane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				---	---	1.24	14.1	0.00500	0.0800	---	0.00754	0.810	0.00500	0.100	20.9
CGWSL Source:				---	---	NMED TW	TMED TW	WQCC HH	USEPA MCL	---	NMED TW	NMED TW	WQCC HH	USEPA MCL	NMED TW
Area	Well ID	Date	Dup												
TMD	MW-20	Apr-17		<0.00382 J3J4	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-20	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-20	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-20	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-21	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-21	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-21	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-21	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-21	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-21	Oct-20		<0.00394	<0.000600	<0.00239	<0.0565	<0.000471	<0.000680	<0.000645	<0.00303	<0.000481	<0.000640	<0.000580	<0.000960
	MW-25	Apr-17		<0.00382 J3J4	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-25	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-25	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-25	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-26	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-26	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-26	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-26	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-27	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-27	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-27	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-27	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-46R	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-46R	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-46R	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-46R	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-46R	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	0.000120 J	<0.000128	<0.000116	<0.000192
	MW-46R	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-68	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-68	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-68	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-68	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-71	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-71	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-71	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-71	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
	MW-89	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-89	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-89	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100 J4	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	MW-89	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192
NP-1	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
NP-1	Oct-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
NP-1	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
NP-1	Oct-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
NP-1	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
NP-1	Oct-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116	<0.000192	
NP-6	Apr-13		<0.0100	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	
NP-6	Apr-15		<0.00380 UJ	<0.000350	<0.00210	<0.0100	<0.000330	<0.000380	<0.000470 UJ	<0.000870	0.00376	<0.000380	<0.000350	<0.000450	
NP-6	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
NP-6	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453	
Upgradient	UG-1	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-1	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-1	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-1	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116 J4	<0.000192
	UG-2	Apr-17		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-2	Apr-18		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-2	Apr-19		<0.00382	<0.000350	<0.00214	<0.0100	<0.000331	<0.000380	<0.000469	<0.000866	<0.000275	<0.000379	<0.000348	<0.000453
	UG-2	Jun-20		<0.000787	<0.000120	<0.000478	<0.0113	<0.0000941	<0.000136	<0.000129	<0.000605	<0.0000962	<0.000128	<0.000116 J4	<0.000192
	UG-3R	Apr-17													

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
Cross-Gradient	KWB-13	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-13	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-13	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000387 J	0.000789 J	<0.000367	<0.00100	0.00236 J ⁴
	KWB-13	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111 J ⁴	<0.000140	0.000234 J	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-136	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-136	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-136	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J ⁴	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-136	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-136	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-136	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000122 J	<0.000430	<0.00100
	NP-5	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500
	NP-5	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	<0.000370	<0.00100	<0.00100
	NP-5	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NP-5	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J ⁴	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	RA-3156	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	RA-3156	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	RA-3156	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J ⁴
	RA-3156	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
Evaporation Ponds	MW-1R	Apr-17		<0.000324	<0.000276 J ⁴	<0.000260	<0.000418 J ⁴	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J ⁴
	MW-1R	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-1R	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-1R	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-2A	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-2A	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-2A	Apr-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500 J ³
	MW-2A	Oct-19		<0.000324	<0.000276 J ³	<0.000260	<0.000418	<0.000327 J ⁴	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-2A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-2A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-3	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Apr-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500
	MW-3	Oct-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J ⁴	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Apr-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00132	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Oct-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-3	Jun-20		<0.00278	<0.0240	<0.00315	<0.00278	<0.00350	<0.00343	<0.00263	<0.0107	<0.00253	0.0181 J	<0.0250
	MW-3	Jun-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000341 J	<0.000430	<0.000101	<0.000430	<0.00100
	MW-3	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000139 J	<0.000430	<0.000101	<0.000430	<0.00100
	MW-3	Oct-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000169 J	<0.000430	<0.000101	<0.000430	<0.00100
	MW-4A	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00352	0.00266	<0.000367	<0.00100	<0.00100
	MW-4A	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	0.00451 J	<0.00360	<0.00184	<0.00500	<0.00500
	MW-4A	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00233	<0.000719	<0.000367	<0.00100	<0.00100 J ³
	MW-4A	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00175	0.000959 J	<0.000367	<0.00100	<0.00100
	MW-4A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.00134	0.000627 J	0.000195 J	<0.000430	<0.00100
	MW-4A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.00191	0.00214	0.000244 J	<0.000430	<0.00100
	MW-4B	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500</				

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
Evaporation Ponds	MW-11B	Mar-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500
	MW-11B	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	<0.000370	<0.00100	<0.00100
	MW-11B	Apr-17		<0.000324	<0.000276 J4	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-11B	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-15	Apr-17		<0.000324	<0.000276 J4	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	0.000373 J	<0.00100	<0.00100 J4
	MW-15	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000836 J	<0.00100	<0.00100
	MW-15	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000549 J	<0.00100	<0.00100
	MW-15	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-18A	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000589 J	<0.00100	<0.00100
	MW-18A	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000566 J	<0.00100	<0.00100
	MW-18A	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000600 J	<0.00100	<0.00100
	MW-18A	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000793 J	<0.00100	<0.00100
	MW-18A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000734 J	<0.000430	<0.00100
	MW-18A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000678 J	<0.000430	<0.00100
	MW-18B	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500
	MW-18B	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	<0.000370	<0.00100	<0.00100
	MW-18B	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-18B	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-22A	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00458	<0.00100	<0.00100
	MW-22A	Apr-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00580	<0.00100	<0.00100
	MW-22A	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	0.00351 J	<0.00500	<0.00500
	MW-22A	Oct-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00446	<0.00100	<0.00100
	MW-22A	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	0.00438	<0.00100	<0.00100
	MW-22A	Apr-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00409	<0.00100	<0.00100
	MW-22A	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000923 J	<0.00100	<0.00100
	MW-22A	Oct-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00103	<0.00100	<0.00100
	MW-22A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00242	<0.000430	<0.00100
	MW-22A	Jun-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00254	<0.000430	<0.00100
	MW-22A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00286	<0.000430	<0.00100
	MW-22A	Oct-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00273	<0.000430	<0.00100
	MW-22B	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	0.00650	<0.0100	<0.00500
	MW-22B	Apr-15		<0.000320 UJ	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	0.00634	<0.00100	<0.00100
	MW-22B	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00564	<0.00100	<0.00100
	MW-22B	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	0.00582	<0.00100	<0.00100
	MW-70	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-70	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-70	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-70	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-70	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000119 J	<0.000430	<0.00100
	MW-70	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000124 J	<0.000430	<0.00100
	MW-72	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-72	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-72	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J3
	MW-72	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-73	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00120	<0.00100	<0.00100 J4
	MW-73	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-73	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J4	&						

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
				Analyte:	Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene	
					Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
					CGWSL:	0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH		
Area	Well ID	Date	Dup													
Evaporation Ponds	MW-86	Jun-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.0199 J	0.00509 J	0.0267 J	<0.00202	<0.00860	<0.0200		
	MW-86	Oct-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.0228	0.00405 J	0.0295 J	<0.00202	<0.00860	<0.0200		
	MW-87	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000710 J	<0.00100	<0.00100		
	MW-87	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000736 J	<0.00100	<0.00100		
	MW-87	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000622 J	<0.00100	<0.00100		
	MW-87	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00108	<0.00100	<0.00100		
	MW-87	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000725 J	<0.000430	<0.00100		
	MW-87	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000777 J	<0.000430	<0.00100		
	MW-88	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-88	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500		
	MW-88	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-88	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-88	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-88	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-120	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-120	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-120	Apr-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500 J3		
	MW-120	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-120	Jun-20		<0.000555	<0.00480	<0.000630	<0.000555	<0.000700	<0.000685	<0.000525	<0.00215	<0.000505	<0.00215	<0.00500		
	MW-120	Oct-20		<0.000555	<0.00480	<0.000630	<0.000555	<0.000700	<0.000685	<0.000525	<0.00215	<0.000505	<0.00215	<0.00500		
	MW-121	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-121	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-121	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J3		
	MW-121	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-121	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-121	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-122	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-122	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-122	Apr-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500 J3		
	MW-122	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-122	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-122	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-123	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00122	<0.00100	<0.00100		
	MW-123	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	<0.00163	<0.00360	<0.00184	<0.00500	<0.00500		
	MW-123	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	0.00163	<0.00100	<0.00100		
	MW-123	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00133	<0.00100	<0.00100		
	MW-123	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00149	<0.000430	<0.00100		
	MW-123	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00174	<0.000430	<0.00100		
	MW-124	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-124	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-124	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-124	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	MW-124	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	MW-124	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100		
	OCD-1R	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	OCD-1R	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100		
	OCD-1R	Apr-19		<0.000324	<0.000276	<0.0002										

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
Field East of Refinery	KWB-1C	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500
	KWB-1C	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	<0.000370	<0.00100	<0.00100
	KWB-1C	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-1C	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	KWB-7	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.0156	0.0103	0.0132	0.00510	<0.00100	0.00350 J
	KWB-7	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.00178	0.00504	0.00156 J	0.00928	<0.00100	<0.00100
	KWB-7	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.00936	0.0409	0.0390	0.00932	<0.000430	0.00822
	KWB-7	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.00262	0.0188	0.00249	0.00365	<0.000430	<0.00100
	KWB-8	Oct-16		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	0.828	<0.0652	1.01	<0.0734	<0.200	<0.200 J4
	KWB-8	Apr-17		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	1.24	0.0467 J	1.92	0.129	<0.100	0.141 J
	KWB-8	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.617	0.0182	0.782	0.134 V3	<0.00100	0.0519
	KWB-8	Oct-20		<0.0222	<0.192	<0.0252	<0.0222	<0.0280	2.89	0.0937 J	4.05	0.0230 J	<0.0860	0.539 J
	KWB-10R	Apr-17		0.0172 J	<0.0138	<0.0130	<0.0209	<0.0164	0.505	0.0486 J	0.716	3.65	<0.0500	0.156 J
	KWB-10R	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.530	0.0494	0.655	5.41	<0.00100	0.152
	KWB-10R	Apr-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	0.354	<0.0815	0.457 J	2.74	<0.250	<0.250
	KWB-10R	Oct-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	0.238 J	<0.0815	0.217 J	4.12	<0.250	<0.250
	KWB-11A	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000355 J	<0.000719	0.00341	<0.00100	<0.00100
	KWB-11A	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00390	<0.000719	0.00290	<0.00100	0.00165 J
	KWB-11A	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	<0.000384	0.00105	<0.000719	0.00371	<0.00100	<0.00100
	KWB-11A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000576 J	0.00360	<0.000430	0.00359	<0.000430	<0.00100
	KWB-11A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000380 J	<0.000430	0.00307	<0.000430	<0.00100
	KWB-11B	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000498 J	<0.00100	<0.00100
	KWB-11B	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00125	<0.00100	<0.00100
	KWB-11B	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	<0.000384	<0.000326	<0.000719	0.000774 J	<0.00100	<0.00100
	KWB-11B	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00103	<0.00100	<0.00100
	KWB-11B	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00140	<0.000430	<0.00100
	KWB-11B	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00156	<0.000430	<0.00100
	KWB-12A	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12A	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12A	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111 J4	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-12A	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-12B	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Apr-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Oct-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Apr-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Oct-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-12B	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111 J4	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-12B	Jun-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-12B	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-12B	Oct-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	KWB-P4	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500
	KWB-P4	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330	<0.000380	<0.000330	<0.000720	<0.000370	<0.00100	<0.00100
	KWB-P4	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	KWB-P4	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-57	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-57	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-57	Apr-19		<0.0003										

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300	
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH	
Area	Well ID	Date	Dup												
Field East of Refinery	MW-128	Oct-17			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.00128	0.00133	0.00336	0.785	<0.00100	0.00142 J
	MW-128	Apr-18			<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	<0.00768	<0.00652	<0.0144	0.961	<0.0200	0.0422 J
	MW-128	Oct-18			<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0247	<0.00652	<0.0144	0.963	<0.0200	<0.0200
	MW-128	Apr-19			<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0199 J	<0.00652	<0.0144	0.765	<0.0200	<0.0200
	MW-129	Apr-16			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.0192	0.00172	0.00199	4.59	<0.00100	0.00534
	MW-129	Oct-16			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.000985 J	0.00144	0.00124	4.73	<0.00100	0.00186 J4
	MW-129	Apr-17			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000976 J	0.000737 J	4.34	<0.00100	0.00247 J
	MW-129	Apr-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.00130	0.000687 J	0.00125 J	5.40	<0.00100	0.00124 J
	MW-130	Apr-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00134	<0.00100	<0.00100
	MW-130	Oct-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000976 J	<0.00100	<0.00100
	MW-130	Apr-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00131	<0.00100	<0.00100 J4
	MW-130	Oct-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00295	<0.00100	<0.00100
	MW-130	Jun-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00424	<0.000430	<0.00100
	MW-130	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00328	<0.000430	<0.00100
	MW-131	Apr-17			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.0532	0.0206	0.0735	3.99	<0.00100	0.0295
	MW-131	Oct-17			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.0960	0.0162	<0.180	5.25	<0.00100	0.0303
	MW-131	Oct-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.0255	0.00961	0.681	4.95	<0.00100	0.0314
	MW-131	Jun-20			<0.00555	<0.0480	<0.00630	<0.00555	<0.00700	0.0171 J	0.00743 J	0.544	2.91	<0.0215	<0.0500
	MW-133	Nov-14			<0.0320	<0.0280	<0.0260	<0.0420	<0.0330	0.300	0.0570 J	0.180 J	5.60	<0.100	<0.100
	MW-133	Apr-15			<0.0320	<0.0280	<0.0260	<0.0420	<0.0330	0.199	<0.0330	0.108	6.67	<0.100	<0.100
	MW-134	Apr-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-134	Apr-18	FD		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-134	Oct-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-134	Oct-18	FD		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-134	Apr-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-134	Apr-19	FD		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-134	Oct-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.000442 J	<0.000326	<0.000719	<0.000367	<0.00100	0.00326 J
	MW-134	Oct-19	FD		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	0.00106 J	<0.000367	<0.00100	0.00248 J
	MW-134	Jun-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-134	Jun-20	FD		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-134	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-134	Oct-20	FD		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-135	Apr-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-135	Oct-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-135	Apr-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-135	Oct-19			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-135	Jun-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-135	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-145	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000496 J	<0.000430	<0.00100
	MW-145	Oct-20	FD		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000507 J	<0.000430	<0.00100
	MW-146	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-147	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-148	Oct-20			<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000183 J	<0.000430	<0.00100
	RA-4196	Apr-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00693	<0.00100	<0.00100
	RA-4196	Oct-18			<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.00753	<0.00100	<0.00100
	RA-4196	Apr-19			<0.000324	<0.000276	<0.000260	<0.000418							

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro-methane	cis-1,2-Dichloro-ethene	cis-1,3-Dichloro-propene	Dibromo-chloromethane	Ethyl-benzene	Isopropyl-benzene (Cumene)	m,p-Xylene	Methyl tert-butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
NCL	NCL-31	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-31	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000334 J	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-31	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00251	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-31	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000681 J	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-31	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000241 J	0.000205 J	0.000667 J	<0.000101	<0.000430	<0.00100 J4
	NCL-31	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000275 J	0.000108 J	0.000833 J	<0.000101	<0.000430	<0.00100
	NCL-32	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-32	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-32	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-32	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-32	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4
	NCL-32	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	NCL-33	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-33	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000618 J	<0.00100	<0.00100
	NCL-33	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-33	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000371 J	<0.00100	<0.00100
	NCL-33	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000208 J	<0.000430	<0.00100 J4
	NCL-33	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.000230 J	<0.000430	<0.00100
	NCL-34A	Apr-18		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	<0.00384	0.0979	0.0390	<0.00367	<0.0100	<0.0100
	NCL-34A	Oct-18		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	0.00672 J	0.0828	0.0266	<0.00367	<0.0100	<0.0100
	NCL-34A	Apr-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	<0.00768	0.0808	<0.0144	<0.00734	<0.0200	<0.0200 J3,J4
	NCL-34A	Oct-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.00677	0.0824	0.0175	<0.00184	<0.00500	<0.00500
	NCL-34A	Jun-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.00476 J	0.0844	0.0335 J	<0.00202	<0.00860	<0.0200 J4
	NCL-44	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00122	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-44	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00101	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-44	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00109	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-44	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00154	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-44	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.00134	<0.000430	0.000383 J	<0.000430	<0.00100 J4
	NCL-44	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.00164	<0.000430	0.000412 J	<0.000430	<0.00100
	NCL-49	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Apr-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Oct-18	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Apr-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	NCL-49	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
NCL-49	Oct-19	FD	<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
NCL-49	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
NCL-49	Jun-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
NCL-49	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
NCL-49	Oct-20	FD	<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
North Refinery	MW-23	Apr-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.114	0.141	<0.0719	<0.0367	<0.100	0.247 J
	MW-23	Oct-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.0392 J	0.108	<0.0719	<0.0367	<0.100	0.145 J
	MW-23	Apr-19		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.0397 J	0.0949 J	<0.0719	<0.0367	<0.100	<0.100
	MW-23	Oct-19		<0.00324	<0.00276	<0.000260	<0.000418	<0.00327	0.0105	0.0779	<0.00719	0.0336	<0.0100	0.0359 J
	MW-23	Jun-20		<0.00111	<0.00960	<0.00126	<0.00111	<0.00140	0.00865 J	0.101	<0.00430	0.0407	<0.00430	0.0380 J
	MW-23	Oct-20		<0.00111	<0.00960	<0.00126	<0.00111	<0.00140	0.0264	0.125	<0.00430	0.0751	<0.00430	0.0750
	MW-29	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.000482 J	<0.00100	<0.00100
	MW-29	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00163				

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
North Refinery	MW-62	Apr-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.129	0.128	1.15	<0.0367	<0.100	0.313 J
	MW-62	Oct-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.106	0.112	0.871	<0.0367	<0.100	0.183 J
	MW-62	Apr-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0652	0.117	0.988	<0.00734	<0.0200	0.177
	MW-62	Oct-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0653	0.124	0.874	0.0449	<0.0200	0.177
	MW-62	Jun-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.0506	0.0647	0.557	0.0672	<0.00860	0.177
	MW-62R	Oct-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.151	0.0974	0.757	0.0836	<0.00860	0.116
	MW-62R	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.0302	0.162	0.136	0.0107	<0.000430	0.0790
	MW-67	Oct-17		<0.000324	<0.000276	0.00275	<0.000418	<0.000327	0.00330	0.0300	0.00245	0.201	<0.00100	<0.00100
	MW-67	Apr-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.00500	0.0470	0.00916 J	0.219	<0.00500	<0.00500
	MW-67	Oct-18		<0.000324	<0.000276	0.00122	<0.000418	<0.000327	0.000620 J	0.0231	0.00113 J	0.289	<0.00100	<0.00100
	MW-67	Apr-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.00237 J	0.0348	<0.00360	0.140	<0.00500	<0.00500
	MW-90	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0321	<0.000719	<0.000367	<0.00100	<0.00100
	MW-90	Oct-18		0.000589 J	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0355	<0.000719	<0.000367	<0.00100	<0.00100
	MW-90	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0289	<0.000719	<0.000367	<0.00100	<0.00100
	MW-90	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	0.000557 J	0.0259	<0.000719	<0.000367	<0.00100	<0.00100
	MW-90	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000290 J	0.0353	<0.000430	<0.000101	<0.000430	<0.00100
	MW-90	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000310 J	0.0462	<0.000430	<0.000101	<0.000430	<0.00100
	MW-91	Apr-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.258	0.106	0.559	<0.0367	<0.100	0.136 J
	MW-91	Oct-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.210	0.0813 J	0.552	<0.0367	<0.100	<0.100
	MW-91	Apr-19		<0.0324	<0.0276	0.0926 J	<0.0418	<0.0327	0.481	0.0850 J	0.612	<0.0367	<0.100	<0.100
	MW-91	Oct-19		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327 J4	1.48	0.115	1.57	<0.0367	<0.100	<0.100
	MW-91	Jun-20		<0.0111	<0.0960	<0.0126	<0.0111	<0.0140	1.85	0.105	1.85	<0.0101	<0.0430	<0.100
	MW-92	Apr-16		<0.000324	<0.000276	0.0640	<0.000418	<0.000327	0.462	0.0373	0.161	0.113	<0.00100	0.224 J
	MW-92	Oct-16		<0.00648	<0.00552	0.0968	<0.00836	<0.00654	0.400	0.0242	0.0947	0.134	<0.0200	0.174
	MW-93	Apr-17		<0.00810	<0.00690	<0.00650	<0.0104	<0.00818	<0.00960	0.0355	0.326	<0.00918	<0.0250	0.0422 J
	MW-93	Apr-18		<0.000324	<0.000276	0.000281 J	<0.000418	<0.000327	0.00738	0.0359	0.332	<0.000367	<0.00100	0.0256
	MW-93	Apr-19		<0.000324	<0.000276	0.000267 J	<0.000418	<0.000327	0.00962	0.0340	0.299	<0.000367	<0.00100	0.0482
	MW-93	Jun-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.00622 J	0.0262	0.296	<0.00202	<0.00860	0.0519 J
	MW-94	Oct-15		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	0.509	0.0646	0.214	0.798	<0.0100	0.202
	MW-94	Apr-16		<0.0162	<0.0138	0.0149 J	<0.0209	<0.0164	0.553	0.0776	0.228	0.621	<0.0500	0.228 J
	MW-94	Oct-16		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.564	0.0705	0.202	2.01	<0.00500	0.128
	MW-94	Apr-17		<0.00810	<0.00690	<0.00650	<0.0104	<0.00818	0.432	0.0621	0.168	0.958	<0.0250	0.174
	MW-95	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0114	<0.000719	<0.000367	<0.00100	<0.00100
	MW-95	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0122	<0.000719	<0.000367	<0.00100	<0.00100
	MW-95	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00797	<0.000719	<0.000367	<0.00100	<0.00100
	MW-95	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000196 J	0.00904	<0.000430	<0.000101	<0.000430	<0.00100
	MW-96	Apr-18		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	<0.0192	0.118	<0.0360	29.4	<0.0500	<0.0500
	MW-96	Oct-18		<0.324	<0.276	<0.260	<0.418	<0.327	<0.384	<0.326	<0.719	26.7	<1.00	<1.00
	MW-96	Apr-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	<0.0192	0.0919	<0.0360	32.7	<0.0500	<0.0500
	MW-96	Oct-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	<0.0192	0.0614	<0.0360	33.3	<0.0500	<0.0500
	MW-96	Jun-20		<0.0278	<0.240	<0.0315	<0.0278	<0.0350	<0.0343	0.0848 J	<0.108	37.6	<0.108	<0.250
	MW-96	Oct-20		<0.0278	<0.240	<0.0315	<0.0278	<0.0350	<0.0343	0.0931 J	<0.108	40.5	<0.108	<0.250
	MW-98	Apr-18		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	1.08	0.102	1.88	<0.0184	<0.0500	0.327
	MW-98	Oct-18		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	1.09	0.0816	2.13	<0.0184	<0.0500	0.257
	MW-98	Apr-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	1.18	0.0988	2.16	<0.0184	<0.0500	0.251
	MW-98	Oct-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	0.870	0.0947	1.84	<0.0184	<0.0500	0.301
	MW-98	Jun-20		<0.00555	<0.0480	<0.00630	<0.00555 J4	<0.00700	0.711	0.120	2.14	<0.00505	<0.0215	0.255
	MW-98	Oct-20		<0.00555	<0.0480	<0.00630	<0.00555	<0.00700	0.788	0.0840	1.85	<0.00505	<0.0215	0.207 J
	MW-137	Oct-17		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	1.53	0.113 J	0.891	0.0754 J	<0.200	0.317 J
	MW-137	Apr-18		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	1.86	0.117 J	0.905	0.0758 J	<0.200	0.373 J
	MW-137	Oct-18		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	1.09	0.0812 J	0.523	0.0876 J	<0.200	0.237 J
	MW-137	Apr-19		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	1.21	0.0714 J	0.547	<0.0734	<0.200	<0.200
	MW-138	Oct-17		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.0244	0.0579	0.00565 J	0.163	<0.00500	0.0635
	MW-138	Apr-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.222	0.0572	0.0438	0.188	<0.00500	0.0667
	MW-138	Oct-18		<0.00162	<0.00138	<0.0								

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds										
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup											
North RO Field	MW-119	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-119	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-119	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-119	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-119	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-119	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
South Refinery	KWB-2R	Apr-17		0.00360 J	<0.000276	<0.000260	<0.000418	<0.000327	0.00543	0.00816	0.0273	0.0192	<0.00100	0.00609
	KWB-2R	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.325	0.0635	0.183	0.0202	<0.00100	0.0675
	KWB-2R	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.686	0.0403	0.175	0.0235	<0.00100	0.00993 J4
	KWB-2R	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	0.264	0.0724	0.109	0.0216	<0.00100	0.0323
	KWB-5	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.0960	0.00852	<0.180	12.4	<0.00100	0.0131
	KWB-5	Apr-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	<0.0960	<0.0815	<0.180	10.3	<0.250	<0.250
	KWB-5	Oct-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	<0.0960	<0.0815	<0.180	10.8	<0.250	<0.250
	KWB-5	Apr-19		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	<0.0960	<0.0815	<0.180	9.94	<0.250	<0.250 J4
	KWB-6	Apr-17		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.346	0.0344	0.373	0.154	<0.00500	0.0563
	KWB-6	Oct-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.183	0.0199	0.275	0.102	<0.00100	0.0436
	KWB-6	Apr-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.156	0.0252	0.223	0.122	<0.0200	0.0587 J
	KWB-6	Oct-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.102	0.0133 J	0.356	0.120	<0.0200	0.0469 J
	MW-28	Apr-18		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	0.0408 J	0.0361 J	0.144	0.0977	<0.0500	0.0604 J
	MW-28	Oct-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.00788 J	0.00981 J	0.0301 J	0.0425	<0.0200	<0.0200
	MW-28	Apr-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	0.0274 J	0.0436 J	0.140	0.268	<0.0500	0.0736 J
	MW-28	Oct-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	0.0375 J	0.0755	0.264	0.692	<0.0500	0.137 J
	MW-28	Jun-20		0.00390 J	<0.00480	<0.000630	<0.000555	<0.000700	0.0201	0.0246	0.0901	0.194	<0.00215	0.0157 J
	MW-28	Oct-20		<0.000555	<0.00480	<0.000630	<0.000555	<0.000700	0.0136	0.0192	0.0609	0.214	<0.00215	0.00638 J
	MW-48	Apr-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	1.36	<0.0815	0.954	0.171 J	<0.250	<0.250
	MW-48	Oct-18		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	0.479	0.0962 J	0.358 J	0.611	<0.250	<0.250
	MW-48	Apr-19		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	0.603	0.122 J	0.498 J	0.372	<0.250	1.20 JJ4
	MW-48	Oct-19		<0.0810	<0.0690	<0.0650	<0.105	<0.0817	0.118 J	<0.0815	0.290 J	0.517	<0.250	<0.250
	MW-50	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-50	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-50	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-50	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	0.000417 J	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-50	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000106 J	<0.000430	<0.000101	<0.000430	<0.00100
	MW-50	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.000110 J	<0.000430	<0.000101	<0.000430	<0.00100
	MW-52	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-52	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-52	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4
	MW-52	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
	MW-52	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-52	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100
	MW-64	Apr-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.237	0.00783 J	0.360	0.0359	<0.0200	0.0238 J
	MW-64	Oct-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	2.47	0.0804	3.66	0.510	<0.0200	0.158
	MW-64	Apr-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	2.46	0.0702	3.90	0.509	<0.0200	0.171
	MW-64	Oct-19		<0.00810	<0.00690	<0.00650	<0.0105	<0.00818 J4	2.79	0.0758	3.92	0.502	<0.0250	0.133
	MW-64	Jun-20		<0.0555	<0.480	<0.0630	<0.0555 J4	<0.0700	1.76	0.0605 J	3.26	0.461 J	<0.215	<0.500
	MW-64	Oct-20		<0.0555	<0.480	<0.0630	<0.0555	<0.0700	1.55	0.0640 J	2.31	0.560	<0.215	<0.500
	MW-65	Apr-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.0528 J	0.0594 J	<0.0719	1.73	<0.100	0.253 J
	MW-65	Oct-18		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	<0.0384	0.0545 J	<0.0719	2.38	<0.100	<0.100
	MW-65	Apr-19		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327	0.0628 J	0.0535 J	<0.0719	2.35	<0.100	0.152 J
	MW-65	Oct-19		<0.0324	<0.0276	<0.0260	<0.0418	<0.0327 J4	0.0565 J	0.0608 J	<0.0719	1.82	<0.100	0.148 J
	MW-66	Apr-18		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	0.00776 J	0.0694	0.0118 J	1.78	<0.0100	0.186
	MW-66	Oct-18		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	0.00686 J	0.0634	0.0102 J	2.05	<0.0100	0.161
	MW-66	Apr-19		<0.00810	<0.00690	<0.00650	<0.0104	<0.00818	<0.00960					

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				Chloroform	Chloro- methane	cis-1,2- Dichloro- ethene	cis-1,3- Dichloro- propene	Dibromo- chloromethane	Ethyl-benzene	Isopropyl- benzene (Cumene)	m,p-Xylene	Methyl tert- butyl ether (MTBE)	Methylene chloride	Naphthalene	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300	
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH	
Area	Well ID	Date	Dup												
South Refinery	MW-106	Apr-18		<0.0648	<0.0552	<0.0520	<0.0836	<0.0654	0.0772 J	<0.0652	0.298 J	0.0813 J	<0.200	<0.200	
	MW-106	Oct-18		<0.162	<0.138	<0.130	<0.209	<0.164	<0.192	<0.163	<0.360	<0.184	<0.500	<0.500	
	MW-106	Apr-19		<0.162	<0.138	<0.130	<0.209	<0.164 J4	<0.192	0.305 J	<0.360	<0.184	<0.500	1.24 J	
	MW-106	Oct-19		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	0.0301 J	0.0336 J	0.196	0.0757	<0.0500	0.148 J	
	MW-106	Jun-20		<0.0111	<0.0960	<0.0126	<0.0111	<0.0140	0.0662 J	0.0273 J	0.173 J	0.0672 J	<0.0430	<0.100	
	MW-106	Oct-20		<0.0222	<0.192	<0.0252	<0.0222	<0.0280	0.161 J	0.0376 J	0.253 J	0.105 J	<0.0860	<0.200	
	MW-107	Oct-16		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.0192	0.0457	0.00857 J	3.05	<0.00500	0.0614	
	MW-107	Apr-17		<0.0162	<0.0138	<0.0130	<0.0209	<0.0164	<0.0192	0.0334 J	<0.0360	2.78	<0.0500	0.0788 J	
	MW-107	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.0382	0.0576	0.0130	3.02	<0.00100	0.143	
	MW-107	Apr-19		<0.0810	<0.0690	<0.0650	<0.104	<0.0818	<0.0960	<0.0815	<0.180	3.39	<0.250	<0.250	
	MW-109	Apr-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0122 J	0.0632	0.0257 J	<0.00734	<0.0200	<0.0200	
	MW-109	Oct-18		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0111 J	0.0639	0.0220 J	<0.00734	<0.0200	<0.0200	
	MW-109	Apr-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0115 J	0.0606	0.0183 J	<0.00734	<0.0200	<0.0200 J4	
	MW-109	Oct-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.00829	0.0523	0.0136	<0.00184	<0.00500	<0.00500	
	MW-109	Jun-20		<0.00111	<0.00960	<0.00126	<0.00111	<0.00140	0.00892 J	0.0746	0.0238	<0.00101	<0.00430	<0.0100	
	MW-109	Oct-20		<0.00111	<0.00960	<0.00126	<0.00111	<0.00140	0.00637 J	0.0619	0.0114 J	<0.00101	<0.00430	<0.0100	
	MW-110	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.109	0.0533	0.0576	<0.000367	<0.00100	0.0135	
	MW-110	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00680	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-110	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.000675 J	0.00922	0.00169 J	<0.000367	<0.00100	<0.00100 J4	
	MW-110	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.000929 J	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-110	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000357 J	0.00747	0.00123 J	<0.000101	<0.000430	<0.00100	
	MW-110	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000175 J	0.00157	<0.000430	<0.000101	<0.000430	<0.00100	
	MW-139	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.0187	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-139	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.0102	<0.000430	<0.000101	<0.000430	<0.00100	
	MW-139	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	0.00832	<0.000430	<0.000101	<0.000430	0.00410 J	
	RA-313	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	RA-313	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	RA-313	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4	
	RA-313	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
	RW-4	Apr-17		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	<0.00192	0.00716	<0.00360	0.132	<0.00500	<0.00500	
	RW-4	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	0.00618	<0.000719	0.0583	<0.00100	0.00103 J	
	RW-4	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.00198	0.0159	0.00147 J	0.0933	<0.00100	0.0266	
	RW-4	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.00185	0.0254	0.00270	0.0727	<0.000430	<0.00100	
	RW-5R	Apr-15		<0.00320	<0.00280	<0.00260	<0.00420	<0.00330	1.03	0.0398	1.39	2.15	<0.0100	0.174	
	RW-5R	Apr-16		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	1.20	0.0643	1.68	1.64	<0.0200	0.205	
	RW-6	Apr-15		<0.00320	<0.00280	<0.00260	<0.00420	<0.00330	0.0476	0.0173	0.102	2.27	<0.0100	0.0602	
	RW-6R	Apr-16		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.00474	0.00797	0.00472	2.68	<0.00100	0.00574	
	RW-6	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.0838	0.0299	0.0926	<0.000367	<0.00100	0.0290	
	RW-6	Apr-19		<0.00648	<0.00552	<0.00520	<0.00836	<0.00654	0.0487	0.0327	0.0224 J	0.792	<0.0200	0.0678 J	
	RW-15C	Apr-17		<0.00810	<0.00690	<0.00650	<0.0104	<0.00818	4.19	0.143	4.92	4.25	<0.0250	0.383	
	RW-15C	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	3.93	0.114	2.98	3.02	<0.00100	<0.500	
	RW-15C	Apr-19		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	3.03	0.134	1.04	3.66	<0.0100	0.173 J4	
	South RO Field	MW-114	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
MW-114		Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-114		Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-114		Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-114		Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00475	<0.000430	<0.00100	
MW-114		Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.0112	<0.000430	<0.00100	
MW-115		Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-115		Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-115		Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-115		Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-115		Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00126	<0.000430	<0.00100	
MW-115		Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00364	<0.000430	<0.00100	
MW-116		Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-116		Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-116		Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-116		Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327 J4	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
MW-116		Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
MW-116		Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
TEL	MW-49	Apr-18		<0.00324	<0.00276	<0.00260	<0.00418	<0.00327	0.0135	0.0393	0.133	0.113	<0.0100	0.0159 J	
	MW-49	Oct-18		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.0143	0.0436	0.130	0.124	<0.00500	0.00585 J4	
	MW-49	Apr-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.0137	0.0347	0.112	0.139	<0.00500	0.0165 J	
	MW-49	Oct-19		<0.00162	<0.00138	<0.00130	<0.00209	<0.00164	0.0175	0.0311	0.120	0.160	<0.00500	0.0132 J	
	MW-49	Jun-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.0249	0.0470	0.179	0.148	<0.00860	0.0241 J	
	MW-49	Oct-20		<0.00222	<0.0192	<0.00252	<0.00222	<0.00280	0.0121 J	0.0329	0.113	0.196	<0.00860	<0.0200	
	TEL-1	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	0.000482 J	0.0011					

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				Chloroform	Chloro-methane	cis-1,2-Dichloro-ethene	cis-1,3-Dichloro-propene	Dibromo-chloromethane	Ethyl-benzene	Isopropyl-benzene (Cumene)	m,p-Xylene	Methyl tert-butyl ether (MTBE)	Methylene chloride	Naphthalene	
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
CGWSL:				0.0800	0.0203	0.0700	0.00471	0.0800	0.700	0.447	---	0.100	0.00500	0.0300	
CGWSL Source:				USEPA MCL	NMED TW	WQCC HH	USEPA TW	USEPA MCL	WQCC HH	WQCC TW	---	WQCC Dom	WQCC HH	WQCC HH	
Area	Well ID	Date	Dup												
TMD	MW-20	Apr-17		<0.000324	<0.000276 J4	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4	
	MW-20	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-20	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J3J4	
	MW-20	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
	MW-21	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.0382	<0.00100	<0.00100	
	MW-21	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.0695	<0.00100	<0.00100	
	MW-21	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.101	<0.00100	<0.00100 J3J4	
	MW-21	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.217	<0.00100	<0.00100	
	MW-21	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.128	<0.000430	<0.00100 J4	
	MW-21	Oct-20		<0.000555	<0.00480	<0.000630	<0.000555	<0.000700	<0.000685	<0.000525	<0.00215	0.243	<0.00215	<0.00500	
	MW-25	Apr-17		<0.000324	<0.000276 J4	<0.000260	<0.000418 J4	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100 J4	
	MW-25	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-25	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-25	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
	MW-26	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-26	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-26	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-26	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
	MW-27	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-27	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-27	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-27	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
	MW-46R	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-46R	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-46R	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-46R	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-46R	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
	MW-46R	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100	
	MW-68	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-68	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-68	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-68	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
	MW-71	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-71	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-71	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-71	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.00152	<0.000430	<0.00100 J4	
	MW-89	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-89	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-89	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100	
	MW-89	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	<0.000101	<0.000430	<0.00100 J4	
Upgradient	NP-1	Apr-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.132	<0.00100	<0.00100	
	NP-1	Oct-18		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.547	<0.00100	<0.00100	
	NP-1	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.0484	<0.00100	<0.00100 J3J4	
	NP-1	Oct-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.149	<0.00100	<0.00100	
	NP-1	Jun-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	<0.000137	<0.000105	<0.000430	0.216	<0.000430	<0.00100 J4	
	NP-1	Oct-20		<0.000111	<0.000960	<0.000126	<0.000111	<0.000140	0.000245 J	<0.000105	0.000456 J	0.217	<0.000430	<0.00100	
	NP-6	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	
	NP-6	Apr-15		<0.000320	<0.000280	<0.000260	<0.000420	<0.000330 UJ	<0.000380	<0.000330	<0.000720	0.00878	<0.00100 UJ	<0.00100 UJ	
	NP-6	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.0353	<0.00100	<0.00100	
	NP-6	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	0.0729	<0.00100	<0.00100 J3J4	
	UGradient	UG-1	Apr-17		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
		UG-1	Apr-18		0.000367 J	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
		UG-1	Apr-19		<0.000324	<0.000276	<0.000260	<0.000418	<0.000327	<0.000384	<0.000326	<0.000719	<0.000367	<0.00100	<0.00100
		UG-1	Jun-20		<0.000111	<0.00096									

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
CGWSL Source:				WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
Area	Well ID	Date	Dup												
Cross-Gradient	KWB-13	Apr-17		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-13	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-13	Apr-19		<0.000361	0.000683 J	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-13	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	MW-136	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-136	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-136	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-136	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-136	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-136	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	NP-5	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0150	<0.00500	<0.00500	<0.00500	<0.00200
	NP-5	Apr-15		<0.000360	<0.000350	<0.000340	<0.000360	<0.000310	<0.000370	<0.000780	<0.00110	<0.000400	<0.000420	<0.000400	<0.000260
	NP-5	Apr-17		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NP-5	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-3156	Apr-17		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-3156	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-3156	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-3156	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-1R	Apr-17		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-1R	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-1R	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-1R	Jun-20		<0.000157 J4	<0.0000993	<0.000174	<0.000125 J4	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-2A	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-2A	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-2A	Apr-19		<0.00180	<0.00174	<0.00170	<0.00182	<0.00154	<0.00186	<0.00206	<0.00530	<0.00198	<0.00210	<0.00199	<0.00130
	MW-2A	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-2A	Jun-20		<0.000157 J4	<0.0000993	<0.000174	<0.000125 J4	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-2A	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-3	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-3	Apr-18	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-3	Oct-18		<0.00180	<0.00174	<0.00170	<0.00182	<0.00154	<0.00186	<0.00206	<0.00530	<0.00198	<0.00210	<0.00199	<0.00130
	MW-3	Oct-18	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-3	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-3	Apr-19	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-3	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	0.000488 JB	<0.000259
MW-3	Oct-19	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307 J3	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259	
MW-3	Jun-20		<0.00393	<0.00248	<0.00435	<0.00313	<0.00295	<0.00750	<0.00695	<0.00435	<0.00373	<0.00295	<0.00475	<0.00585	
MW-3	Jun-20	FD	<0.000157	<0.0000993	<0.000174	0.000130 J	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234	
MW-3	Oct-20		<0.000157	<0.0000993	<0.000174	0.000140 J	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	0.000491 J	<0.000234	
MW-3	Oct-20	FD	<0.000157	<0.0000993	<0.000174	0.000160 J	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118 J4	<0.000190	<0.000234	
MW-4A	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	0.00266 J	<0.000396	<0.000419	<0.000398	<0.000259	
MW-4A	Oct-18		<0.00180	<											

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Evaporation Ponds

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Evaporation Ponds

Field East of Refinery

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
CGWSL Source:				WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
Area	Well ID	Date	Dup												
Field East of Refinery	KWB-1C	Apr-13		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0150	<0.00500	<0.00500	<0.00500	<0.00200
	KWB-1C	Apr-15		<0.000360	<0.000350	<0.000340	<0.000360	<0.000310	<0.000370	<0.000780	<0.00110	<0.000400	<0.000420	<0.000400	<0.000260
	KWB-1C	Apr-17		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-1C	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-7	Oct-17		0.000456 J	0.0105	0.00112	0.00591	<0.000307	<0.000372	<0.000412	0.0143	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-7	Oct-18		<0.000361	0.00333	<0.000341	0.00314	<0.000307	<0.000372	<0.000412	0.00156 J	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-7	Jun-20		0.000580 J	0.0205	0.00226	0.00879	<0.000118	<0.000300	0.000536 J	0.0413	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-7	Oct-20		0.000270 J	0.0140	0.000402 J	0.00555	<0.000118	<0.000300	<0.000278	0.00289 J	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-8	Oct-16		<0.0722	<0.0698	0.150 J	<0.0730	<0.0614	<0.0744	1.48	1.16	<0.0792	<0.0838	<0.0796	<0.0518
	KWB-8	Apr-17		<0.0361	0.0852 J	0.145	<0.0365	<0.0307	<0.0372	0.747	2.07	<0.0396	<0.0419	<0.0398	<0.0259
	KWB-8	Oct-17		0.00209	0.0217	0.0133	<0.000365	<0.000307	<0.000372	0.336	0.795	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-8	Oct-20		<0.0314	0.168 J	0.139 J	<0.0250	<0.0236	<0.0600	1.08	4.19	<0.0298	<0.0236	<0.0380	<0.0468
	KWB-10R	Apr-17		<0.0180	0.0714	0.198	<0.0182	<0.0154	<0.0186	0.0605	0.914	<0.0198	<0.0210	<0.0199	<0.0130
	KWB-10R	Oct-17		<0.000361	0.0748	0.112 J	0.0126	<0.000307	<0.000372	0.0588	0.767	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-10R	Apr-18		<0.0902	<0.0872	0.0922 J	<0.0912	<0.0768	<0.0930	<0.103	0.549 J	<0.0990	<0.105	<0.0995	<0.0648
	KWB-10R	Oct-18		<0.0902	<0.0872	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	<0.265	<0.0990	<0.105	<0.0995	<0.0648
	KWB-11A	Apr-18		<0.000361	<0.000349	<0.000341	0.00328	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11A	Oct-18		0.000730 J	<0.000349	<0.000341	0.00466	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11A	Apr-19		<0.000361	<0.000349	<0.000341	0.00135	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11A	Jun-20		<0.000157	0.00125	<0.000174	0.00210	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-11A	Oct-20		<0.000157	<0.0000993	<0.000174	0.00279	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-11B	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11B	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11B	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11B	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-11B	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-11B	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-12A	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	KWB-12A	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12A	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-12A	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-12B	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Apr-18	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	KWB-12B	Oct-18	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Apr-19	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Oct-19	FD	<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-12B	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-12B	Jun-20	FD	<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	KWB-12B	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-12B	Oct-20	FD	<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-P4	Apr-13		<0.00500	<0.00500	<0.00500	<0.00								

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

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HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Area	Well ID	Date	Dup	Analyte:	n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
				Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				CGWSL:	1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
				CGWSL Source:	WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
Field East of Refinery	MW-128	Oct-17			<0.000361	0.00170	<0.000341	0.000380 J	<0.000307	<0.000372	0.000781 J	0.00336	<0.000396	<0.000419	<0.000398	<0.000259
	MW-128	Apr-18			<0.00722	<0.00698	<0.00682	<0.00730	<0.00614	<0.00744	<0.00824	<0.0212	<0.00792	<0.00838	<0.00796	<0.00518
	MW-128	Oct-18			<0.00722	0.00759 J	<0.00682	<0.00730	<0.00614	<0.00744	<0.00824	<0.0212	<0.00792	<0.00838	<0.00796	<0.00518
	MW-128	Apr-19			<0.00722	<0.00698	<0.00682	<0.00730	<0.00614	<0.00744	<0.00824	<0.0212	<0.00792	<0.00838	<0.00796	<0.00518
	MW-129	Apr-16			0.000444 J	0.000863 J	0.000796 J	0.00103	<0.000307	<0.000372	<0.0390	0.00278 J	<0.000396	<0.000419 J4	<0.000398	<0.000259
	MW-129	Oct-16			<0.000361	0.000383 J	<0.000341	0.00105	<0.000307	<0.000372	0.000920 J	0.00124 J	<0.000396	<0.000419	<0.000398	<0.000259
	MW-129	Apr-17			<0.000361	<0.000349	<0.000341	0.000928 J	<0.000307	<0.000372	0.000543 J	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-129	Apr-18			<0.000361	<0.000349	<0.000341	0.000419 J	<0.000307	<0.000372	0.000816 J	0.00125 J	<0.000396	<0.000419	<0.000398	<0.000259
	MW-130	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-130	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-130	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-130	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-130	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-130	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118 J4	<0.000190	<0.000234
	MW-131	Apr-17			0.00255	0.0338	0.0406	0.00331	<0.000307	<0.000372	0.153	0.114	<0.000396	<0.000419	<0.000398	<0.000259
	MW-131	Oct-17			0.00185	0.0262	<0.0852	0.00286	<0.000307	<0.000372	0.0627	<0.265	<0.000396	<0.000419	<0.000398	<0.000259
	MW-131	Oct-19			0.00269	0.0141	0.312	0.00315	<0.000307	<0.000372	0.232	0.993	<0.000396	<0.000419	<0.000398	<0.000259
	MW-131	Jun-20			<0.00785	0.0121 J	0.242	<0.00625	<0.00590	<0.0150	0.150	0.786	<0.00745	<0.00590	<0.00950	<0.0117
	MW-133	Nov-14			<0.0360	0.0840 J	0.0380 J	<0.0360	<0.0310	<0.0370	0.100 J	0.220 J	<0.0400	<0.0420	<0.0400	<0.0260
	MW-133	Apr-15			<0.0360	0.0451 J	<0.0340	<0.0360	<0.0310	<0.0370	<0.0780	<0.110	<0.0400	<0.0420	<0.0400	<0.0260
	MW-134	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Apr-18	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-134	Oct-18	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Apr-19	FD		<0.000361	<0.000349 J4	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Oct-19	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	0.00106 J	<0.000396	<0.000419	<0.000398	<0.000259
	MW-134	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-134	Jun-20	FD		<0.000157 J4	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-134	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	MW-134	Oct-20	FD		<0.000157	<0.0000993	<0.000174	0.000176 J	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	MW-135	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-135	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-135	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-135	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-135	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-135	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-145	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-145	Oct-20	FD		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-146	Oct-														

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Area	Well ID	Date	Dup	Analyte:	n-Butyl-benzene	N-Propyl-benzene	o-Xylene	sec-Butyl-benzene (2-Phenyl-butane)	Styrene	Tetra-chloroethene	Toluene	Total Xylenes	trans-1,2-Dichloroethene	trans-1,3-Di-chloropropene	Tri-chloroethene	Vinyl Chloride
				Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				CGWSL:	1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
				CGWSL Source:	WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
NCL	NCL-31	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-31	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-31	Apr-19			<0.000361	<0.000349	J4<0.000341	0.000752	J<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-31	Oct-19			<0.000361	<0.000349	<0.000341	0.00102	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	0.000508	JB<0.000259
	NCL-31	Jun-20			<0.000157	0.000144	J0.000287	J<0.000125	<0.000118	<0.000300	<0.000278	0.000954	J<0.000149	<0.000118	<0.000190	<0.000234
	NCL-31	Oct-20			<0.000157	<0.0000993	0.000396	J<0.000125	<0.000118	<0.000300	<0.000278	0.00123	J<0.000149	<0.000118	<0.000190	<0.000234
	NCL-32	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-32	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-32	Apr-19			<0.000361	<0.000349	J4<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-32	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-32	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-32	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-33	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-33	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-33	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-33	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-33	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-33	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-34A	Apr-18			0.00788	J0.100	<0.00341	0.0188	<0.00307	<0.00372	<0.00412	0.0390	<0.00396	<0.00419	<0.00398	<0.00259
	NCL-34A	Oct-18			0.00458	J0.0768	<0.00341	0.0136	<0.00307	<0.00372	<0.00412	0.0266	J<0.00396	<0.00419	<0.00398	<0.00259
	NCL-34A	Apr-19			<0.00722	0.0780	<0.00682	0.0159	J<0.00614	<0.00744	<0.00824	<0.0212	<0.00792	<0.00838	<0.00796	<0.00518
	NCL-34A	Oct-19			0.00587	0.0953	<0.00170	0.0158	<0.00154	<0.00186	<0.00206	0.0175	<0.00198	<0.00209	<0.00199	<0.00130
	NCL-34A	Jun-20			0.00420	J0.0686	<0.00348	0.0164	J<0.00236	<0.00600	<0.00556	0.0335	J<0.00298	<0.00236	<0.00380	<0.00468
	NCL-44	Apr-18			<0.000361	<0.000349	<0.000341	0.000372	J<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-44	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-44	Apr-19			<0.000361	<0.000349	J4<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-44	Oct-19			<0.000361	<0.000349	<0.000341	0.000450	J<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-44	Jun-20			<0.000157	<0.0000993	<0.000174	0.000413	J<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-44	Oct-20			<0.000157	<0.0000993	<0.000174	0.000615	J<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	J4<0.000234
	NCL-49	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Apr-18	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Oct-18	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Apr-19	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Oct-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Oct-19	FD		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	NCL-49	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-49	Jun-20	FD		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-49	Oct-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	NCL-49	Oct-20	FD		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
North Refinery	MW-23	Apr-18			<0.0361	0.213	<0.0341	<0.0365	<0.0307	<0						

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
CGWSL Source:				WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
Area	Well ID	Date	Dup												
North Refinery	MW-62	Apr-18		<0.0361	0.228	<0.0341	<0.0365	<0.0307	<0.0372	<0.0412	1.15	<0.0396	<0.0419	<0.0398	<0.0259
	MW-62	Oct-18		<0.0361	0.216	<0.0341	<0.0365	<0.0307	<0.0372	<0.0412	0.871	<0.0396	<0.0419	<0.0398	<0.0259
	MW-62	Apr-19		0.00746	J	0.179	<0.00682	0.0212	<0.00614	<0.00744	<0.00824	0.988	<0.00792	<0.00838	<0.00796
	MW-62	Oct-19		0.00845	J	0.210	<0.00682	0.0209	<0.00614	<0.00744	<0.00824	0.874	<0.00792	<0.00838	<0.00796
	MW-62	Jun-20		<0.00314	J4	0.105	<0.00348	<0.00250	<0.00236	<0.00600	<0.00556	0.557	<0.00298	<0.00236	<0.00380
	MW-62R	Oct-20		0.00412	J	0.114	0.00538	J	0.00881	J	<0.00236	<0.00600	<0.00556	0.762	<0.00298
	MW-62R	Oct-20		0.00319		0.160	0.00103	0.0194	<0.000118	<0.000300	0.000571	J	0.137	<0.000149	<0.000118
	MW-67	Oct-17		0.00196		0.00976	<0.000341	0.00570	<0.000307	<0.000372	0.00140	0.00245	J	<0.000396	<0.000419
	MW-67	Apr-18		0.00588		0.0323	<0.00170	0.00834	<0.00154	<0.00186	0.00261	J	0.00916	J	<0.00198
	MW-67	Oct-18		0.00129		0.00387	<0.000341	0.00450	<0.000307	<0.000372	<0.000412	0.00113	J	<0.000396	<0.000419
	MW-67	Apr-19		0.00299	J	0.0188	J4	<0.00170	0.00779	<0.00154	<0.00186	<0.00206	<0.00530	<0.00198	<0.00210
	MW-90	Apr-18		<0.000361		0.000888	J	<0.000341	0.00471	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-90	Oct-18		<0.000361		0.00174		<0.000341	0.00606	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-90	Apr-19		<0.000361		0.000910	JJ4	<0.000341	0.00594	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-90	Oct-19		<0.000361		0.00159		<0.000341	0.00514	<0.000307	<0.000372	0.000519	JJ4	<0.000396	<0.000419
	MW-90	Jun-20		0.000319	J	0.00509	0.000299	J	0.00725	<0.000118	<0.000300	0.000350	J	0.000299	J
	MW-90	Oct-20		0.000237	J	0.00349	0.000349	J	0.00644	<0.000118	<0.000300	0.000323	J	0.000349	J
	MW-91	Apr-18		<0.0361		0.122		0.138	<0.0365	<0.0307	<0.0372	1.23		<0.0396	<0.0419
	MW-91	Oct-18		<0.0361		0.0792	J	0.164	<0.0365	<0.0307	<0.0372	1.24		0.716	<0.0396
	MW-91	Apr-19		<0.0361		0.104	J4	0.187	<0.0365	<0.0307	<0.0372	1.94		0.799	<0.0396
	MW-91	Oct-19		<0.0361		0.112		0.548	<0.0365	<0.0307	<0.0372	7.07	J4	2.12	<0.0396
	MW-91	Jun-20		<0.0157		0.114		0.649	<0.0125	<0.0118	<0.0300	6.95		2.50	<0.0149
	MW-92	Apr-16		0.00634		0.0510		0.0268	0.00699	<0.000307	0.000488	J	0.0173	0.188	0.000917
	MW-92	Oct-16		<0.00722		0.0329		0.0151	J	<0.00730	<0.00614	<0.00744	<0.00156	0.110	<0.00792
	MW-93	Apr-17		<0.00902		0.0491		<0.00852	<0.00912	<0.00768	<0.00930	<0.0103	0.326	<0.00990	<0.0105
	MW-93	Apr-18		0.00367		0.0492		0.00452	0.00564	<0.000307	<0.000372	0.00797	0.336	<0.000396	<0.000419
	MW-93	Apr-19		0.00447		0.0695	J4	0.00409	0.00716	<0.000307	<0.000372	0.00748	0.303	<0.000396	<0.000419
	MW-93	Jun-20		<0.00314	J4	0.0394		<0.00348	<0.00250	<0.00236	<0.00600	0.0123	J	0.296	<0.00298
	MW-94	Oct-15		0.0219		0.0923		0.360	0.0283	<0.00307	<0.00372	0.553	0.574	<0.00396	<0.00419
	MW-94	Apr-16		0.0379	J	0.120		0.387	0.0403	J	<0.0154	<0.0186	0.687	0.615	<0.0198
	MW-94	Oct-16		0.0207		0.104		0.390	0.0303	<0.00154	<0.00186	0.468	0.592	<0.00198	<0.00210
	MW-94	Apr-17		0.0553		0.0909		0.292	0.0317	<0.00768	<0.00930	0.435	0.460	<0.00990	<0.0105
	MW-95	Apr-17		<0.000361		<0.000349		<0.000341	0.00240	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-95	Apr-18		<0.000361		0.000352	J	<0.000341	0.00305	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-95	Apr-19		<0.000361		<0.000349	J4	<0.000341	0.00239	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419
	MW-95	Jun-20		<0.000157		0.000158	J	<0.000174	0.00247	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118
	MW-96	Apr-18		<0.0180		0.0996		<0.0170	<0.0182	<0.0154	<0.0186	<0.0206	<0.0530	<0.0198	<0.0210
	MW-96	Oct-18		<0.361		<0.349		<0.341	<0.365	<0.307	<0.372	<0.412	<1.06	<0.396	<0.419
	MW-96	Apr-19		<0.0180		0.0991	J4	<0.0170	<0.0182	<0.0154	<0.0186	<0.0206	<0.0530	<0.0198	<0.0210
	MW-96	Oct-19		<0.0181		0.0686		<0.0170	<0.0183	<0.0154	<0.0186	<0.0206	<0.0530	<0.0198	<0.0209
	MW-96	Jun-20		<0.0393		0.0797	J	<0.0435	<0.0313	<0.0295	<0.0750	<0.0695	<0.0435	<0.0373	<0.0295
	MW-96	Oct-20		<0.0393		0.0692	J	<0.0435	<0.0313	<0.0295	<0.0750	<0.0695	<0.0435	<0.0373	<0.0295
	MW-98	Apr-18		<0.0180		0.141		0.0245	J	<0.0182	<0.0154	<0.0186	0.282	1.90	<0.0198
	MW-98	Oct-18		<0.0180		0.118		0.0272	J	<0.0182	<0.0154	<0.0186	0.269	2.16	<0.0198
	MW-98	Apr-19		<0.0180		0.161	J4	0.0314	J	<0.0182	<0.0154	<0.0186	0.284	2.19	<0.0198
	MW-98	Oct-19		<0.0181		0.116		0.0266	J	<0.0183	<0.0154	<0.0186	0.246	1.87	<0.0198
	MW-98	Jun-20		0.00835	J	0.140		0.0256	J	0.0139	J	<0.00590	<0.0150	0.202	2.17
	MW-98	Oct-20		<0.00785		0.0916		0.0254	J	<0.00625	<0.00590	<0.0150	0.236	1.88	<0.00745
	MW-137	Oct-17		<0.0722		0.180	J	0.265	<0.0730	<0.0614	<0.0744	1.54		1.16	<0.0792
	MW-137	Apr-18		<0.0722		0.162	J	0.398	<0.0730	<0.0614	<0.0744	1.83		1.30	<0.0792
	MW-137	Oct-18		<0.0722		0.101	J	0.165	J	<0.0730	<0.0614	<0.0744	0.977	0.688	<0.0792
	MW-137	Apr-19		<0.0722		0.127	JJ4	0.274	<0.0730	<0.0614	<0.0744	1.28		0.821	<0.0792
	MW-138	Oct-17		0.00606		0.0697		<0.00170	0.0119	<0.00154	<0.00186	0.00577	0.00565	J	<0.00198
	MW-138	Apr-18		0.00518		0.0680		0.00541	0.0111	<0.00154	<0.00186	0.0128	0.0492	<0.00198	<0.00210
	MW-138	Oct-18		<0.00180		0.0724		0.00635	0.00906	<0.00154	<0.00186	0.00806	0.115		

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds											
Analyte:				n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
CGWSL Source:				WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
Area	Well ID	Date	Dup												
North RO Field	MW-119	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-119	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-119	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-119	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-119	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-119	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	KWB-2R	Apr-17		<0.000361	0.0121	0.000772 J	0.00279	<0.000307	<0.000372	<0.000412	0.0281	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-2R	Oct-17		0.00453	0.111	0.00977	0.00996	<0.000307	<0.000372	0.0161	0.193	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-2R	Apr-19		0.00147	0.0548	0.00500	0.00453	0.000710 J	<0.000372	0.00820	0.180	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-2R	Oct-19		0.00315	0.101	0.00608	0.00857	0.00348	<0.000372	0.0140 J4	0.115	<0.000396	<0.000419	<0.000398	<0.000259
South Refinery	KWB-5	Oct-17		0.00118	0.0134	<0.0852	0.00202	<0.000307	<0.000372	0.00156	<0.265	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-5	Apr-18		<0.0902	<0.0872	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	<0.265	<0.0990	<0.105	<0.0995	<0.0648
	KWB-5	Oct-18		<0.0902	<0.0872	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	<0.265	<0.0990	<0.105	<0.0995	<0.0648
	KWB-5	Apr-19		<0.0902	<0.0872	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	<0.265	<0.0990	<0.105	<0.0995	<0.0648
	KWB-6	Apr-17		0.00434 J	0.0737	0.0179	0.00695	<0.00154	<0.00186	0.0205	0.391	<0.00198	<0.00210	<0.00199	<0.00130
	KWB-6	Oct-17		<0.000361	0.0386	0.00804	0.00483	<0.000307	<0.000372	0.0122	0.283	<0.000396	<0.000419	<0.000398	<0.000259
	KWB-6	Apr-18		<0.00722	0.0486	0.0350	<0.00730	<0.00614	<0.00744	0.00879 J	0.258	<0.00792	<0.00838	<0.00796	<0.00518
	KWB-6	Oct-18		<0.00722	0.0234	0.0234	<0.00730	<0.00614	<0.00744	0.0126 J	0.379	<0.00792	<0.00838	<0.00796	<0.00518 J3
	MW-28	Apr-18		<0.0180	0.0501	<0.0170	<0.0182	<0.0154	<0.0186	0.0316 J	0.144 J	<0.0198	<0.0210	<0.0199	<0.0130
	MW-28	Oct-18		<0.00722	0.0117 J	<0.00682	<0.00730	<0.00614	<0.00744	<0.00824	0.0301 J	<0.00792	<0.00838	<0.00796	<0.00518
	MW-28	Apr-19		<0.0180	0.0457 J	<0.0170	<0.0182	<0.0154	<0.0186	0.0272 J	0.140 J	<0.0198	<0.0210	<0.0199	<0.0130
	MW-28	Oct-19		<0.0181	0.0947	<0.0170	<0.0183	<0.0154	<0.0186	0.0384 J	0.264	<0.0198	<0.0209	<0.0199	<0.0130
	MW-28	Jun-20		0.00113 J	0.0241	0.00154 J	0.00221 J	<0.000590	<0.00150 J4	0.0126	0.0916	<0.000745	<0.000590	<0.000950	<0.00117
	MW-28	Oct-20		<0.000785	0.0182	0.00171 J	0.00171 J	<0.000590	<0.00150	0.00882	0.0626	<0.000745	<0.000590 J4	<0.000950	<0.00117
	MW-48	Apr-18		<0.0902	0.118 J	<0.0852	<0.0912	<0.0768	<0.0930	1.02	0.955	<0.0990	<0.105	<0.0995	<0.0648
	MW-48	Oct-18		<0.0902	0.145 J	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	0.358 J	<0.0990	<0.105	<0.0995	<0.0648 J3
	MW-48	Apr-19		<0.0902	0.177 J	<0.0852	<0.0912	<0.0768	<0.0930	0.152 J	0.498 J	<0.0990	<0.105	<0.0995	<0.0648
	MW-48	Oct-19		<0.0903	0.0908 J	<0.0852	<0.0913	<0.0768	<0.0930	0.138 J	0.290 J	<0.0990	<0.105	<0.0995	<0.0648
	MW-50	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-50	Oct-18		<0.000361	<0.000349	<0.000341	0.000478 J	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-50	Apr-19		<0.000361	<0.000349 J4	<0.000341	0.000552 J	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-50	Oct-19		<0.000361	<0.000349	<0.000341	0.000448 J	<0.000307	<0.000372	<0.000412 J4	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-50	Jun-20		<0.000157	<0.0000993	<0.000174	0.000485 J	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-50	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	MW-52	Apr-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-52	Oct-18		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-52	Apr-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-52	Oct-19		<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-52	Jun-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-52	Oct-20		<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118 J4	<0.000190	<0.000234
	MW-64	Apr-18		<0.00722	0.0101 J	0.122	<0.00730	<0.00614	<0.00744	0.816	0.482	<0.00792	<0.00838	<0.00796	<0.00518
	MW-64	Oct-18		<0.00722	0.119	1.06	0.00971 J	<0.00614	<0.00744	13.0	4.72	<0.00792	<0.00838	<0.00796	<0.00518
	MW-64	Apr-19		<0.00722	0.102	1.49	0.00989 J	<0.00614	<0.00744	15.4	5.39	<0.00792	<0.00838	<0.00796	<0.00518
	MW-64	Oct-19		<0.00903	0.106	1.14	0.0112 J	<0.00768	<0.00930	11.2	5.06	<0.00990	<0.0105	<0.00995	<0.00648
	MW-64	Jun-20		<0.0785	0.0725 J	1.03	<0.0625	<0.0590	<0.150	9.93	4.29	<0.0745	<0.0590	<0.0950 J4	<0.117
	MW-64	Oct-20		<0.0785	0.0626 J	0.794	<0.0625	<0.0590</							

Appendix C, Table C.4 - Summary of Groundwater Analytical Data - Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Volatile Organic Compounds												
Area	Well ID	Date	Dup	Analyte:	n-Butyl- benzene	N-Propyl- benzene	o-Xylene	sec-Butyl- benzene (2- Phenyl-butane)	Styrene	Tetra- chloroethene	Toluene	Total Xylenes	trans-1,2- Dichloroethene	trans-1,3-Di- chloropropene	Tri- chloroethene	Vinyl Chloride
				Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				CGWSL:	1.00	0.660	0.193	2.00	0.100	0.00500	1.00	0.620	0.100	0.00471	0.00500	0.00200
				CGWSL Source:	WQCC TW	WQCC TW	WQCC TW	USEPA TW	WQCC HH	WQCC HH	WQCC HH	WQCC HH	WQCC HH	USEPA TW	WQCC HH	WQCC HH
South Refinery	MW-106	Apr-18			<0.0722	<0.0698	<0.0682	<0.0730	<0.0614	<0.0744	0.237	0.299 J	<0.0792	<0.0838	<0.0796	<0.0518
	MW-106	Oct-18			<0.180	<0.174	<0.170	<0.182	<0.154	<0.186	0.250 J	<0.530	<0.198	<0.210	<0.199	<0.130
	MW-106	Apr-19			<0.180	0.321 J	<0.170	<0.182	<0.154	<0.186	<0.206	<0.530	<0.198	<0.210	<0.199	<0.130
	MW-106	Oct-19			<0.0181	0.0444 J	<0.0170	<0.0183	<0.0154	<0.0186	0.158	0.196	<0.0198	<0.0209	<0.0199	<0.0130
	MW-106	Jun-20			<0.0157	0.0380 J	<0.0174	<0.0125	<0.0118	<0.0300	0.313	0.173 J	<0.0149	<0.0118	<0.0190	<0.0234
	MW-106	Oct-20			<0.0314	0.0426 J	0.0359 J	<0.0250	<0.0236	<0.0600	0.295	0.289 J	<0.0298	<0.0236	<0.0380 J4	<0.0468
	MW-107	Oct-16			0.00182 J	0.0693	0.00265 J	0.00592	<0.00154	<0.00186	0.00800 J	0.0112 J	<0.00198	<0.00210	<0.00199	<0.00130
	MW-107	Apr-17			<0.0180	0.0528	<0.0170	<0.0182	<0.0154	<0.0186	<0.0206	<0.0530	<0.0198	<0.0210	<0.0199	<0.0130
	MW-107	Apr-18			0.00377	0.0857	0.00279	0.00830	<0.000307	<0.000372	0.0142	0.0159	<0.000396	<0.000419	<0.000398	<0.000259
	MW-107	Apr-19			<0.0902	<0.0872	<0.0852	<0.0912	<0.0768	<0.0930	<0.103	<0.265	<0.0990	<0.105	<0.0995	<0.0648
	MW-109	Apr-18			<0.00722	0.0646	<0.00682	0.00760 J	<0.00614	<0.00744	0.0208	0.0257 J	<0.00792	<0.00838	<0.00796	<0.00518
	MW-109	Oct-18			<0.00722	0.0670	<0.00682	0.00812 J	<0.00614	<0.00744	0.0204	0.0220 J	<0.00792	<0.00838	<0.00796	<0.00518 J3
	MW-109	Apr-19			<0.00722	0.0536	<0.00682	0.00762 J	<0.00614	<0.00744	0.0122 J	<0.0212	<0.00792	<0.00838	<0.00796	<0.00518
	MW-109	Oct-19			0.00260 J	0.0500	<0.00170	0.00620	<0.00154	<0.00186	0.0151 J4	0.0136 J	<0.00198	<0.00209	<0.00199 J4	<0.00130
	MW-109	Jun-20			<0.00157	0.0596	<0.00174	0.00604 J	<0.00118	<0.00300	0.0221	0.0238 J	<0.00149	<0.00118	<0.00190	<0.00234
	MW-109	Oct-20			0.00220 J	0.0463	<0.00174	0.00621 J	<0.00118	<0.00300	0.0123	0.0114 J	<0.00149	<0.00118 J4	<0.00190	<0.00234
	MW-110	Apr-18			0.00395	0.0577	0.000580 J	0.00884	<0.000307	<0.000372	0.00447	0.0582	<0.000396	<0.000419	<0.000398	<0.000259
	MW-110	Oct-18			<0.000361	0.00579	<0.000341	0.00300	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-110	Apr-19			0.000715 J	0.00393	<0.000341	0.00317	<0.000307	<0.000372	0.000544 J	0.00169 J	<0.000396	<0.000419	<0.000398	<0.000259
	MW-110	Oct-19			<0.000361	0.000373 J	<0.000341	0.000943 J	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-110	Jun-20			<0.000157	0.00560	<0.000174	0.00314	<0.000118	<0.000300	<0.000278	0.00123 J	<0.000149	<0.000118	<0.000190	<0.000234
	MW-110	Oct-20			<0.000157	0.000270 J	<0.000174	0.00114	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118 J4	<0.000190	<0.000234
	MW-139	Oct-19			0.000506 J	0.00877	<0.000341	0.00686	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-139	Jun-20			<0.000157	0.000176 J	<0.000174	0.00734	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	MW-139	Oct-20			<0.000157	<0.0000993	<0.000174	0.00597	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190 J4	<0.000234
	RA-313	Apr-17			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-313	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-313	Apr-19			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RA-313	Jun-20			<0.000157	<0.0000993	<0.000174	<0.000125	<0.000118	<0.000300	<0.000278	<0.000174	<0.000149	<0.000118	<0.000190	<0.000234
	RW-4	Apr-17			<0.00180	0.00532	<0.00170	0.00213 J	<0.00154	<0.00186	<0.00206	<0.00530	<0.00198	<0.00210	<0.00199	<0.00130
	RW-4	Apr-18			<0.000361	0.00113	<0.000341	0.00254	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	RW-4	Apr-19			0.00127	0.0120	0.000454 J	0.00403	<0.000307	<0.000372	0.000772 J	0.00192 J	<0.000396	<0.000419	<0.000398	<0.000259
	RW-4	Jun-20			<0.000157	0.00881	0.00105	0.00611	<0.000118	<0.000300	0.00557	0.00375	<0.000149	<0.000118	<0.000190	<0.000234
	RW-5R	Apr-15			0.00606 J	0.0598	0.522	0.00691 J	<0.00310	<0.00370	2.26	1.91	<0.00400	<0.00420	<0.00400	<0.00260
	RW-5R	Apr-16			0.0117 J	0.110	0.570	0.0130 J	<0.00614	<0.00744	2.51	2.25	<0.00792	<0.00838	<0.00796	<0.00518
	RW-6	Apr-15			0.00738 J	0.0237	0.0558	0.00944 J	<0.00310	<0.00370	0.0126 J	0.158	<0.00400	<0.00420	<0.00400	<0.00260
	RW-6R	Apr-16			0.00138	0.00731	0.00275	0.00590	<0.000307	<0.000372	0.00683	0.00747	<0.000396	<0.000419	<0.000398	<0.000259
	RW-6	Apr-18			0.00631	0.0329	0.0570	0.0148	<0.000307	<0.000372	0.448	0.150	<0.000396	<0.000419	<0.000398	<0.000259
	RW-6	Apr-19			<0.00722	0.0308	0.00804 J	0.0141 J	<0.00614	<0.00744	0.0211	0.0304 J	<0.00792	<0.00838	<0.00796	<0.00518
	RW-15C	Apr-17			0.0168 J	0.296	0.472	0.0194 J	<0.00768	<0.00930	0.172	5.39	<0.00990	<0.0105	<0.00995	<0.00648
	RW-15C	Apr-18			0.00683	0.190	0.0285	0.0114	<0.000307	<0.000372	0.111	3.01	<0.000396	<0.000419	<0.000398	<0.000259
	RW-15C	Apr-19			0.0134	0.215	0.00812 J	0.0148	<0.00307	<0.00372	0.0871	1.05	<0.00396	<0.00419	<0.00398	<0.00259
South RO Field	MW-114	Apr-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259
	MW-114	Oct-18			<0.000361	<0.000349	<0.000341	<0.000365	<0.000307	<0.000372	<0.000412	<0.00106	<0.000396	<0.000419	<0.000398	<0.000259 J3
	MW-114	Apr-19	</													

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Definitions	
X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.
---	No applicable CGWSL.
Abbreviations	
CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
Dup	Duplicate sample
FD	Field duplicate sample
mg/L	Milligrams per Liter
NMED TW	NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2019, Rev 2 (6/19/19), Table A-1, Tap W
USEPA TW	United States Environmental Protection Agency Tap Water Screening Level, "Regional Screening Levels (RSL) Summary Table
USEPA MCL	United States Environmental Protection Agency Maximum Contaminant Level, "Regional Screening Levels (RSL) Summary Table
WQCC Dom	NMED Groundwater standard for domestic exposure, 20.6.2.3103.B NMAC
WQCC HH	NMED Groundwater standard for human health exposure, 20.6.2.3103.A NMAC
Lab Footnote	
B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
Q	Sample was prepared and/or analyzed past recommended holding time.
V3	Internal standard exhibited poor recovery due to sample matrix interference; analytical result biased high.

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters								Cyanide
				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite	Cyanide
				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2	57-12-5
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
				CGWSL	250	1.60			600	1000	10.0	0.200
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC HH	WQCC HH	
Area	Well ID	Date	Dup									
Cross-Gradient	KWB-13	Apr-17		526	180	0.803	1.18	200	2390	3600	16.1	<0.00180
	KWB-13	Apr-18		558	136	0.704	1.66	227	2470	3580	15.3	<0.00180
	KWB-13	Apr-19		630	125	0.605	1.69	220	2470	3580	14.0	<0.00180
	KWB-13	Jun-20		598	121	0.791	2.10	169	2430	3710	14.9	<0.00180
	MW-136	Apr-18		666	352	1.61	2.74	147	2640	4270	10.3	<0.00180
	MW-136	Oct-18		689	327	1.82	3.52	148	2610	4250	7.86	0.0359
	MW-136	Apr-19		688	284	1.69	2.83	144	2680	4150	4.12	0.00264
	MW-136	Oct-19		630	280	1.73	2.75	140	2520	4100	2.38	<0.00180
	MW-136	Jun-20		631	300	1.62	2.53	139	2370	4290	13.2	<0.00180
	MW-136	Oct-20		640	290	1.54	2.55	148	2150	4180	14.4	<0.00180
	NP-5	Apr-13		465	413	2.58	<0.400	253	3090	5980	2.33	
	NP-5	Apr-15		448	993	2.13	0.484	209	3030	6060	1.38	
	NP-5	Apr-17		514	444	1.63	0.422	212	3770	4810	2.22	
	NP-5	Apr-19		529	310	2.16	0.320	206	3370	5240	1.06	
Evaporation Ponds	RA-3156	Apr-17		337	568	0.668	2.41	292	1080	2400	0.330	
	RA-3156	Apr-18		341	813	0.470	2.63	444	1020	2580	<0.0197	
	RA-3156	Apr-19		83.5	807	0.751	0.679	87.0	1650	3240	1.50	
	RA-3156	Jun-20		180	280	0.313	2.62	97.8	603	1250	<0.0500	
	MW-1R	Apr-17		763	2880	0.736	5.11	1830	3010	9180	0.402	
	MW-1R	Apr-18		623	2200	0.679	4.56	1520	2740	6900	0.0640	
	MW-1R	Apr-19		407	1160	0.710	3.80	1050	2000	4980	<0.0197	
	MW-1R	Jun-20		540	1430	0.732	4.01	831	2060	3200	<0.0500	
	MW-2A	Apr-18		702	6270	1.35	5.75	4870	5800	18800	0.0470	
	MW-2A	Oct-18		512	4270	1.89	5.36	3110	4430	13300	0.0330	
	MW-2A	Apr-19		652	5600	1.93	5.50	3930	5430	15800	<0.0197	
	MW-2A	Oct-19		585	2180	2.94	4.21	1470	2860	7000	0.171	
	MW-2A	Jun-20		487	879	2.70	3.28	610	1730	3960	<0.0500	
	MW-2A	Oct-20		292	1240	2.96	3.46	908	1860	4770	0.0609	
	MW-3	Apr-18		606	1170	1.90	4.99	916	2420	5030	0.249	
	MW-3	Apr-18	FD	626	1150	1.87	5.03	869	2520	5040	0.212	
	MW-3	Oct-18		591	1110	1.91	5.19	856	2610	4370	0.535	
	MW-3	Oct-18	FD	620	1060	1.67	5.74	832	2440	4820	0.481	
	MW-3	Apr-19		579	1140	1.96	4.89	771	2480	5510	0.156	
	MW-3	Apr-19	FD	603	1230	1.86	4.92	774	2530	5450	0.157	
	MW-3	Oct-19		517	1060	2.38	7.63	840	1680	4290	<0.0197	
	MW-3	Oct-19	FD	540	1190	2.53	7.51	836	1970	4950	<0.0197	
	MW-3	Jun-20		553	1280	2.40	7.64	818	2140	5200	0.0662	
	MW-3	Jun-20	FD	553	1290	2.52	7.54	827	2260	4970	<0.0500	
	MW-3	Oct-20		514	1250	1.97	5.94	822	1980	5250	0.210	
	MW-3	Oct-20	FD	506	939	1.69	5.85	812	1440	5090	0.245	
	MW-4A	Apr-18		428	1350	1.99	5.05	899	1820	4170	0.0240	
	MW-4A	Oct-18		415	1300	1.65	4.58	988	1800	3880	<0.0197	
	MW-4A	Apr-19		418	1450	1.82	5.24	904	1810	4940	<0.0197	
	MW-4A	Oct-19		419	1260	2.01	5.80	855	1380	4700	0.0230	
	MW-4A	Jun-20		403	1440	1.98	4.72	962	1890	4870	<0.0500	
	MW-4A	Oct-20		415	1350	2.31	5.63	921	1640	5000	<0.0500	
	MW-4B	Apr-13		371	928	0.870	3.64	556	1330	3660	<1.00	
	MW-4B	Apr-15		367	1110	0.963	2.32	696	1340	3410	<0.0200	
	MW-4B	Apr-17		360	1330	0.985	2.55	758	1410	3690	<0.0197	
	MW-4B	Apr-19		442	1320	0.775	2.50	703	1430	4370	<0.0197	
	MW-5A	Apr-18		478	3040	2.83	7.82	2890	6030	13700	0.0530	
	MW-5A	Oct-18		415	2800	1.80	7.38	2620	5720	11400	<0.0197	
	MW-5A	Apr-19		511	3620	3.03	6.36	3740	8110	14800	<0.0197	
	MW-5A	Oct-19		494	2760	3.63	6.85	3450	6170	13900	0.138	
	MW-5A	Jun-20		286	1810	3.40	5.65	2040	3550	7460	<0.0500	
	MW-5A	Oct-20		374	2110	3.84	8.27	2280	4220	9910	<0.0500	
	MW-5B	Apr-13		473	1840	2.20	10.8	1600	2950	7500	2.93	
	MW-5B	Apr-15		482	1590	1.41	9.01	1580	3510	5980	<0.0200	
	MW-5B	Apr-17		420	1560	1.73	9.18	1650	2590	6290	0.0210	
	MW-5B	Apr-19		389	1530	1.70	9.69	1490	2660	6370	<0.0197	
MW-5C	Apr-13		420	639	1.20	4.21	446	1580	3620	<1.00		
MW-5C	Apr-15		427	585	0.910	3.97	485	2020	3290	<0.0200		
MW-5C	Apr-17		383	576	0.971	3.90	500	1740	3110	<0.0197		
MW-5C	Apr-19		390	591	0.896	4.11	450	1540	3200	<0.0197		
MW-6A	Apr-17		353	904	1.62	1.38	770	2080	4660	<0.197		
MW-6A	Apr-18		303	763	1.59	1.31	776	1690	3330	0.0800		
MW-6A	Apr-19		340	803	1.38	1.38	696	1700	3520	<0.0197		
MW-6A	Jun-20		290	669	1.55	1.18	670	1670	3640	<0.0500		
MW-6B	Mar-13		530	1370	0.533	4.31	710	1640	4480	<1.00		
MW-6B	Mar-13	FD	478	1420	0.814	4.87	753	1690	4510	<1.00		
MW-6B	Apr-15		568	1740	0.669	5.09	873	2280	4760	<0.0200		
MW-6B	Apr-17		418	1250	0.694	3.97	738	1730	4150	<0.197		
MW-6B	Apr-19		462	1140	0.519	4.45	682	1460	4190	<0.0197		
MW-7A	Apr-18		358	2080	1.40	3.91	1580	2670	5380	0.140		
MW-7A	Apr-18	FD	354	2170	1.41	3.89	1590	2780	5430	0.0580		
MW-7A	Oct-18		343	2070	1.09	3.93	1580	2840	6440	<0.0197		
MW-7A	Oct-18	FD	348	2000	1.10	4.24	1550	2770	6530	<0.0197		
MW-7A	Apr-19		345	2480	1.10	3.95	1560	3610	6920	<0.0197		
MW-7A	Apr-19	FD	373	1990	1.20	4.05	1530	2490	6930	<0.0197		
MW-7A	Oct-19		423	2880	1.46	5.56	2310	3250	9100	3.13		
MW-7A	Oct-19	FD	413	2970	1.27	5.48	2110	3370	9440	2.88		
MW-7A	Jun-20		345	2000	1.20	3.28	1560	2670	6630	<0.0500		
MW-7A	Jun-20	FD	370	1950	1.18	3.54	1550	2600	6580	0.0594		
MW-7A	Oct-20		327	1770	1.42	3.83	1470	2130	6330	<0.0500		
MW-7A	Oct-20	FD	315	1550	1.29	3.71	1550	1870	6260	<0.0500		
MW-7B	Apr-13		545	1030	3.09	6.66	540	1800	4280	<1.00		
MW-7B	Apr-15		556	1060	0.795	6.27	672	2200	4640	<0.0200		
MW-7B	Apr-17		530	1060	0.966	6.71	652	1750	4720	0.0670		
MW-7B	Apr-19		581	1100	0.823	6.70	581	1910	4760	<0.0197		
MW-10	Apr-18		472	1300	0.857	3.75	977	1920	3380	0.0550		
MW-10	Oct-18		454	1300	0.854	3.35	1060	2100	3800	<0.0197		
MW-10	Apr-19		457	1290	0.907	3.58	925	2000	5070	<0.0197		

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH
Area	Well ID	Date	Dup								
Evaporation Ponds	MW-15	Apr-17		285	612	1.58	4.31	447	1100	2640	0.485 J
	MW-15	Apr-18		477	1040	1.70 J5	5.35	657	1720	3580	0.758
	MW-15	Apr-19		614	1670	1.44	5.73	667	2770	4720	1.58
	MW-15	Jun-20		480	1200	0.610	5.52	563	1440	3830	<0.0500
	MW-18A	Apr-18		683	6680	2.44	42.1	4260	6780	13100	0.0720 J
	MW-18A	Oct-18		674	6810	1.25	42.6	3820	7270	17900	<0.0197
	MW-18A	Apr-19		756	6360	1.85	46.1	3870	6740	17800	<0.0197
	MW-18A	Oct-19		619	5490	3.14	40.1	3670	5780	16000 J3	<0.0197
	MW-18A	Jun-20		574	5140	2.52	33.6 O1	3030 O1V	5780	15500	<0.0500
	MW-18A	Oct-20		616	4600	2.72	39.3	3380	4820	16800	<0.0500
	MW-18B	Apr-13		592	803	1.10	6.32	474	1870	4060	<1.00
	MW-18B	Apr-15		581	763	0.931	5.91	460	1840	4410	0.0280 J
	MW-18B	Apr-17		576	860	0.797	5.91	481	2070	4080	<0.0197
	MW-18B	Apr-19		807	919	0.727	8.43	506	2030	4690	<0.0197
	MW-22A	Apr-18		473	1780	0.687	3.67	1290	2270	4860 J3	0.0680 J
	MW-22A	Apr-18	FD	468	1840	0.738	3.57	1310	2380	4320 J3	0.0660 J
	MW-22A	Oct-18		444	1650	0.677	3.37	1360	2370	5730	<0.0197
	MW-22A	Oct-18	FD	473	1650	0.584	3.81	1250	2190	5930 Q	<0.0197
	MW-22A	Apr-19		426	1650	0.761	3.58	1330	2300	5940	0.0230 J
	MW-22A	Apr-19	FD	431	1700	0.739	3.38	1190	2230	6040	<0.0197
	MW-22A	Oct-19		969	5760	0.681	6.27	3060	3450	13300	0.418
	MW-22A	Oct-19	FD	990	5660	0.293	6.42	2970	3520	13100	0.414
	MW-22A	Jun-20		575	4500	0.900	4.36	2610	3310	11900	0.0816 JB
	MW-22A	Jun-20	FD	566	4450	1.02	4.20	2270	3330	11300 J4	<0.0500
	MW-22A	Oct-20		458	2770	0.821	3.75	1920	2450	7820	0.0711 J
	MW-22A	Oct-20	FD	453	2290	0.795	3.71 B	2240	2060	8210	<0.0500
	MW-22B	Apr-13		530	1470	0.619	4.48	932	2240	5460	<1.00
	MW-22B	Apr-15		477	1400	0.823	4.02 J	1150	2170	5590	<0.0200
	MW-22B	Apr-17		396	1400	0.771	4.15	1150	2080	5670	0.408 J
	MW-22B	Apr-19		414	1300	0.818	4.30	985	2170	5480	<0.197
	MW-70	Apr-18		766	1490	0.694	5.51	825	2720	5810	0.0660 J
	MW-70	Oct-18									
	MW-70	Apr-19		843	1280	0.623	5.99	760	2320	5770	<0.0197
	MW-70	Oct-19									
	MW-70	Jun-20		764	1400	0.577	5.22	764	2510	5360 J3	<0.0500
	MW-70	Oct-20									
	MW-72	Apr-17		670	3460	6.25	9.30	2510	2950	9140	1.56
	MW-72	Apr-18		707	3540	5.82	8.82	2490	3010	8800	2.99
	MW-72	Apr-19		645	2880	5.61	7.71	1850	2740	8500	2.67
	MW-72	Jun-20		627	2830	5.71	6.56	1730	2810	8060	0.645
	MW-73	Apr-17		571	2390	2.11	2.55	2690	3940	8880	0.313
	MW-73	Apr-18		589	2350	1.95	2.48	2490	4020	8360	0.348
	MW-73	Apr-19		600	2590	2.95	2.60	2330	3350	9180	4.66
	MW-73	Jun-20		561	2540	1.67	2.29	2410	3990	8860	<0.0500
	MW-74	Apr-18		600	1950	7.01	37.3	2280	3700	7860	6.72
	MW-74	Oct-18		534	1560	8.06	42.9	2310	4870	9420	171
	MW-74	Apr-19		582	1400	8.15	36.9	2250	4650	9760	52.2
	MW-74	Oct-19		542	1490	7.85	33.4	1990	3390	5720	<0.0197
	MW-74	Jun-20		507	1540	7.75	32.7	2260	4190	7180	48.4
	MW-74	Oct-20		554	1800	8.34	35.8	2000	3610	8370	7.45
	MW-75	Apr-18		340	1470	7.64	17.9	1350	2000	4670	1.00 J6
	MW-75	Oct-18		345	1370	7.35	18.0	1410	2100	5890 J4	<0.0197
	MW-75	Apr-19		348	1410	7.71	17.4	1420	2010	5790	1.56
	MW-75	Oct-19		362	1360	6.63	15.9	1320	1940	5320	<0.0197
	MW-75	Jun-20		366	1470	7.22	16.6	1340	2080	6110	<0.0500
	MW-75	Oct-20		362	1520	7.66	17.9	1470	2010	5680	<0.0500
	MW-76	Apr-18		468	1220	2.86	26.5	1200	2300	5240	0.0790 J
	MW-76	Oct-18		464	1130	2.95	25.6	1130	2420	4130	<0.0197
	MW-76	Apr-19		439	1090	3.02	24.9	955	2210	5620	<0.0197
	MW-76	Oct-19		483	1150	3.03	28.8	991	2220	5270	<0.0197
	MW-76	Jun-20		454	1150	2.89	26.2	975	2270	5620	<0.0500
	MW-76	Oct-20		426	1220	3.14	25.7	975	2090	5330	<0.0500
	MW-77	Apr-17		534	393	2.43	67.1	1280	4900	6950	<0.197
	MW-77	Apr-18		521	310	2.56	68.8	1240	3770	7230	0.109
	MW-77	Apr-19		491	335	3.20	66.0	1230	4370	7850	<0.0197
	MW-77	Jun-20		488	428	2.53	64.2	1070	3950	7430	<0.0500
	MW-78	Apr-17		537	98.0	9.91	17.4	366	2640	4290	0.372 J
	MW-78	Apr-18		331	239	15.3	19.2	393	1800	3730	2.70
	MW-78	Apr-19		343	20.4	17.2	13.4	81.7	1580	3150	5.82
	MW-78	Jun-20		584	51.7	13.9	16.6	184	2580	4460	<0.0500
	MW-79	Apr-18		586	1700	6.56	7.90	1130	2240	5390 J3	2.16
	MW-79	Oct-18		679	2020	6.21	7.84	1100	2350	7700	1.44
	MW-79	Apr-19		636	1940	7.01	7.82	1250	2470	6510	2.08
	MW-79	Oct-19		818	2410	4.70	7.08	1160	2320	7470	<0.0197
	MW-79	Jun-20		768	2150	5.09	6.82	1160	2540	7550	<0.0500
	MW-79	Oct-20		726	2180	5.58	7.03	1200	2600	6470	<0.0500
	MW-80	Apr-17		759	2530	3.59	3.53	1230	2640	7920	2.63
	MW-80	Apr-18		506	1190	2.97	7.13	1110	2310	5180 J3	0.461
	MW-80	Apr-19		559	1180	3.03	2.72	768	2260	5120	0.355
	MW-80	Jun-20		620	1210	2.19	2.99	680	1980	4990	<0.0500
	MW-81	Apr-17		560	1370	7.55	9.28	1260	3050	6880	80.5
	MW-81	Apr-18		542	1270	6.69	17.9	1170	2340	5600	19.8
	MW-81	Apr-19		527 O1V	1210	6.81	7.33	969 V	2190	5740	14.7
	MW-81	Jun-20		441	1050	5.73	5.49	908	1990	4750	3.54
	MW-82	Apr-17		347	1500	11.4	8.92	1400	2380	5630	0.0820 J
	MW-82	Apr-18		391	1420	11.4	9.36	1510	2350	5460	0.734
	MW-82	Apr-19		395	1360	11.4	8.60	1300	2250	5730	3.50
	MW-82	Jun-20		422	1430	9.31 J	8.75	1150	2180	5560	<0.0500
	MW-83	Apr-18		309	1360 J3	4.80	28.2	965	2220 P1	4190	0.0680 J
	MW-83	Oct-18		562	221	5.14	48.6	363	4240	4860	0.495
	MW-83	Apr-19		555	69.9	2.81	56.3	236	6770	6470	3.70
	MW-83	Oct-19		536	354	4.14	64.3	370	4520	7520	<0.0197
	MW-83	Jun-20		544	314	4.63	48.9	319	4190	6810	1.31
	MW-83	Oct-20		349	957	4.48	31.8	659	2380	5040	<0.0500
	MW-84	Apr-18		595	1710	4.49	7.29	1630	4220	9640	0.0630 J
	MW-84	Oct-18		574	1750	4.62	6.34	1560	4420	9300	<0.0197
	MW-84	Apr-19		616	1650	4.26	7.12	1540	3990	9140	0.308
	MW-84	Oct-19		594	1730	5.44	6.51	1450	4200	9080	<0.0197
	MW-84	Jun-20		568	1480	6.24	7.06	1400	4710	9700	<0.0500
	MW-84	Oct-20		579	1670	6.29	6.23	1350	4910	10800	<0.0500
	MW-86	Jun-20		544	555	8.20	8.40	806	4170	8130	<1.00
	MW-86	Oct-20		535	671	6.03	6.70	947	3100	7830	<0.0500

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters								Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite	Cyanide
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2	57-12-5
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0	0.200
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup									
Evaporation Ponds	MW-87	Apr-18		677	4150	1.48	24.2	2930	4570	11600	0.0610 J	
	MW-87	Oct-18										
	MW-87	Apr-19		723	4460	1.13	24.7	2800	5150	13700	<0.0197	
	MW-87	Oct-19										
	MW-87	Jun-20		596	4070	1.41	20.7	2690	4840	12500	<0.0500	
	MW-87	Oct-20										
	MW-88	Apr-18	421 V	1650	1.15	3.09	1110	2360	4640	0.0750 J		
	MW-88	Oct-18										
	MW-88	Apr-19	426	1740	1.36	3.28	1280	2700	6650	<0.0197		
	MW-88	Oct-19										
	MW-88	Jun-20	406	1510	0.951	2.83	997	2040	5240	<0.0500		
	MW-88	Oct-20										
	MW-120	Apr-18		556	1760	2.79	6.26	1310	2670	6480	0.0720 J	
	MW-120	Oct-18	583 O1V	1670	3.66	2.60	1320	3320	5380	0.168		
	MW-120	Apr-19		571	2220	2.91	2.92	1500	4500	6610	0.150	
	MW-120	Oct-19		562	1390	4.02	2.70	1210	2830	4680 J3	<0.0197	
	MW-120	Jun-20		455	1260	2.90	2.23	992	2530	5500	<0.0500	
	MW-120	Oct-20		608	1540	3.81	2.67	1200	2870	7000	<0.0500	
	MW-121	Apr-18		594	999	4.29	2.88	859	2820	5430	1.15 J6	
	MW-121	Oct-18		579	833	5.05	3.25	716	2820	5800	1.06	
	MW-121	Apr-19		616	963	4.45	3.14	696	2530	5490	0.497	
	MW-121	Oct-19		554	770	5.48	3.41	637	2530	5090	1.11	
	MW-121	Jun-20		560	752	5.05	2.71	613	2790	4890	0.0855 J	
	MW-121	Oct-20		595	690	4.87	3.34	665	2400	5180	<0.0500	
	MW-122	Apr-18		368	1170	3.20	3.73	1050	1980	4830	0.137	
	MW-122	Oct-18		324	845	2.32	3.48	742	1730	3860	<0.0197	
	MW-122	Apr-19		413	1110	2.74	3.91	866	2040	4750	0.0650 J	
	MW-122	Oct-19		340	719	2.10	3.54	617	1260	3660	0.0270 J	
	MW-122	Jun-20		413	1470	2.58	4.03	1080	2450	6070	<0.0500	
	MW-122	Oct-20		353	940	2.54	3.78	737	1590	4220	<0.0500	
	MW-123	Apr-18		513	1570	1.13	5.10	1080	<0.0774	4490	0.0660 J	
	MW-123	Oct-18		519	1390	0.894	3.49	1150	2040	4380	<0.0197	
	MW-123	Apr-19		501	1420	1.16	3.63	961	2180	5600	<0.0197	
	MW-123	Oct-19		690	2030	1.17	4.26	1190	2250	6720	<0.0197	
	MW-123	Jun-20		513	1420	1.04	3.54	984	2140	5380	<0.0500	
	MW-123	Oct-20		524	1390	1.07	3.55	1100	1920	5460	<0.0500	
	MW-124	Apr-18		786	3110	1.02	6.67	1820	3700	8980	<0.0197	
	MW-124	Oct-18	798 V	3700	0.848	7.16	1730	4440	9520	<0.0197		
	MW-124	Apr-19	867	3120	0.884	6.86	1730	3560	11200	<0.0197		
	MW-124	Oct-19		753	3140	1.12	6.86	1630	3500	9980	<0.0197	
	MW-124	Jun-20		785	3510	1.01	6.50 J	1700	4500	7780	<0.0500	
	MW-124	Oct-20		758	2490	1.03	6.57	1840	3030	9940	<0.0500	
	OCD-1R	Apr-18		493	1870	3.48	3.79	1740	3100	6760	0.599	
	OCD-1R	Oct-18		514	1610	2.61	3.64	1310	2760	4720	0.206	
	OCD-1R	Apr-19		403	1230	3.09	3.03	977	2250	5000	0.485	
	OCD-1R	Oct-19		600	1820	2.93	4.13	1660	3670	7760	0.243	
	OCD-1R	Jun-20		599	1640	2.60	3.82	986	2350	5850	0.0815 JB	
	OCD-1R	Oct-20		500	1070	2.78	3.50	1070	2020	5560	0.0603 J	
	OCD-2A	Apr-18		530	1160	0.813	4.88	825	1990	4530	0.187	
	OCD-2A	Oct-18										
	OCD-2A	Apr-19	573	1300 V	0.874	4.73	758	2290 V	5440	0.185		
	OCD-2A	Oct-19										
	OCD-2A	Jun-20	609	1290	0.853	4.93	755	2240	5020	<0.0500		
	OCD-2A	Oct-20										
	OCD-3	Apr-18	842	2110	0.845	14.7	1070	2750	6220	0.194		
	OCD-3	Oct-18										
	OCD-3	Apr-19	347	907	1.15	8.85	688	1610	3850	0.0700 J		
	OCD-3	Oct-19										
	OCD-3	Jun-20	375	585	1.10	7.17	446	1580	3150	0.0713 JB		
	OCD-3	Oct-20										
	OCD-4	Apr-18	847	4550	0.759	34.0	2540	3430	9500	0.101		
	OCD-4	Oct-18										
	OCD-4	Apr-19	818	4400	0.820	32.4	5380	3240	11300	0.0360 JJ6		
	OCD-4	Oct-19										
	OCD-4	Jun-20	840	5000	0.990	33.5	2580	3300	12700	<0.0500		
	OCD-4	Oct-20										
	OCD-5	Apr-18	882	5050	0.765	40.7	2990	3440	11300	0.0860 J		
	OCD-5	Oct-18	834	5130	0.324	36.0	2690	3570	11200	<0.0197		
	OCD-5	Apr-19	843	4840	0.790	38.9	2580	3300	12400	<0.0197		
	OCD-5	Oct-19	843	5240	0.628	35.7	3010	3080	11900	<0.0197		
	OCD-5	Jun-20	824	4770	0.950	37.3	2660	3490	10700 J4	<0.0500		
	OCD-5	Oct-20	850	4120	0.702	35.8	3010	2690	12100	<0.0500		
	OCD-6	Apr-18	881	4510	2.15	16.6	2800	2960	10800	1.06		
	OCD-6	Oct-18	850	4910	1.98	16.1	2600	3110	14200 J4	<0.0197		
	OCD-6	Apr-19	931	4710	2.26	17.0	2820	2760	11400	0.837		
	OCD-6	Oct-19	754	3180	2.84	11.3	2050	2950	9760	0.0320 J		
	OCD-6	Jun-20	918	4880	2.04	15.0	2710	3160	10800	<0.0500		
	OCD-6	Oct-20	922	4850	2.27	15.8	2720	2870	11400	<0.0500		
	OCD-7AR	Apr-18	603	2400	2.77	5.90	2790	3830	8960	0.0620 J		
	OCD-7AR	Oct-18	612	2460	2.45	6.30	2520	3680	10500 J4	<0.0197		
	OCD-7AR	Apr-19	662	2700	2.30	6.31	2600	3950	10300	0.711		
	OCD-7AR	Oct-19	602	2680	2.80	6.22	2420	3640	10200	<0.0197		
	OCD-7AR	Jun-20	619	2990	2.13	6.10	2520	3990	9740	<0.0500		
	OCD-7AR	Oct-20	643	2680	2.75	6.37	2590	3640	10800	<0.0500		
	OCD-7B	Mar-13	552	867	1.33	12.2	650	2270	4670	<1.00		
	OCD-7B	Apr-15	641	910	0.852	11.9	685	2580	4520	<0.0200		
	OCD-7B	Apr-17	564	960	1.05	11.0	629	2100	4540	<0.0197		
	OCD-7B	Apr-19	590	874	0.839	11.7	678	2260	4760	<0.0197		
	OCD-8A	Apr-18	680	2630	2.87	8.52	2090	3730	9840	0.181	<0.00180	
	OCD-8A	Oct-18	664	2750	1.73	9.02	2260	4160	9500	<0.0197	<0.00180	
	OCD-8A	Apr-19	683	2690	2.47	8.77	2200	3800	10500	<0.0197	<0.00180	
	OCD-8A	Oct-19	1010	12000	2.02	17.4	6590	6010	29600	0.275	<0.00180	
	OCD-8A	Jun-20	665	5120	2.01	8.85	3440	4510	12600	<0.0500	<0.00180	
	OCD-8A	Oct-20	758	5270	2.36	10.8	3710	4260	15600	<0.0500	<0.00180	
	OCD-8B	Apr-13	716	2180	0.980	8.75	1330	2880	7400	<1.00		
	OCD-8B	Apr-15	680	2020	0.934	9.51	1520	2910	7110	0.0233 J		
	OCD-8B	Apr-17	660	2030	0.925	9.07	1800	2620	7390	0.0320 J		
	OCD-8B	Apr-19	715 V	3230	0.774	9.61	1490 V	4950	7690	<0.0197		
Field East of Refinery	KWB-1A	Apr-18	511	354	1.21	1.00	272	2930	4690	0.341	<0.00180	
	KWB-1A	Oct-18	457	339	1.48	1.53 JB	251	2670	4060	0.219	<0.00180	
	KWB-1A	Apr-19	538	319	1.26	1.20	291	2580	4580	0.446	<0.00180	
	KWB-1A	Oct-19	466	332	1.46	0.954 J	258	2660	4240	0.101	<0.00180	
	KWB-1A	Jun-20	465	271	1.33	0.854 J	234	2600	4490	0.142	<0.00180	
	KWB-1A	Oct-20	476	266	1.33	0.994 JB	245	2430	4320	0.0862 J	<0.00180	

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH
Area	Well ID	Date	Dup								
Field East of Refinery	KWB-1C	Apr-13		474	380	1.03	5.68	161	2150	4420	1.75
	KWB-1C	Apr-15		619	1160	25.3	1.23	210	2920	5340	0.180
	KWB-1C	Apr-17		560	508	1.25	1.36	267	2860	5000	0.0350 JP1
	KWB-1C	Apr-19		533	317	1.16	1.39	274	2550	4680	0.629
	KWB-7	Oct-17		345	354	0.599	0.230 J	268	907	3080	<0.0197
	KWB-7	Oct-18		326	360	0.754	0.419 JB	248	1120	2630	<0.0197 J6
	KWB-7	Jun-20		330	458	0.915	<0.534	275	834	2810	<0.0500
	KWB-7	Oct-20		371	330	0.794	<2.67	263	1260	3180	0.0590 J
	KWB-8	Oct-16		251	579	0.467	0.351 J	443	701	3120	0.0380 JB
	KWB-8	Apr-17		237	574	0.623	0.414 J	320	442	2400	0.0510 J
	KWB-8	Oct-17		273	913	0.467	0.411 J	462	417	3270	<0.985
	KWB-8	Oct-20		301	398	0.694	<0.534	546	1660	4440	<1.00
	KWB-10R	Apr-17		134	230	1.57	0.521 J	131	0.475 J	1130	<0.0197
	KWB-10R	Oct-17		138	186	1.39	0.453 J	123	3.08 J	1080	0.440
	KWB-10R	Apr-18		138	183	1.35	0.430 J	122	<0.0774	1060	0.0250 J
	KWB-10R	Oct-18		130	188	1.33	0.836 JB	110	<0.0774	1040	<0.0197
	KWB-11A	Apr-18		461	849	0.567	0.856 J	335	1060	3570	4.51
	KWB-11A	Oct-18		433	786	0.851	1.17 B	359	1220	3410	0.0410 J
	KWB-11A	Apr-19		453	744	0.626	0.831 J	308	1100	3380	0.679
	KWB-11A	Jun-20		408	676	0.753	0.800 J	319	1180	3180	0.0536 J
	KWB-11A	Oct-20		396	541	0.652	0.676 J	306	1090	2930	0.414
	KWB-11B	Apr-18		497	300	0.418	2.21	91.8	1580	2650	3.32
	KWB-11B	Oct-18		484	314	0.399	2.65 B	86.8	1580	2620	3.33
	KWB-11B	Apr-19		516	342	0.359	2.19	87.2	1500	2560	3.31
	KWB-11B	Oct-19		498	329	0.447 J	2.25	87.0	1540	2620	2.69
	KWB-11B	Jun-20		515	369	0.453	2.24	97.1	1710	2880	3.34
	KWB-11B	Oct-20		509	365	0.395	<2.67	100	1380	3130	3.03
	KWB-12A	Oct-18		475	92.4	0.439	0.696 J	120	1890	2850	9.14
	KWB-12A	Oct-19		480	111	0.597	0.614 JB	122	2210	3270	8.01
	KWB-12A	Jun-20		519	115	0.587	1.46 J	135	2270	3490	7.15
	KWB-12A	Oct-20		541	129	0.537	1.07 JB	133	2020	3520	6.85
	KWB-12B	Apr-18		571	121	0.346	0.699 J	150	2390	3560	7.78
	KWB-12B	Apr-18	FD	581	129	0.377	0.745 J	144	2280	3480	7.88
	KWB-12B	Oct-18		507	104	0.312	0.739 J	128	1330	3340	8.52
	KWB-12B	Oct-18	FD	538	106	0.307	0.653 J	129	1660	3380 J3	8.26
	KWB-12B	Apr-19		606	111	0.327	0.752 J	151	2140	3600	7.48
	KWB-12B	Apr-19	FD	549	110	0.328	0.723 J	134	2080	3580	7.81
	KWB-12B	Oct-19		527	114	0.425	0.575 JB	129	2230	3830 J3	7.10
	KWB-12B	Oct-19	FD	533	113	0.417	0.621 J	134	2280	3620	7.15
	KWB-12B	Jun-20		537	120	0.441	0.673 J	130	2460	3790	11.5
	KWB-12B	Jun-20	FD	525	114	0.343	0.742 J	126	2210	3600	8.27
	KWB-12B	Oct-20		578	130	0.386	0.656 JB	141	2210	3820	6.35
	KWB-12B	Oct-20	FD	533	126	0.395	0.642 J	141	2140	3760	7.25
	KWB-P4	Apr-13									
	KWB-P4	Apr-15									
	KWB-P4	Apr-17									
	KWB-P4	Apr-19									
	MW-57	Apr-18		506	185	2.22	1.57	315	2430	3660 J3	7.42
	MW-57	Oct-18		536	159	1.91	1.28	386	2220	4850	25.6
	MW-57	Apr-19		590	152	1.58	3.30	259	1700	3160	4.05
	MW-57	Oct-19		638	482	2.91	2.35	429	3160	5720	12.7
	MW-57	Jun-20		568	131	2.63	1.21 J	388	3190	4840	13.8
	MW-57	Oct-20		529	135	1.99	2.97	287	2140	4040	4.83
	MW-58	Oct-17		235	249	1.26	0.553 J	116	13.1	1340	<0.0197
	MW-58	Apr-18		215	207	1.37	0.290 J	98.5	2.59 J	1250	<0.0985
	MW-58	Oct-18		176	151	1.06	1.20	74.3	56.9	1040	<0.394
	MW-58	Oct-19		229	294	1.33	2.06	70.3	1.49 JB	1140	<0.0197
	MW-111	Apr-18		242	421	0.830	0.158 J	240	435	1630	<0.0197
	MW-111	Oct-18		203	412	1.46	0.588 JB	221	331	1810	<0.0197
	MW-111	Apr-19		340	375	0.957	1.83	209	322	2000	<0.0197
	MW-111	Oct-19		212	429	1.38	0.214 J	239	317	2070	<0.0197
	MW-111	Jun-20		251	409	1.08	1.11 J	206	372	1970	<0.0500
	MW-112	Nov-14		190	230	1.00	0.310 J	190	5.40	1200	<0.0200
	MW-113	Apr-18		318	174	0.515	0.538 J	164	985	2210	0.0350 J
	MW-113	Apr-18	FD	329	191	0.521	0.629 J	160	1070	2150	<0.0197
	MW-113	Oct-18		309 V	177	0.499	0.557 JB	156 V	1060	2010	<0.0197
	MW-113	Oct-18	FD	327	186	0.542	0.555 J	161	895	2050	<0.0197
	MW-113	Apr-19		332	172	0.451	0.746 J	163	997	2440	<0.0197 J6
	MW-113	Apr-19	FD	329 V	178	0.449	0.633 J	160 V	1020	2070	<0.0197
	MW-113	Oct-19		299	211	0.593	0.377 JB	164	1180	2050	<0.0197
	MW-113	Oct-19	FD	306	198	0.611	0.419 J	162	971	2380	<0.0197 J6
	MW-113	Jun-20		317	192	0.519	0.598 J	159	1210	2440	<0.0500
	MW-113	Jun-20	FD	313	184	0.605 J	<0.534	152	958	2460	<0.0500
	MW-113	Oct-20		274	177	0.527	<0.534	158	773	2200	0.199
	MW-113	Oct-20	FD	280	185	0.536	<2.67	177	786	2210	0.128
	MW-125	Apr-18		548 V	337	1.32	1.28	234 V	2680	3900 J3	0.213
	MW-125	Oct-18		534	284	0.995	1.31	211	2300	3910	0.440
	MW-125	Apr-19		549	322	1.25	1.23	206	2860	4290	0.457
	MW-125	Oct-19		517	304	1.20	1.30	216	3040	4480	0.788 J5
	MW-125	Jun-20		543	330	1.19	1.41 J	221	2950	4500	0.212 J5
	MW-125	Oct-20		541	271	1.10	1.42 JB	221	2270	4350	0.0919 J
	MW-126A	Apr-18		383	245	0.881	0.548 J	200	1780	3350	<0.0197
	MW-126A	Oct-18		308	185	0.899	1.72 JB	179	1310	2420	0.0850 J
	MW-126A	Apr-19		382	191	0.757	0.547 JB	138	1350	2540	<0.0197
	MW-126A	Oct-19		325	136	0.937	0.670 J	152	1330	2330	<0.0197 J5
	MW-126A	Jun-20		357	198	0.869	<0.534	152	1590	2680	<0.0500
	MW-126A	Oct-20		396	210	0.706	<0.534	189	1510	3150	<0.0500
	MW-126B	Apr-18		534	266	0.764	2.36	202	2310	3680	0.436
	MW-126B	Oct-18		561	264	0.930	3.07	213	2290	3610	0.639
	MW-126B	Apr-19		590	263	0.629	2.80	219	2060	3430	0.381
	MW-126B	Oct-19		545	273	0.779	2.31	198 V	2250	4180	0.364
	MW-126B	Jun-20		539	272	0.784	2.27	210	2440	4010	0.414
	MW-126B	Oct-20		562	256	0.705	2.36	195	2140	3990	0.429
	MW-127	Oct-17		262	231	0.993	1.46	142	776	1970	0.146
	MW-127	Apr-18		245	225	0.997	0.279 J	148	677	2010	<0.0985
	MW-127	Oct-18		240	219	0.979	1.29 JB	135	670	1940	<0.0197
	MW-127	Apr-19		267	208	0.855	0.438 JB	163	612	1990	<0.0197
	MW-128	Oct-17		186	200	1.29	0.354 JB	107	248	1370	<0.0197
	MW-128	Apr-18		181	175	1.23	0.764 J	115	207	1280	<0.0197
	MW-128	Oct-18		161 V	170	1.13	0.412 J	97.3 O1V	147	1650	0.0230 JJ6
	MW-128	Apr-19		181	173	1.06	0.725 J	115	126	1300	<0.0197
	MW-129	Apr-16		170	300	1.10	0.331 J	210	44.1	1520	<0.197
	MW-129	Oct-16		162	293	1.13	0.270 J	198	44.1	1340	0.0770 JB
	MW-129	Apr-17		163	300	1.02	0.334 J	199	44.1	1250	<0.197 J5
	MW-129	Apr-18		162	282	1.04	0.251 J	201	52.6	1270	<0.0197

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters								Cyanide				
				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite	Cyanide				
				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2	57-12-5				
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
CGWSL				250	1.60			600	1000	10.0	0.200					
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH	WQCC HH				
Area	Well ID	Date	Dup													
Field East of Refinery	MW-130	Apr-18		256	235	0.841	0.644	J	299	999	2230	1.87				
	MW-130	Oct-18		239	237	0.792	0.611	J	273	985	2020	J4	1.97			
	MW-130	Apr-19		269	228	1.81	0.712	J	289	940	2470	J4	1.81			
	MW-130	Oct-19		250	243	0.913	0.789	J	275	1000	2170		0.777			
	MW-130	Jun-20		247	208	0.828	0.656	J	285	972	2390		0.861			
	MW-130	Oct-20		242	188	0.758	0.648	JB	285	882	2430		0.959			
	MW-131	Apr-17		151	285	0.773	0.275	J	153	10.3	1230		<0.197			
	MW-131	Oct-17		149	284	0.807	0.200	J	149	15.5	1290		<0.0197			
	MW-131	Oct-19		145	288	0.845	0.251	J	150	19.7	1210		<0.0197			
	MW-131	Jun-20		153	283	0.865	<0.534		163	24.7	1270		<0.0500			
	MW-133	Nov-14		200	170	1.10	0.460	J	140	140	1300		<0.0200			
	MW-133	Apr-15		163	174	1.19	0.323	J	122	116	1190		<0.200			
	MW-134	Apr-18		555	441	1.11	1.65		270	2790	4480		3.89			
	MW-134	Apr-18	FD	574	V	464	1.08	1.71	271	V	2760	4430		3.85		
	MW-134	Oct-18		514		392	0.956	1.50	243		1950	5090		3.83		
	MW-134	Oct-18	FD	546		405	0.947	1.60	241		2170	5460		1.52		
	MW-134	Apr-19		582		417	1.31	1.89	283		3060	4960		3.42		
	MW-134	Apr-19	FD	563		403	1.31	1.70	263		2840	5250		3.53		
	MW-134	Oct-19		511		396	1.37	1.48	243		3140	4710		2.67		
	MW-134	Oct-19	FD	542		398	1.42	1.54	249		2780	4960		2.55		
	MW-134	Jun-20		515		370	1.16	1.51	J	234	V	2910	4870	1.73	J5	
	MW-134	Jun-20	FD	516		363	1.45	J	1.43	J	239	2530	4960	<0.0500		
	MW-134	Oct-20		501		349	1.01	1.67	JB	243		2700	4950	1.37		
	MW-134	Oct-20	FD	503		366	1.32	J	1.64	J	251	2530	4970	1.39		
	MW-135	Apr-18		493		765	1.09	0.904	J	599		2530	5020	32.8		
	MW-135	Oct-18		484		716	0.985	1.15	JB	573		2730	5070	35.9		
	MW-135	Apr-19		608		652	0.954	1.00		667		2780	5780	29.5		
	MW-135	Oct-19		513		547	1.20	0.744	JB	542		2820	5240	13.4		
	MW-135	Jun-20		542		542	1.14	0.801	J	594		2940	5600	16.0		
	MW-135	Oct-20		538		504	1.13	<2.67		621		2970	5460	10.9		
	MW-145	Oct-20														
	MW-145	Oct-20	FD													
	MW-146	Oct-20														
	MW-147	Oct-20														
	MW-148	Oct-20														
	RA-4196	Apr-18		379	131	0.354	2.22	97.9			1290	2070	<0.0197			
	RA-4196	Oct-18		345	119	0.291	1.98	90.5			935	1960	<0.0197			
	RA-4196	Apr-19		370	112	0.309	2.34	90.6			1060	1920	<0.0197			
	RA-4196	Oct-19		363	131	0.299	1.96	89.2			1250	2160	<0.0197			
	RA-4196	Jun-20		365	126	0.324	2.17	90.1			1330	2290	<0.0500			
	RA-4196	Oct-20		382	123	0.348	2.36	98.7			1250	2340	0.842	J6		
	RA-4798	Apr-18		238	V	62.9	0.408	1.98	41.4		783	1340	0.878			
	RA-4798	Oct-18		335		110	0.317	1.97	83.1		1270	2110	1.16			
	RA-4798	Apr-19		257		60.1	0.355	2.16	46.5		726	1340	1.02			
	RA-4798	Oct-19		366		130	0.339	1.91	93.8		1260	1950	1.14			
	RA-4798	Jun-20		449		163	0.321	2.30	117		1620	2820	1.50			
	RA-4798	Oct-20		356		104	0.358	2.36	87.6		1080	2200	1.18			
	RW-12R	Apr-17		392		189	0.623	0.293	J	152		1740	2420	J3	<0.197	
	RW-12R	Apr-18		378		155	0.700	0.220	J	171		1400	2400		<0.0197	
	RW-12R	Apr-19		369	V	154	0.609	0.408	JB	164	V	1180	2450	<0.0394		
	RW-12R	Jun-20		337		143	0.716	<0.534		158		1300	2750	<0.0500		
	RW-13R	Apr-16		202		222	0.691	0.346	J	167		341	1190	0.0460	J	
	RW-13R	Apr-18		242		207	0.650	0.378	J	183		525	1700	0.0260	JP1	
	RW-18A	Apr-17		504		176	2.51	1.09		141		2870	4400	1.90		
	RW-18A	Apr-18		491		206	1.82	0.832	J	132		2750	3940	0.408		
	RW-18A	Apr-19		549		199	1.94	0.832	J	130		2390	3970	0.286		
	RW-18A	Jun-20		515		211	2.03	0.990	J	120		2490	4280	0.460		
	RW-20	Apr-15		228		256	0.530	<0.180		228		125	1430	<0.200		
	RW-22	Apr-15		184		402	0.860	0.319	J	274		78.4	1680	<0.200		
NCL	MW-18	Apr-17		486	77.5	3.44	13.9	65.0		1970	3420	51.0	<0.00180			
	MW-18	Apr-18		472	154	1.59	3.05	90.2		1820	2580	37.9	<0.00180			
	MW-18	Apr-19		536	86.7	2.04	7.60	76.6		1910	3310	32.6	<0.00180			
	MW-18	Jun-20		421	154	1.61	1.66	J	58.7		1510	2870	18.3	<0.00180		
	MW-45	Apr-18		651	523	1.62	6.27	371		2590	4480	0.0220	J	<0.00180		
	MW-45	Oct-18		624	447	1.36	5.03	372		2680	3840	<0.0197		0.00258	J	
	MW-45	Apr-19		670	462	1.24	7.13	390		2580	4760	0.0470	JJ6	<0.00180		
	MW-45	Oct-19		588	441	1.73	5.54	375		2530	4710	0.0260	J	<0.00180		
	MW-45	Jun-20		574	413	1.54	4.80	339		2490	4480	<0.0500		0.00225	J	
	MW-45	Oct-20		577	429	1.70	4.70	359		2350	4970	<0.0500		<0.00180		
	MW-53	Apr-16		459	346	1.06	1.42	J	161		1340	2890	25.3			
	MW-53	Apr-17		340	222	0.904	1.12		130		1330	2290	15.6			
	MW-53	Apr-18		315	72.9	1.13	1.12	B	118		1250	1860	1.58	J6		
	MW-53	Apr-19		259	59.6	1.30	1.17		88.4		1100	1880	0.290			
	MW-53R	Oct-20		298	66.7	1.11	4.08		69.1		955	1920	<0.0500			
	MW-54A	Apr-18		373	V	186	0.955	0.324	JB	61.7		746	1650	<0.0197		
	MW-54A	Oct-18		359		181	0.898	0.215	J	60.3		821	1810	<0.0197		
	MW-54A	Apr-19		335		185	0.957	0.196	J	54.1		778	1890	<0.0197		
	MW-54A	Oct-19		356		212	1.03	0.292	JB	61.1		833	2060	0.154		
	MW-54A	Jun-20		366		198	0.809	<0.534		55.5		838	2030	<0.0500		
	MW-54A	Oct-20		374		196	0.913	<0.534		60.8		768	1990	<0.0500	J5	
	MW-54B	Apr-13		345		176	<0.500	1.16		48.8		747	2050	<1.00		
	MW-54B	Apr-15		307		166	0.613	0.767	J	48.0		752	1890	J	0.0276	J
	MW-54B	Apr-17		317		127	0.617	1.18		54.5		1040	1840	0.100	J	
	MW-54B	Apr-19		319		140	0.634	0.811	J	50.5		818	1870	0.0410	J	
	MW-55	Apr-18		455		523	1.58	0.838	J	214						

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH
Area	Well ID	Date	Dup								
NCL	NCL-32	Apr-18		425	130	1.51	3.41	116	1450	2450	2.72 J6
	NCL-32	Oct-18		447	104 B	1.23	3.24	120	1570	2270	5.11
	NCL-32	Apr-19		442	105	1.26	3.35	116	1480	2730	5.87
	NCL-32	Oct-19		431	98.8	1.28	3.19	114	1840	2880	5.62
	NCL-32	Jun-20		472	90.7	1.36	3.12	107	1730	2940	6.45
	NCL-32	Oct-20		483	90.7	1.27	3.47	118	1640	3040	5.82
	NCL-33	Apr-18		473	486	2.63	5.70	122	870	2180	<0.0197
	NCL-33	Oct-18		454	466	2.47	5.35	128	809	1880	<0.0197
	NCL-33	Apr-19		430	483	2.12	4.92	145	595	1840	0.890
	NCL-33	Oct-19		547	964	2.34	5.54	157	1090	3120	<0.0197
	NCL-33	Jun-20		714	692	2.44	5.60	166	1540	3890	0.0547 J
	NCL-33	Oct-20		688	667	2.64	6.43	178	1340	3960	<0.0500
	NCL-34A	Apr-18		276	323	1.36	1.32	113	85.2	1520	<0.197
	NCL-34A	Oct-18		270	289	1.21 J3J5	1.25	111	117	1710	<0.394
	NCL-34A	Apr-19		251 V	262	1.37	1.11	107 V	42.6	1370	<0.394
	NCL-34A	Oct-19		235	245	1.38	1.15	116	119	1470	0.110
	NCL-34A	Jun-20		283	260	1.31	1.13 J	104	234	1680	<5.00
	NCL-44	Apr-18		361	144	1.88	2.44	129	1280	2200	<0.0197 J3J6
	NCL-44	Oct-18		376	146	1.60	2.33	131	1330	2340	0.0260 JJ6
	NCL-44	Apr-19		371	138	1.48	2.39	131	1230	2640	<0.0197 J6
	NCL-44	Oct-19		356	185	1.67	2.32	131	1430	2740	0.142
	NCL-44	Jun-20		373	141	1.66	2.15	135	1290	2700	<0.0500
	NCL-44	Oct-20		358	126 B	1.63	2.29	142	1170	2730	<0.0500
	NCL-49	Apr-18		522	169	0.640	0.736 JB	145	2070	2560	7.75
	NCL-49	Apr-18	FD	525	171	0.651	0.995 JB	147	2070	3060	7.85
	NCL-49	Oct-18		485	143	0.565 B	0.689 J	130	2050	3370	3.59
	NCL-49	Oct-18	FD	448	144	0.572 B	0.635 J	122	2040	3190	3.59
	NCL-49	Apr-19		438	127	0.658	0.761 J	123	1910	2490	5.63
	NCL-49	Apr-19	FD	450	129	0.653	0.701 J	124	1830	2440	5.66
	NCL-49	Oct-19		474	137	0.740	0.736 J	129 V	1910	3240	6.39
	NCL-49	Oct-19	FD	440	134	0.722	0.642 J	126 V	1970	3390	7.44
	NCL-49	Jun-20		486	128	0.609	0.686 J	133	1910	3350	9.98
	NCL-49	Jun-20	FD	472	128	0.613	0.652 J	135	1920	3350	9.95
	NCL-49	Oct-20		487	135 B	0.606	0.692 JB	135	1830	3380	10.1
	NCL-49	Oct-20	FD	482	135 B	0.600	0.675 JB	133	1820	3430	10.0
North Refinery	MW-23	Apr-18		112	450	1.88	1.47	472	10.9	2080	<0.0197
	MW-23	Oct-18		104	418	1.49	1.41	429	10.8	1830	<0.0197
	MW-23	Apr-19		97.5	444	1.70	1.12	482	18.9	2000	<0.0197
	MW-23	Oct-19		95.6	428	1.59	1.27	410	18.7	2020	<0.0197
	MW-23	Jun-20		96.4	410	1.42	1.10 J	426 V	15.6	1970	<0.500
	MW-23	Oct-20		96.8	408	1.19	1.29 J	459	7.39	1990	<0.0500
	MW-29	Apr-18		501	332	1.29	1.61	298	2120	3910	<0.0197
	MW-29	Oct-18		344	263	0.953	1.08	324	1450	2990	<0.0197
	MW-29	Apr-19		617	331	1.61	1.98	360	2790	5300	<0.0197
	MW-29	Oct-19		519	351	2.05	2.08	357	2810	4180	<0.0197
	MW-29	Jun-20		396	383	1.71	2.03	356	1890	3610	<0.0500
	MW-29	Oct-20		336	418	1.47	1.90 J	333 V	1430	3530	<0.0500
	MW-39	Apr-18		72.9	131	3.57	0.331 J	1090	1130	3020	<0.0197
	MW-39	Oct-18		51.5	95.9	3.62	0.295 J	779	770	2490	<0.0197
	MW-39	Apr-19		52.6	111	4.21	0.164 J	891	1000	2580	<0.0197
	MW-39	Oct-19		45.8	86.8	4.26	0.245 J	771	929	2590	<0.0197
	MW-39	Jun-20		61.8	97.7	3.45	<0.534	721	821	2410	<0.0500
	MW-39	Oct-20		63.8	91.5	3.28	<0.534	655	686	2260	<0.0500
	MW-40	Apr-17		474	156	1.76	1.62	110	1550	3190	<0.197
	MW-40	Apr-18		425	141	1.80	1.41	107	1440	2390	<0.985
	MW-40	Apr-19		450	106	1.52	1.39	107	1400	2600 J3	<0.394
	MW-40	Jun-20		374	88.4	1.88	1.30 J	90.4	1380	2430	<0.500
	MW-41	Apr-17		224	328	0.936	0.415 J	379	1200	2890	<0.197
	MW-41	Apr-18		329	682	0.934	0.571 J	624	1500	4060	<0.0197
	MW-41	Apr-19		238	721	0.884	0.590 J	624	1140	4110	<0.394
	MW-41	Jun-20		282	875	1.00	0.653 J	828	1780	4930	<0.0500
	MW-42	Apr-17		222	406	0.831	0.421 J	462	1100	3410	0.416 JP1
	MW-42	Apr-18		241	372	0.984	0.433 J	445	1180	2990 J3	0.0310 JJ6
	MW-42	Apr-19		233	319	0.780	0.449 J	425	1010	2590	<0.394
	MW-42	Jun-20		246	336	0.851	<0.534	358	1020	3310	<2.50
	MW-43	Apr-18		159	697	1.93	1.11	604	357	3110	<0.985
	MW-43	Oct-18		155	636	1.61	1.01	483	311	2900	<0.985
	MW-43	Apr-19		152	639	1.71	0.923 J	491	444	2610	<0.394
	MW-43	Oct-19		205	662	1.66	0.961 J	406	479	2120	<0.985
	MW-43	Jun-20		141	547	1.36	0.828 J	341	198	2210	<0.250
	MW-43	Oct-20		141	550	1.09	0.896 J	350	102	2150	<0.0500
	MW-59	Apr-17		467	184	1.13	0.519 J	134	1870	3160	<0.197
	MW-59	Apr-18		492	180	1.31	0.507 J	151	1680	2760	<0.0197 J6
	MW-59	Apr-19		475	173	1.10	0.468 J	153	1400	3110	<0.0197
	MW-59	Jun-20		366	201	1.33	<0.534	184	1340	2900	<0.0500
	MW-60	Apr-18		444	221	0.974	0.769 J	233	2080	3850	<0.0197 J6
	MW-60	Apr-18	FD	447	231	0.969	0.746 J	218	1980	3510	<0.0197
	MW-60	Oct-18		432	231	1.00	0.836 J	227	2030	3020	0.0640 JP1
	MW-60	Oct-18	FD	432	230	0.978	0.750 J	223	1730	4100	0.0810 J
	MW-60	Apr-19		448	275 B	1.06	0.766 J	258	2380	3870	<0.985
	MW-60	Apr-19	FD	429	269 B	0.901	0.703 J	250	2300	4060	<0.985
	MW-60	Oct-19		401	250	0.972	0.420 J	191	2200	2930 J3	<0.197
	MW-60	Oct-19	FD	402	273	0.936	0.445 JB	184 V	2040	3320 J3	<0.197
	MW-60	Jun-20		418	206	0.778	<0.534	178	1770	3720	<2.50
	MW-60	Jun-20	FD	424	219	1.18 J	<0.534	176	1660	3790	<0.500
	MW-60	Oct-20		418	202	0.715	<0.534	189	1510	3560	0.203
	MW-60	Oct-20	FD	401	219	1.21 J	<0.534	190	1780	3660	<0.0500
	MW-61	Apr-18		289 V	299	1.55	1.24	293 V	862	2200	<0.394
	MW-61	Oct-18		257	279	1.46	2.99 JB	258	797	2180	<0.985
	MW-61	Apr-19		288	322	1.43	0.885 J	317	725	2320	<0.197
	MW-61	Oct-19		402	412	2.05	2.49	234	885	2690	<0.985
	MW-61	Jun-20		292	471	1.09	0.933 J	299	541	2570	<5.00
	MW-61	Oct-20		246	339	1.06	0.820 JB	302	532	2110	<0.0500
	MW-62	Apr-18		338	266	1.73	1.36	360	793	2330	<0.394
	MW-62	Oct-18		259	264	1.91	2.22 JB	270	500	2100	<0.985
	MW-62	Apr-19		292	266	1.56	1.15	310	556	2280	<0.0197
	MW-62	Oct-19		271	285	1.60	1.12	255 O1V	593	2290	<0.985
	MW-62	Jun-20		282	280	1.19	0.973 J	235	524	2290	<2.50
	MW-62	Oct-20		304	296	1.08	1.11 JB	241	531	2370	<0.0500
	MW-62R	Oct-20		304	311	0.806	3.38	152	571	2240	<0.0500
	MW-67	Oct-17		207	305	0.568	0.500 JB	200	388	1740	<0.0985
	MW-67	Apr-18		220	328	0.636	0.573 JB	245	404	1660	<0.197
	MW-67	Oct-18		240	221	0.611	0.636 J	202	493	1580	<0.0197
	MW-67	Apr-19		202	302	0.637	0.538 J	225	447	1630	<0.0197

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH
Area	Well ID	Date	Dup								
North Refinery	MW-90	Apr-18		300	166	2.11	1.16 B	200	1620	2510	<0.197
	MW-90	Oct-18		305	150	2.32	1.31	167	1630	2990	<0.197
	MW-90	Apr-19		321	167	1.99	1.21	172	1900	2710	0.558 J
	MW-90	Oct-19		434	79.1	5.45	1.73	109	2540	3480	0.0330 J
	MW-90	Jun-20		331	173	2.25	1.13 J	142	1790	3120	<2.50
	MW-90	Oct-20		293	210	1.05	0.913 J	171	1280	2910	<0.0500
	MW-91	Apr-18		440	167	1.31	0.513 JB	40.0	961	2170 J3	<1.97
	MW-91	Oct-18		433	221	1.27	0.639 J	35.2	966	2820	<0.985
	MW-91	Apr-19		460	295	1.27	0.468 J	38.9	915	3290	<1.97
	MW-91	Oct-19		451	422	1.29	0.520 J	39.6	1020	2430	<0.197
	MW-91	Jun-20		478	501	1.19	<0.534	36.7	813	2830	<10.0
	MW-92	Apr-16	130 O1	415	1.30	1.73 J	450 O1V	24.1	2310	0.602 J	
	MW-92	Oct-16	134	539	1.63	2.02	454	14.6	2150	<0.985	
	MW-93	Apr-17		489	192	2.38	2.97	167	1430	2930	<0.197
	MW-93	Apr-18		537	193	2.39	3.55	191	1400	2760	<0.197
	MW-93	Apr-19		505	214	2.09	3.76	195	1400	2810	0.0220 J
	MW-93	Jun-20		491	233	1.88	3.11	163	1070	2820	<2.50
	MW-94	Oct-15		109	245	1.01	0.224 J	355	75.8	2530	<0.197
	MW-94	Apr-16		124	217	1.02	0.189 J	532	199	2980	<0.197
	MW-94	Oct-16		137	172	1.04	0.467 J	319	175	2530	<0.0197
	MW-94	Apr-17		95.6	196	0.874	0.331 J	427	85.7	2660	<0.197
	MW-95	Apr-17	203 V	349	0.868	0.730 J	194 V	420	1710	<0.197	
	MW-95	Apr-18		229	258	0.884	0.602 J	163	471	1770	<0.0197
	MW-95	Apr-19		246	264	0.830	0.472 J	172	561	2020	<0.0197
	MW-95	Jun-20		250	300	0.739	<0.534	151	682	2020	<0.0500
	MW-96	Apr-18		188	159	1.18	1.23	229	178	1450	<1.97
	MW-96	Oct-18		186	157	1.10	0.985 J	217	235	1530	<0.197
	MW-96	Apr-19		167	150	1.20	1.17	211	150	1360	0.141
	MW-96	Oct-19		195	144	1.17	1.15	204	393	1520	<0.197
	MW-96	Jun-20		147	131	1.32	1.52 J	200	95.2	1320	<2.50
	MW-96	Oct-20		142	128	1.15	1.17 J	218	69.3 P1	1420	<0.0500
	MW-98	Apr-18		543	81.5	1.70	0.235 JB	106	1790	2910	<1.97
	MW-98	Oct-18		490	98.3	1.65	0.249 J	93.9	1640	2320 J3	<0.985
	MW-98	Apr-19		575	126	1.69	<0.0370	127	1800	2980	<1.97
	MW-98	Oct-19		575	185	1.99	0.257 J	115	1520	3330	<0.985
	MW-98	Jun-20		561	239	1.69	<0.534	129	1590	3280	<5.00
	MW-98	Oct-20		515	195	1.73	<0.534	125	1300	3060	<0.0500
	MW-137	Oct-17		141	548	1.11	0.979 JB	759	683	2910	<0.394
	MW-137	Apr-18		143	446	1.41	1.23	955	713	3420	<0.985
	MW-137	Oct-18		133	406	0.873	0.971 J	632	384	2730	<1.97
	MW-137	Apr-19		142	407	1.28	1.14	845	607	3380	<1.97
	MW-138	Oct-17		124	453	1.06	1.50 B	401	27.9	2100	<0.0985
	MW-138	Apr-18		130	453	0.874	1.58	436	26.8	1910	<0.0197
	MW-138	Oct-18		122	408	0.802	1.60	362	30.3	1510	<0.0197
	MW-138	Apr-19		130	435	0.966	1.62	402	41.4	1730	<0.0197
	RW-1R	Apr-16		505	180	1.38	6.39	203	1500	2990	0.422 J
	RW-1	Apr-17		558	246	1.41	7.37	268	1860	3690	<0.197
	RW-1	Apr-18		363	255	0.913	2.24	247	1030	1810	<1.97
	RW-1	Apr-19		337	286	0.866	1.87	266	939	2690	<1.97
	RW-2	Apr-15		726	365	1.75	5.55 J	383	3510	5310	<0.200
	RW-2R	Apr-16		875	430	2.09	5.80	396	2200	3810	0.281 J
	RW-2	Apr-17		519	251	2.35	2.86	261	1200	3030	<0.197
	RW-2	Apr-18		402	317	1.75	2.25	335	731	2600	<0.394
	RW-7	Apr-17		266	204	0.513	0.922 J	105	693	1740	<0.197
	RW-7	Apr-18		295	217	1.22	2.54	149	475	1820	<0.985
	RW-7	Apr-19		247	239	1.05	1.63	150	426	1830	<0.197
	RW-7	Jun-20		184	218	0.995	0.651 J	151	162	1530	<2.50
	RW-8	Apr-15		227	115	0.801	0.353 J	209	473	1600	<0.200
	RW-8	Apr-17		218	163	0.731	0.360 J	161	665	1820	<0.197
	RW-9	Apr-17		355	369	1.90	2.26	326	1370	3370	<0.197
	RW-9	Apr-18		322	353	1.80	2.13	351	1170	2750	<0.985
	RW-9	Apr-19		309	399	1.46	1.91	356	1160	3100	<1.97
	RW-9	Jun-20		293	469	1.21	1.51 J	425	1140	3330	<2.50
	RW-10	Apr-17		457	88.0	3.53	3.24	110	1500	2660	<0.197
	RW-10	Apr-18		499	131	3.41	3.49	143	1530	2670	<0.985
	RW-10	Apr-19		572	65.9	3.66	3.68	102	1470	2540 J3	<0.197
	RW-10	Jun-20		485	92.9	3.87	4.43	151	1450	2520	<0.0500
	RW-16B	Apr-17		499	291	4.90	0.832 J	372	2740	5030	2.20
	RW-16B	Apr-18		546	43.5	4.89	0.788 J	259	2660	4240	0.894 J6
	RW-16B	Apr-19		540	83.0	4.48	0.677 J	333	2690	4440	1.47 J3J6
	RW-16B	Jun-20		516	181	3.78	1.65 J	492	2970	4720	<0.0500
	RW-17A	Apr-17		568	398	2.61	4.02	306	2950	4820	3.33
	RW-17A	Apr-18		635	358	2.31	3.87	345	3080	4430	0.0920 J
	RW-17A	Apr-19		563	398	2.64	2.97	286	3290	5430	<0.0197
	RW-17A	Jun-20		554	389	2.58	4.62	306	2940	5730	0.386
North RO Field	MW-117	Apr-18		604	124	3.20	6.30	111	1070	2920	0.207
	MW-117	Oct-18		577	327	2.78	6.12	105	1940	3500	0.102
	MW-117	Apr-19		686	307	2.99	7.11	127	1980	3720	0.0740 J
	MW-117	Oct-19		582	267	3.25	6.50	99.5	2010	3330	0.376
	MW-117	Jun-20		578	299	3.43	6.39	129	2300	3640	2.46
	MW-117	Oct-20		587	271	3.25	6.68	133	2030	3870 J3	4.05
	MW-118	Apr-18		607	292	5.55	4.86	136	2480	3300	1.21
	MW-118	Oct-18		559	259	5.06	4.98	136	1730	4120	1.88
	MW-118	Apr-19		648	256	5.40	5.40	144	2390	3800	1.06
	MW-118	Oct-19		573	286	5.28	3.78	153	2580	4260	1.76
	MW-118	Jun-20		586	290	5.20	3.45	171	2950	4620	2.43
	MW-118	Oct-20		558	262	5.06	3.07 B	178	2600	4640	2.03
	MW-119	Apr-18		616	251	2.75	1.10	177	2240	2620	0.288
	MW-119	Oct-18		596	439	2.56	1.49	225	1390	4200	0.0610 J
	MW-119	Apr-19		654	404	2.59	1.39	249	2160	3680	0.398
	MW-119	Oct-19		633	397	2.34	1.31	203	2360	4670	0.132
	MW-119	Jun-20		629	345	1.66	0.637 J	202	2990	4500	0.281
	MW-119	Oct-20		641	298	1.39	0.832 JB	200 V	2490	4420	0.106
South Refinery	KWB-2R	Apr-17		280	279	0.904	0.460 J	286	1060	2550	0.0220 J
	KWB-2R	Oct-17		139	240	1.09	1.33	283	259	1770	<0.394
	KWB-2R	Apr-19		322	246	0.656	0.516 JB	304	1040	2370	0.991 J
	KWB-2R	Oct-19		169	253	0.927	0.534 J	246	345	1590 J3	<0.0197
	KWB-5	Oct-17		220	565	0.877	1.41	208	21.9	1560	0.0530 J
	KWB-5	Apr-18		233	546	0.861	1.95	215	9.96	1730	1.93
	KWB-5	Oct-18		200	546	0.869	1.76 JB	208	11.8	1450	<0.0197
	KWB-5	Apr-19		244	525	0.761	2.10	241	18.7	1680	<0.0197
	KWB-6	Apr-17		227	260	0.965	0.183 J	120	211	1630	0.556 J
	KWB-6	Oct-17		256	290	0.842	0.162 J	131	377	1890	<0.394

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters								Cyanide	
				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite	Cyanide	
				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2	57-12-5	
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
				Units	Units	Units	Units	Units	Units	Units	Units	Units	
CGWSL													
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH	WQCC HH	
Area	Well ID	Date	Dup										
South Refinery	MW-28	Apr-18		319	149	1.33	1.05	107	1380	2290	<0.394	<0.0180	
	MW-28	Oct-18		212	151	1.08 J3	1.72 JB	97.0	960	1810	<0.985	0.00263 JP1	
	MW-28	Apr-19		361	138	1.14	0.964 J	112	1030	2920	<0.985	<0.0180	
	MW-28	Oct-19		360	143	1.60	0.571 JB	101	1630	2860	<0.985	<0.0180 J4	
	MW-28	Jun-20		285	149	1.10	4.23	109	1310	2610	<0.250	<0.0360	
	MW-28	Oct-20		281	132	1.02	4.03	114	1140	2670	<0.0500	<0.00180	
	MW-48	Apr-18		200	689	1.90	0.776 J	269	9.52	2490	0.0860 J		
	MW-48	Oct-18	V	172	498	1.20	0.863 J	293 V	125	1730 J4	<0.394		
	MW-48	Apr-19		168	179	1.82	1.16	290	1210	1630 J4	<0.394		
	MW-48	Oct-19		159	429	1.08	1.12	297	85.7	1580 J3	<0.985		
	MW-50	Apr-18		558	415	2.12	4.09	531	3440	5320	9.78		
	MW-50	Oct-18		402	338	1.85	2.56	291	2150	3790	0.507		
	MW-50	Apr-19		469	320	1.50	2.62	334	2340	4440	1.48		
	MW-50	Oct-19		406	298	1.80	2.63	289	2450	3260	1.53		
	MW-50	Jun-20		495	418	2.92	4.42	577	3370	5550 Q	74.6		
	MW-50	Oct-20		490	390	3.64	4.05	682	4100	7810	78.5 V		
	MW-52	Apr-18		195	119	1.81	0.193 J	301	1090	2100	0.893	<0.00180	
	MW-52	Oct-18		175	115	1.81	0.209 J	272	983	2420 J4	4.22	<0.00180	
	MW-52	Apr-19		201	160	1.87	0.394 JB	321	1080	2500 J3J4	12.7	<0.00180	
	MW-52	Oct-19		206	1140	1.71	0.218 JB	322	1110	2380 J3	13.3	<0.00180	
	MW-52	Jun-20		239	195	1.71	<0.534	340	1140	2810	13.0	<0.00180	
	MW-52	Oct-20		223	195	1.62	<0.534	332	1110	2720	15.3 V	<0.00180	
	MW-64	Apr-18		93.7	323	0.795	0.697 J	362	1.84 J	1500	<0.985		
	MW-64	Oct-18		77.9	309	0.958	1.36 JB	312	3.78 J	1390	<0.985		
	MW-64	Apr-19		105	295	0.833	0.713 J	359	1.94 J	1340	<0.0197		
	MW-64	Oct-19		83.5	325	0.742	0.587 J	327	4.42 JB	1480	<0.197		
	MW-64	Jun-20		90.7	324	0.993	0.655 J	350	5.03	1620	<0.100		
	MW-64	Oct-20		88.5	310	0.710	0.586 JB	343	8.17	1590	<0.0500 J3J6		
	MW-65	Apr-18		132	306	1.33	0.732 J	264	10.2	1340	<0.0985		
	MW-65	Oct-18		127	284	1.12	0.823 JB	229	4.80 J	1280	<0.0197 J6		
	MW-65	Apr-19		155	284	0.967	0.532 JB	262	1.23 J	1310	<0.0197		
	MW-65	Oct-19		113	234	1.23	0.466 J	223	5.53 B	1080	<0.0197		
	MW-66	Apr-18		147	196	1.38	0.867 J	191	<0.0774	1110	<0.0197	<0.00180	
	MW-66	Oct-18		138	204	1.26	0.868 J	174	0.781 J	1180	<0.0197 J6	<0.00180	
	MW-66	Apr-19		145	187	1.23	1.21	189	0.718 J	1140	<0.0197	<0.00180	
	MW-66	Oct-19		121	168	1.04	1.18	131	6.99	912	<0.0197 J6	<0.00180	
	MW-66	Jun-20		136	188	1.13	0.842 J	155	1.16 J	1070	0.0979 J	<0.00180	
	MW-66	Oct-20		140	189	1.12	1.71 JB	145	6.68	1060	<0.0500	<0.00180	
	MW-99	Apr-18		179	256	0.686	0.745 J	237	128	1410	0.0540 J		
	MW-99	Oct-18		162	254	0.612	0.792 J	212	124	1420	<0.394		
	MW-99	Apr-19		184	225	0.572	1.31	214	145	1390	<0.394		
	MW-99	Oct-19		109	66.7	0.517	4.66	58.1	81.1	547	0.0300 J		
	MW-99	Jun-20		138	73.2	0.323	7.77	60.7	109	727	<0.0500		
	MW-101	Apr-18		197	228	0.909	0.538 J	154	173	1380	<0.0197		
	MW-101	Oct-18		183	215	0.759	0.482 J	133	163	1280 J3	<0.0197		
	MW-101	Apr-19		208	223	0.984	0.384 J	158	182	1370	<0.0197 J5		
	MW-101	Oct-19		192	212	0.994	0.482 JB	138	202	1370	<0.0197		
	MW-101	Jun-20		183	202	0.965	0.556 J	144	183	1330	<0.0500		
	MW-101	Oct-20		207	185	0.915	0.881 JB	137	234	1410	<0.0500		
	MW-102	Apr-18		136	26.4	0.954	0.960 J	406	5.49	1380	<0.985 J5		
	MW-102	Oct-18		88.3	254	0.883	0.605 JB	377	6.33	1490	<0.985		
	MW-102	Apr-19	V	101	281	0.797	0.275 J	401 V	23.3	1510	<0.197		
	MW-102	Oct-19		166	294	1.09	0.631 JB	392	190	1870	<0.197		
	MW-102	Jun-20		84.2	285	0.984	<0.534	446	21.2	1610	<0.0500		
	MW-102	Oct-20		91.9	282	0.812	<0.534	431	5.16	1610	<0.0500		
	MW-103	Apr-17		306	12000	1.39	3.12 J	10000	48.0	22300	0.0530 J		
	MW-103	Apr-18		94.1	6800	7.41	1.41	5980	60.4	13400	<0.394		
	MW-103	Apr-19		91.2	4550	5.85	1.16	3990	133	9260	<0.0197		
	MW-103	Jun-20		120	4480	4.50	1.21 J	2830	44.3	7620	<0.500		
	MW-104	Apr-18		207	102	1.67	5.95	74.9	417	1110	<0.394		
MW-104	Apr-18	FD	229	106	1.75	7.12	76.8	437	1110	<0.0985			
MW-104	Oct-18		275	123	1.64	8.34	86.6	736	1610	<0.985			
MW-104	Oct-18	FD	313	126	1.57	8.09	92.8	746	1640	<0.197			
MW-104	Apr-19		321	67.0	1.18	8.16	113	780	1650	<0.0197			
MW-104	Apr-19	FD	296	67.7	1.21	7.37	78.0	793	1590	<0.197			
MW-104	Oct-19		241	68.0	1.55	5.92	72.2	757	1390	<0.0197			
MW-104	Oct-19	FD	244	67.9	1.56	6.00	72.5	863	1300	<0.197			
MW-104	Jun-20		224	69.8	1.51	5.03	77.2	703	1290	<0.250			
MW-104	Jun-20	FD	218	69.2	1.33	4.88	73.6	703	1140	<0.500			
MW-104	Oct-20		256	71.7	1.34	5.63	73.9	785	1470	0.153			
MW-104	Oct-20	FD	241	71.7	1.36	5.28	73.7	702	1450	<0.0500			
MW-105	Apr-18		279	129	1.96	6.16	120	226	1400	<0.394			
MW-105	Oct-18		291	99.9	1.12	6.13	74.8	414	1470	<0.394			
MW-105	Apr-19		294	21.4	1.18	2.78	31.0	600	1360	<0.197			
MW-105	Oct-19		453	28.0	1.04	4.72	26.0	1120	2040	<0.985			
MW-105	Jun-20		243	98.8	1.43	2.74	71.7	177	1220	<2.50			
MW-105	Oct-20		170	99.9	1.47	2.73	89.5	17.4	1050	<0.0500			
MW-106	Apr-18		341	211	1.29	2.38	280	1220	2180	<1.97			
MW-106	Oct-18		298	208	1.02	0.979 J	265	979	2650	<0.985			
MW-106	Apr-19		225	150 B	0.952	2.09	153	870	1900	<0.985			
MW-106	Oct-19		360	217	1.29	1.74	264	1340	3240	<0.985			
MW-106	Jun-20		295	206	1.11	1.53 J	258	1130	2890	<10.0			
MW-106	Oct-20		285	213	0.865	0.777 J	318	980	3110	<0.0500			
MW-107	Oct-16		186	271	1.82	0.965 J	80.1	72.4	1480	0.170 B			
MW-107	Apr-17		140	313	1.76	0.655 J	75.4	<0.0774	1260	<0.197			
MW-107	Apr-18		147	269	1.66	0.555 J	81.7	1.08 J	1370	0.0410 J			
MW-107	Apr-19		147	246	1.33	0.631 J	82.5	0.657 J	1270	<0.0197			
MW-109	Apr-18		173	170	2.25	0.992 J	395	864	2220	0.0460 J			
MW-109	Oct-18		147	177	2.23	0.906 J	373	764	2160 Q	0.108 J6			
MW-109	Apr-19		103										

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide
Analyte				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite
CAS				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH
Area	Well ID	Date	Dup								
South Refinery	RW-4	Apr-17		151	280	0.977	1.50	177	318	1510	<0.197
	RW-4	Apr-18		181	242	0.909	1.52	172	410	1550	<0.0197
	RW-4	Apr-19		188	228	0.691	1.24	151	325	1660	<0.197
	RW-4	Jun-20		201	232	0.778	1.13 J	130	446	1710	<0.500
	RW-5R	Apr-15		4.82	260	0.965	0.461 J	189	0.376 J	565	<0.0200
	RW-5R	Apr-16		4.61 J	262	0.564	0.364 J	203	0.655 J	399	0.495 J
	RW-6	Apr-15		168	414	0.628	0.686 J	205	129	1650	0.0335 J
	RW-6R	Apr-16		191	405	0.747	0.356 J	226	104	1470	0.485 JP1
	RW-6	Apr-18		183	409	0.804	0.684 J	224	45.6	1530	0.0460 J
	RW-6	Apr-19		165	325	0.620	0.598 J	191	3.36 J	1350	<0.394
	RW-15C	Apr-17		160	409	0.774	1.59	269	19.4	1610	0.442 J
	RW-15C	Apr-18		211 V	652	0.868	1.28	349 V	0.754 J	1850	<0.0197
South RO Field	RW-15C	Apr-19		247	264	0.882	1.63	322	1070	2110 J4	<0.0197
	MW-114	Apr-18		665	181	1.97	2.74	138	2260	3000	1.50
	MW-114	Oct-18		581	207	1.77	2.46	117	1050	3730	0.395
	MW-114	Apr-19		616	228	2.02	2.73	118	2400	3540	0.356
	MW-114	Oct-19		593	226	2.14	2.61	126	2010	3530	0.571
	MW-114	Jun-20		586	251	2.17	2.42	127	2060	3470	0.478 J5
	MW-114	Oct-20		528	233	2.07	2.37 B	119	1590	3300	0.110
	MW-115	Apr-18		455	262	1.76	0.580 J	232	2830	3420	0.0750 J
	MW-115	Oct-18		397	231	1.47	0.549 J	191	1720	4410	0.325
	MW-115	Apr-19		512 V	281	2.12	0.487 J	180 V	2720	4240	0.148
	MW-115	Oct-19		431	258	2.35	0.496 J	184	2280	4040	0.163
	MW-115	Jun-20		475	424	2.09	<0.534	187	2590	4320	3.94
	MW-115	Oct-20		467	406	1.73	<0.534	179	2350	4590	3.99
	MW-116	Apr-18		592	198	2.55	3.16	154	2040	2950	0.851
	MW-116	Oct-18		557	226	1.15	1.18	170	2150	4090	0.727
	MW-116	Apr-19		623	263	1.56	1.25	215	2470	3890	0.442
TEL	MW-116	Oct-19		546	292	1.93	1.52	175	2600	3260	0.417
	MW-116	Jun-20		559	282	1.59	1.11 J	177	2270	4210	0.520
	MW-116	Oct-20		550	260	1.53	1.14 JB	176	1920	4040	0.476
	MW-49	Apr-18		226	379	1.42	3.12	341	585	1870	<0.985
	MW-49	Oct-18		209	355	1.29	2.58	335	520	2150	<0.985
	MW-49	Apr-19		225	435	1.51	2.96	340	592	2160	<0.985
	MW-49	Oct-19		199	418	1.58	2.93	318	470	2320	<0.985
	MW-49	Jun-20		210	442	1.38	2.90	309	487	2350	<2.50
	MW-49	Oct-20		196	451	1.30	2.45	308	437	2340	<0.0500
	TEL-1	Apr-18		188	272	2.23	1.06 B	465	815	2230	<0.0197 J6
	TEL-1	Oct-18		160	238	2.13	0.650 J	474	719	2080	<0.394
	TEL-1	Apr-19		172	250	2.14	0.685 J	460	803	2000	<0.394
	TEL-1	Oct-19		144	234	2.23	0.629 J	474	640	2200	<0.0197
	TEL-1	Jun-20		143	184	1.98	0.565 J	435	699	2140	<0.500
	TEL-2	Apr-18		260	222	1.08	1.78 B	451	1200	2770	<0.0985
	TEL-2	Oct-18		266	205	0.967	1.14	363	1360	2730	<0.394
	TEL-2	Apr-19		274	224	1.09	1.73	377	1250	2940	<0.394
	TEL-2	Oct-19		298	159	1.28 B	1.30	407	1610	3550	<0.394
	TEL-2	Jun-20		280	130	0.988	1.05 J	373	1540	3400	<0.500
	TEL-3	Apr-18		302	696	2.51	6.00	308	442	2440	<0.0985
	TEL-3	Apr-19		562	52.7	2.77	5.37	44.1	1300	2290	<0.0985
	TEL-3	Oct-19		603	36.7	3.06	5.26	36.2	1470	2790	<0.985
	TEL-3	Oct-20		424	114	1.73	2.55	86.5	1290	2880	<0.0500 J6
	TEL-4	Apr-18		448	360	1.12	1.19 B	477	2400	4330	0.0230 J
	TEL-4	Apr-18	FD	439	362	1.09	1.19 B	470	2460	4490	0.0280 J
	TEL-4	Oct-18		242	28.5	1.48	0.449 J	286	2050	2840	<0.0197
	TEL-4	Oct-18	FD	246	27.9	1.43	0.446 J	289	2050	2910	0.0700 J
	TEL-4	Apr-19		262	36.8	1.45	0.438 J	204	1830	3140	<0.0197
	TEL-4	Apr-19	FD	264	36.3	1.44	0.432 J	213	1860	2830	<0.0197
	TEL-4	Oct-19		283	281	2.09	0.556 J	303	1680	3540	<0.394
	TEL-4	Oct-19	FD	285	274	2.05	0.529 J	286	1640	3570	<0.394
	TEL-4	Jun-20		305	456	0.932	<0.534	284 O1V	1480	3770	<0.500
	TEL-4	Jun-20	FD	308	455	0.841	<0.534	286	1490	3770	<0.0500
	TEL-4	Oct-20		294	400	0.904	<0.534	296 V	1140	3470	<0.0500
	TEL-4	Oct-20	FD	291	450	0.834	<0.534	307	1230	3510	<0.0500
Three Mile Ditch	MW-8	Apr-17		346	334	2.20	1.44	262	2100	3900	1.04
	MW-8	Apr-18		450	443	1.99	1.76	320	2470	4040	8.72
	MW-8	Apr-19		499	450	2.08	1.85	336	3050	4640 J4	18.7
	MW-8	Jun-20		534	599	2.04	1.98 J	393	3060	5260	16.0
	MW-16	Apr-17		558	936	2.36 J6	9.27	689	2900	4150	1.75
	MW-16	Apr-18		600	705	2.26	9.59	643	2820	4960	0.428
	MW-16	Apr-19		555	349	2.57	9.13	472	2590	4590 J4	0.790
	MW-16	Jun-20		500	446	2.69	8.82	424	2610	4390	0.331
	MW-20	Apr-17		525	588	2.27	0.425 J	274	2800	5650	8.74
	MW-20	Apr-18		537	525	2.13	0.562 J	291	2790	4700 J3	4.56
	MW-20	Apr-19		541	373	2.27	0.509 J	284	2980	4710 Q	2.02
	MW-20	Jun-20		522	382	2.26	0.601 J	284	2830	4590	2.38
	MW-21	Apr-18		550	636	1.85	2.03	425	2900	4820	18.5
	MW-21	Oct-18		599 O1V	620	1.92	2.08 O1	448 O1V	3290	4010	22.1
	MW-21	Apr-19		622	628	2.02	2.11	443	3150	4990 J4	19.9
	MW-21	Oct-19		536	592	1.68	1.98	425	2930	5410	15.1
	MW-21	Jun-20		586	641	2.02	2.17	440	3130	5480	18.6
	MW-21	Oct-20		552	616	1.41	2.15	429	2700	5600	17.5
	MW-25	Apr-17		484 V	2330	1.17	5.11	1540	2800	6240	0.152
	MW-25	Apr-18		368 V	1230	1.25	4.32	875 V	1770	4080	0.156
	MW-25	Apr-19		330	1040	1.00	4.19	771	1510	3810	2.98
	MW-25	Jun-20		323	976	1.31	3.90	653	1450	3610	0.143
	MW-26	Apr-17		707	1580	1.75	5.90	760	5120	8730	0.580
	MW-26	Apr-18		664	1120	1.61	5.46	731	3830	7170	0.986
	MW-26	Apr-19		584	1010	2.09	5.77	674	4420	7020 Q	1.66
	MW-26	Jun-20		585	671	2.06	5.18	530	3660	5990	1.69
	MW-27	Apr-17		410	138	1.29	8.43	136	1550	2150	1.22
	MW-27	Apr-18		337	80.2	1.33	7.88	129	1140	1870	0.770
	MW-27	Apr-19		297	55.2	1.42	7.82	104	1030	1720 J4	0.987
	MW-27	Jun-20		301	56.7	1.38	7.62	91.0	1070	1820	1.78
	MW-46R	Apr-18		613	282	1.78	1.43	192	2310	3620	<0.0197
	MW-46R	Oct-18		582 V	207	1.42	1.22	174 V	2330	3650	0.0670 J
	MW-46R	Apr-19		638	319	1.51	0.913 J	178	2290	4030 J4	0.293
	MW-46R	Oct-19		602	318	1.29	0.949 J	178	2390	4120	0.527
	MW-46R	Jun-20		607	204	1.43	0.731 J	172	2550	3930	0.0922 J
	MW-46R	Oct-20		553	175 B	1.16	0.725 JB	166	2070	3860	<0.0500
	MW-68	Apr-17		381	237	1.88	4.60	165	1620	2890	0.381
	MW-68	Apr-18		388	176	1.82	5.01	162	1470	2150	0.390
	MW-68	Apr-19		326	145	2.12	4.87	153	1310	2260 J4	1.08
	MW-68	Jun-20		420	354	1.89	5.27	190	1700	3040	2.05

Appendix C, Table C.5 - Summary of Groundwater Analytical Data - Water Quality and Cyanide

2020 Annual Groundwater Monitoring Report
HollyFontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group				Water Quality Parameters							Cyanide	
				Calcium	Chloride	Fluoride	Potassium	Sodium	Sulfate	TDS	Nitrate/Nitrite	Cyanide
Analyte				7440-70-2	16887-00-6	16984-48-8	7440-09-7	7440-23-5	14808-79-8	TDS	NO3NO2	57-12-5
Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL					250	1.60			600	1000	10.0	0.200
CGWSL Source					WQCC Dom	WQCC HH			WQCC Dom	WQCC Dom	WQCC HH	WQCC HH
Area	Well ID	Date	Dup									
Three Mile Ditch	MW-71	Apr-17		601	848	1.63	3.62	491	2940	5300	54.0	<0.00180
	MW-71	Apr-18		638	809	1.51	3.77	516	2970	5280	39.5	<0.00180
	MW-71	Apr-19		673	799	1.71	3.47	502	3260	5940 J4	32.1	<0.00180
	MW-71	Jun-20		630	770	1.89	3.51	510	3130	6020	27.8	<0.00180
	MW-89	Apr-17		550	394	3.97	12.2	289	2170	3600	4.77	
	MW-89	Apr-18		513	170	2.64	8.61	151	1630	2430	1.10	
	MW-89	Apr-19	607 V	233	3.32	11.7	193 V	1040	3470 J4	1.34		
	MW-89	Jun-20		480	162	2.92	8.84	148	1810	2810	0.151	
	NP-1	Apr-18		421	395	2.00	4.52	342	2210	3660	5.66	
	NP-1	Oct-18										
	NP-1	Apr-19		445	382	2.04	3.94	325	2280	4210 Q	3.98	
	NP-1	Oct-19										
	NP-1	Jun-20		436	409	1.89	2.59	311	2260	4060	3.27	
	NP-1	Oct-20										
	NP-6	Apr-13										
NP-6	Apr-15											
NP-6	Apr-17											
NP-6	Apr-19											
Upgradient	UG-1	Apr-17		471	178	0.928	1.14	99.1	1830	3390	15.0	<0.00180
	UG-1	Apr-18		434	107	0.751	2.12	98.3	1670	2600	6.73	0.00224 JB
	UG-1	Apr-19		525	98.3	0.623	1.29	105	1800	3150	10.1	<0.00180
	UG-1	Jun-20		503	97.3	0.784	1.16 J	84.0	2060	3550 B	10.6	<0.00180
	UG-2	Apr-17		342	78.9	1.67	1.60	94.0	1060	2270	16.3	<0.00180
	UG-2	Apr-18		321	72.5	1.62	1.33	85.4	1050	1810	14.1	<0.00180
	UG-2	Apr-19		357	61.3	1.32	1.58	90.6	1020	2040 Q	7.70 J6	<0.00180
	UG-2	Jun-20		342	75.9	1.52	1.41 J	85.7	1190	2150 B	9.75	<0.00180
	UG-3R	Apr-17		393	61.1	0.707	1.74	70.7	1310	2140	2.60	<0.00180 J5
	UG-3R	Apr-18		418	40.8	0.599	1.67	73.6	1470	2190	1.68	<0.00180
	UG-3R	Apr-19		479	36.3	0.502	1.99	37.1	1390	2440	0.905	<0.00180
	UG-3R	Jun-20		440	39.6	0.582	1.93 J	30.1	1560	2430	1.93	<0.00180
	UG-4	Apr-17		594 V	154	0.666	1.87	202 V	2750	4350	0.547 J	<0.00180
	UG-4	Apr-18		620	125	0.574	1.77	201	2680	4030	0.515	<0.00180
	UG-4	Apr-19		694	133	0.544	1.96	190	2420	4210	0.418	<0.00180
UG-4	Jun-20		622	108	0.605	1.78 J	168	2810	4210 B	0.326	<0.00180	

Definitions	
X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.
---	No applicable CGWSL.

Abbreviations	
CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
Dup	Duplicate sample
FD	Field duplicate sample
mg/L	Milligrams per Liter
WQCC Dom	NMED Groundwater standard for domestic exposure, 20.6.2.3103.B NMAC
WQCC HH	NMED Groundwater standard for human health exposure, 20.6.2.3103.A NMAC
Lab Footnote	
B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	Relative percent difference value not applicable for sample concentrations less than 5 times the reporting limit.
Q	Sample was prepared and/or analyzed past recommended holding time.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Appendix C, Table C.6 - Summary of Groundwater Analytical Data - Semi-Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Semi-Volatile Organic Compounds										
Analyte:				1,1'-Biphenyl	1,2,4-Trichlorobenzene	1-Methyl-naphthalene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Di-nitrotoluene	2-Chloro-naphthalene
CAS:				92-52-4	120-82-1	90-12-0	95-95-4	88-06-2	120-83-2	105-67-9	51-28-5	121-14-2	606-20-2	91-58-7
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				0.0371	ND	0.0300	ND	ND	ND	0.354	ND	ND	ND	ND
CGWSL Source:				NMED TW	ND	WQCC HH	ND	ND	ND	NMED TW	ND	ND	ND	ND
Area	Well ID	Date	Dup											
North Refinery	MW-23	Apr-19		<0.00163	<0.00178	0.0531	<0.00118	<0.00148	<0.00142	<0.00312	<0.0163	<0.00825	<0.00140	<0.00165
	MW-23	Oct-19		<0.00650	<0.00710	0.0922	<0.00472	<0.00594	<0.00568	<0.0125	<0.0650	<0.0330	<0.00558	<0.00660
	MW-43	Apr-19		0.00228 J	<0.000359	0.0323	<0.000238	<0.000300	<0.000287	0.00418 J	<0.00328	<0.00167	<0.000282	<0.000333
	MW-43	Oct-19		<0.00650	<0.00710	0.0956	<0.00472	<0.00594	<0.00568	<0.0125	<0.0650	<0.0330	<0.00558	<0.00660
	MW-61	Apr-19		0.00315 J	<0.000355	0.0722	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	MW-61	Oct-19		<0.000325	<0.000355	0.0902	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	MW-62	Apr-19		0.00389 J	<0.000355	0.0628	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	MW-62	Oct-19		0.00865 J	<0.00710	0.144	<0.00472	<0.00594	<0.00568	<0.0125	<0.0650	<0.0330	<0.00558	<0.00660
	MW-93	Apr-19		0.00229 J	<0.000355	0.0313	<0.000236	<0.000297	<0.000284	0.0173	<0.00325	<0.00165	<0.000279	<0.000330
	MW-93	Jun-20		<0.00395	<0.000349	0.0340	<0.000545	<0.000500	<0.000510	0.0157 J	<0.0297	<0.000491	<0.00125	<0.000324
	MW-95	Apr-19		<0.000325	<0.000355	<0.000332	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	MW-95	Jun-20		<0.00188	<0.000166	<0.000188	<0.000259	<0.000238	<0.000243	<0.000151	<0.0141	<0.000234	<0.000595	<0.000154
	MW-137	Apr-19		<0.00650	<0.00710	0.0480	<0.00472	<0.00594	<0.00568	<0.0125	<0.0650	<0.0330	<0.00558	<0.00660
MW-138	Apr-19		<0.000325	<0.000355	0.00549	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330	
TEL	TEL-4	Apr-19		<0.000325	<0.000355	0.00498	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	TEL-4	Apr-19	FD	<0.000325	<0.000355	0.00531	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	TEL-4	Oct-19		<0.000325	<0.000355	0.00275	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330
	TEL-4	Oct-19	FD	<0.000325	<0.000355	0.00300	<0.000236	<0.000297	<0.000284	<0.000624	<0.00325	<0.00165	<0.000279	<0.000330

Analyte Group:				Semi-Volatile Organic Compounds										
Analyte:				2-Chlorophenol	2-Methyl-naphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3- & 4-Methylphenol (m,p-Cresol)	3,3'-Dichloro-benzidine	3-Nitro-aniline	4,6-Dinitro-2-methylphenol	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol
CAS:				95-57-8	91-57-6	95-48-7	88-74-4	88-75-5	65794-96-9	91-94-1	99-09-2	534-52-1	101-55-3	59-50-7
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				ND	0.0300	---	ND	ND	ND	ND	ND	ND	ND	ND
CGWSL Source:				ND	WQCC HH	---	ND	ND	ND	ND	ND	ND	ND	ND
Area	Well ID	Date	Dup											
North Refinery	MW-23	Apr-19		<0.00141	<0.00156	<0.00156	<0.00950	<0.00160	<0.00133	<0.0101	<0.00154	<0.0131	<0.00168	<0.00132
	MW-23	Oct-19		<0.00566	<0.00622	<0.00624	<0.0380	<0.00640	<0.00532	<0.0404	<0.00616	<0.0524	<0.00670	<0.00526
	MW-43	Apr-19		<0.000286	0.0232	<0.000315	<0.00192	<0.000323	<0.000269	<0.00204	<0.000311	<0.00265	<0.000338	<0.000266
	MW-43	Oct-19		<0.00566	0.0603	<0.00624	<0.0380	<0.00640	<0.00532	<0.0404	<0.00616	<0.0524	<0.00670	<0.00526
	MW-61	Apr-19		<0.000283	0.0119	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	MW-61	Oct-19		<0.000283	0.0163	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	MW-62	Apr-19		<0.000283	0.0320	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	MW-62	Oct-19		<0.00566	0.0581	<0.00624	<0.0380	<0.00640	<0.00532	<0.0404	<0.00616	<0.0524	<0.00670	<0.00526
	MW-93	Apr-19		<0.000283	0.00507	0.0979	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	MW-93	Jun-20		<0.000665	<0.000585	<0.000465	<0.000510	<0.000585	<0.000840	<0.00106	<0.000435	<0.00560	<0.000439	<0.000655
	MW-95	Apr-19		<0.000283	<0.000311	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	MW-95	Jun-20		<0.000317	<0.000278	<0.000221	<0.000243	<0.000278	<0.000400	<0.000505	<0.000207	<0.00267	<0.000209	<0.000312
	MW-137	Apr-19		<0.00566	0.0474	<0.00624	<0.0380	<0.00640	<0.00532	<0.0404	<0.00616	<0.0524	<0.00670	<0.00526
MW-138	Apr-19		<0.000283	0.00356	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263	
TEL	TEL-4	Apr-19		<0.000283	<0.000311	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	TEL-4	Apr-19	FD	<0.000283	<0.000311	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	TEL-4	Oct-19		<0.000283	<0.000311	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263
	TEL-4	Oct-19	FD	<0.000283	<0.000311	<0.000312	<0.00190	<0.000320	<0.000266	<0.00202	<0.000308	<0.00262	<0.000335	<0.000263

Analyte Group:				Semi-Volatile Organic Compounds										
Analyte:				4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaph-thene	Acenaph-thylene	Aceto-phenone	Anthracene	Atrazine	Benzal-dehyde	Benzo(a) anthracene
CAS:				106-47-8	7005-72-3	100-01-6	100-02-7	83-32-9	208-96-8	98-86-2	120-12-7	1912-24-9	100-52-7	56-55-3
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				ND	ND	ND	ND	0.535	ND	ND	1.72	0.00300	ND	ND
CGWSL Source:				ND	ND	ND	ND	NMED TW	ND	ND	NMED TW	WQCC HH	ND	ND
Area	Well ID	Date	Dup											
North Refinery	MW-23	Apr-19		<0.00191	<0.00152	<0.00174	<0.0101	<0.00158	<0.00154	<0.0123	<0.00146	0.00173 J	<0.00700	<0.000255
	MW-23	Oct-19		<0.00764	<0.00606	<0.00698	<0.0402	<0.00632	<0.00618	<0.0494	<0.00582	<0.00520	<0.0280	<0.00102
	MW-43	Apr-19		<0.000386	<0.000306	<0.000352	<0.00203	0.000872 J	<0.000312	<0.00249	<0.000294	0.000347 J	<0.00141	<0.0000515
	MW-43	Oct-19		<0.00764	<0.00606	<0.00698	<0.0402	<0.00632	<0.00618	<0.0494	<0.00582	<0.00520	<0.0280	<0.00102
	MW-61	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000667 J	<0.000309	<0.00247	<0.000291	<0.000260	<0.00140	<0.0000510
	MW-61	Oct-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000689 J	<0.000309	<0.00247	<0.000291	<0.000260	<0.00140	<0.0000510
	MW-62	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.00134	<0.000309	<0.00247	<0.000291	<0.000260	<0.00140	<0.0000510
	MW-62	Oct-19		<0.00764	<0.00606	<0.00698	<0.0402	<0.00632	<0.00618	<0.0494	<0.00582	<0.00520	<0.0280	<0.00102
	MW-93	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.00176	<0.000309	<0.00247	0.00179	<0.000260	<0.00140	<0.0000510
	MW-93	Jun-20		<0.00117	<0.000463	<0.000455	<0.000715	0.00190 J	<0.000461	<0.00104	0.00137 J	<0.00128	<0.00845 J4	<0.000995
	MW-95	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000508 J	<0.000309	<0.00247	<0.000291	0.00126 J	<0.00140	<0.0000510
	MW-95	Jun-20		<0.000557	<0.000220	<0.000217	<0.000340	0.000679 J	<0.000219	<0.000495	<0.000191	<0.000607	<0.00402 J4	<0.000474
MW-137	Apr-19		<0.00764	<0.00606	<0.00698	<0.0402	<0.00632	<0.00618	<0.0494	<0.00582	<0.00520	<0.0280	<0.00102	
MW-138	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000968 J	<0.000309	<0.00247	<0.000291	0.000420 J	<0.00140	<0.0000510	
TEL	TEL-4	Apr-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000493 J	<0.000309	<0.00247	<0.000291	<0.000260	<0.00140	<0.0000510
	TEL-4	Apr-19	FD	<0.000382	<0.000303	<0.000349	<0.00201	0.000532 J	<0.000309	<0.00247	<0.000291	<0.000260	<0.00140	<0.0000510
	TEL-4	Oct-19		<0.000382	<0.000303	<0.000349	<0.00201	0.000378 J	<0.000309	<0.00247	<0.000291	0.000434 J	<0.00140	<0.0000510
	TEL-4	Oct-19	FD	<0.000382	<0.000303	<0.000349	<0.00201	0.000465 J	<0.000309	<0.00247	<0.000291	0.000340 J	<0.00140	<0.0000510

Appendix C, Table C.6 - Summary of Groundwater Analytical Data - Semi-Volatile Organic Compounds

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Analyte Group:				Semi-Volatile Organic Compounds											
Analyte:				Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Diethyl phthalate	Dimethyl-phthalate	Di-n-butyl-phthalate	Di-n-octyl-phthalate	Fluoranthene	Fluorene	Hexachloro-benzene	Hexachloro-butadiene	Hexachloro-cyclopentadiene
CAS:				218-01-9	53-70-3	132-64-9	84-66-2	131-11-3	84-74-2	117-84-0	206-44-0	86-73-7	118-74-1	87-68-3	77-47-4
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				ND	ND	0.00790	14.8	ND	0.885	ND	0.802	0.288	ND	ND	ND
CGWSL Source:				ND	ND	USEPA TW	NMED TW	ND	NMED TW	ND	NMED TW	NMED TW	ND	ND	ND
Area	Well ID	Date	Dup												
North Refinery	MW-23	Apr-19		<0.00166	<0.000322	0.00394 J	<0.00141	<0.00141	<0.00133	<0.00139	<0.00155	0.00472 J	<0.00170	<0.00164	<0.0117
	MW-23	Oct-19		<0.00664	<0.00129	0.00924 J	<0.00564	<0.00566	<0.00532	<0.00556	<0.00620	0.0112 J	<0.00682	<0.00658	<0.0466
	MW-43	Apr-19		<0.000335	<0.0000650	0.00192 J	<0.000285	<0.000286	<0.000269	<0.000281	<0.000313	0.00264	<0.000344	<0.000332	<0.00235
	MW-43	Oct-19		<0.00664	<0.00129	<0.00676	<0.00564	<0.00566	<0.00532	<0.00556	<0.00620	0.00946 J	<0.00682	<0.00658	<0.0466
	MW-61	Apr-19		<0.000332	<0.0000644	0.00293 J	<0.000282	<0.000283	<0.000266	<0.000278	<0.000310	0.00193	<0.000341	<0.000329	<0.00233
	MW-61	Oct-19		<0.000332	<0.0000644	0.00398 J	<0.000282	<0.000283	<0.000266	<0.000278	<0.000310	0.00285	<0.000341	<0.000329	<0.00233
	MW-62	Apr-19		<0.000332	<0.0000644	0.00458 J	<0.000282	<0.000283	<0.000266	<0.000278	<0.000310	0.00221	<0.000341	<0.000329	<0.00233
	MW-62	Oct-19		<0.00664	<0.00129	0.0128 J	<0.00564	<0.00566	<0.00532	<0.00556	<0.00620	0.00862 J	<0.00682	<0.00658	<0.0466
	MW-93	Apr-19		<0.000332	<0.0000644	0.00397 J	<0.000282	<0.000283	<0.000266	<0.000278	0.000373 J	0.00784	<0.000341	<0.000329	<0.00233
	MW-93	Jun-20		<0.000650	<0.000322	0.00396 J	<0.00143	<0.00130	<0.00227	<0.00466	<0.000510	0.00813	<0.000378	<0.000484	<0.000299
	MW-95	Apr-19		<0.000332	<0.0000644	0.00173 J	<0.000282	<0.000283	<0.000266	<0.000278	<0.000310	<0.000323	<0.000341	<0.000329	<0.00233
	MW-95	Jun-20		<0.000309	<0.000153	0.00259 J	<0.000683	<0.000619	<0.00108	<0.00222	<0.000243	<0.000201	<0.000180	<0.000230	<0.000142
	MW-137	Apr-19		<0.00664	<0.00129	<0.00676	0.00635 J	<0.00566	<0.00532	<0.00556	<0.00620	<0.00646	<0.00682	<0.00658	<0.0466
MW-138	Apr-19		<0.000332	<0.0000644	0.000611 J	<0.000282	<0.000283	<0.000266	<0.000278	<0.000310	0.00138	<0.000341	<0.000329	<0.00233	
TEL	TEL-4	Apr-19		<0.000332	<0.0000644	0.00177 J	<0.000282	<0.000283	0.000273 J	<0.000278	<0.000310	0.00118	<0.000341	<0.000329	<0.00233
	TEL-4	Apr-19	FD	<0.000332	<0.0000644	0.00205 J	<0.000282	<0.000283	0.000267 J	<0.000278	<0.000310	0.00106	<0.000341	<0.000329	<0.00233
	TEL-4	Oct-19		<0.000332	<0.0000644	0.00161 J	<0.000282	<0.000283	0.000312 J	<0.000278	<0.000310	0.000570 J	<0.000341	<0.000329	<0.00233
	TEL-4	Oct-19	FD	<0.000332	<0.0000644	0.00169 J	<0.000282	<0.000283	0.000278 J	<0.000278	<0.000310	0.000676 J	<0.000341	<0.000329	<0.00233

Analyte Group:				Semi-Volatile Organic Compounds										
				Hexachloro-ethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitro-benzene	n-Nitroso-di-n-propylamine	N-Nitro-sodi-phenylamine	Pentachloro-phenol	Phenanthrene	Phenol	Pyrene
Analyte:				67-72-1	193-39-5	78-59-1	91-20-3	98-95-3	621-64-7	86-30-6	87-86-5	85-01-8	108-95-2	129-00-0
CAS:				67-72-1	193-39-5	78-59-1	91-20-3	98-95-3	621-64-7	86-30-6	87-86-5	85-01-8	108-95-2	129-00-0
Units:				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CGWSL:				ND	ND	ND	0.0300	ND	ND	ND	ND	0.170	0.00500	0.117
CGWSL Source:				ND	ND	ND	WQCC HH	ND	ND	ND	ND	NMED TW	NMED TW	NMED TW
Area	Well ID	Date	Dup											
North Refinery	MW-23	Apr-19		<0.00183	<0.00140	<0.00136	0.0450	<0.00184	<0.00201	<0.00595	<0.00157	0.00788	0.0133 J	<0.00165
	MW-23	Oct-19		<0.00730	<0.00558	<0.00544	0.0262	<0.00734	<0.00806	<0.0238	<0.00626	0.0146 J	0.0166 J	<0.00660
	MW-43	Apr-19		<0.000369	<0.000282	<0.000275	0.0749	<0.000371	<0.000407	<0.00120	<0.000316	0.00224	0.00703 J	<0.000333
	MW-43	Oct-19		<0.00730	<0.00558	<0.00544	0.249	<0.00734	<0.00806	<0.0238	<0.00626	0.00892 J	<0.00668	<0.00660
	MW-61	Apr-19		<0.000365	<0.000279	<0.000272	0.0701	<0.000367	<0.000403	<0.00119	<0.000313	0.00126	0.00457 J	<0.000330
	MW-61	Oct-19		<0.000365	<0.000279	<0.000272	0.0831	<0.000367	<0.000403	<0.00119	<0.000313	0.00146	0.00164 J	<0.000330
	MW-62	Apr-19		<0.000365	<0.000279	<0.000272	0.0861	<0.000367	<0.000403	<0.00119	<0.000313	0.00191	<0.000334	<0.000330
	MW-62	Oct-19		<0.00730	<0.00558	<0.00544	0.168	<0.00734	<0.00806	<0.0238	<0.00626	<0.00732	<0.00668	<0.00660
	MW-93	Apr-19		<0.000365	<0.000279	<0.000272	0.0307	<0.000367	<0.000403	<0.00119	<0.000313	0.0119	0.00492 J	0.000570 J
	MW-93	Jun-20		<0.000635	<0.00140	<0.000715	0.0298	<0.00148	<0.00131	<0.0119	<0.00157	0.0132	<0.0217	0.000746 J
	MW-95	Apr-19		<0.000365	<0.000279	<0.000272	<0.000372	<0.000367	<0.000403	<0.00119	<0.000313	<0.000366	0.00279 J	<0.000330
	MW-95	Jun-20		<0.000302	<0.000664	<0.000340	0.00115 JB	<0.000707	<0.000621	<0.00564	<0.000745	<0.000267	<0.0103	<0.000255
	MW-137	Apr-19		<0.00730	<0.00558	<0.00544	0.116	<0.00734	<0.00806	<0.0238	<0.00626	<0.00732	<0.00668	<0.00660
TEL	MW-138	Apr-19		<0.000365	<0.000279	<0.000272	0.0117	<0.000367	<0.000403	<0.00119	<0.000313	0.000583 J	0.00288 J	<0.000330
	TEL-4	Apr-19		<0.000365	<0.000279	<0.000272	<0.000372	<0.000367	<0.000403	<0.00119	<0.000313	<0.000366	0.00150 J	<0.000330
	TEL-4	Apr-19	FD	<0.000365	<0.000279	<0.000272	<0.000372	<0.000367	<0.000403	<0.00119	<0.000313	<0.000366	0.00177 J	<0.000330
	TEL-4	Oct-19		<0.000365	<0.000279	<0.000272	0.000383 J	<0.000367	<0.000403	<0.00119	<0.000313	<0.000366	0.000961 J	<0.000330
	TEL-4	Oct-19	FD	<0.000365	<0.000279	<0.000272	0.000395 J	<0.000367	<0.000403	<0.00119	<0.000313	<0.000366	0.00146 J	<0.000330

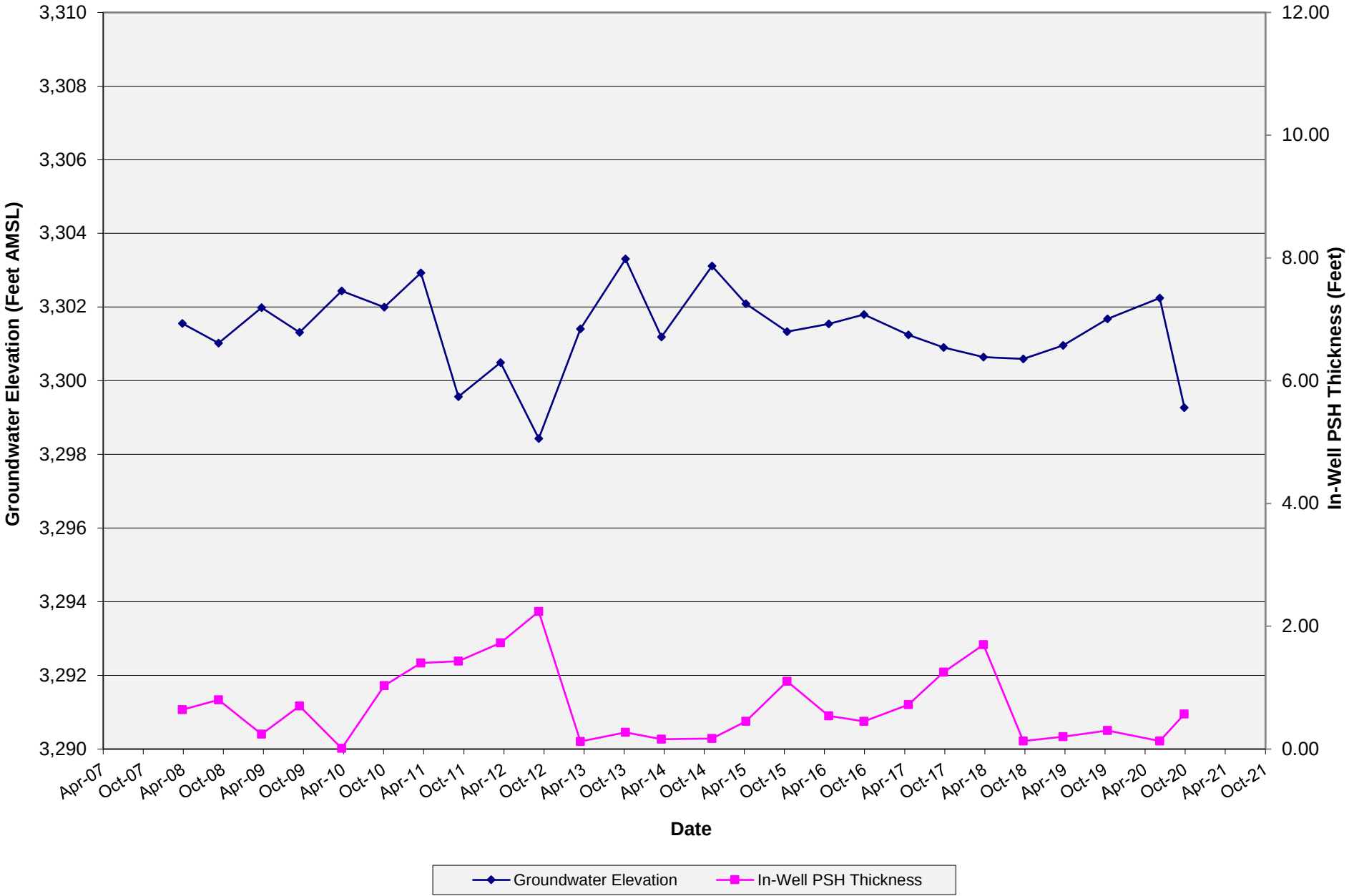
Definitions	
X	Reported concentration, X, exceeds the CGWSL.
X	Analyte detected above the detection limit at a concentration equal to X.
<x	Analyte not detected at detection limit equal to x.
<x	Analyte not detected at detection limit equal to x, but x exceeds the CGWSL.
	Blank cell indicates a sample was collected from the well during the indicated sampling event, but the analyte was not analyzed.
---	No applicable CGWSL.
ND	CGWSL not determined for SVOCs that were not detected above detection limit during any sampling event
Abbreviations	
CGWSL	Critical Groundwater Screening Level (see Table 3)
CGWSL Source	Source for CGWSL value (see Table 3)
Dup	Duplicate sample
FD	Field duplicate sample
mg/L	Milligrams per Liter
NMED TW	NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2019, Rev 2 (6/19/19), Table A-1 Tap Water Screening Level
USEPA MCL	United States Environmental Protection Agency Maximum Contaminant Level from "Regional Screening Level (RSL) Summary Table", November 2020
USEPA TW	United States Environmental Protection Agency Tap Water Screening Level, "Regional Screening Levels (RSL) Summary Table", November 2020
WQCC Dom	NMED Groundwater standard for domestic water supply, 20.6.2.3103.B NMAC
WQCC HH	NMED Groundwater standard for human health exposure, 20.6.2.3103.A NMAC

Lab Footnote	
B	Analyte was also detected in the associated method blank.
J	Indicates an estimated value.
J4	The associated batch QC was outside the established quality control range for accuracy.

Appendix D

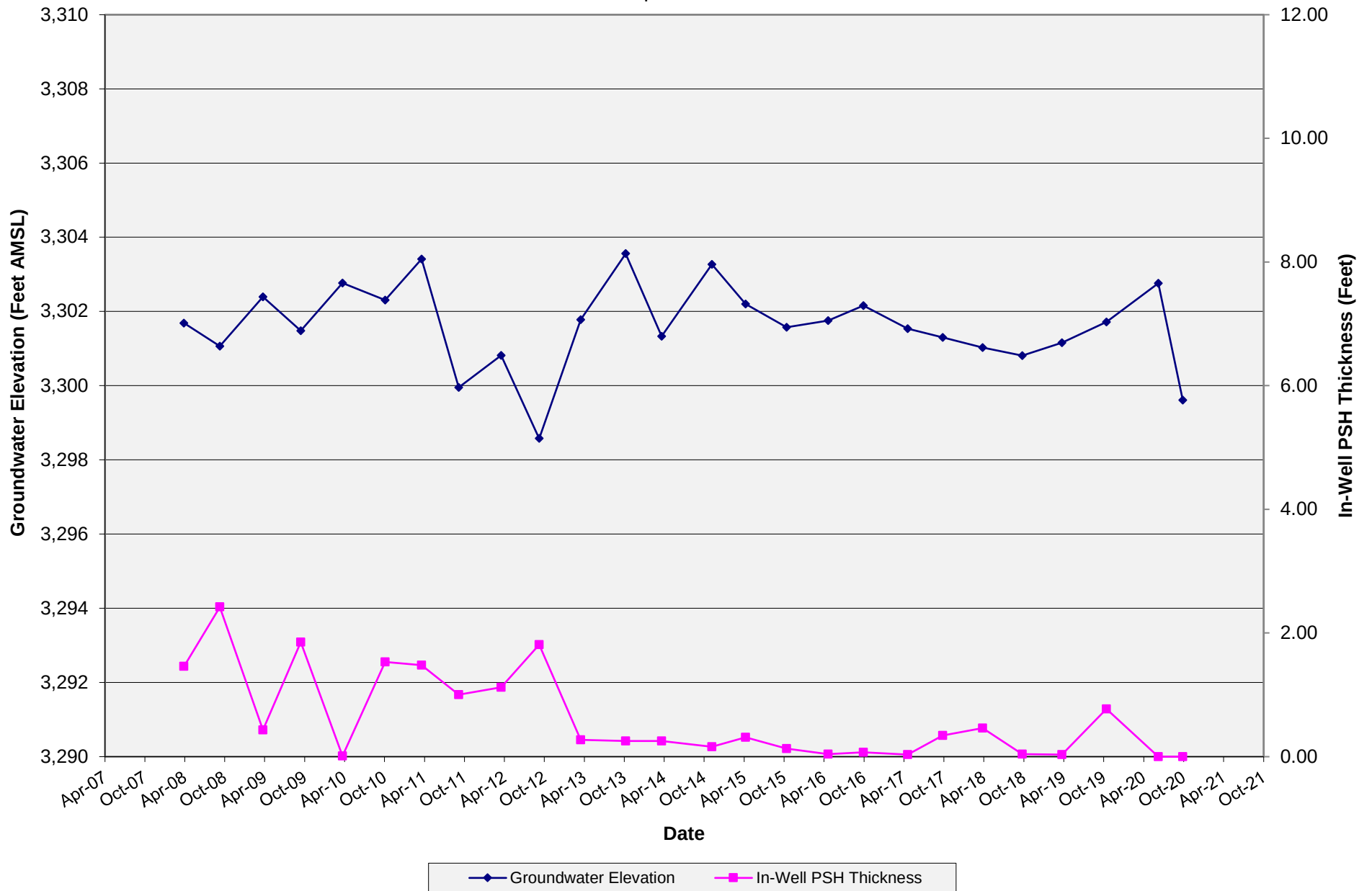
MW-85: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Evaporation Ponds



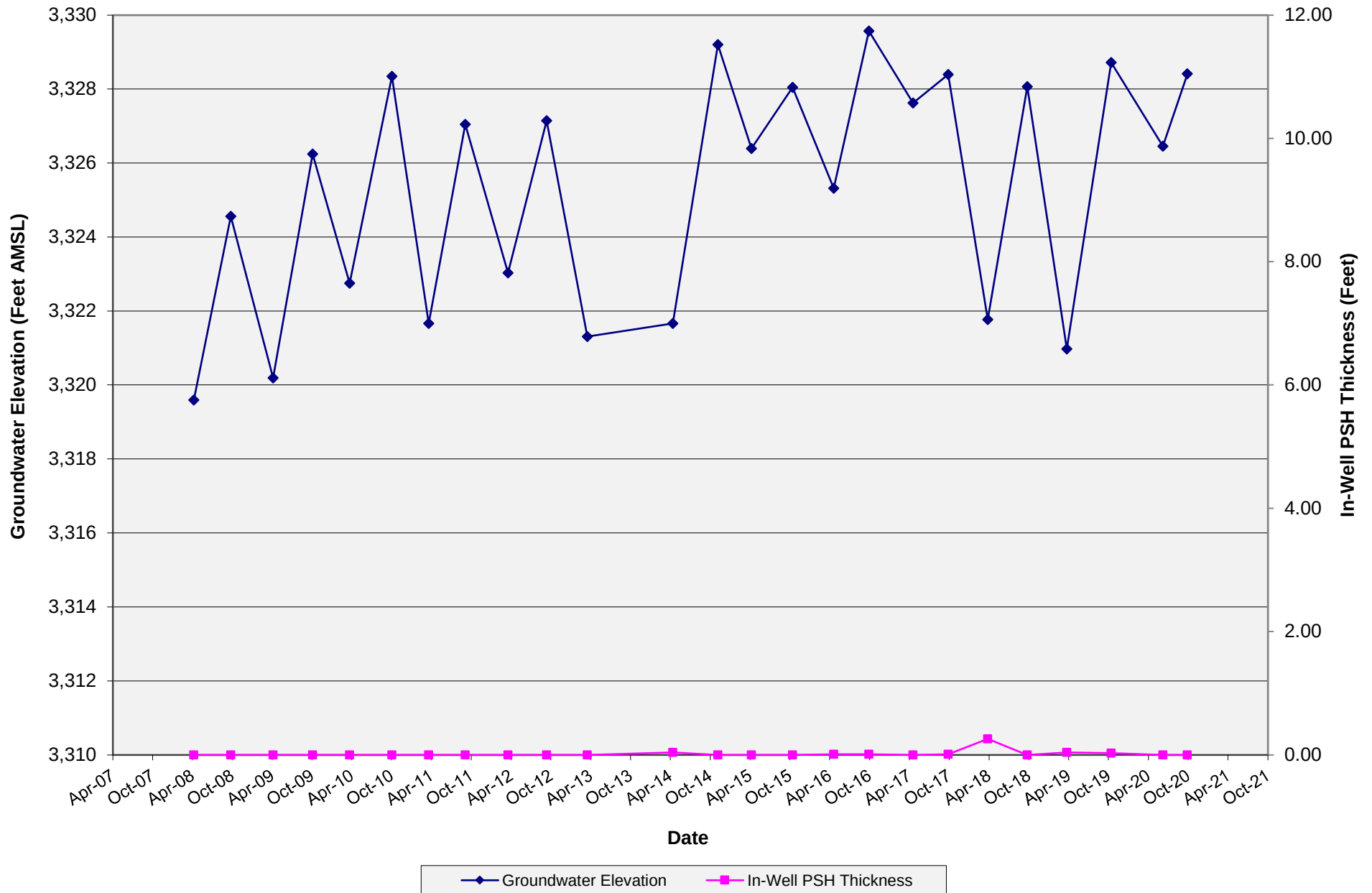
MW-86: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Evaporation Ponds



KWB-7: Groundwater Elevations and In-Well PSH Thicknesses

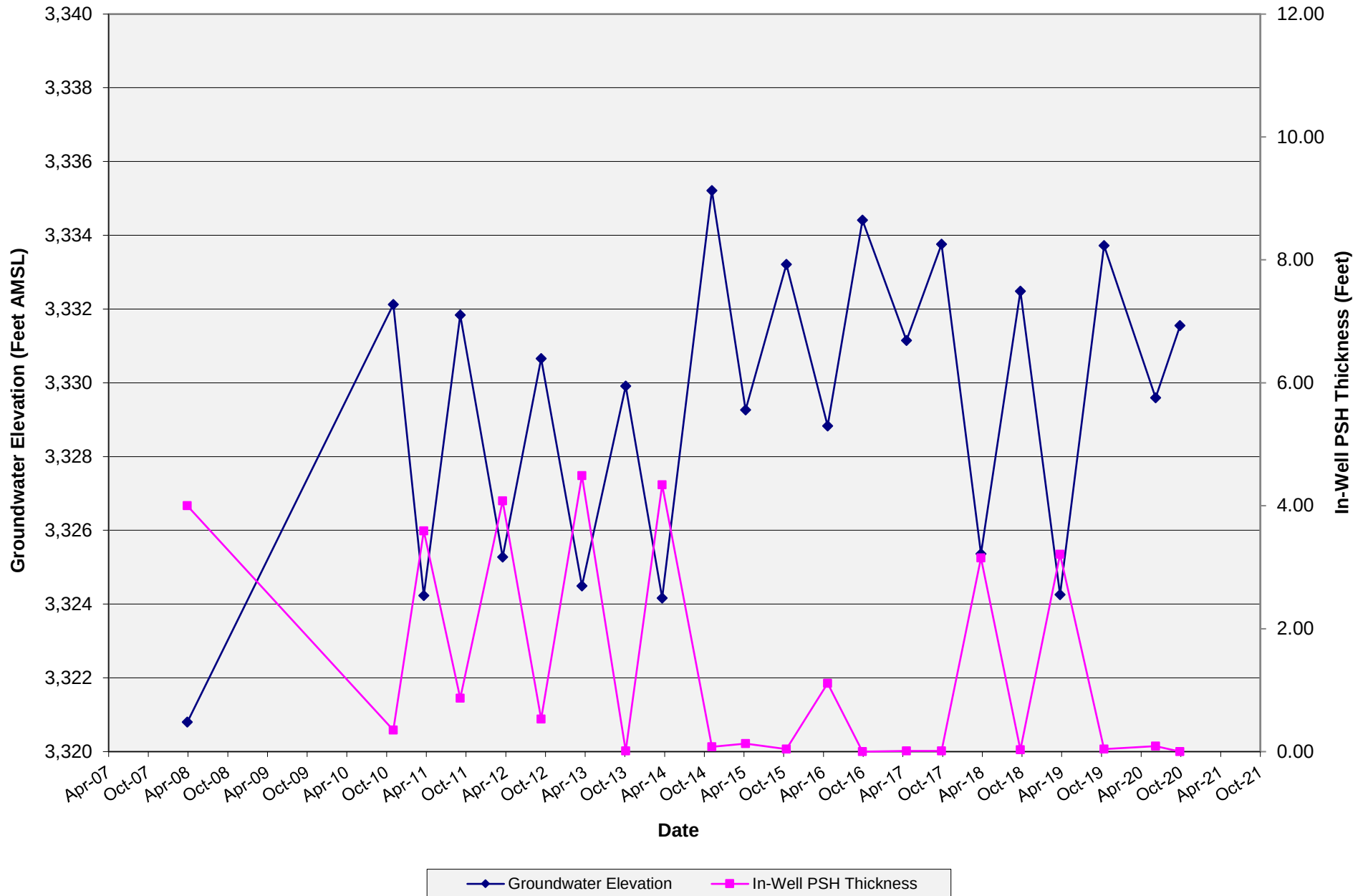
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



KWB-8: Groundwater Elevations and In-Well PSH Thicknesses

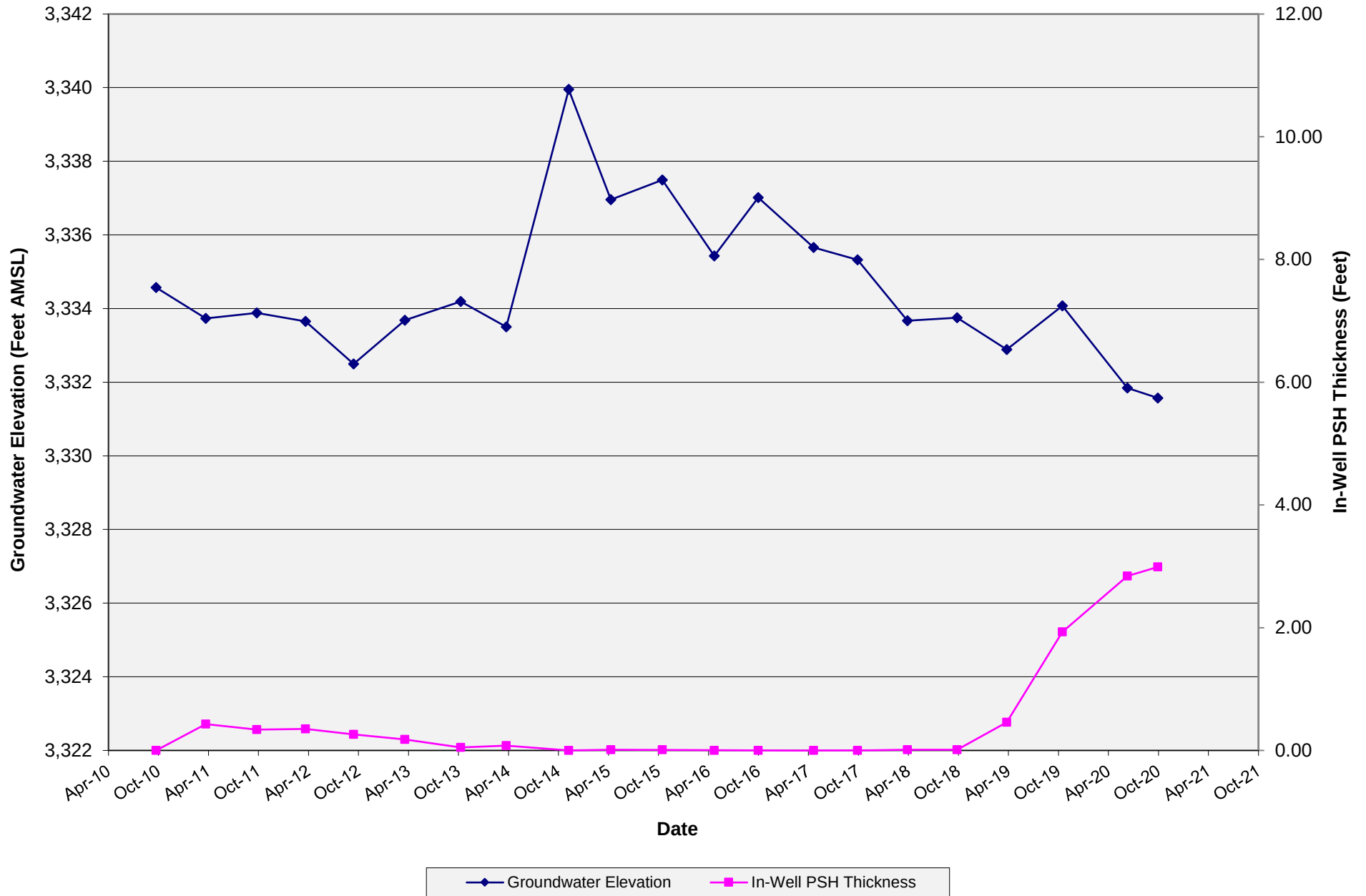
HollyFrontier Navajo Refining LLC - Artesia Refinery

Field East of Refinery



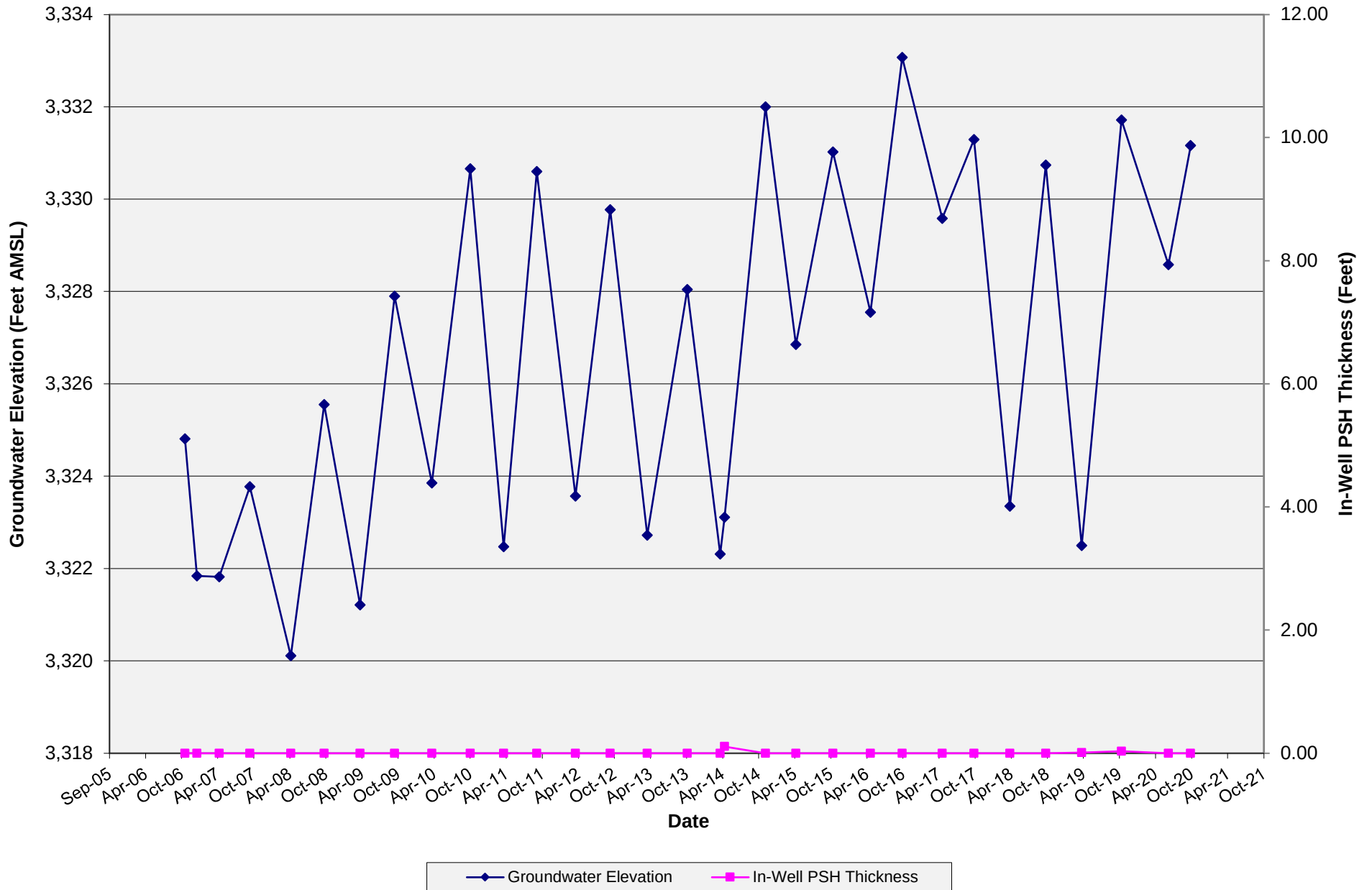
KWB-10R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



KWB-11A: Groundwater Elevations and In-Well PSH Thicknesses

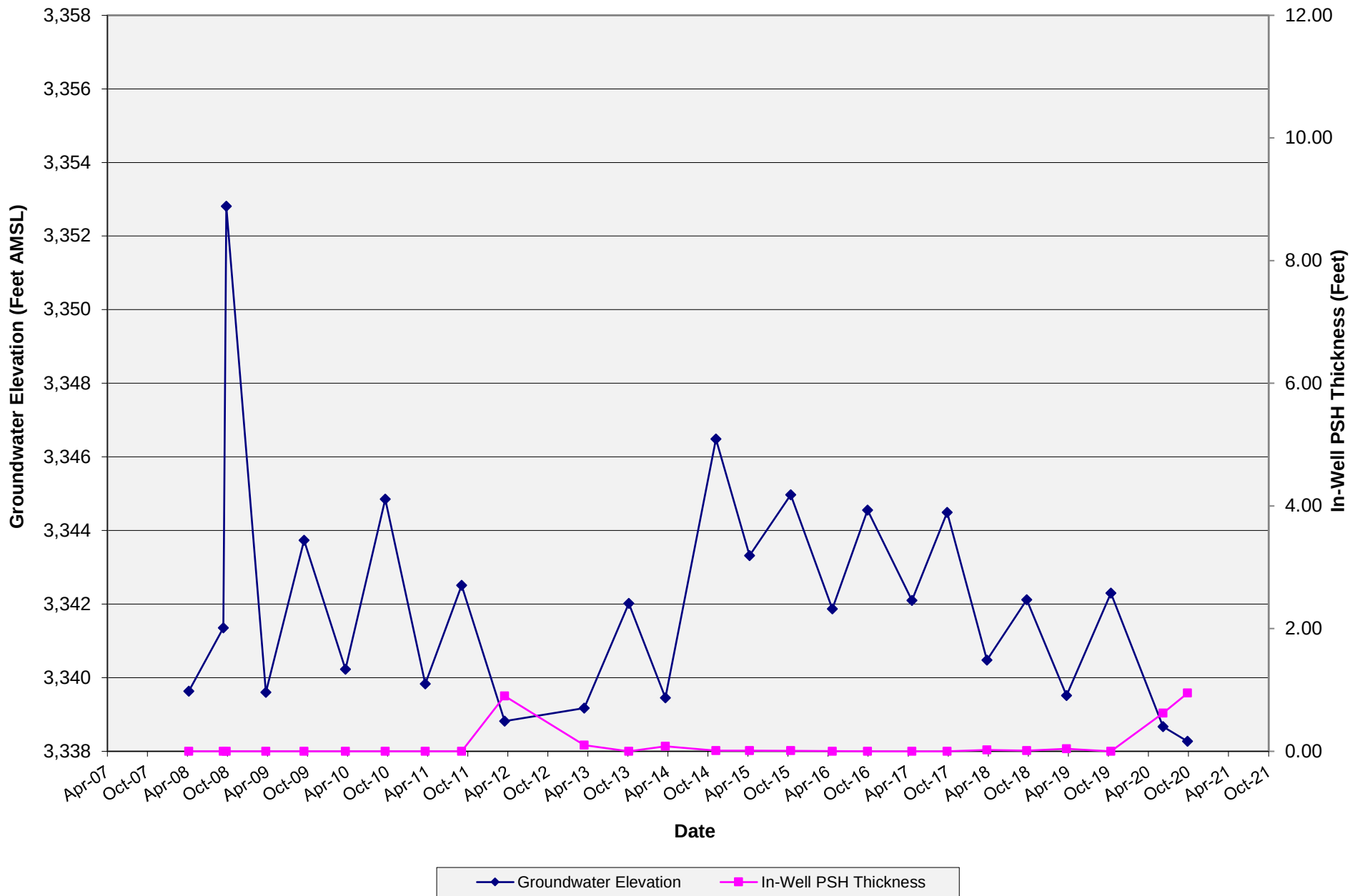
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



MW-58: Groundwater Elevations and In-Well PSH Thicknesses

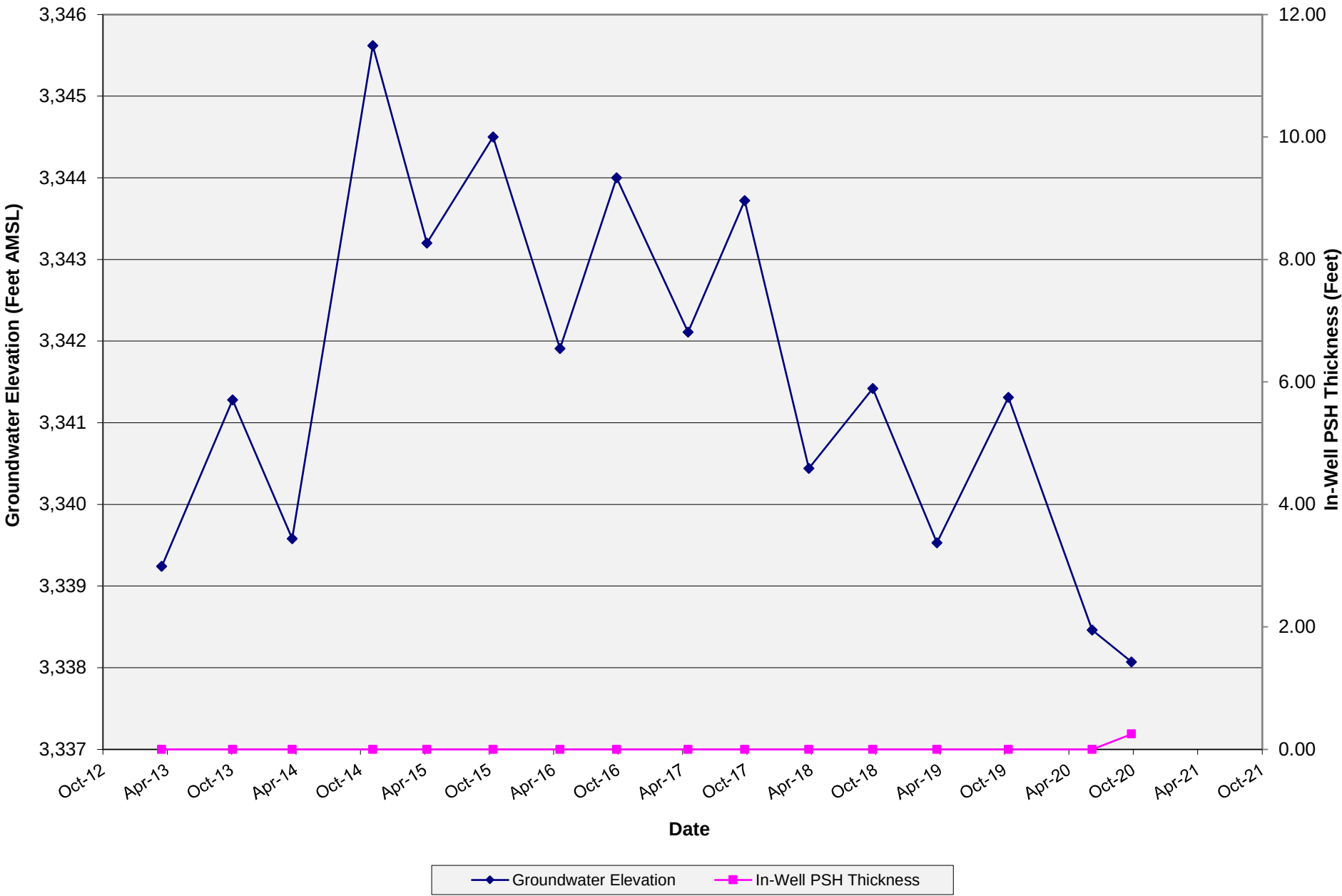
HollyFrontier Navajo Refining LLC - Artesia Refinery

Field East of Refinery



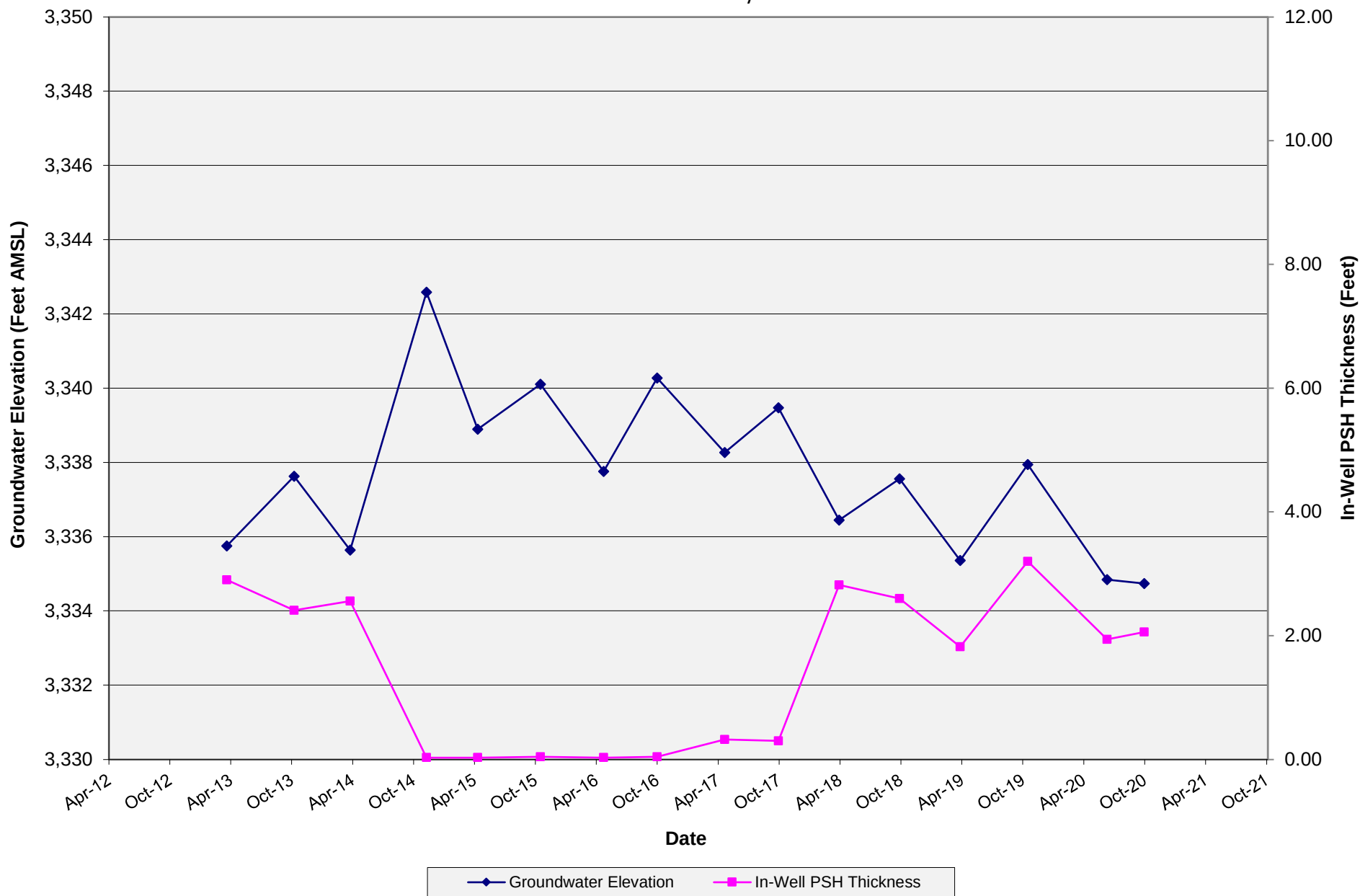
MW-111: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery

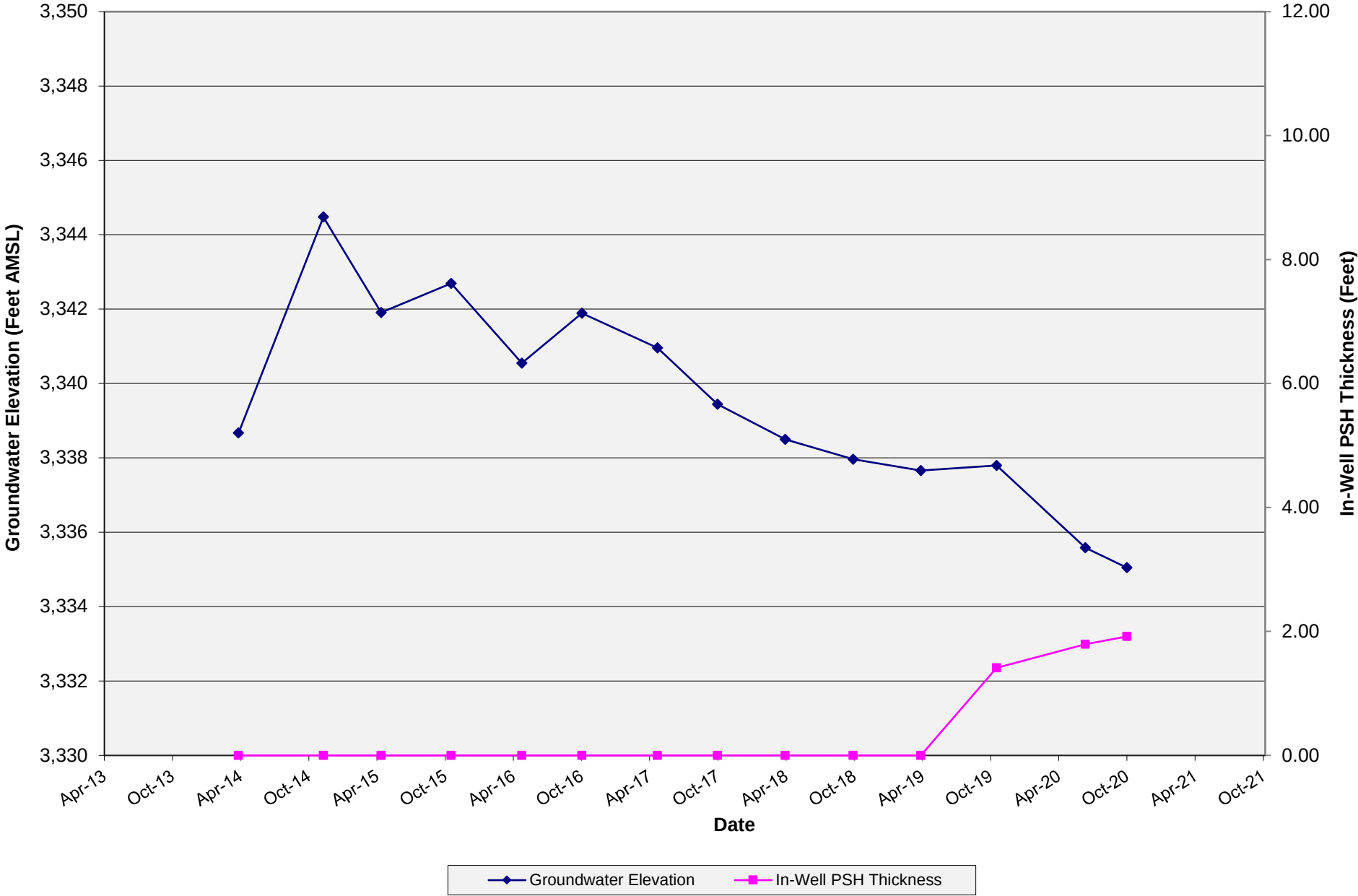


MW-112: Groundwater Elevations and In-Well PSH Thicknesses

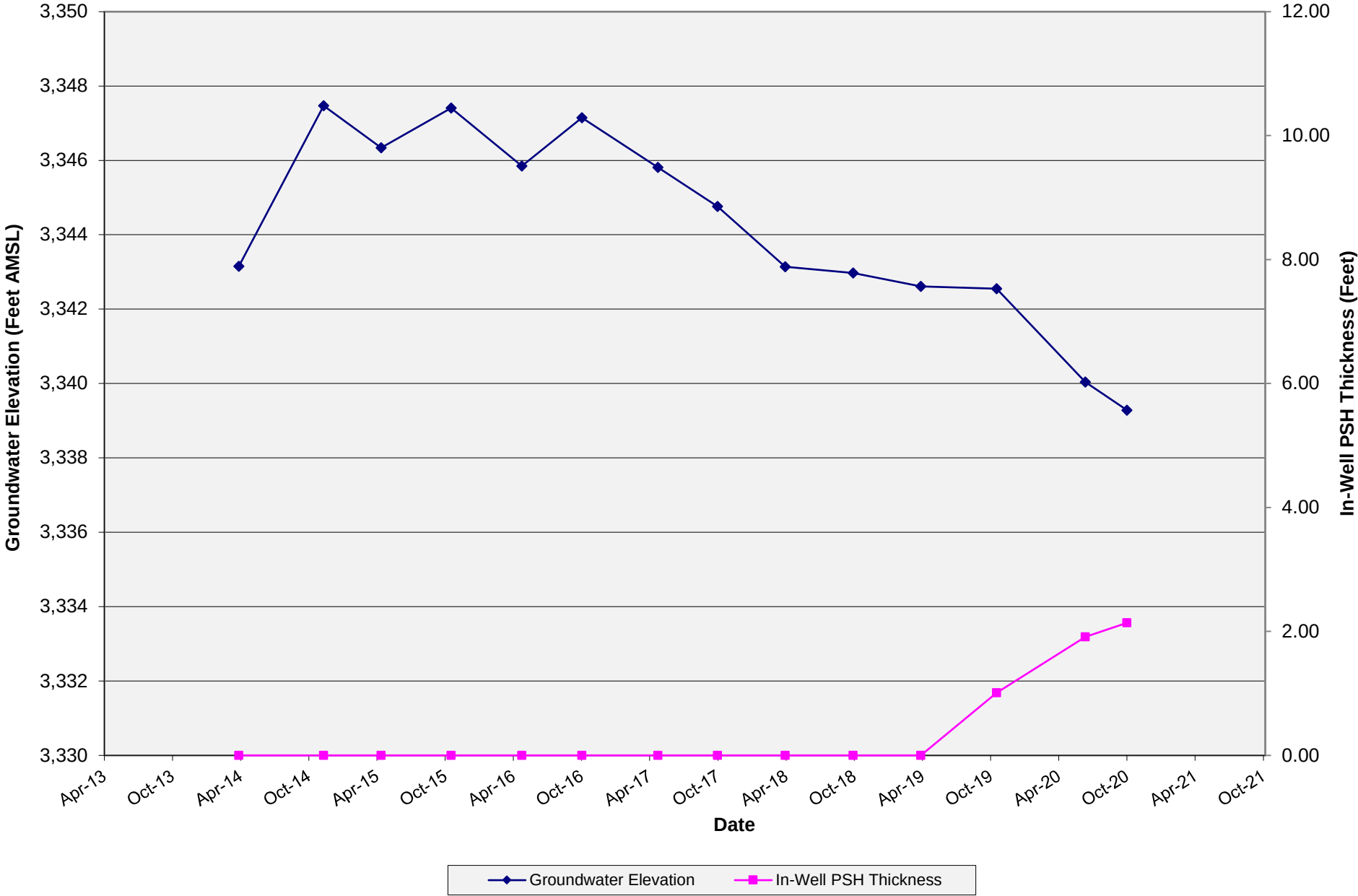
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



MW-127: Groundwater Elevations and In-Well PSH Thicknesses
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



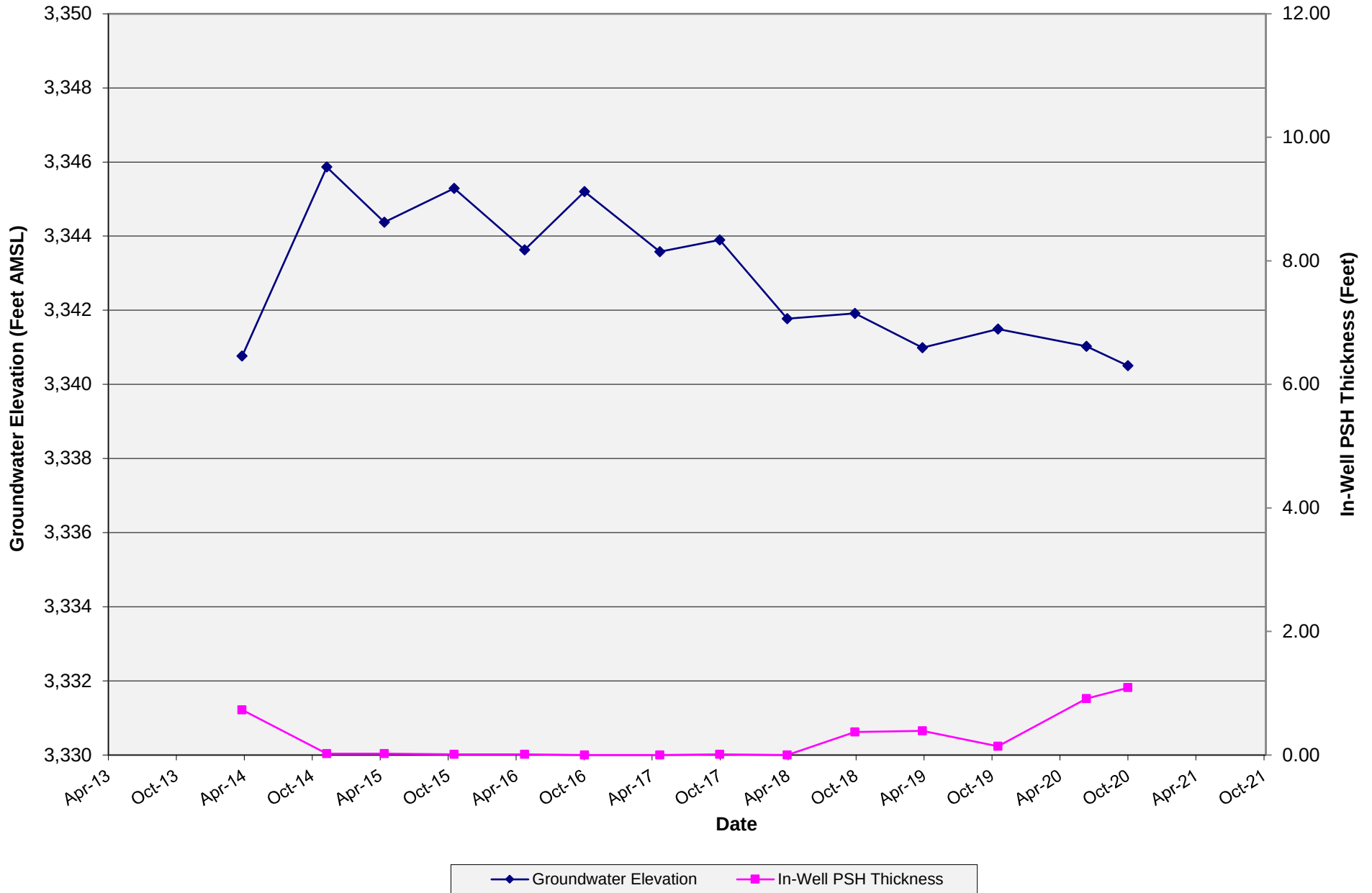
MW-128: Groundwater Elevations and In-Well PSH Thicknesses
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



MW-129: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery

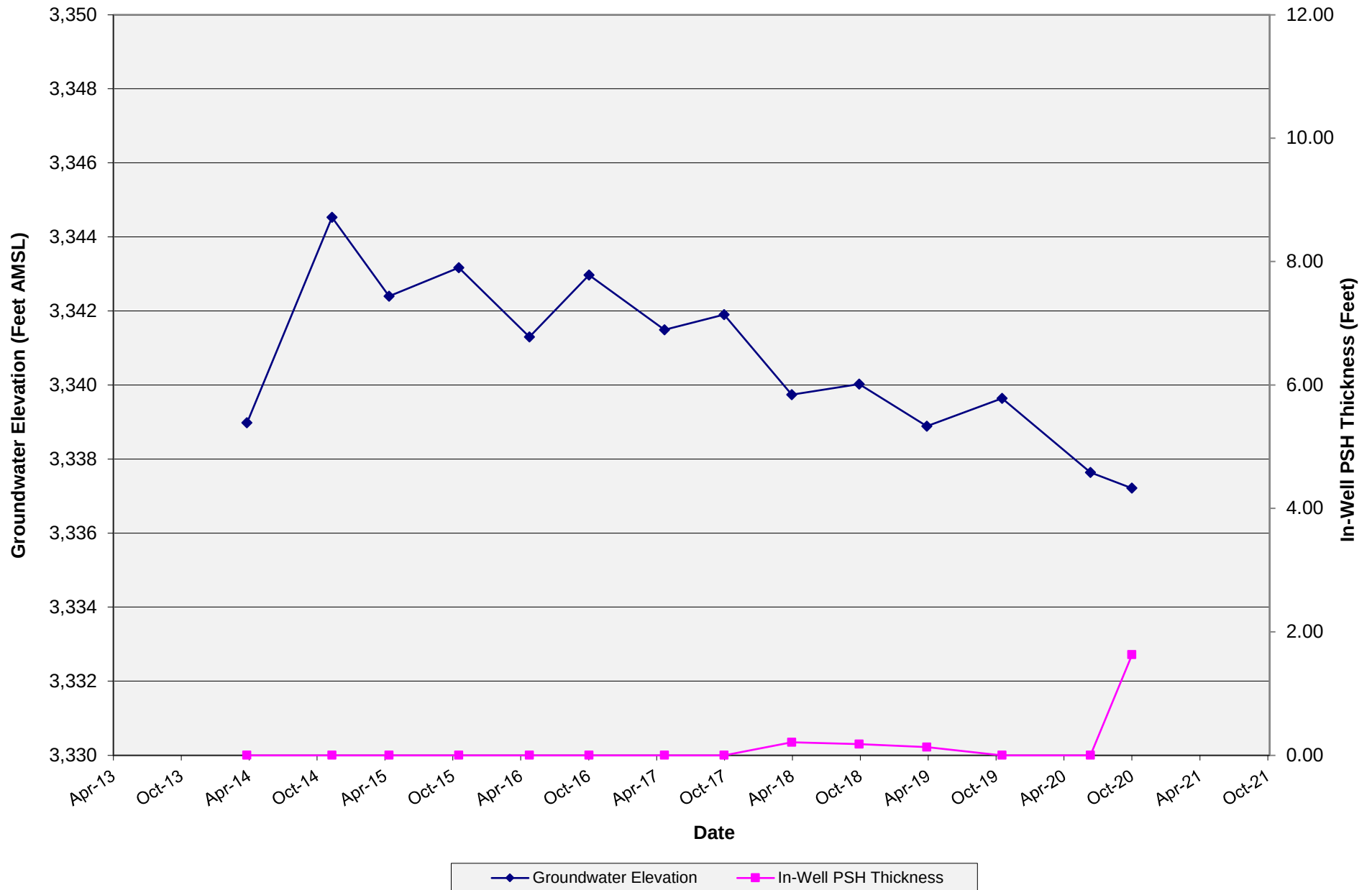
Field East of Refinery



MW-131: Groundwater Elevations and In-Well PSH Thicknesses

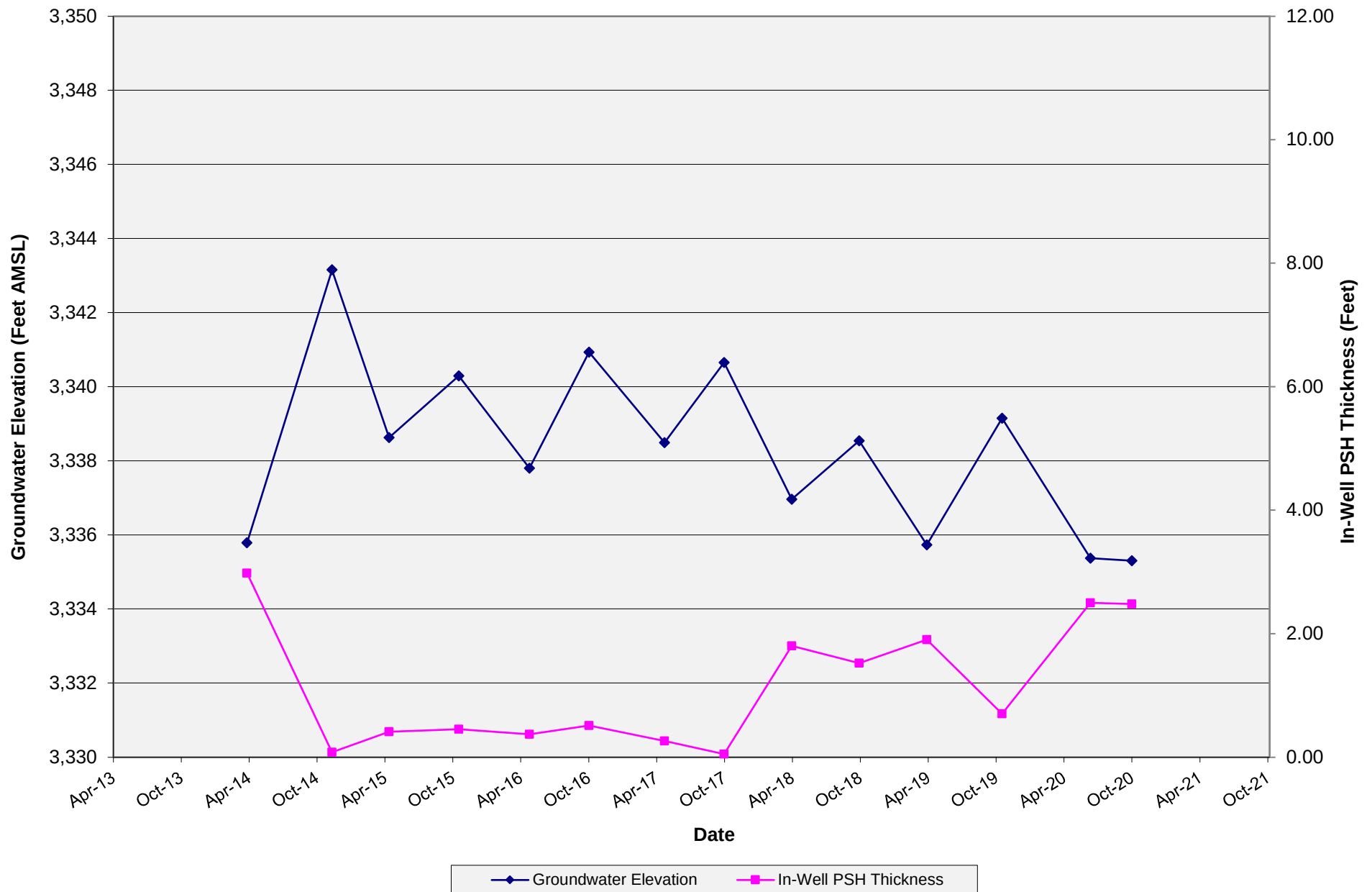
HollyFrontier Navajo Refining LLC - Artesia Refinery

Field East of Refinery



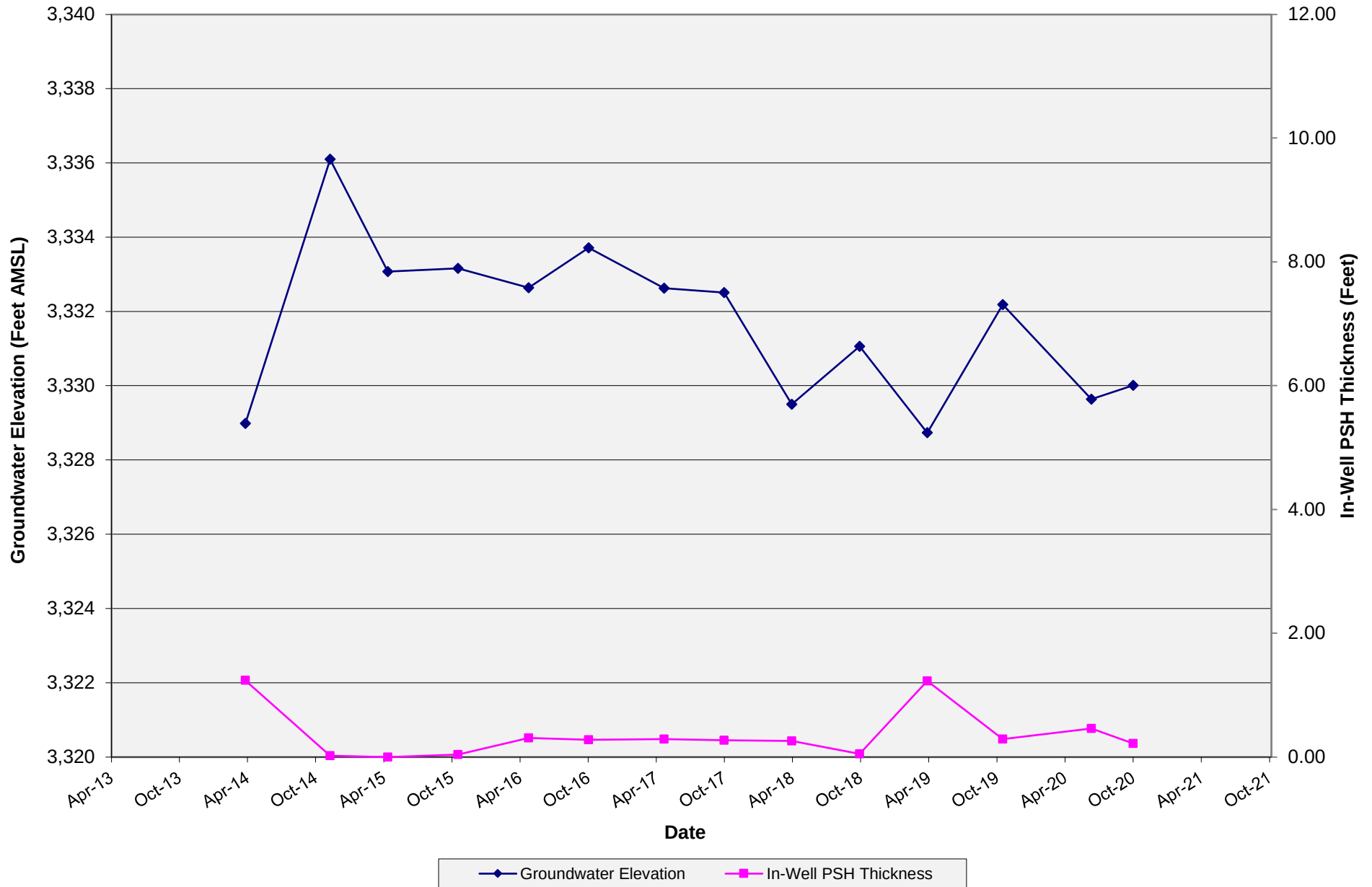
MW-132: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



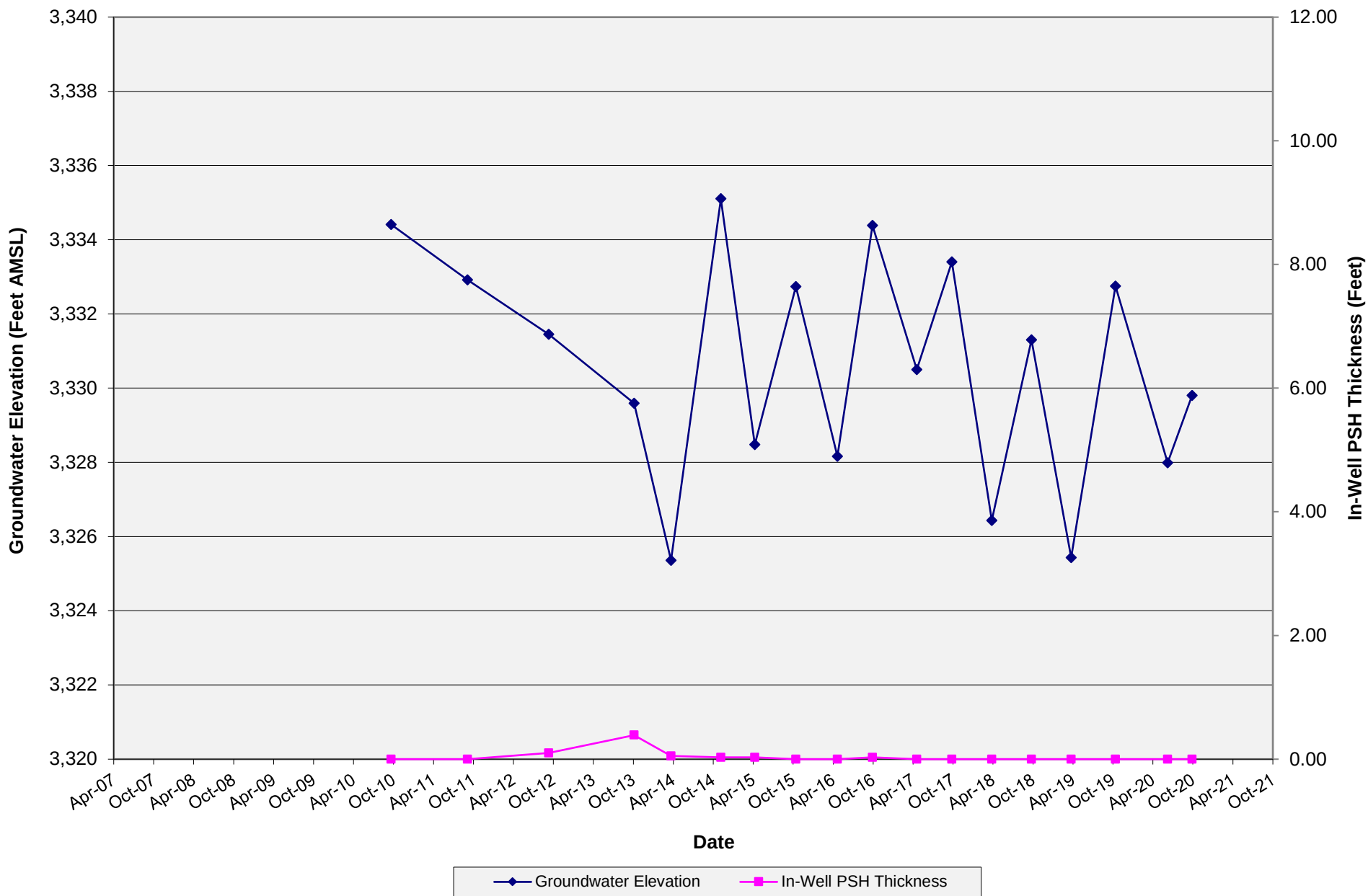
MW-133: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



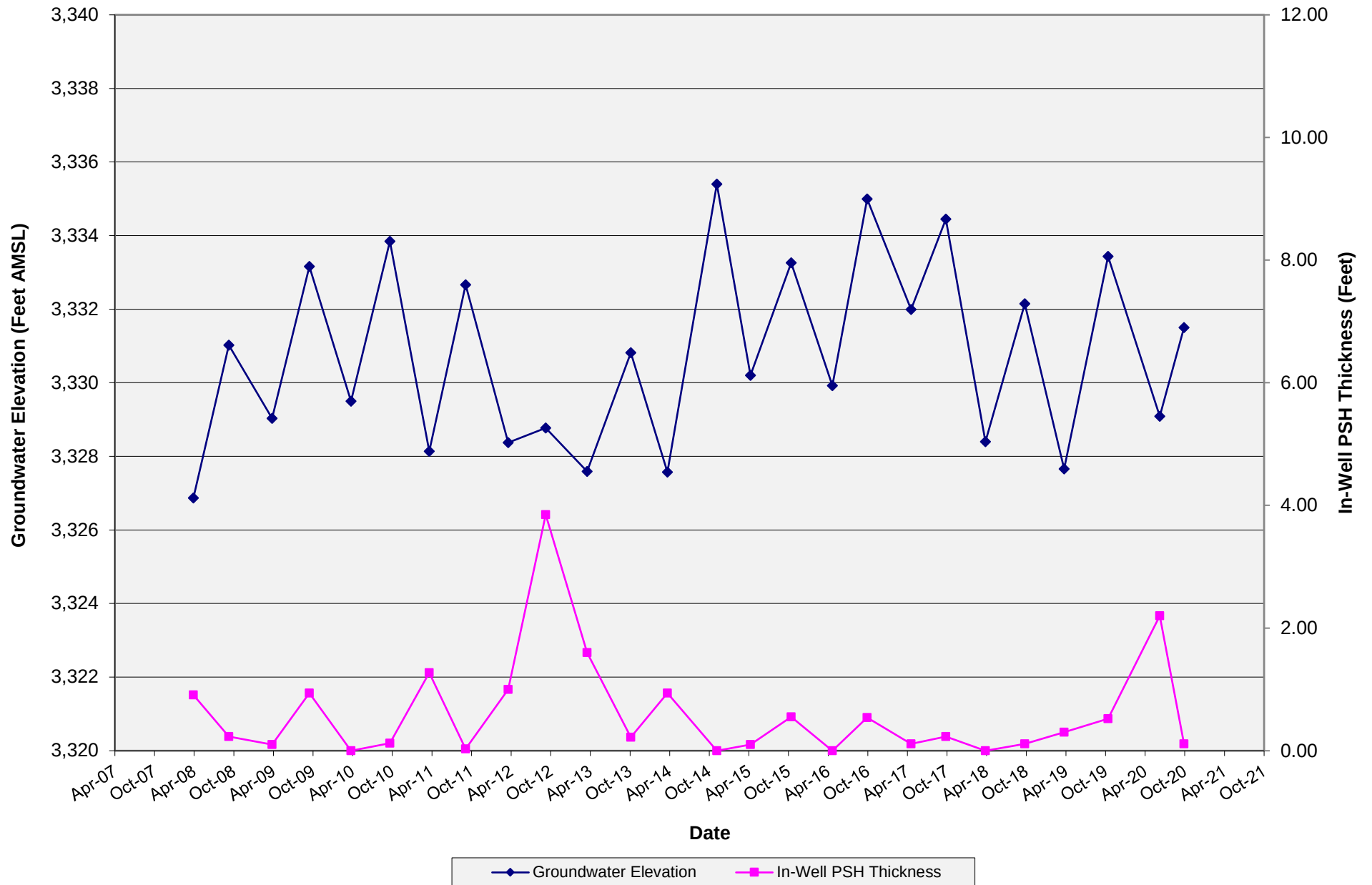
RW-12 & RW-1R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



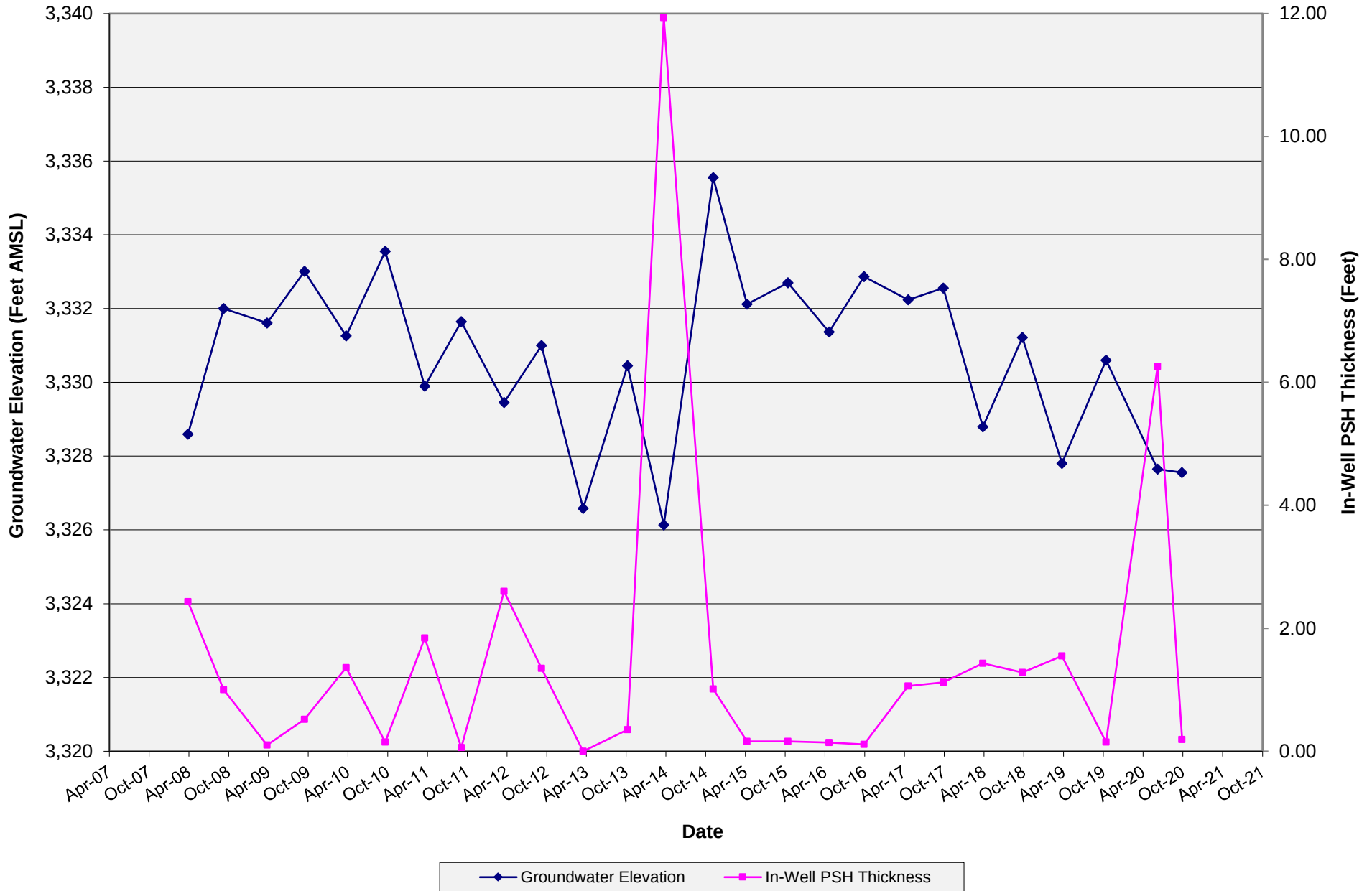
RW-13 & RW-13R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



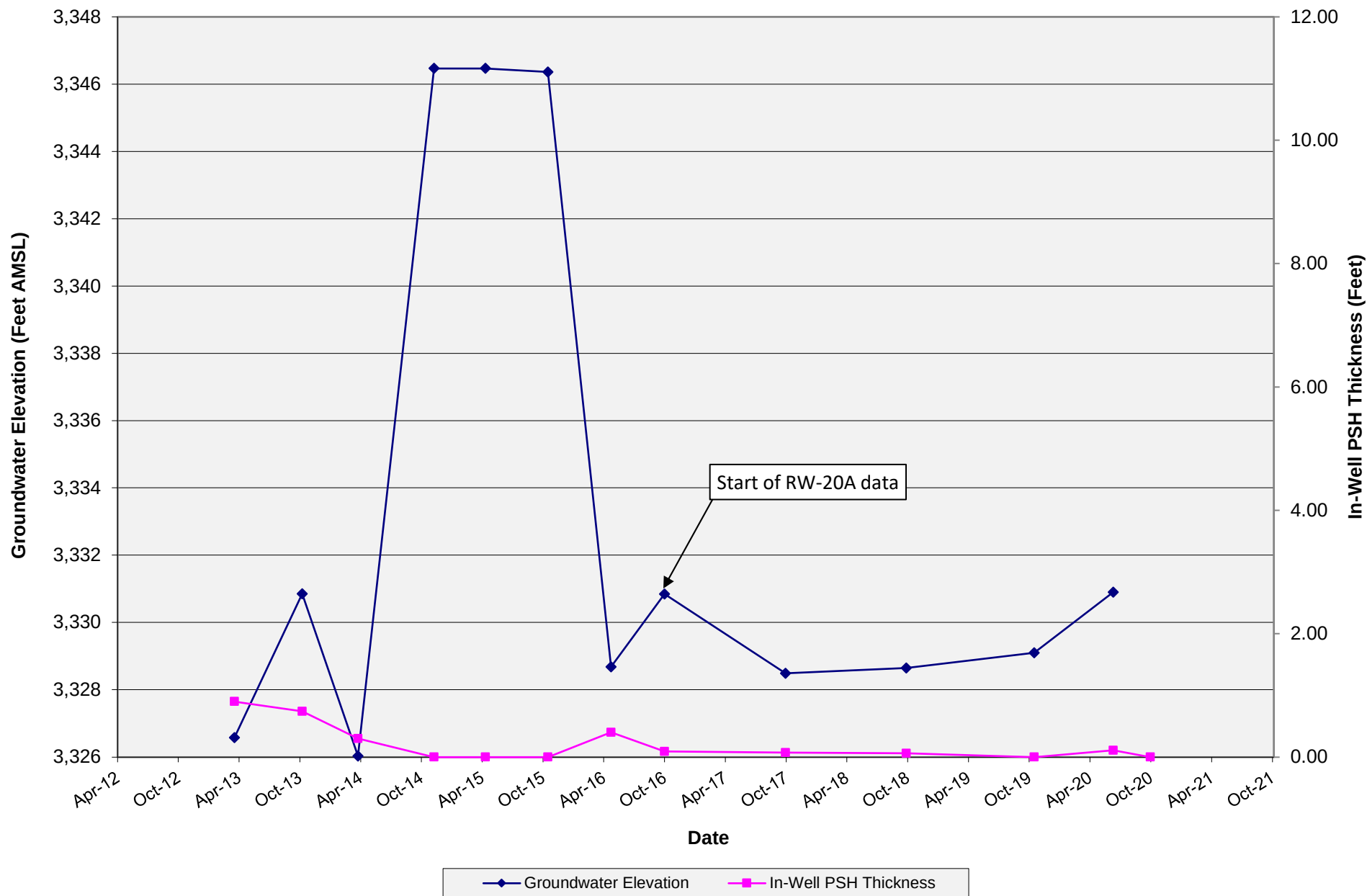
RW-14 & RW-14R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



RW-20 & RW-20A: Groundwater Elevations and In-Well PSH Thicknesses

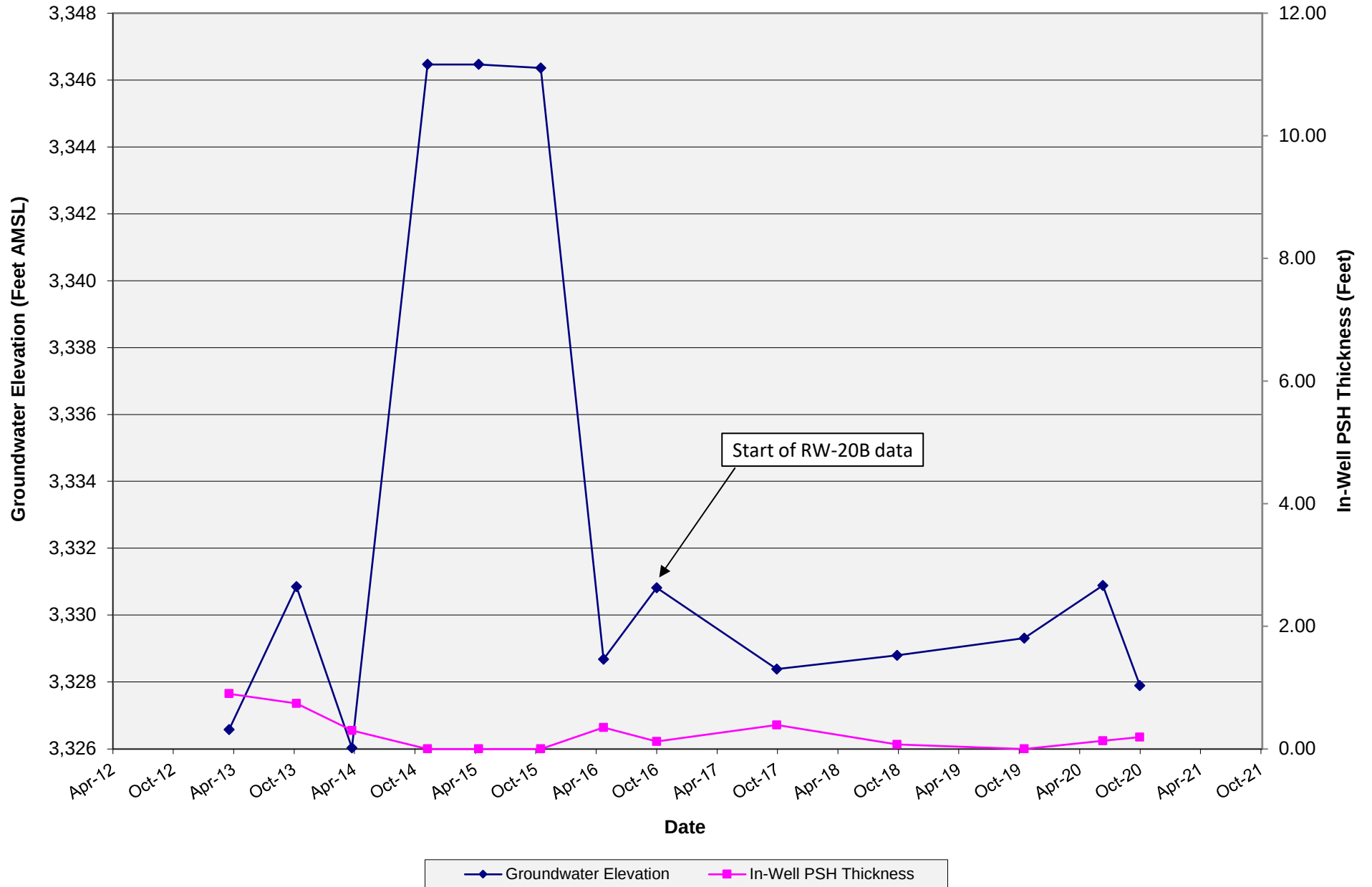
HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



RW-20 & RW-20B: Groundwater Elevations and In-Well PSH Thicknesses

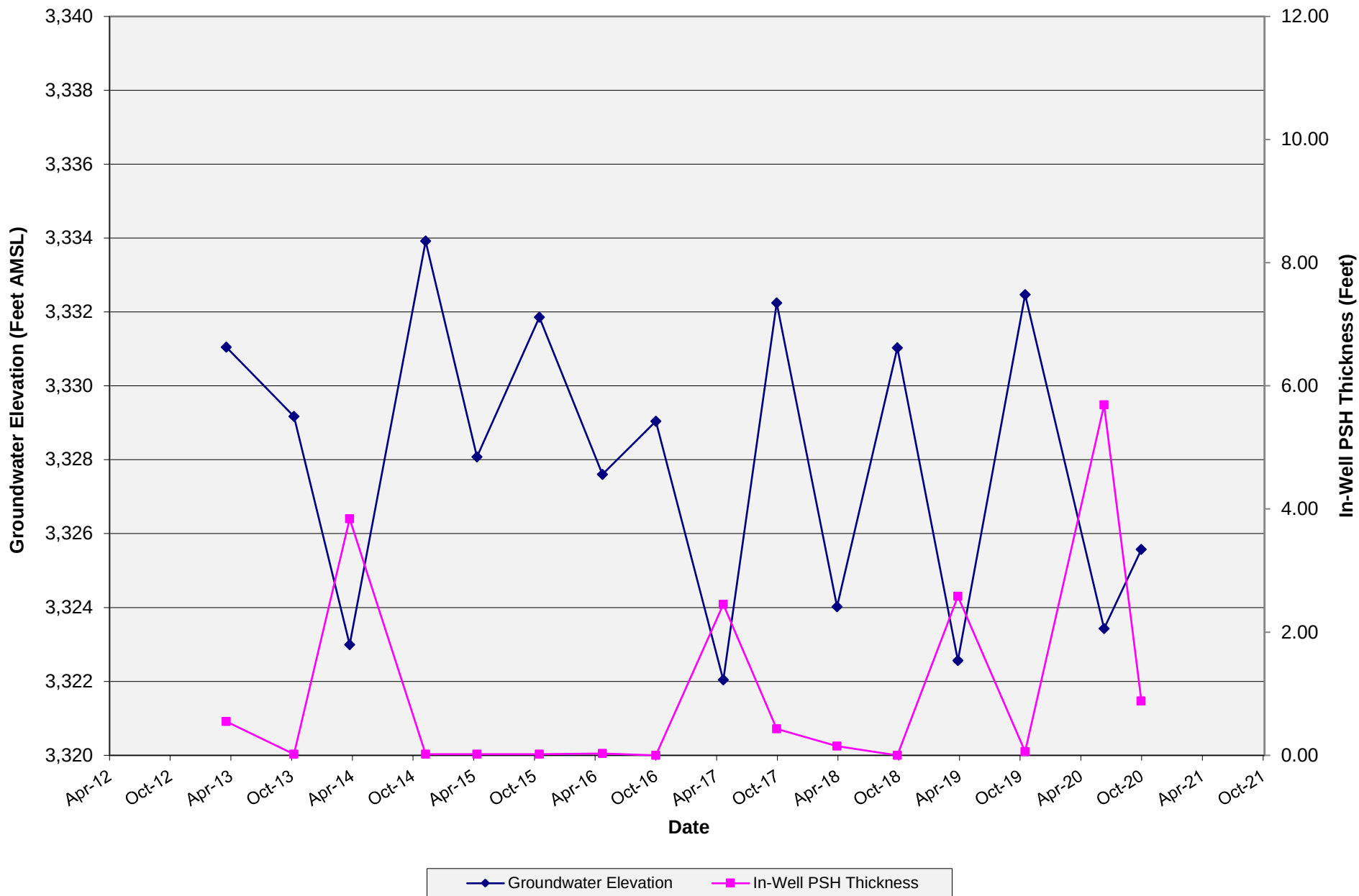
HollyFrontier Navajo Refining LLC - Artesia Refinery

Field East of Refinery



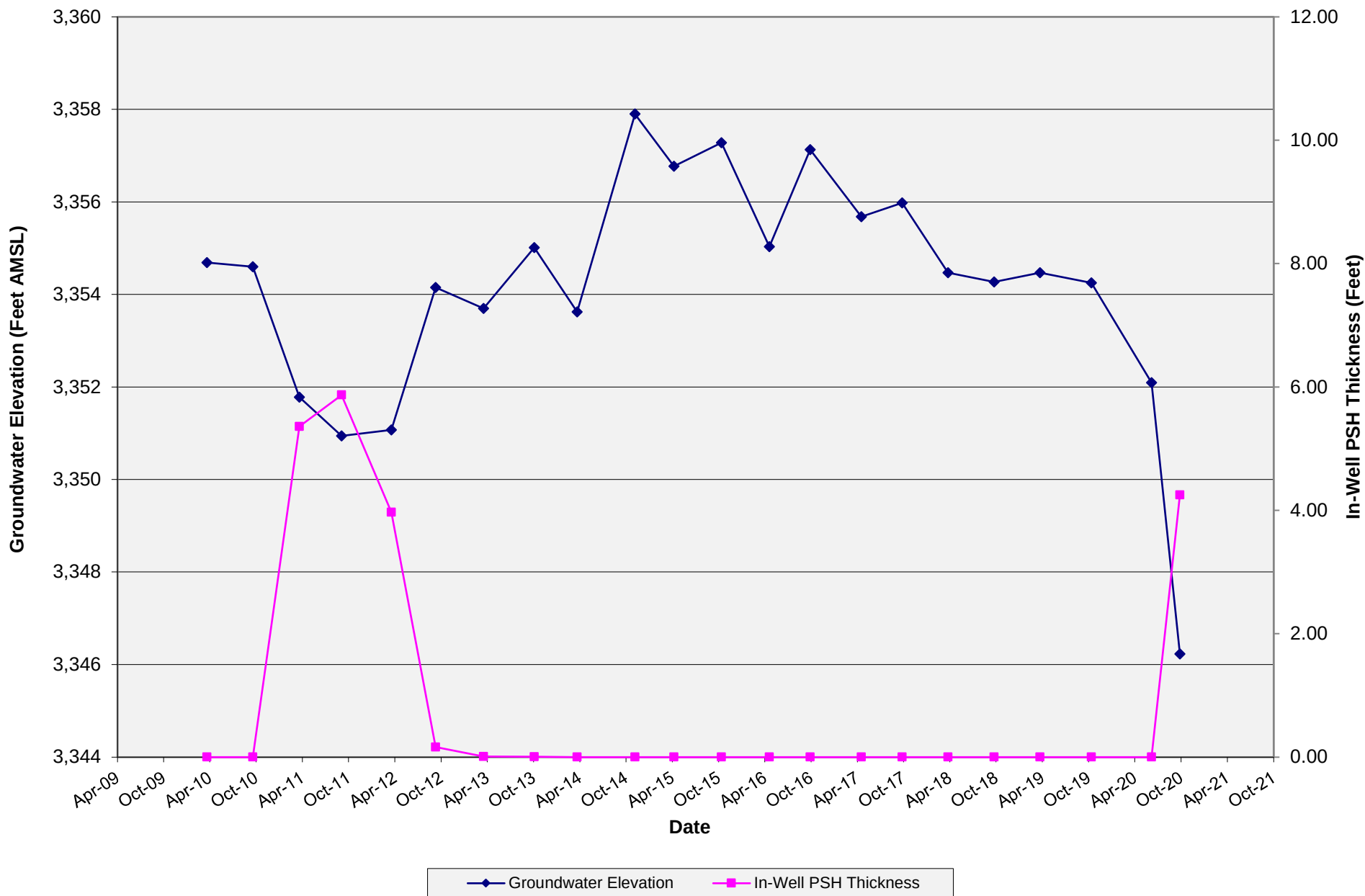
RW-22: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Field East of Refinery



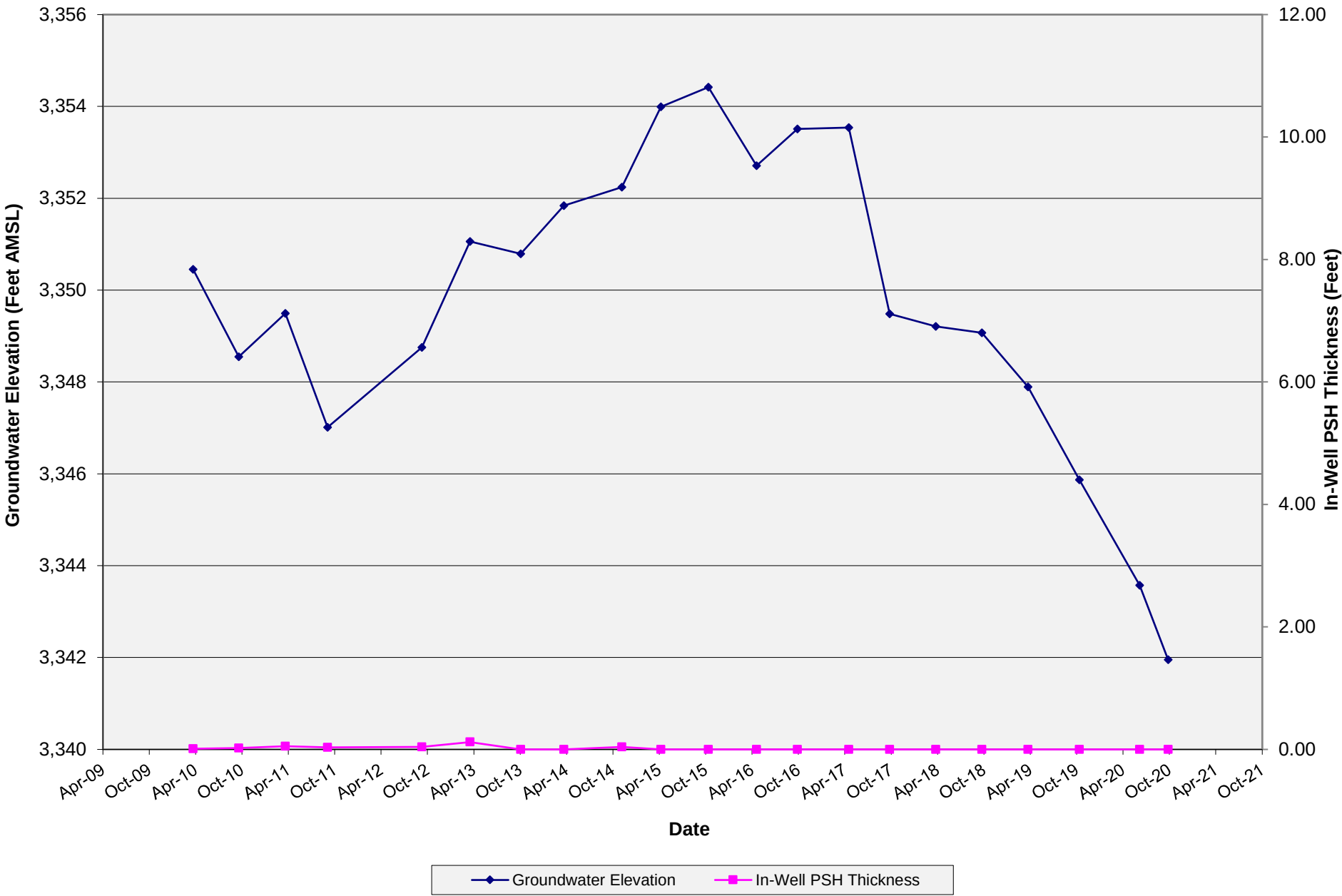
NCL-34A: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Colony Landfarm



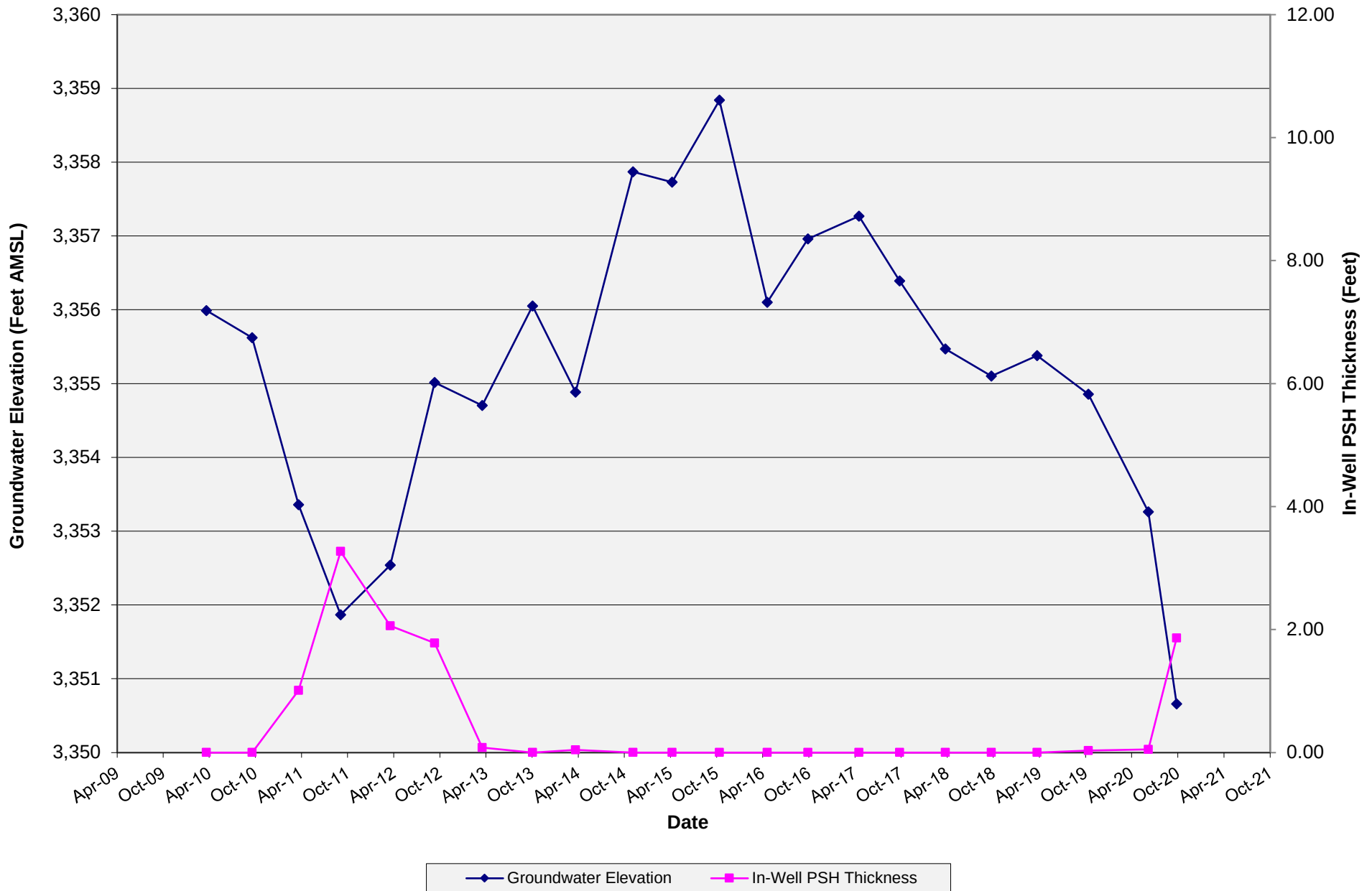
MW-39: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



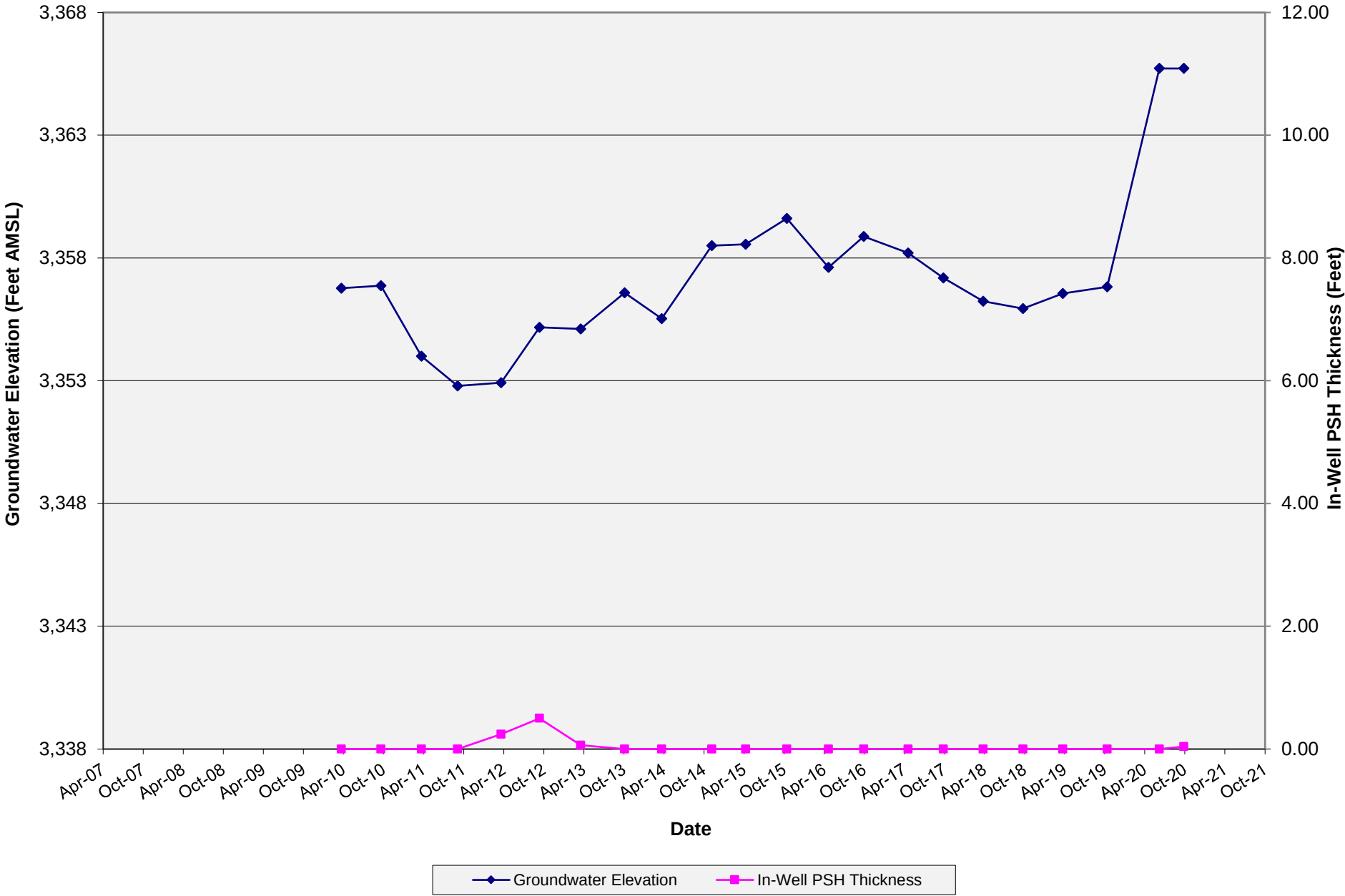
MW-67: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



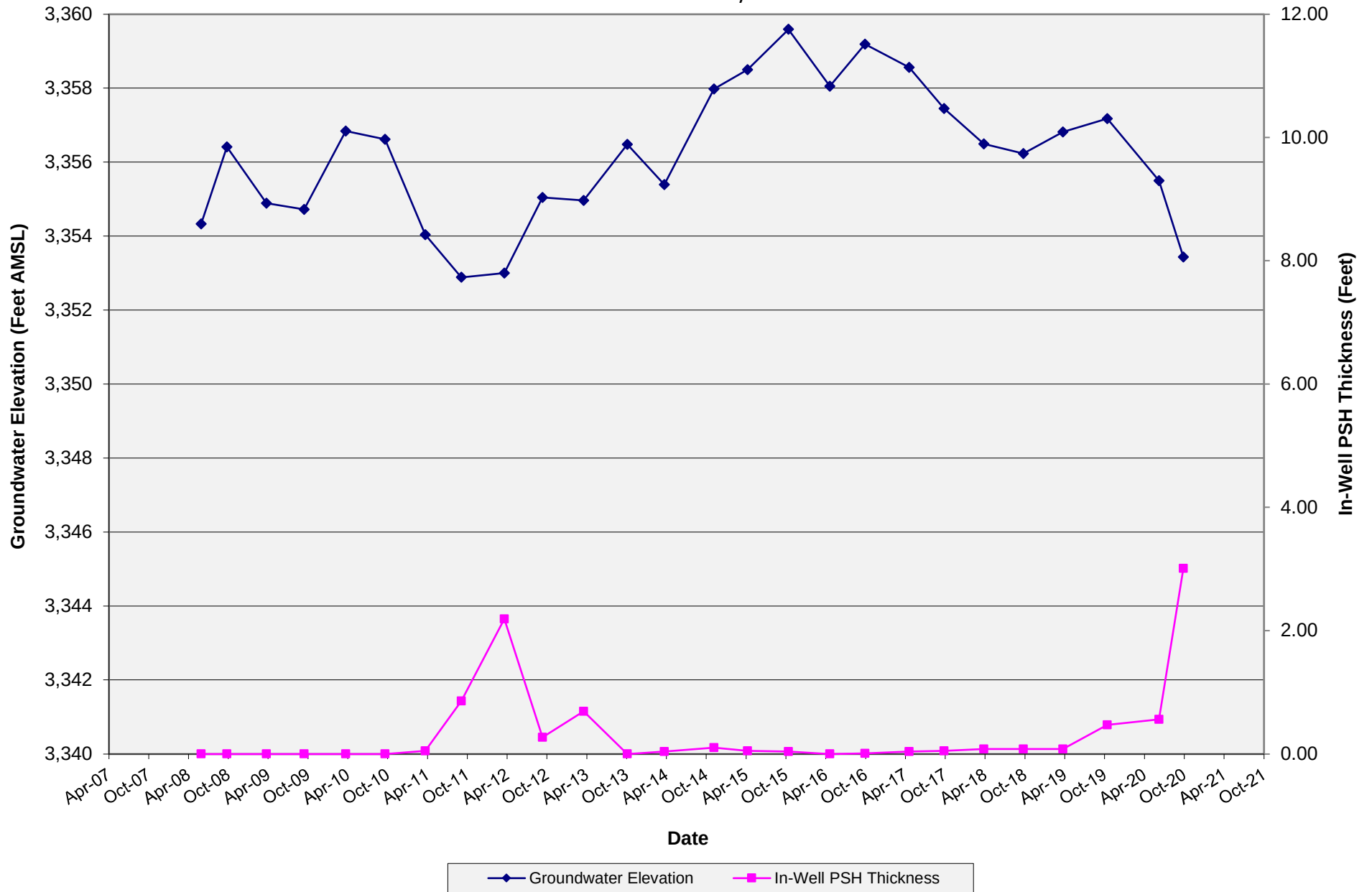
MW-91: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



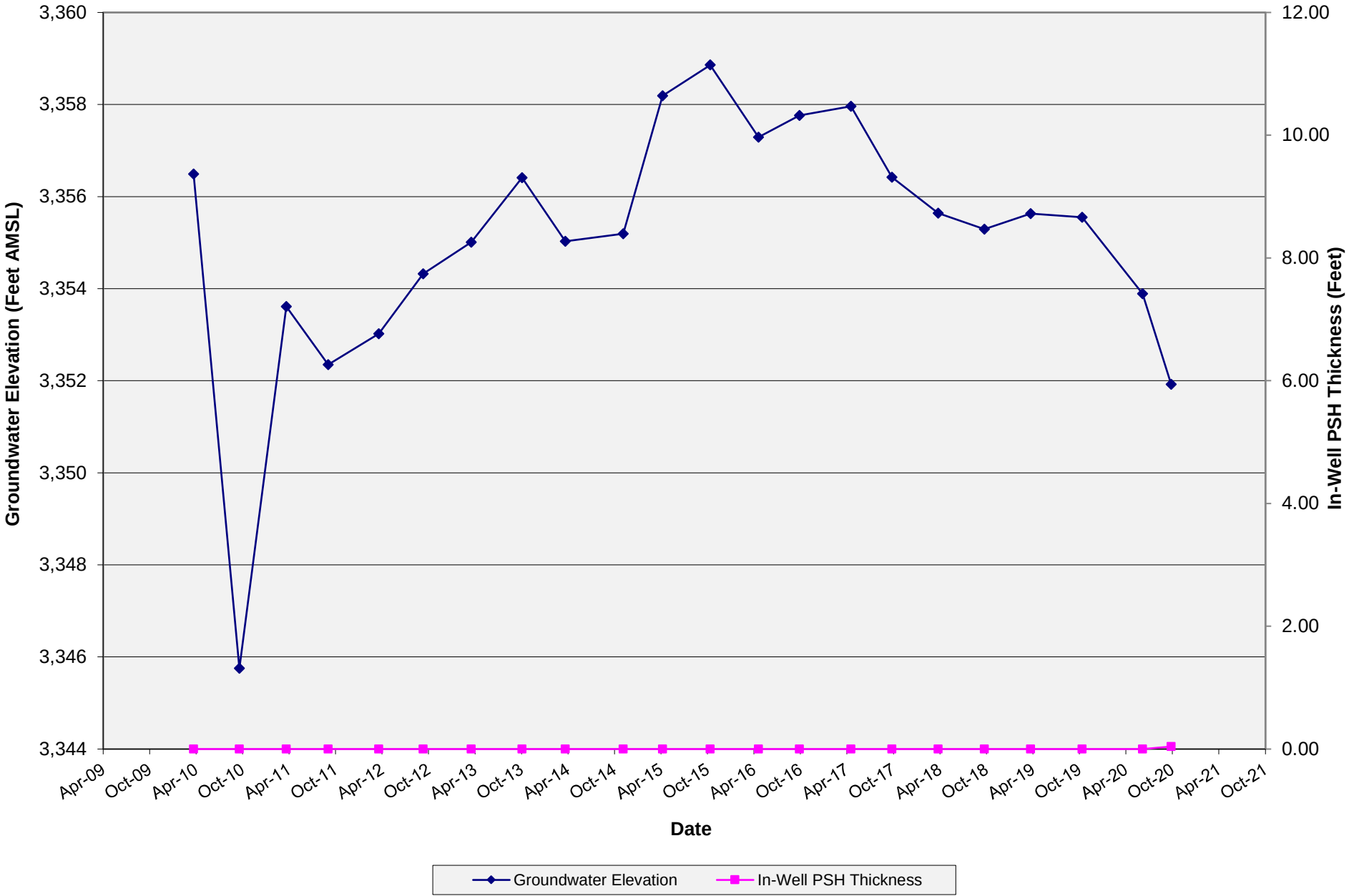
MW-92: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



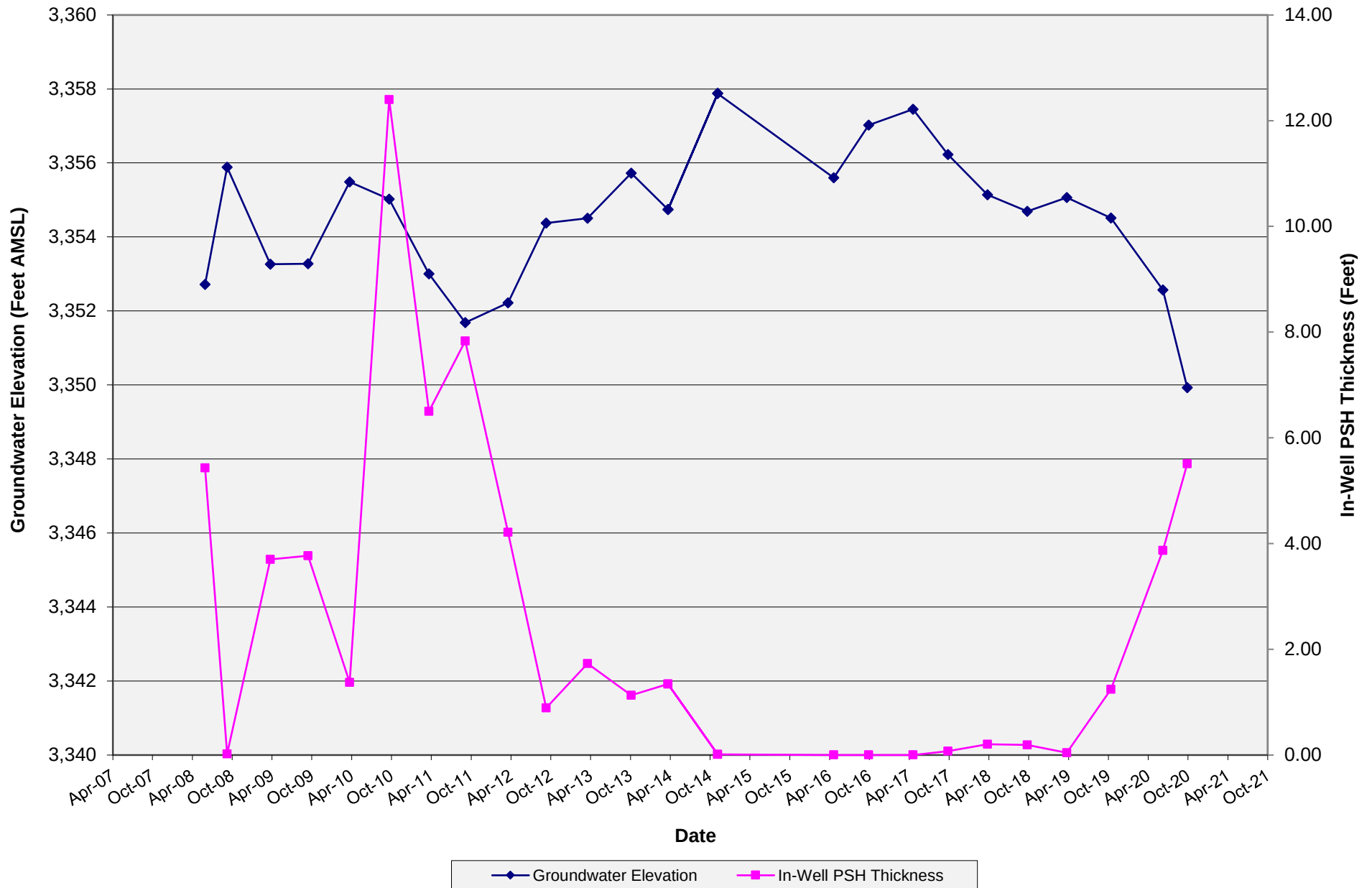
MW-93: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



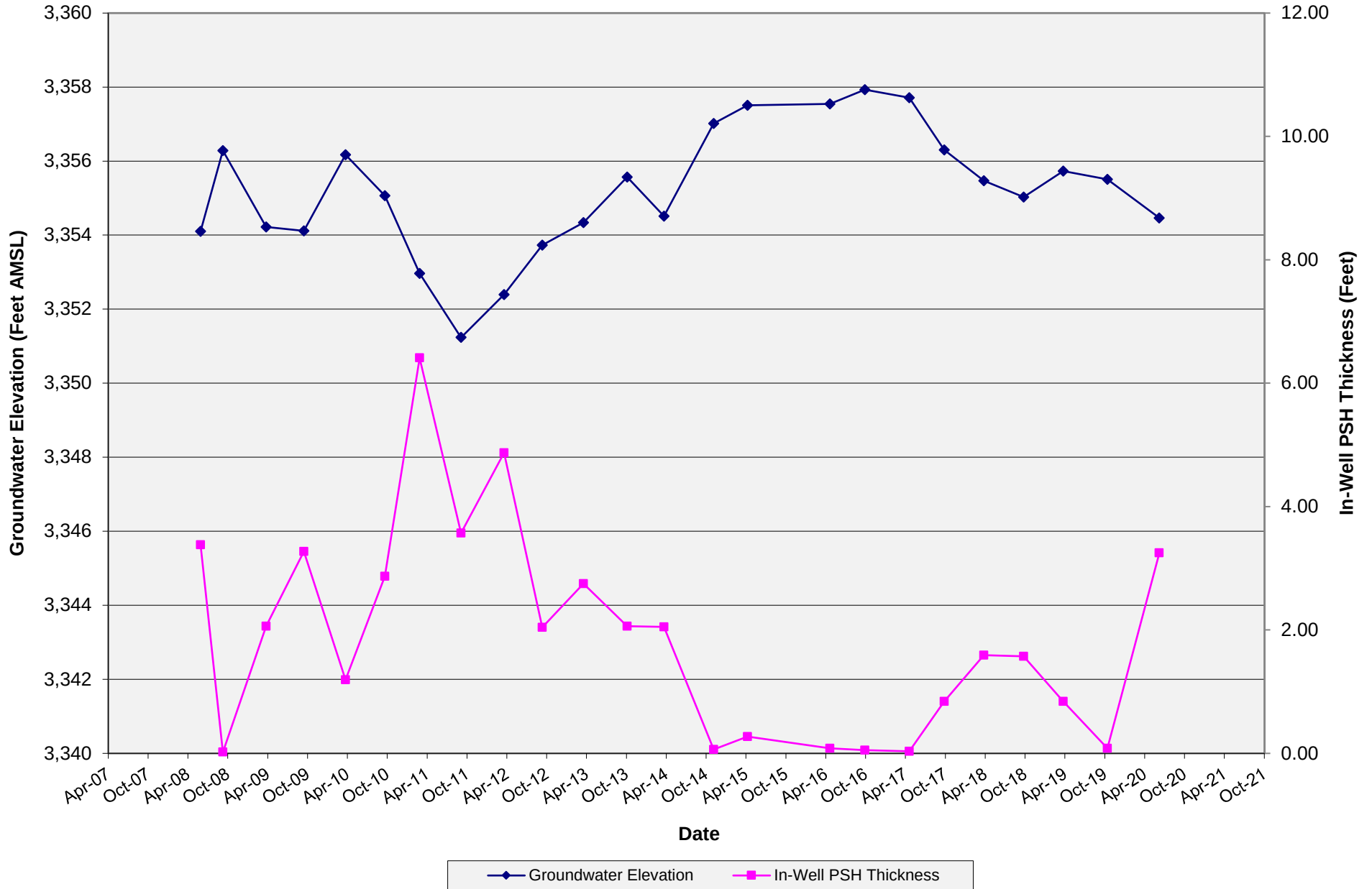
MW-94: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery

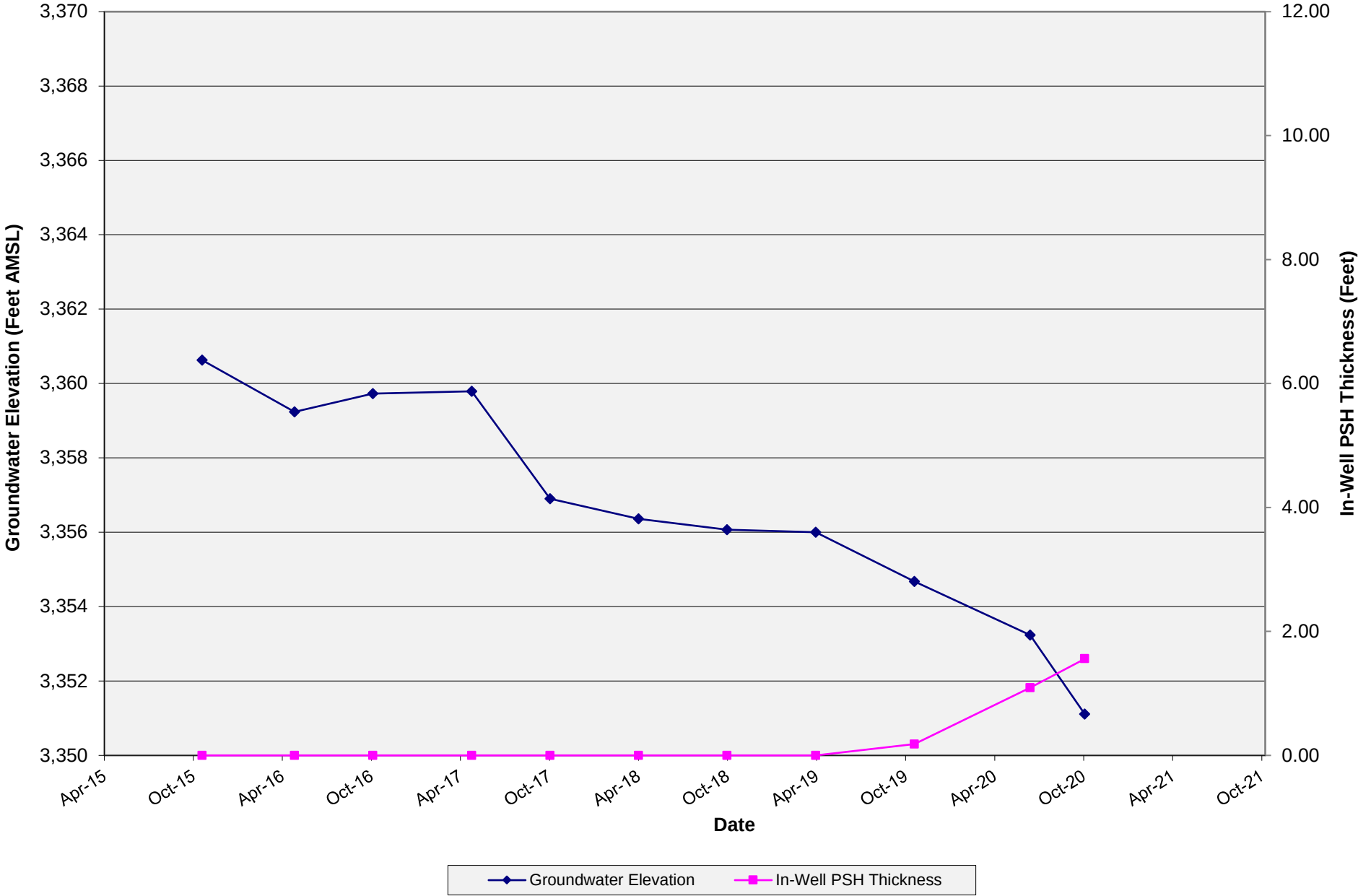


MW-97: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery

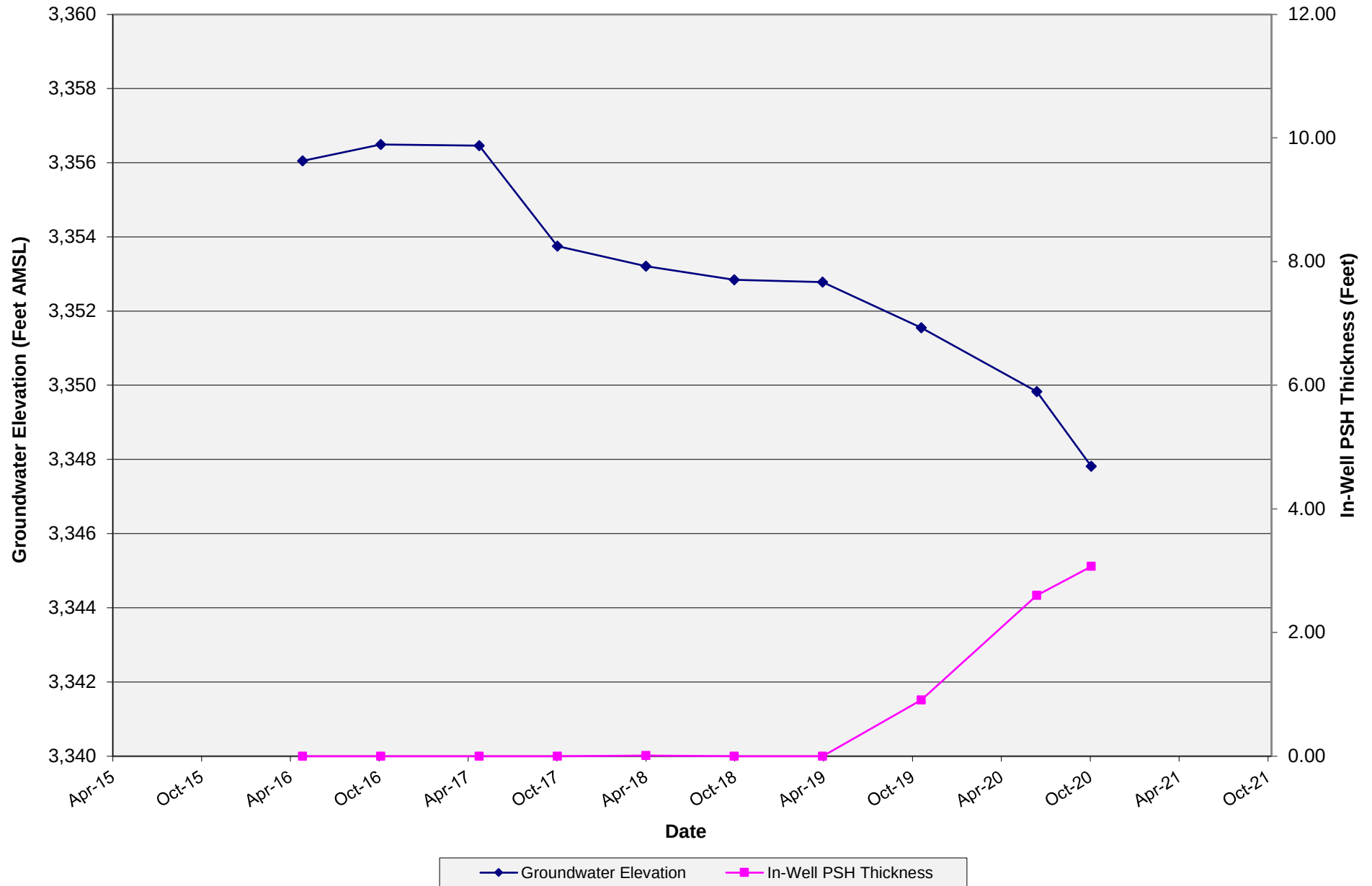


MW-137: Groundwater Elevations and In-Well PSH Thicknesses
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



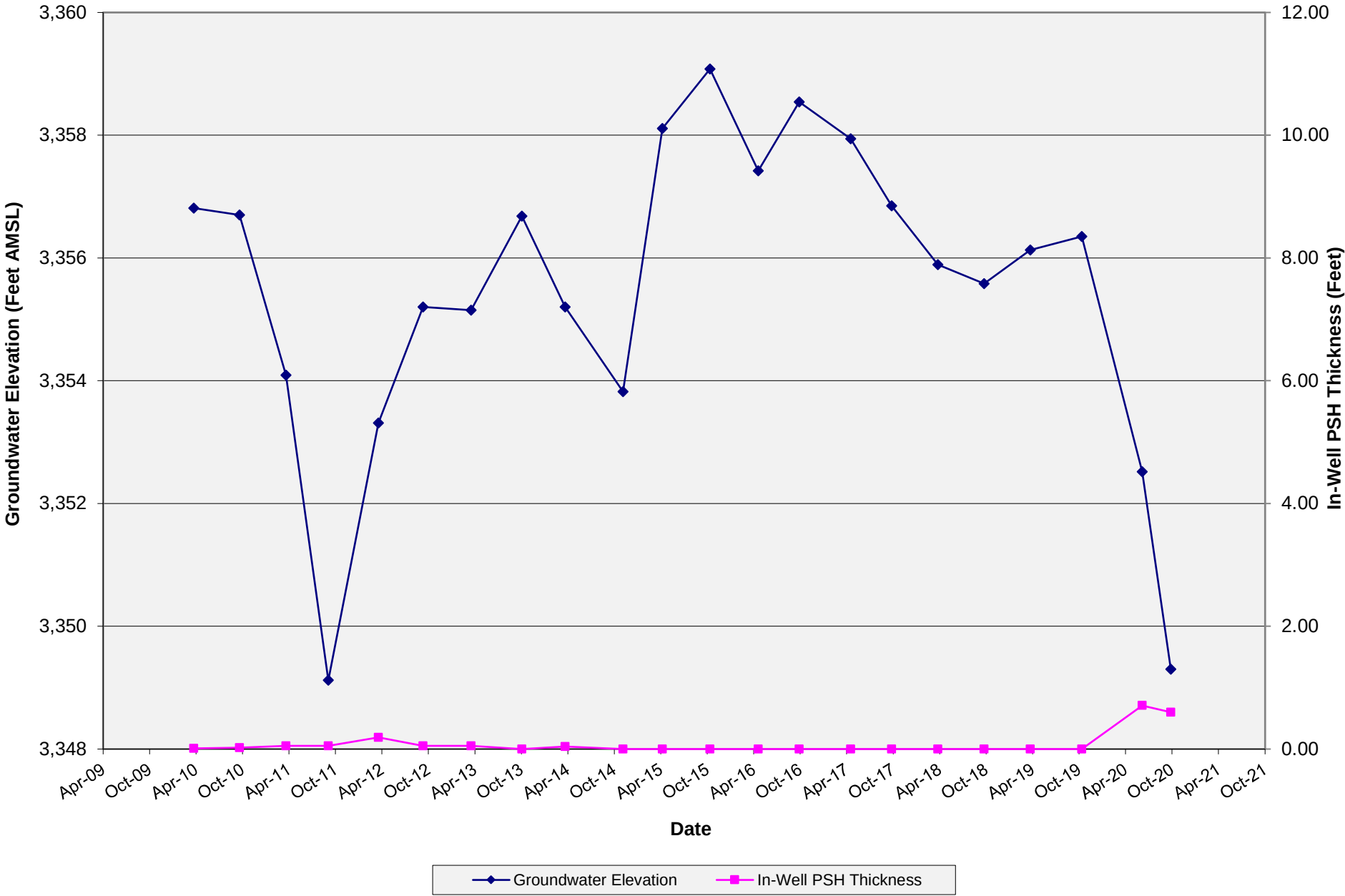
MW-138: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



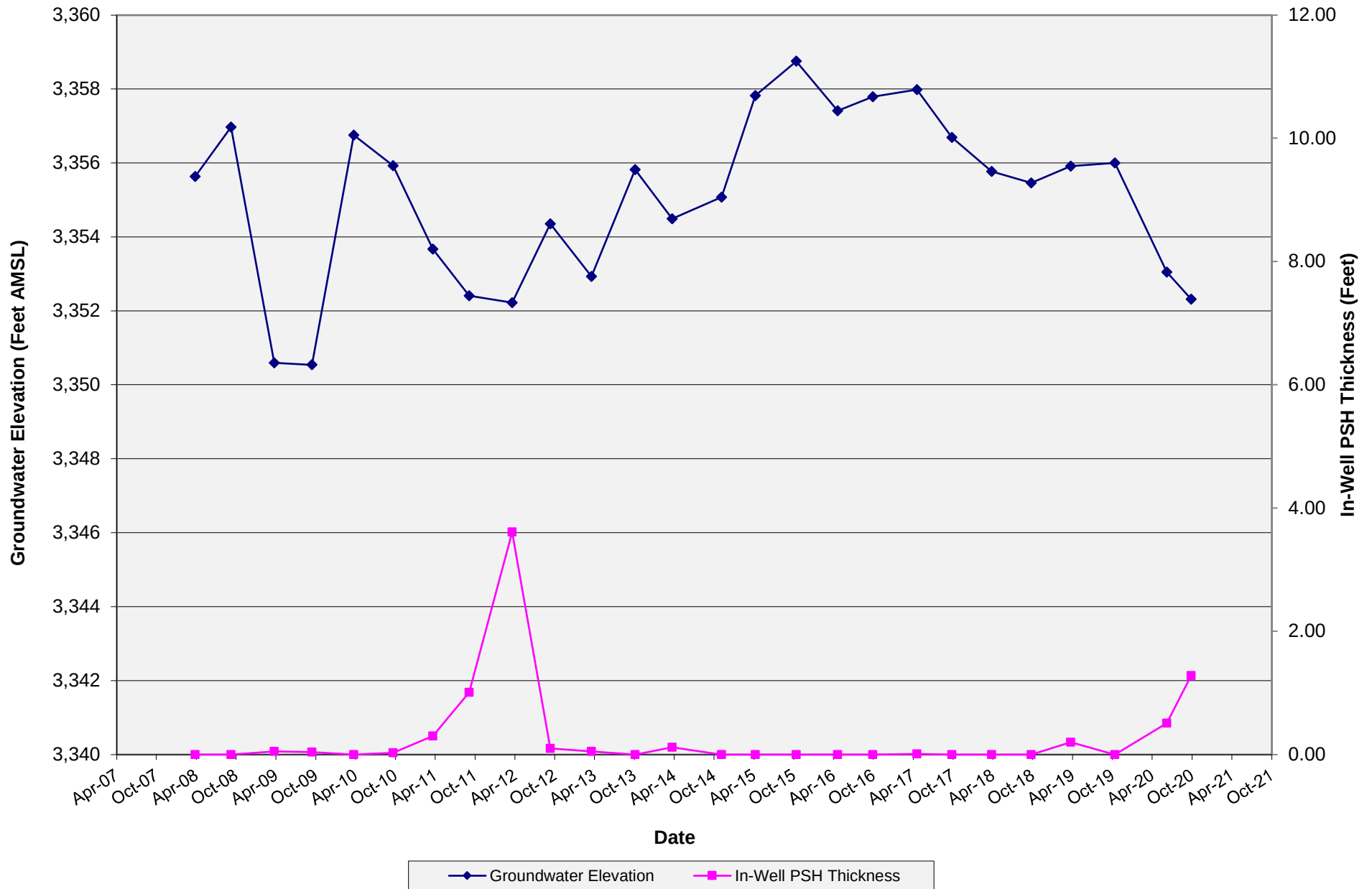
RW-1 & RW-1R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



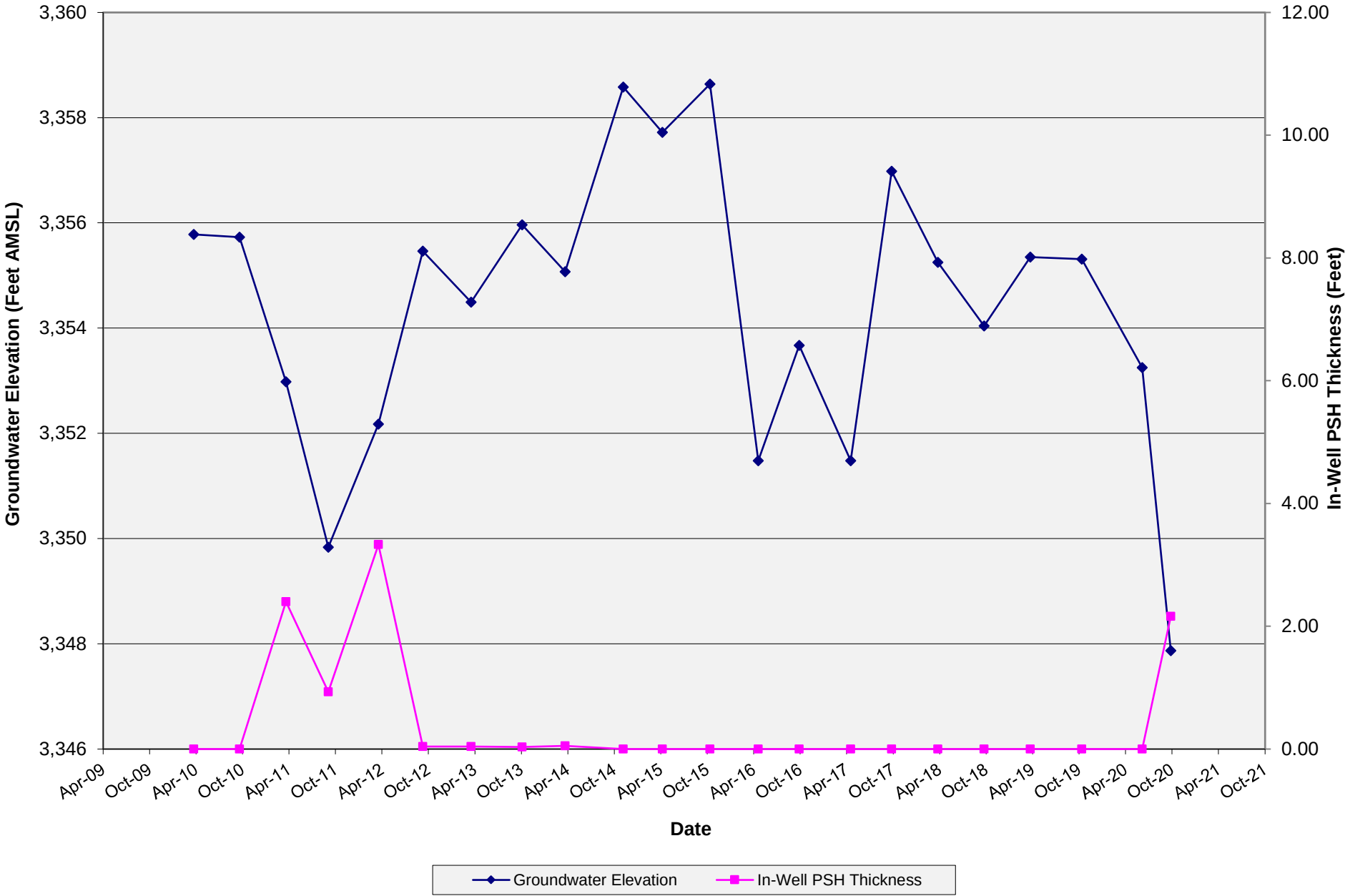
RW-2: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



RW-7 & RW-7R: Groundwater Elevations and In-Well PSH Thicknesses

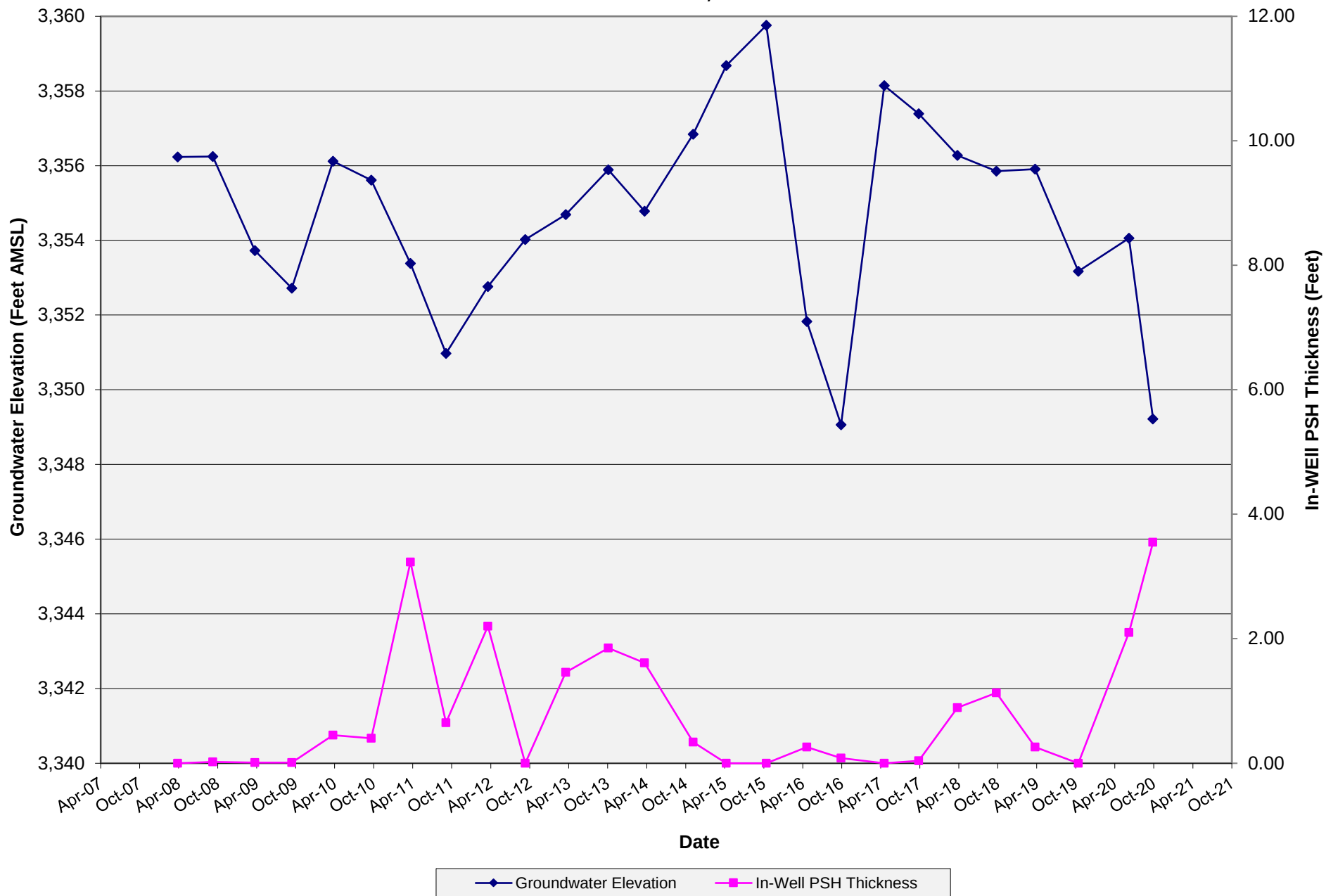
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery



RW-8: Groundwater Elevations and In-Well PSH Thicknesses

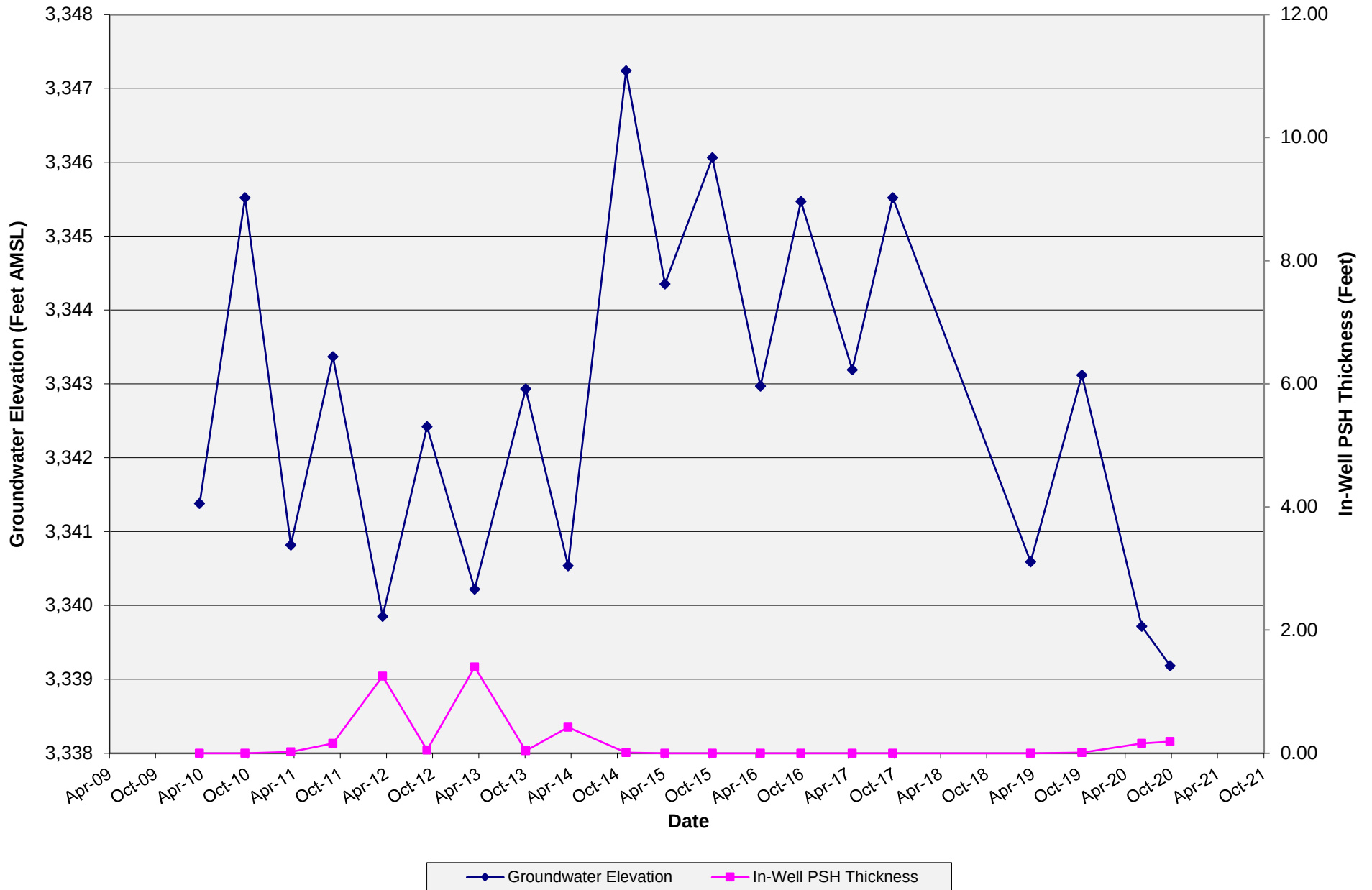
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Refinery



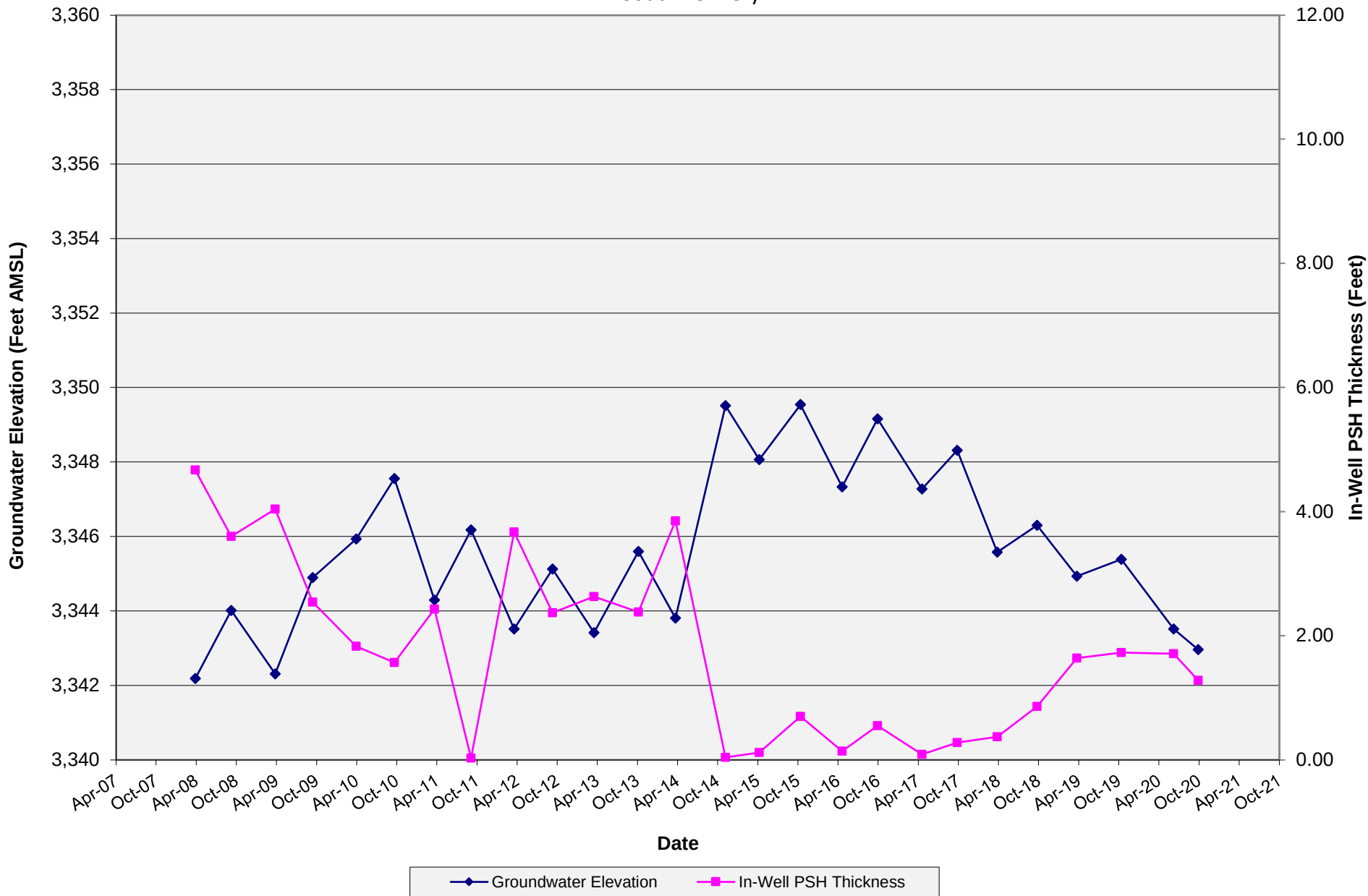
KWB-2R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



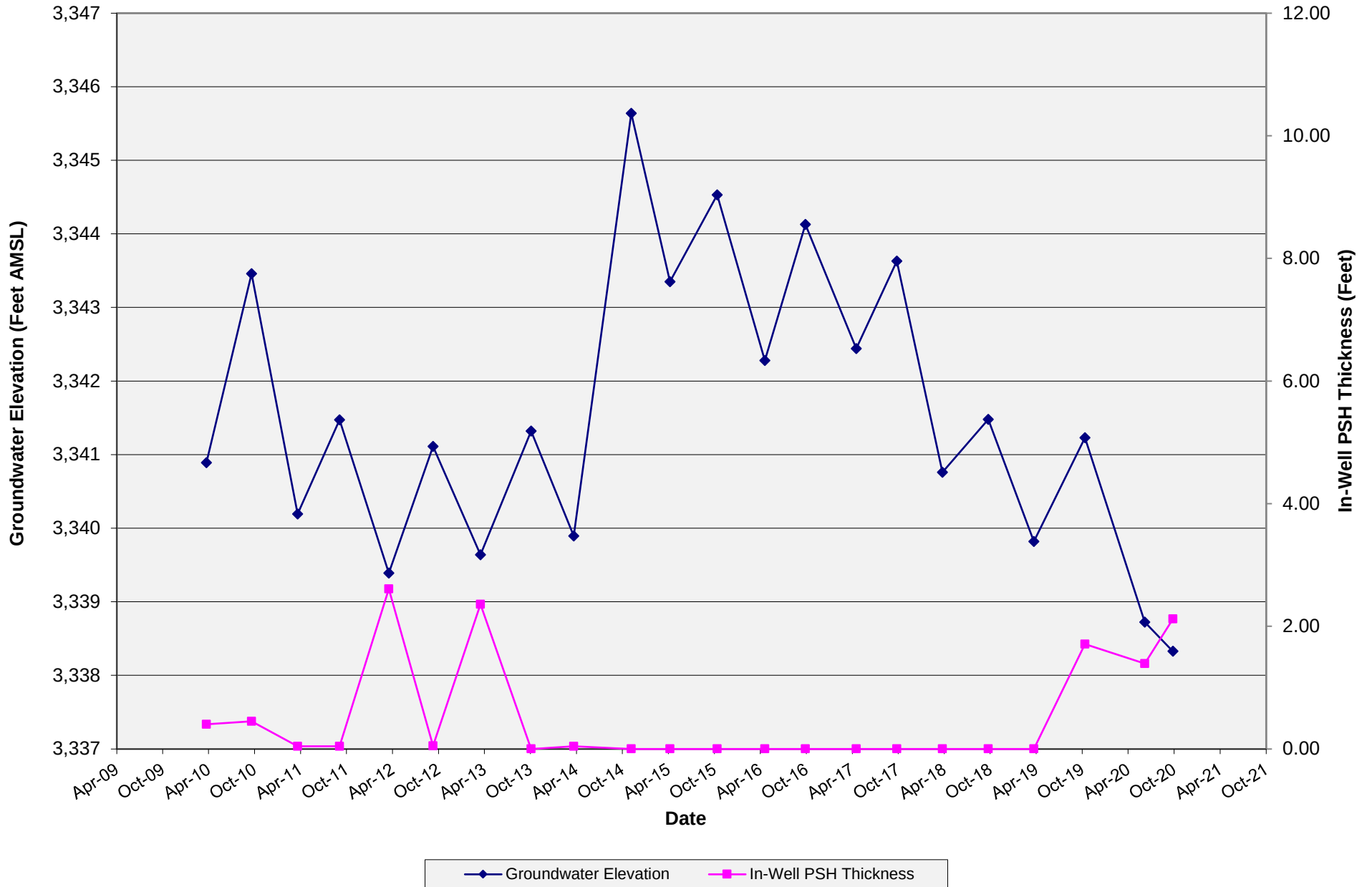
KWB-4: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



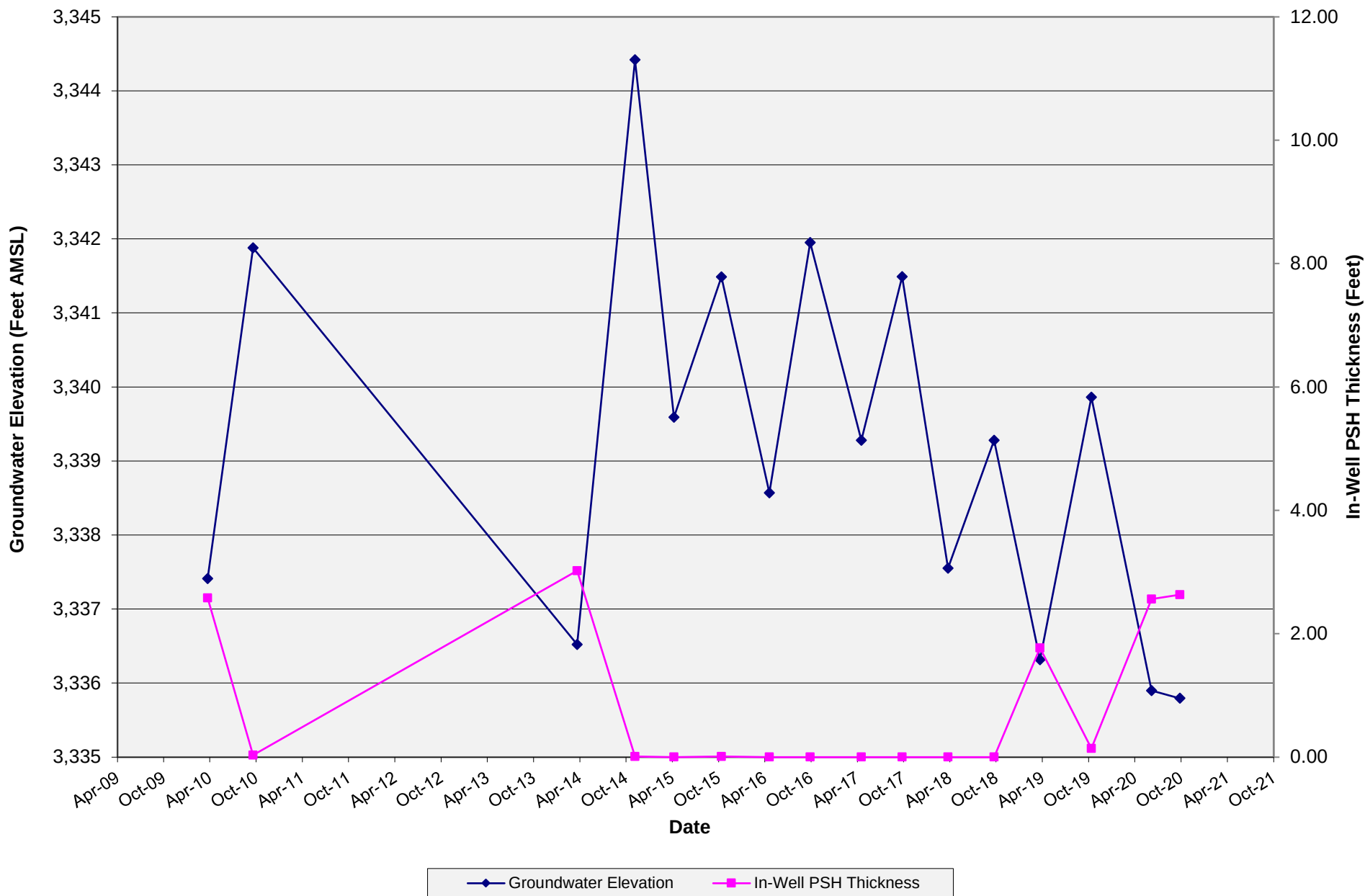
KWB-5: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



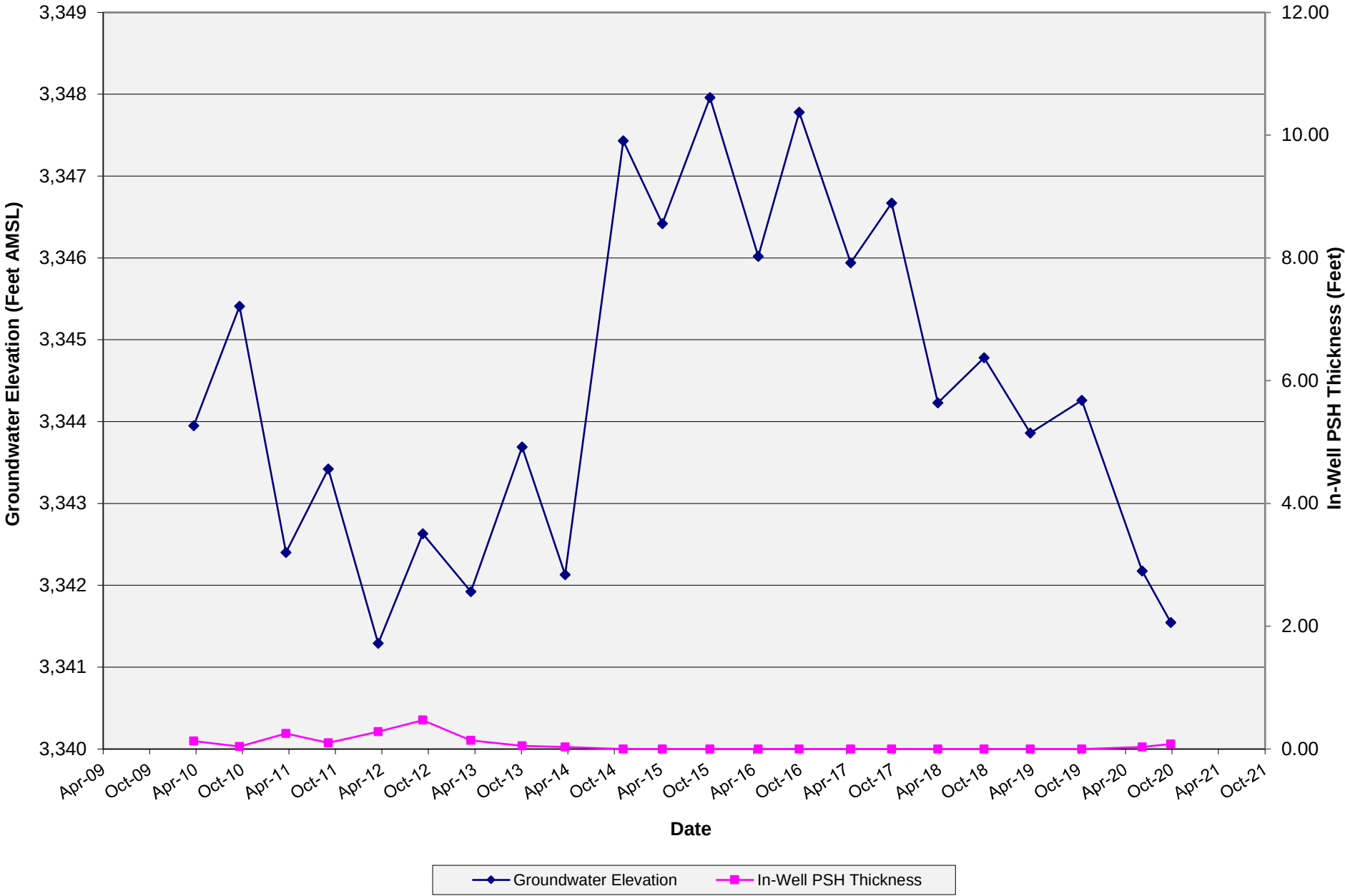
KWB-6: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



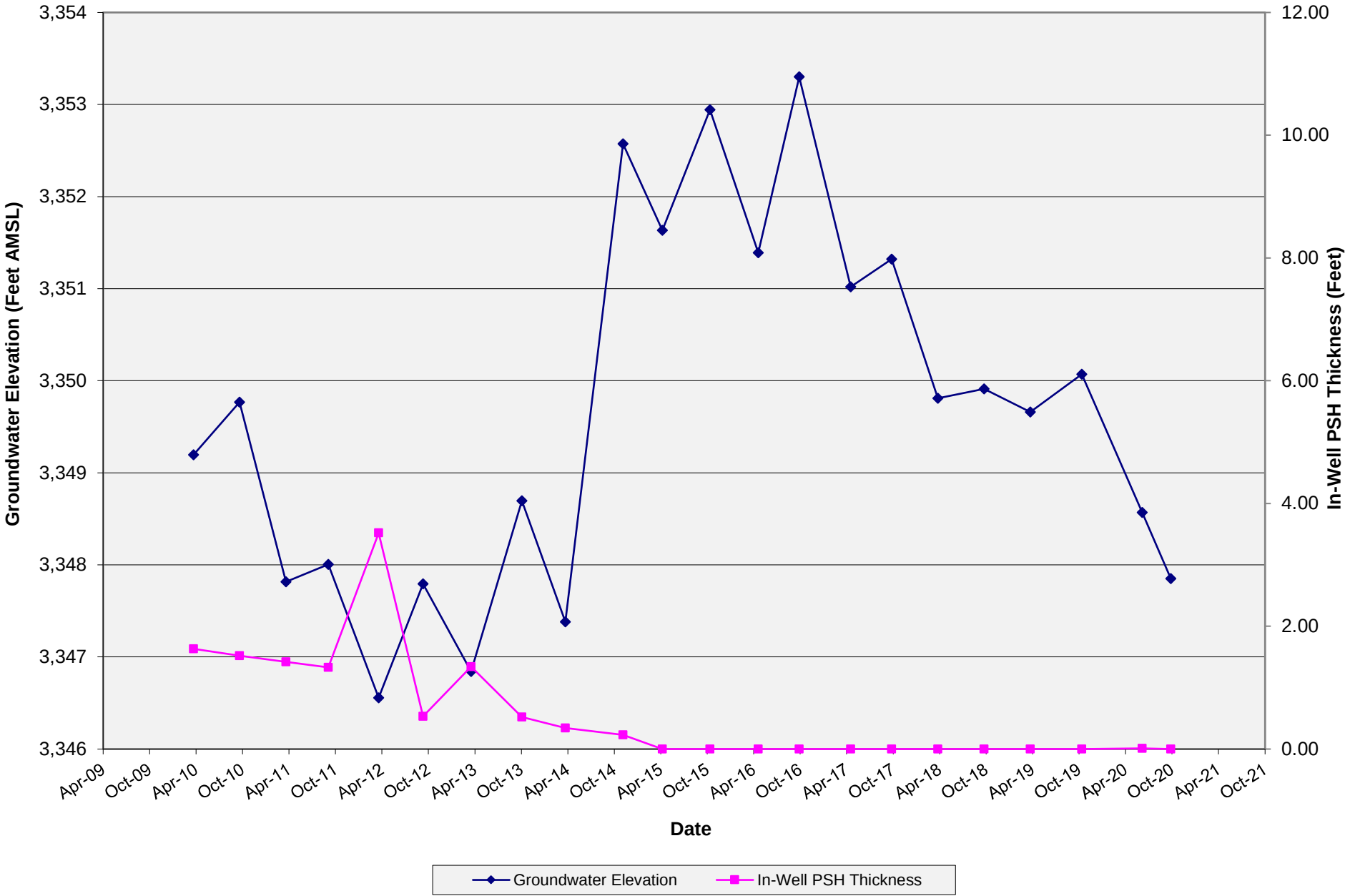
MW-48: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



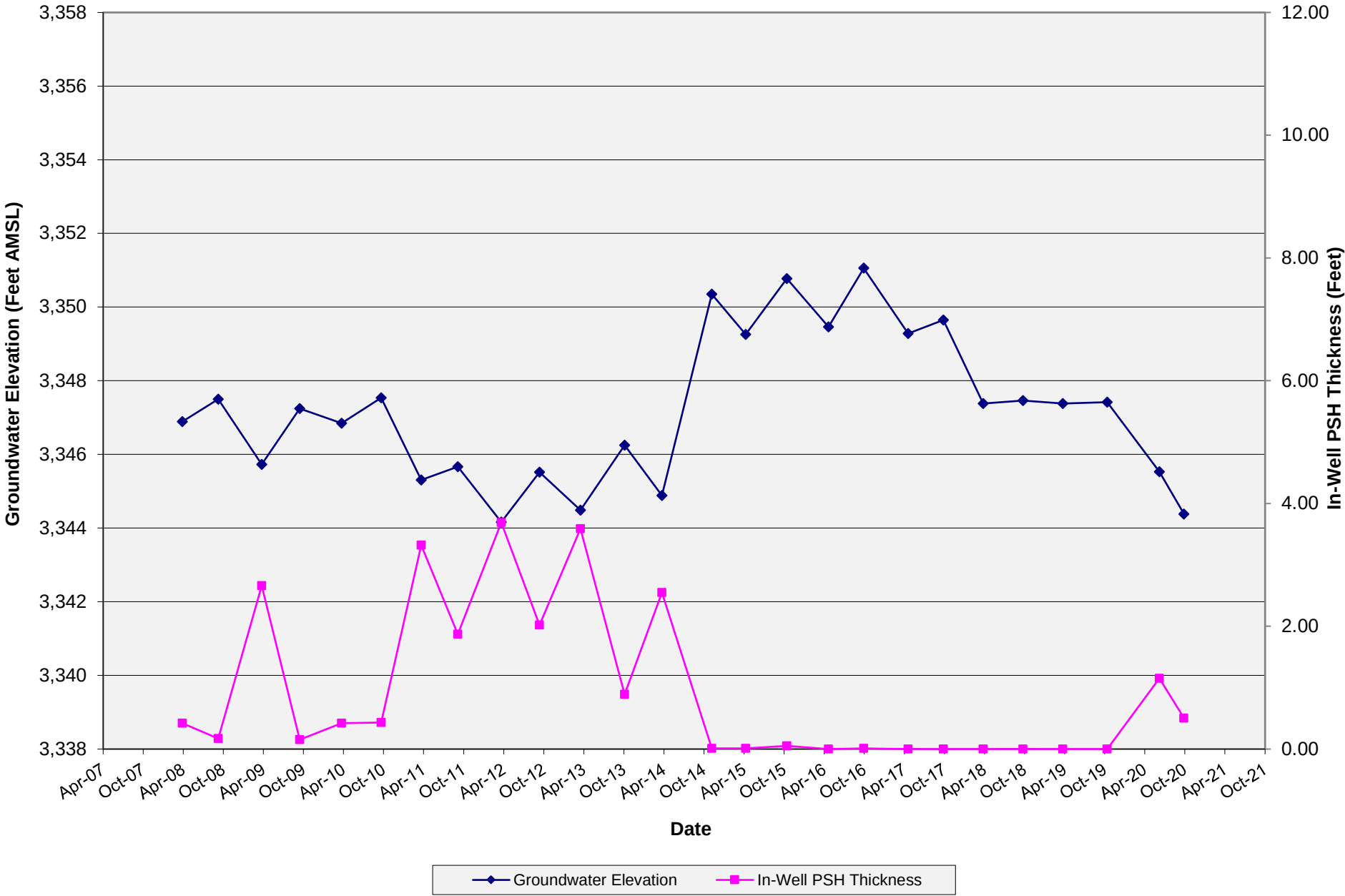
MW-64: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



MW-65: Groundwater Elevations and In-Well PSH Thicknesses

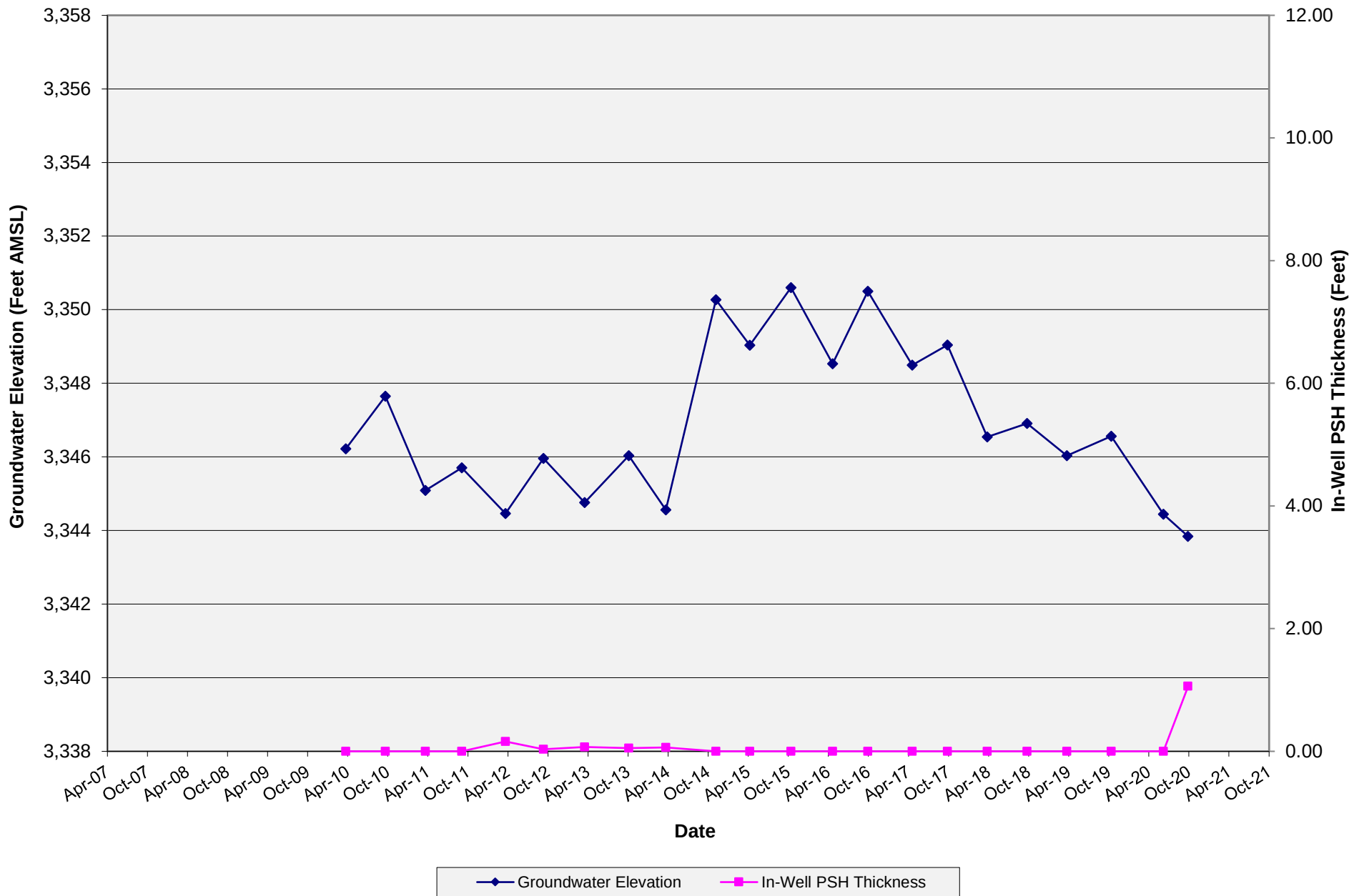
HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



MW-99: Groundwater Elevations and In-Well PSH Thicknesses

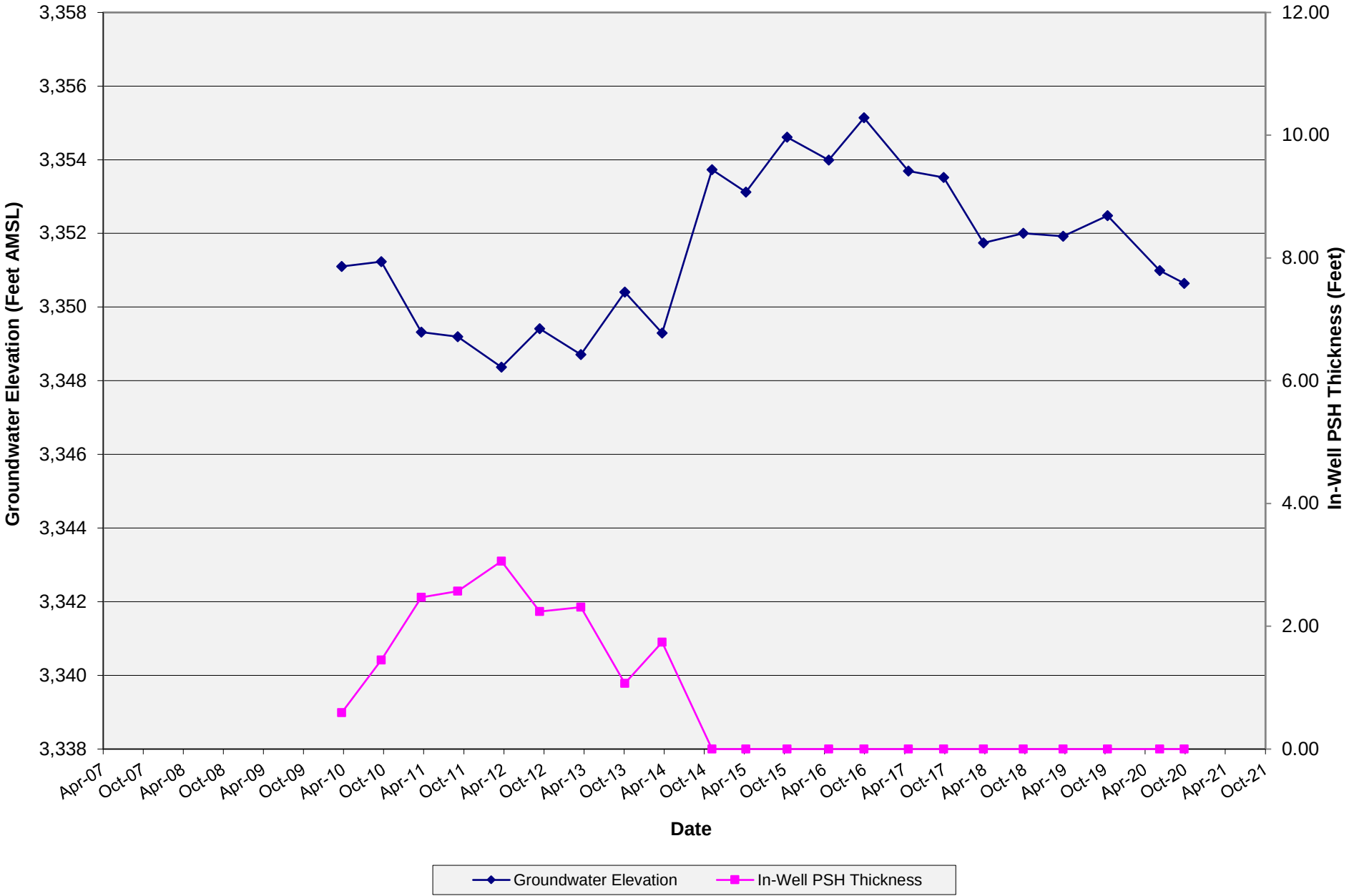
HollyFrontier Navajo Refining LLC - Artesia Refinery

South Refinery



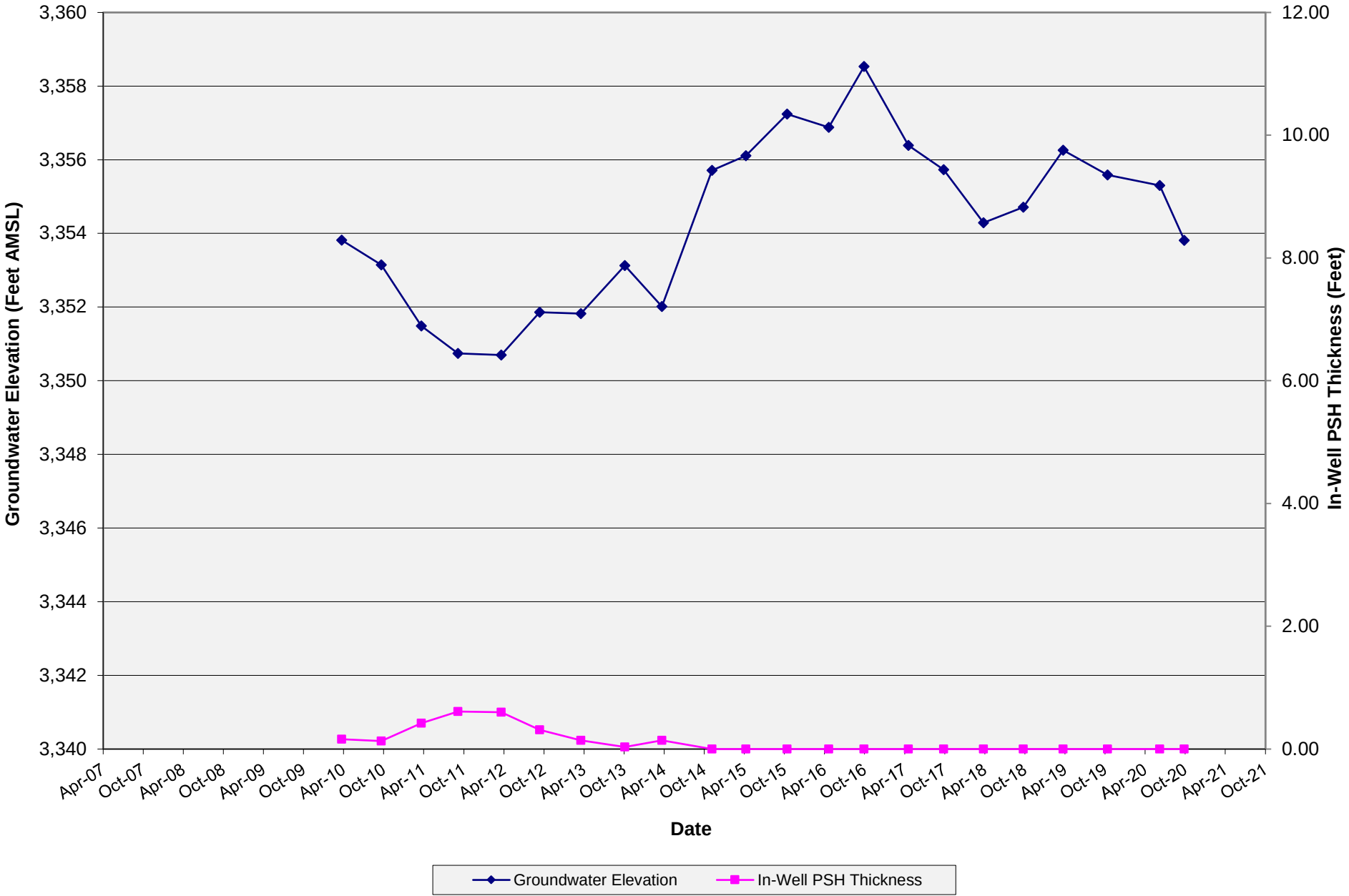
MW-102: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



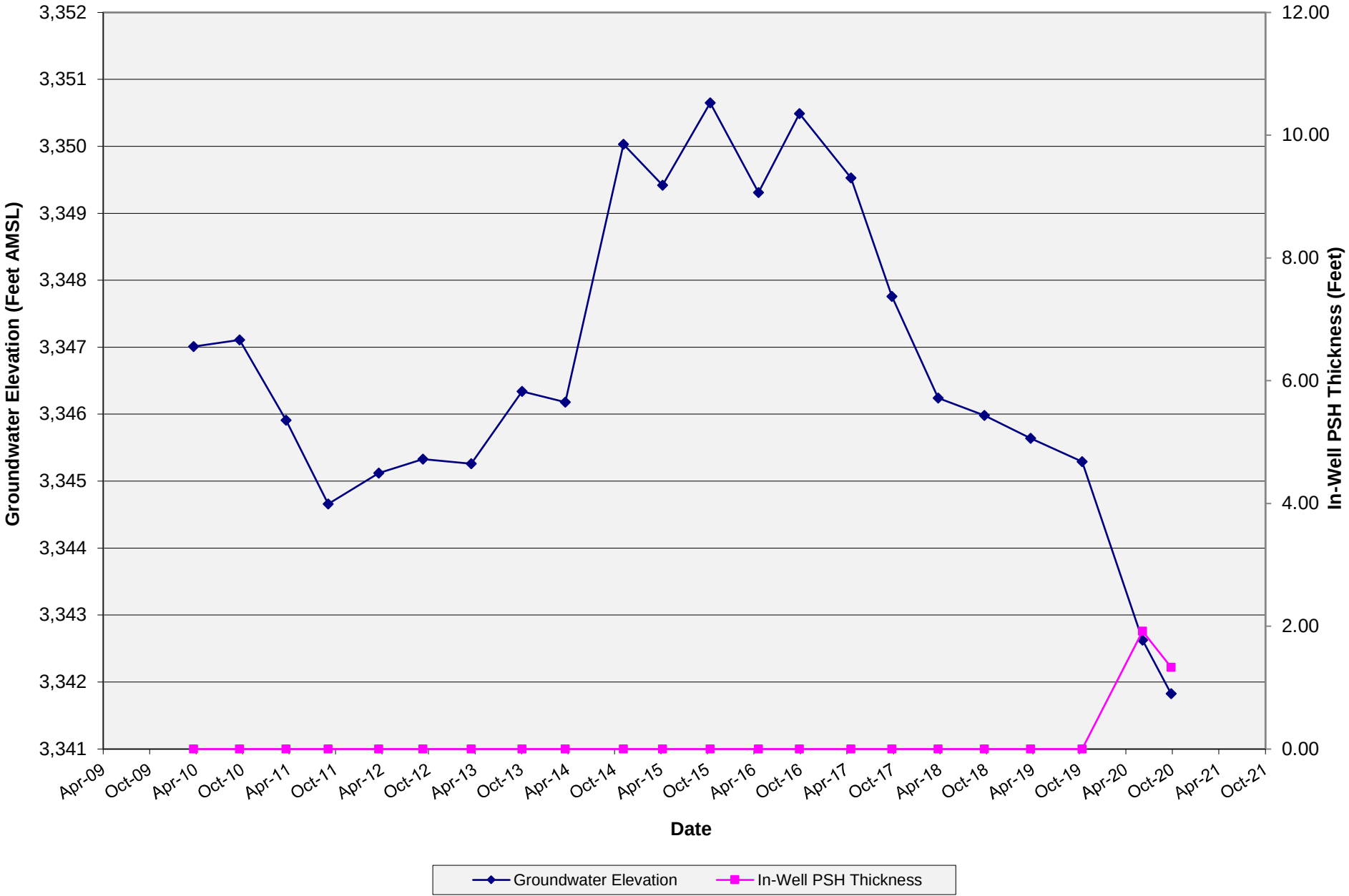
MW-105: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



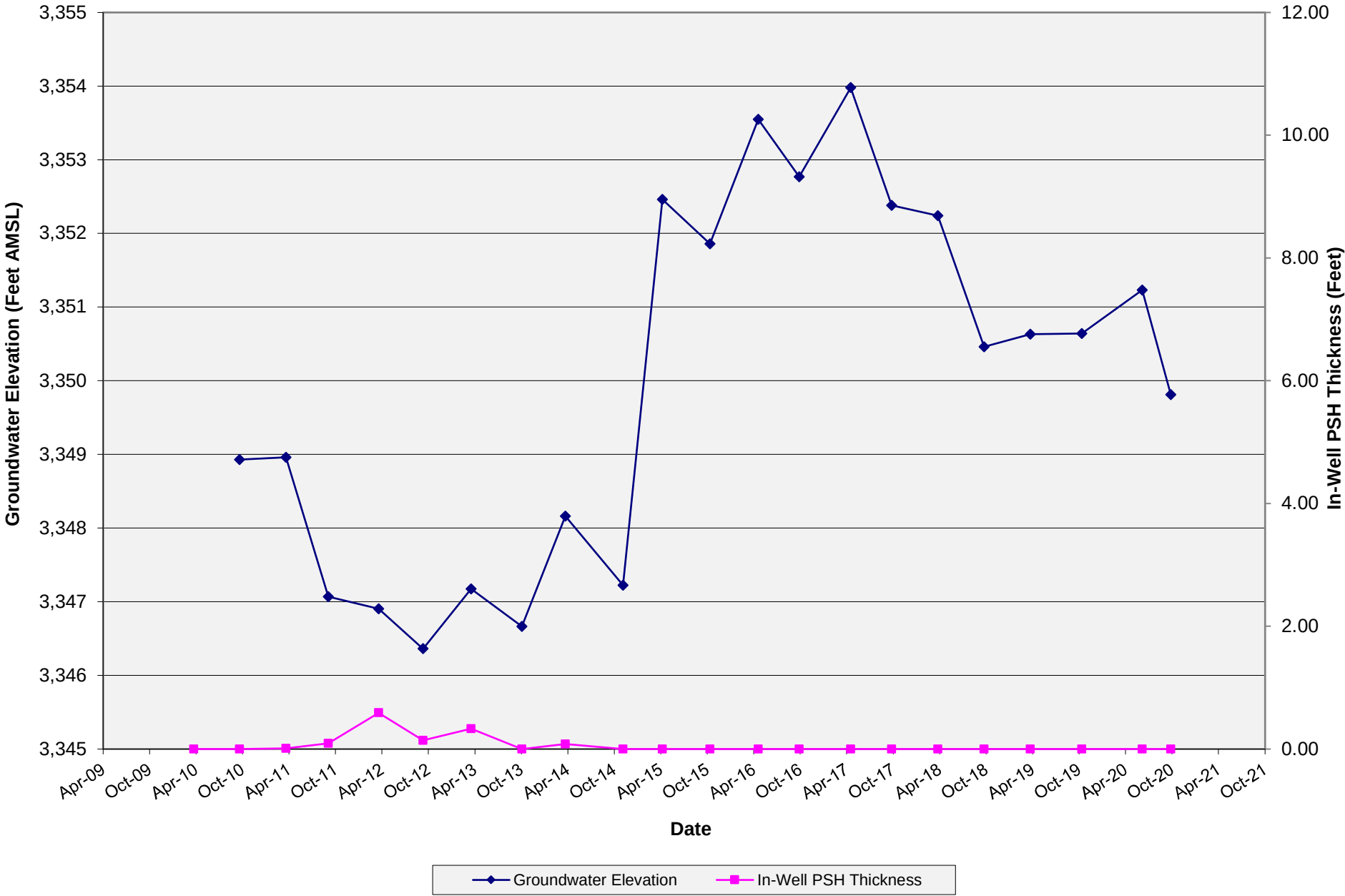
MW-107: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



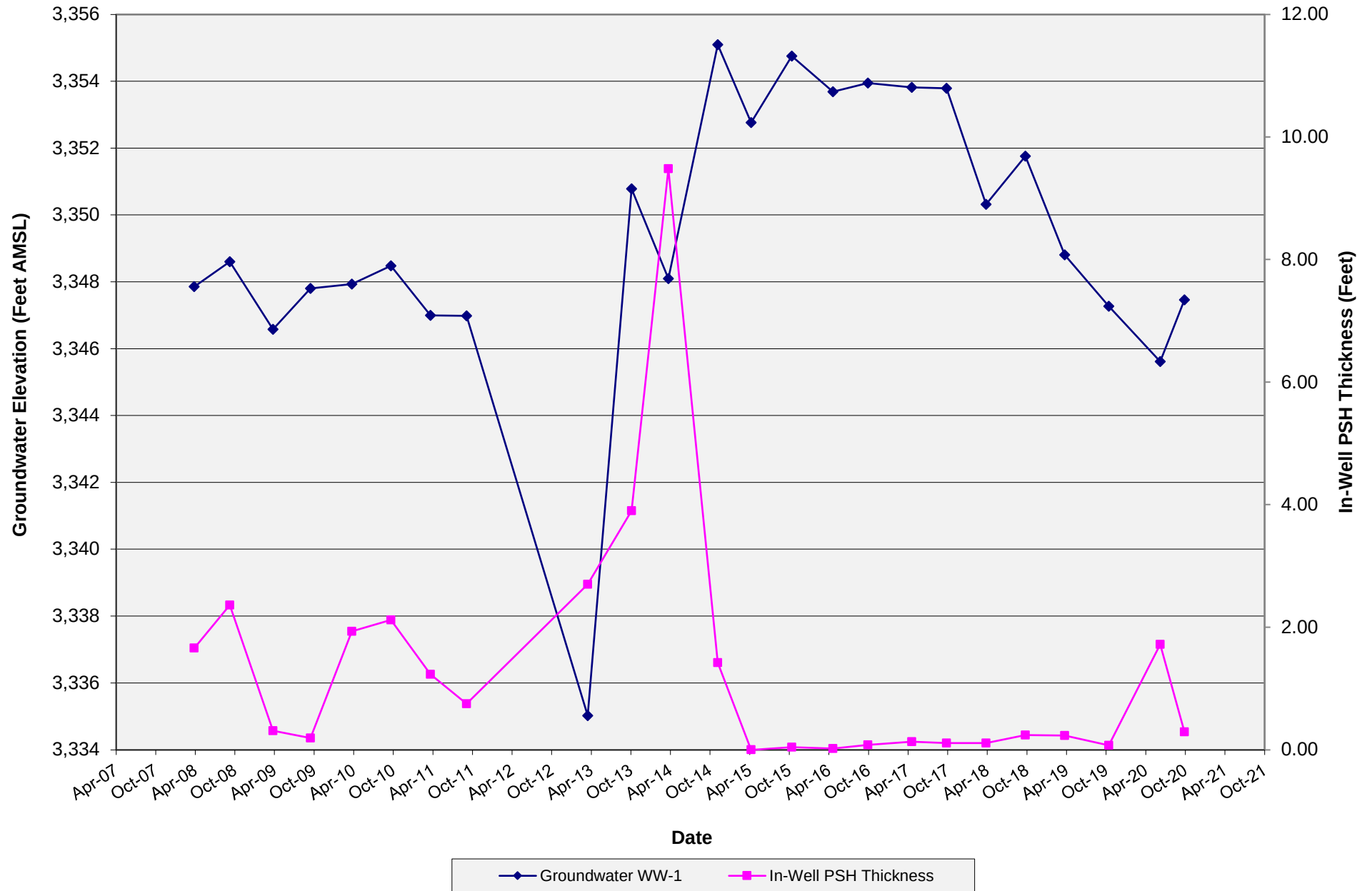
RW-4R: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



RW-5 & RW-5R: Groundwater Elevations and In-Well PSH Thicknesses

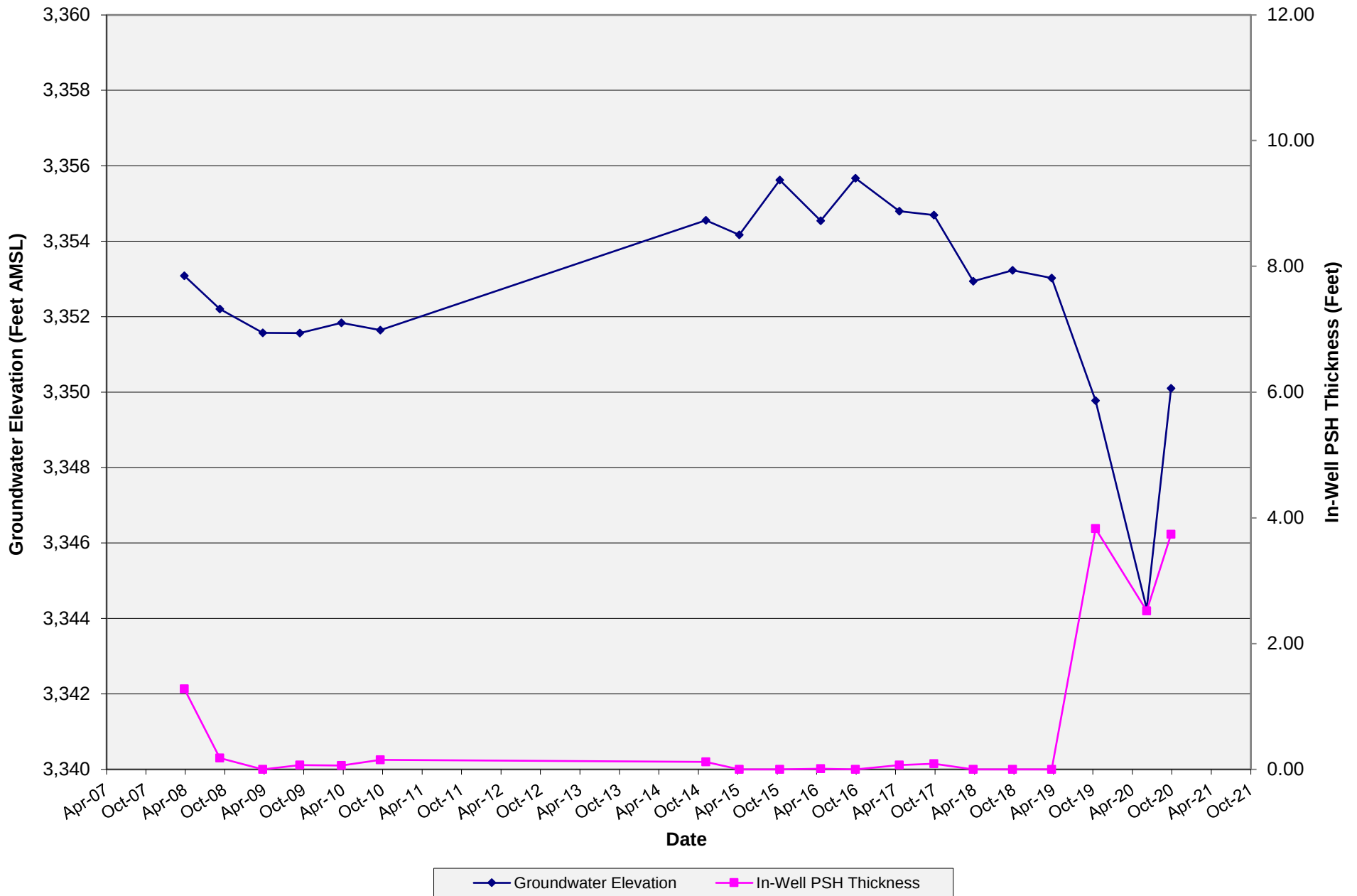
HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery



RW-6: Groundwater Elevations and In-Well PSH Thicknesses

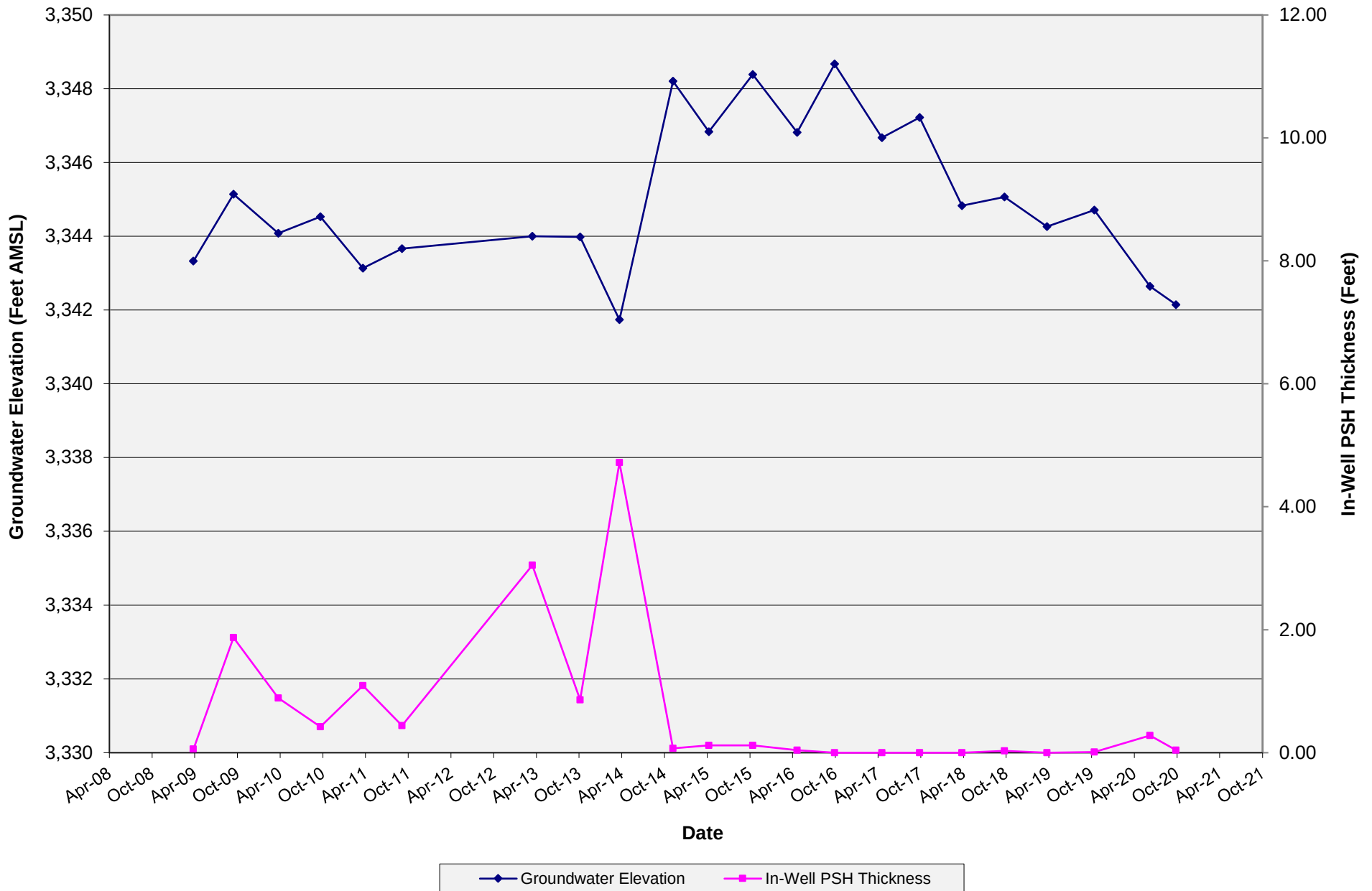
HollyFrontier Navajo Refining LLC - Artesia Refinery

South Refinery



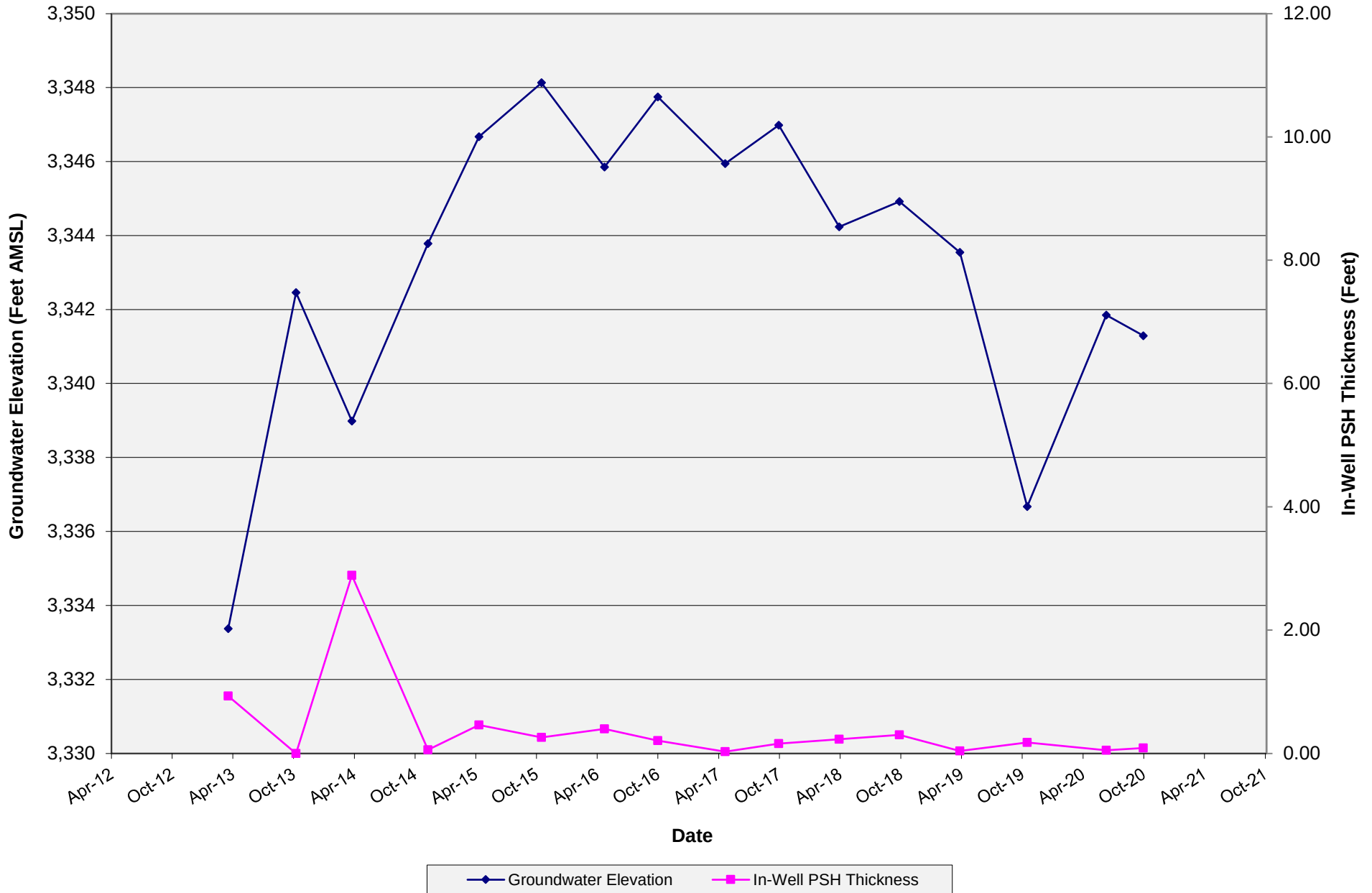
RW-15C: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery

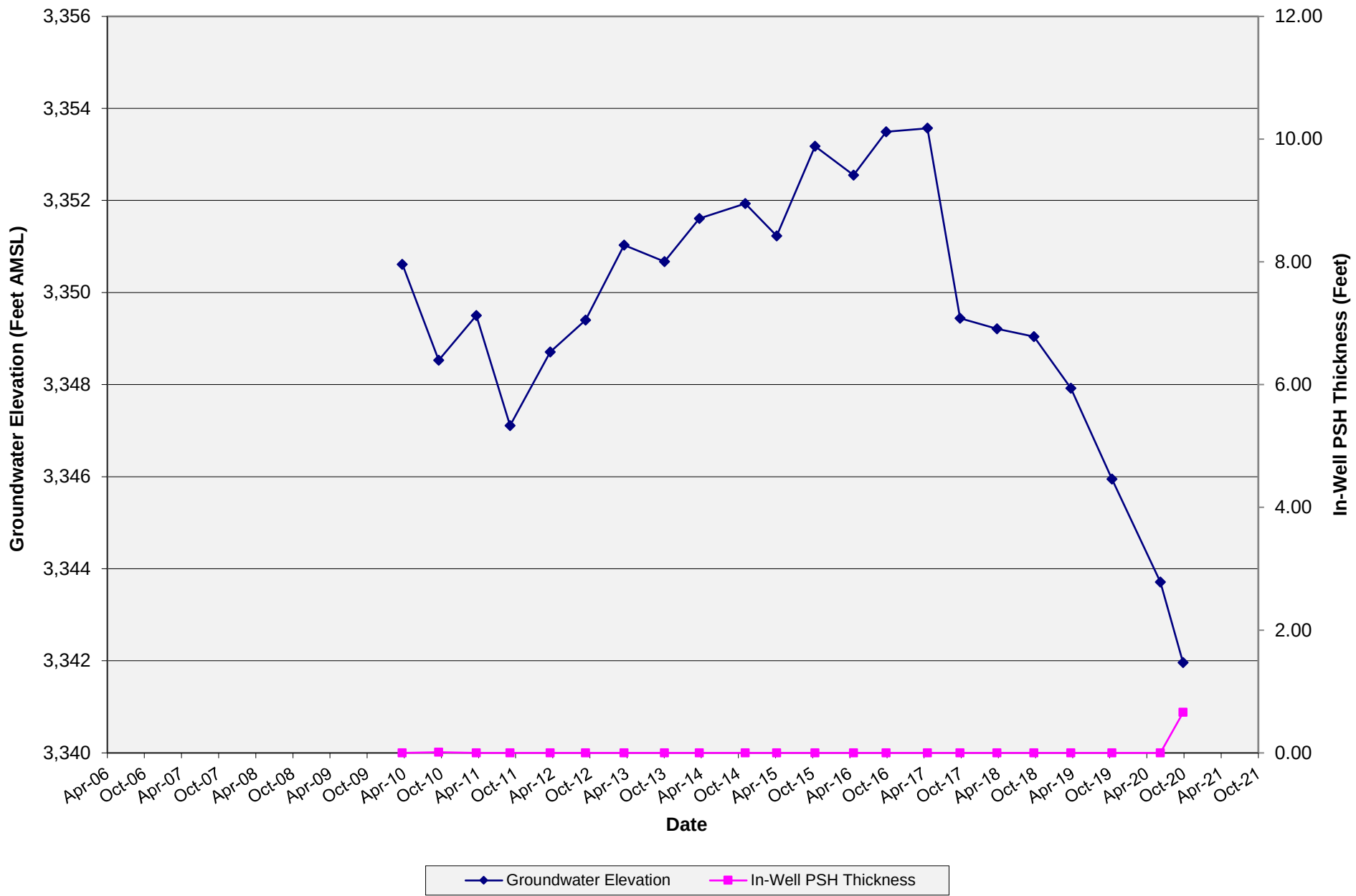


RW-19: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery

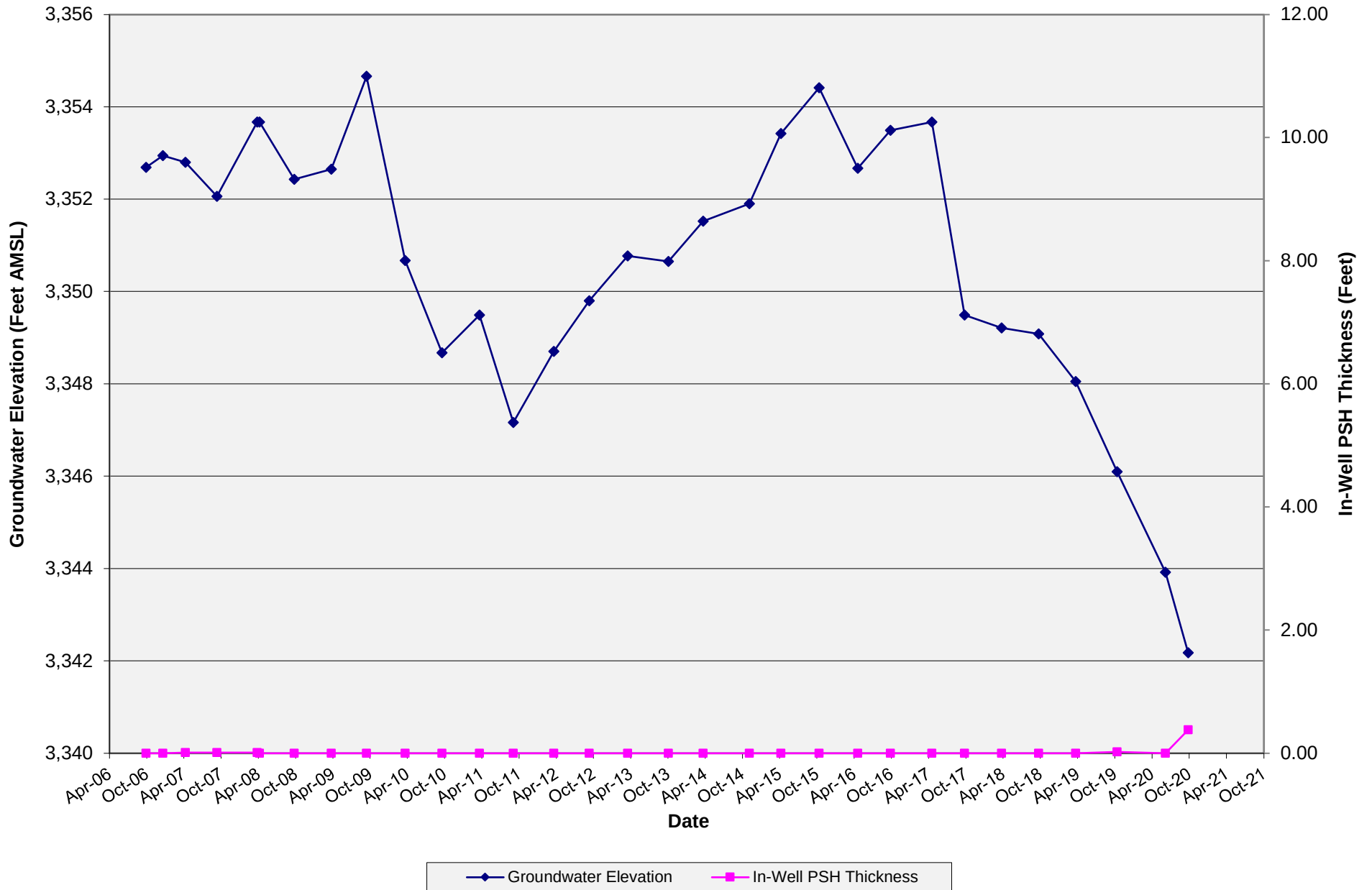


TEL-1: Groundwater Elevations and In-Well PSH Thicknesses
HollyFrontier Navajo Refining LLC - Artesia Refinery
Tetra Ethyl Lead Surface Impoundment



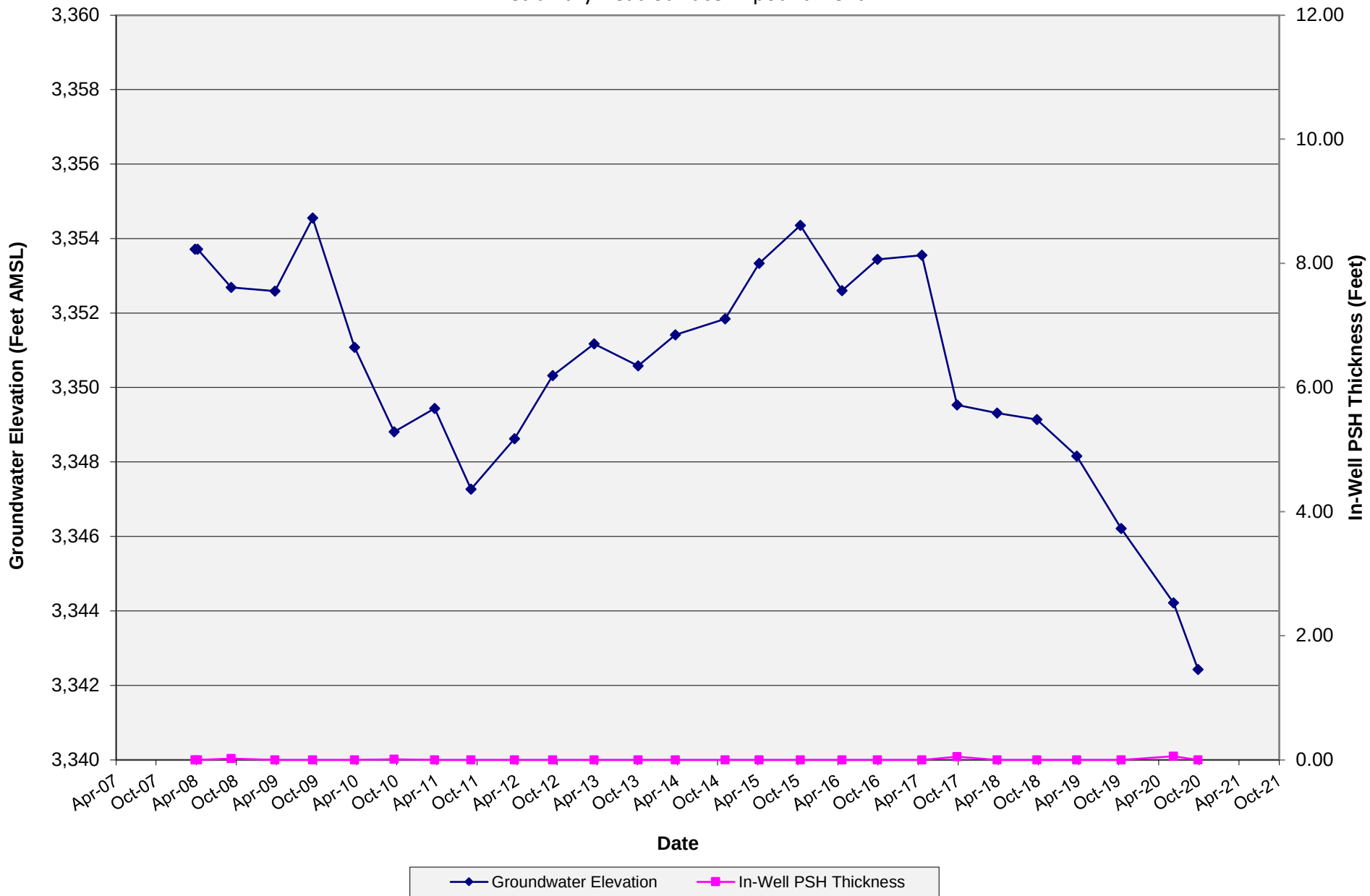
TEL-2: Groundwater Elevations and In-Well PSH Thicknesses

HollyFrontier Navajo Refining LLC - Artesia Refinery
Tetra Ethyl Lead Surface Impoundment



TEL-3: Groundwater Elevations and In-Well PSH Thicknesses

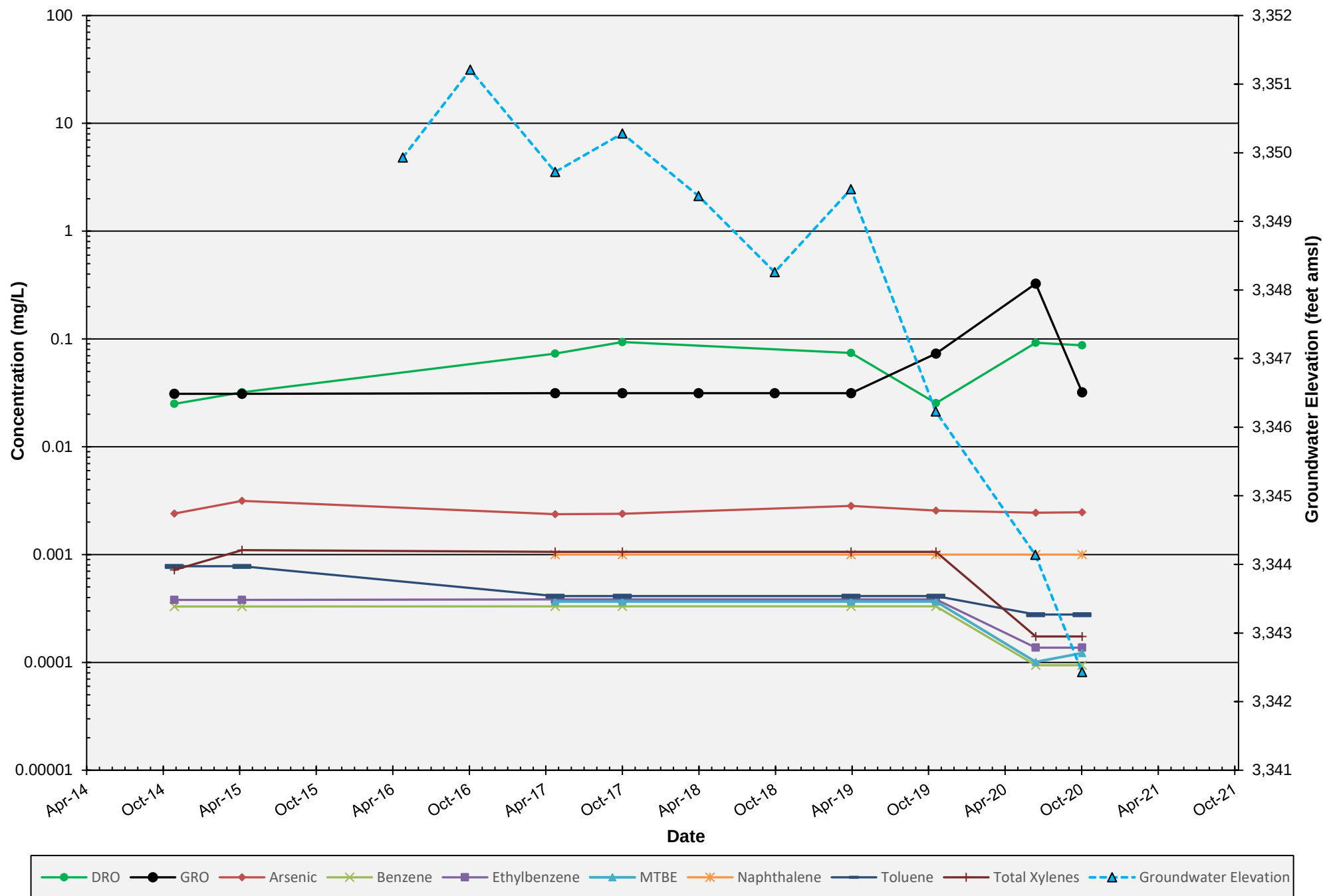
HollyFrontier Navajo Refining LLC - Artesia Refinery
Tetra Ethyl Lead Surface Impoundment



MW-136: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

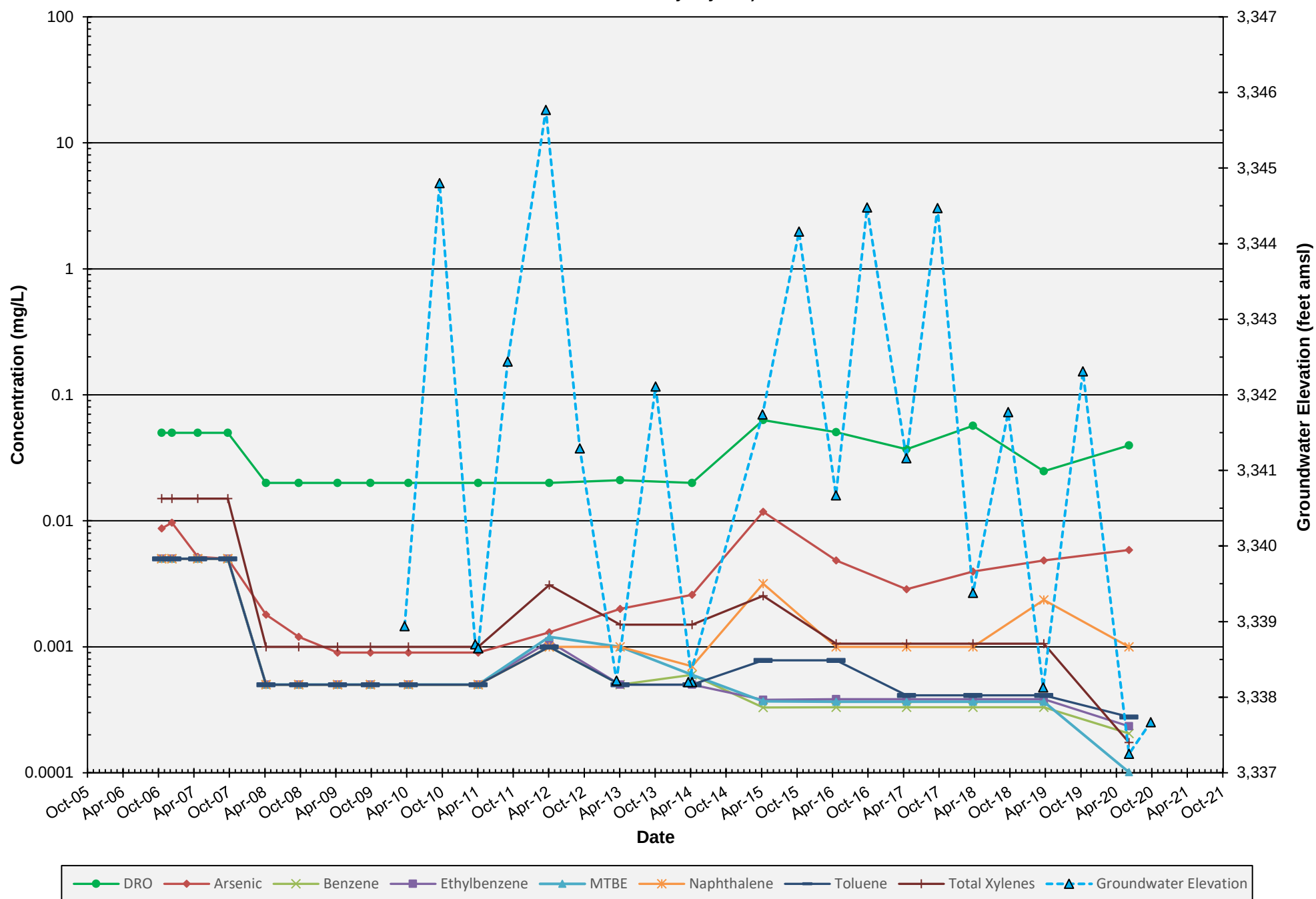
Up-Gradient of Refinery



KWB-13: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

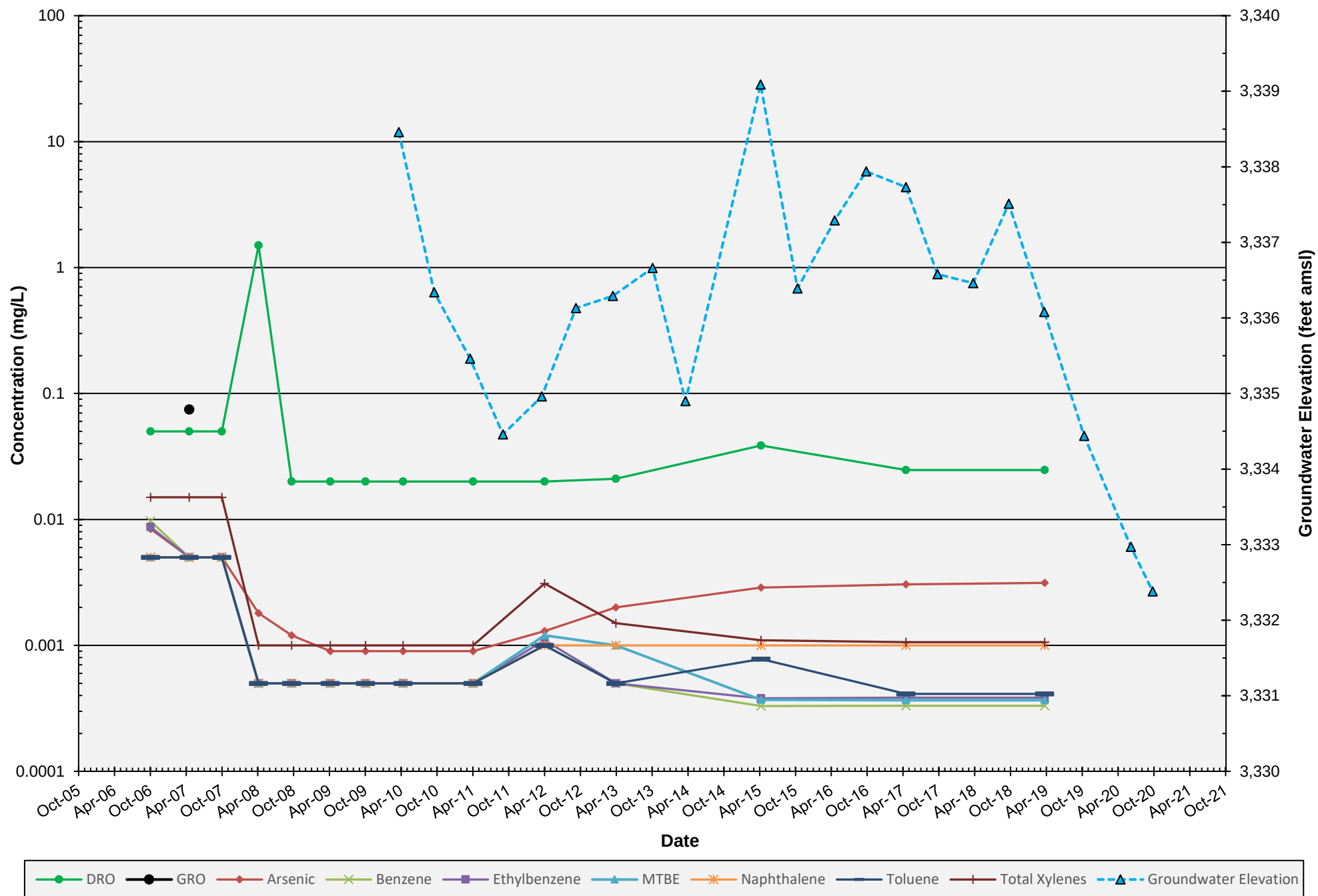
Cross-Gradient of Refinery



NP-5: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

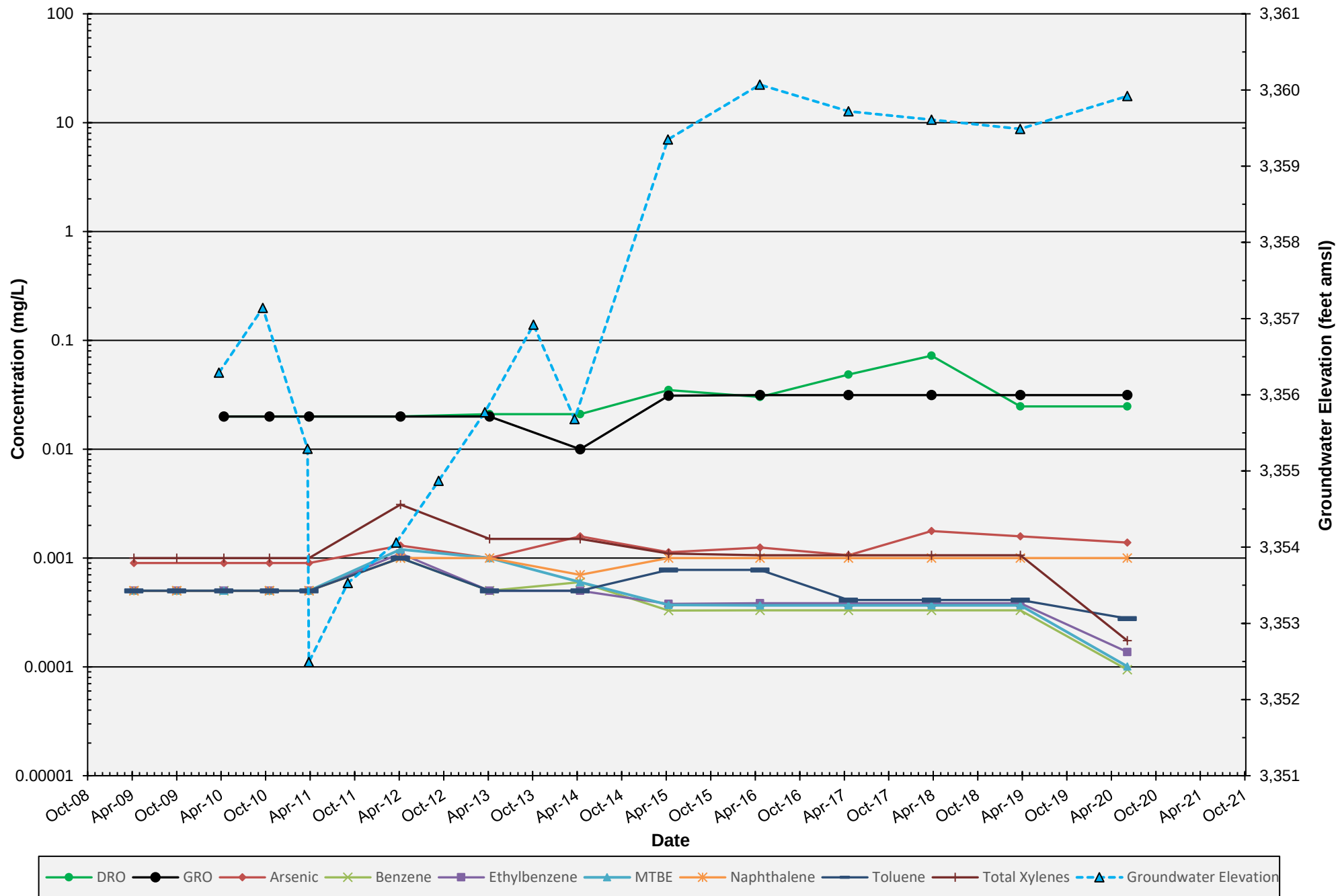
Cross-Gradient of Refinery



UG-1: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

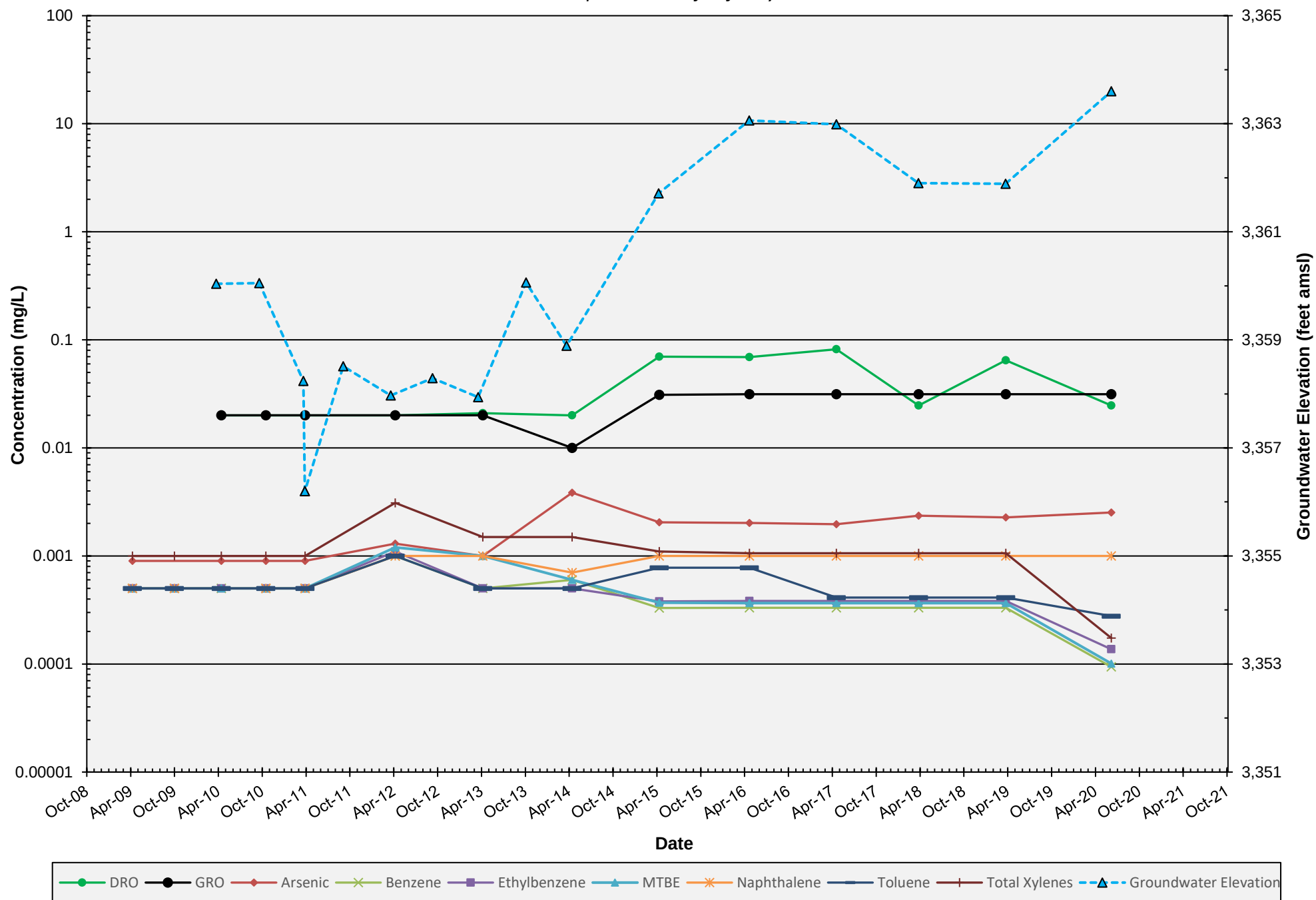
Up-Gradient of Refinery



UG-2: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

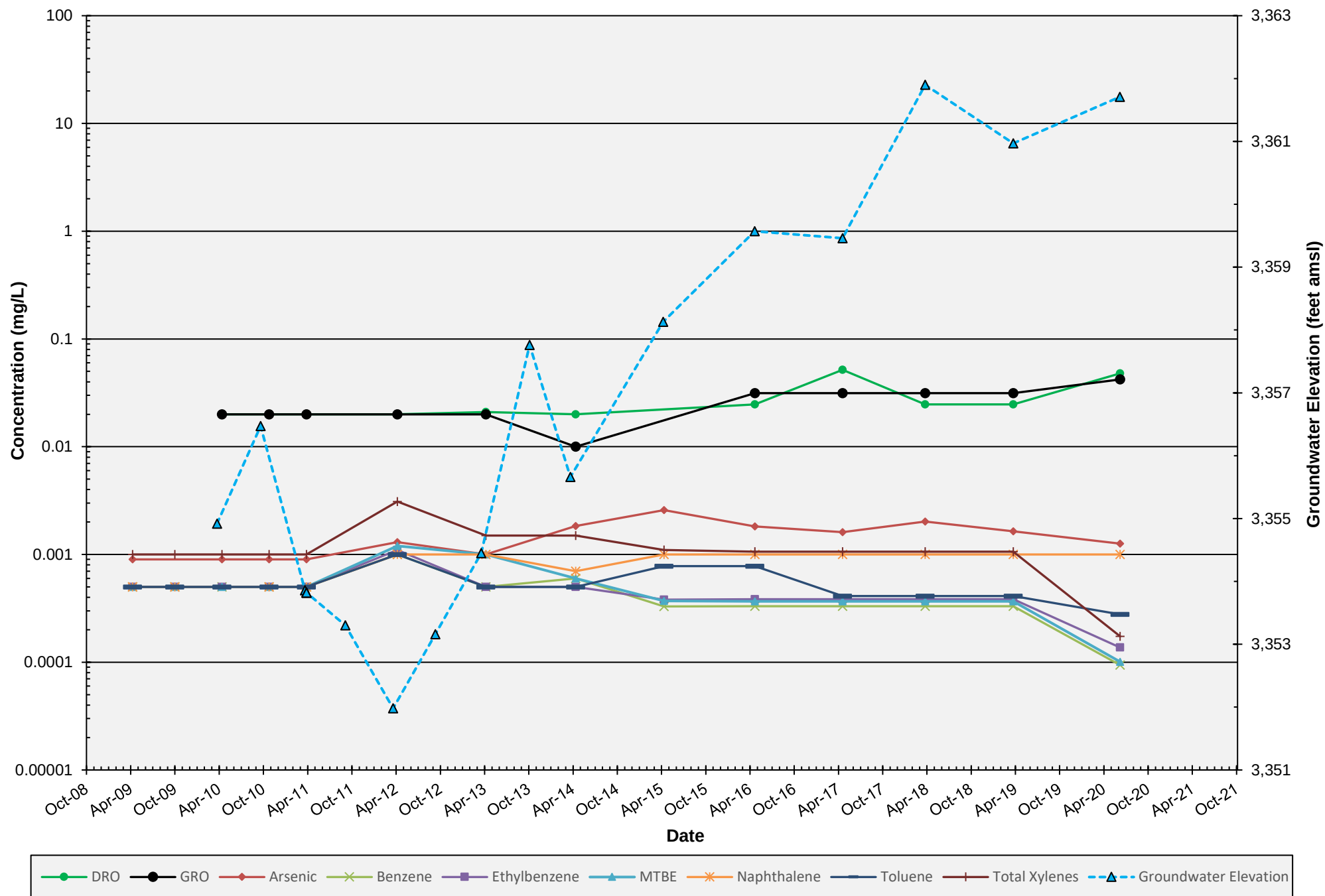
Up-Gradient of Refinery



UG-3R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

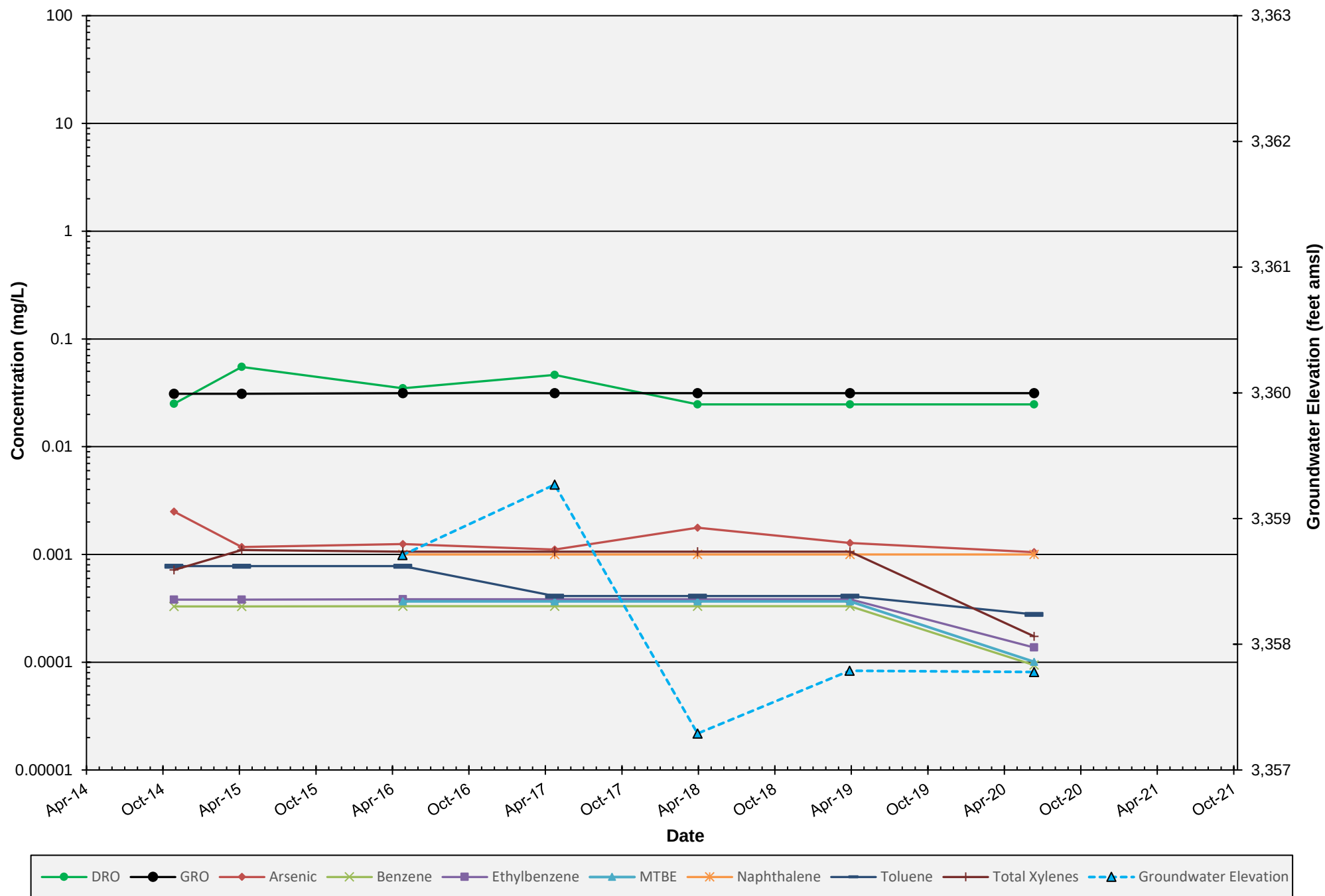
Up-Gradient of Refinery



UG-4: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

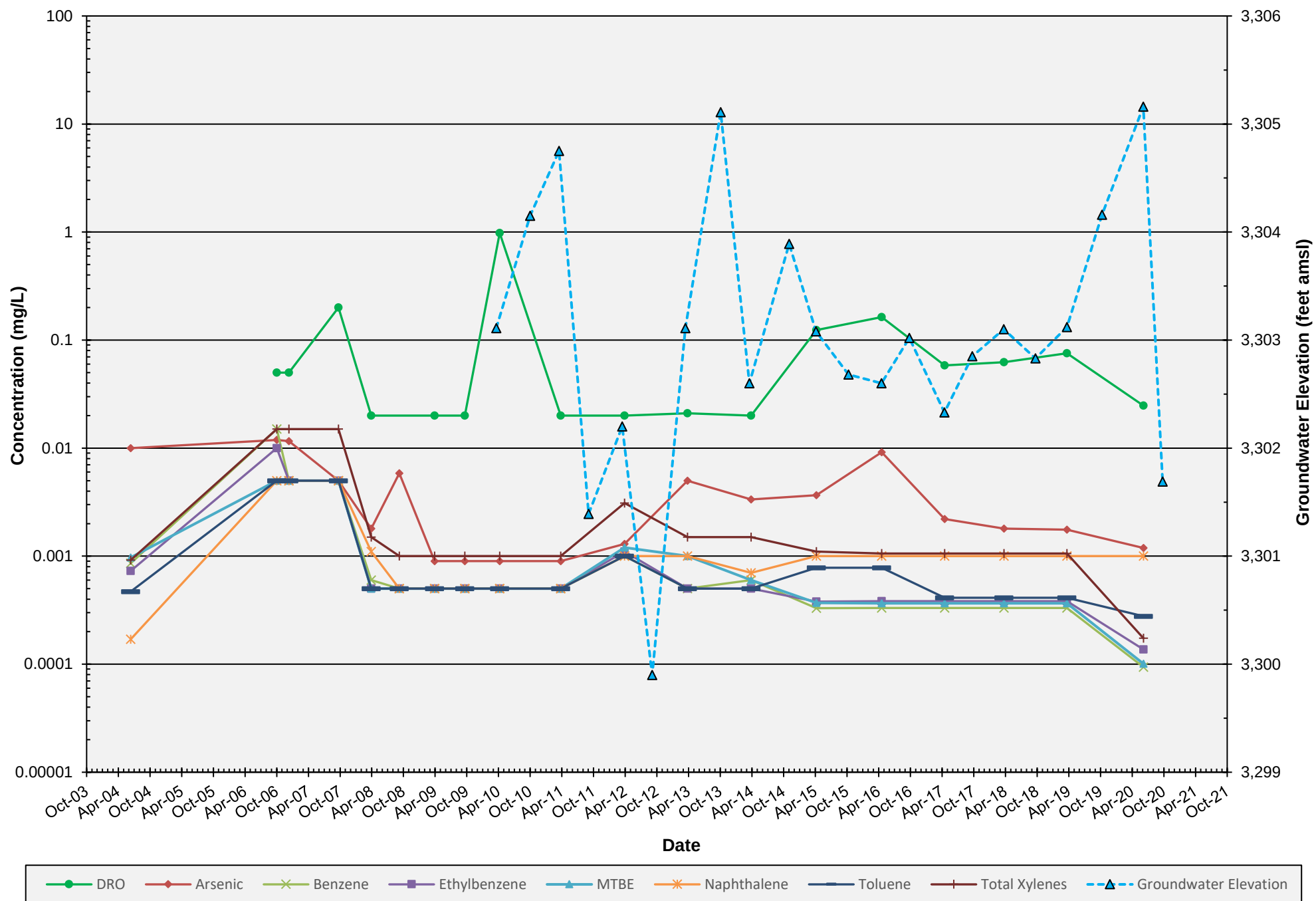
Up-Gradient of Refinery



MW-1R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

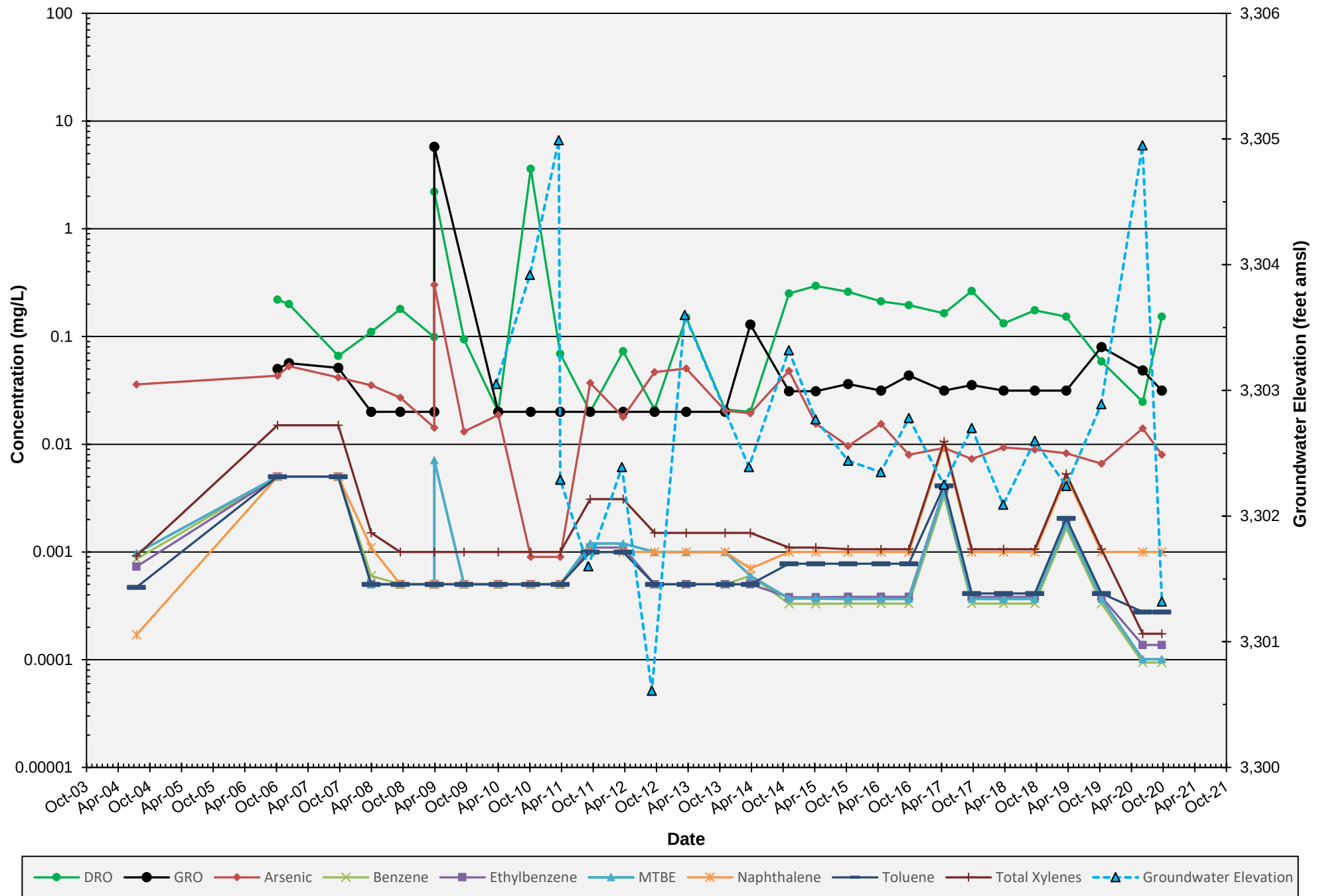
Evaporation Ponds



MW-2A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

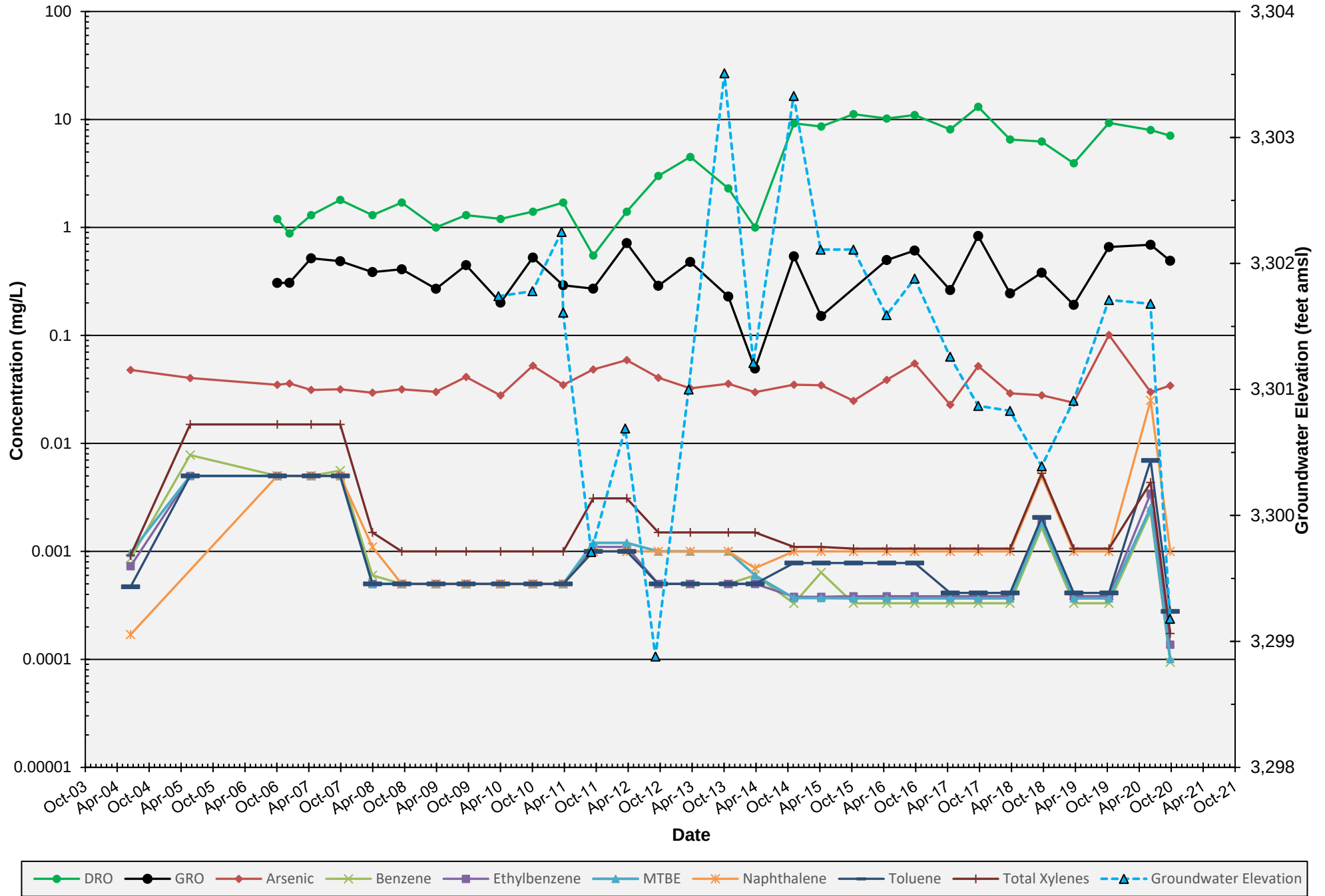
Evaporation Ponds



MW-3: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

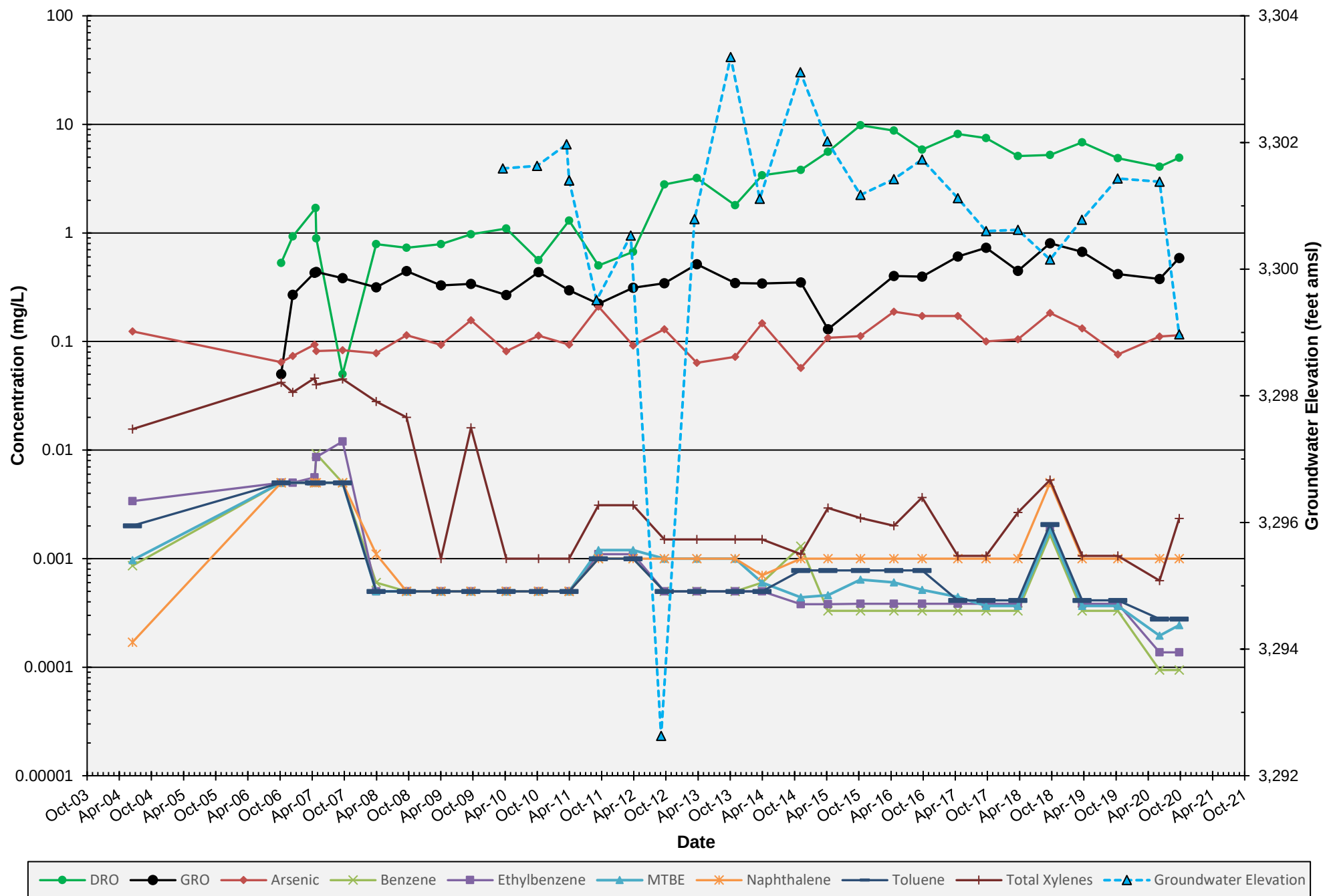
Evaporation Ponds



MW-4A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

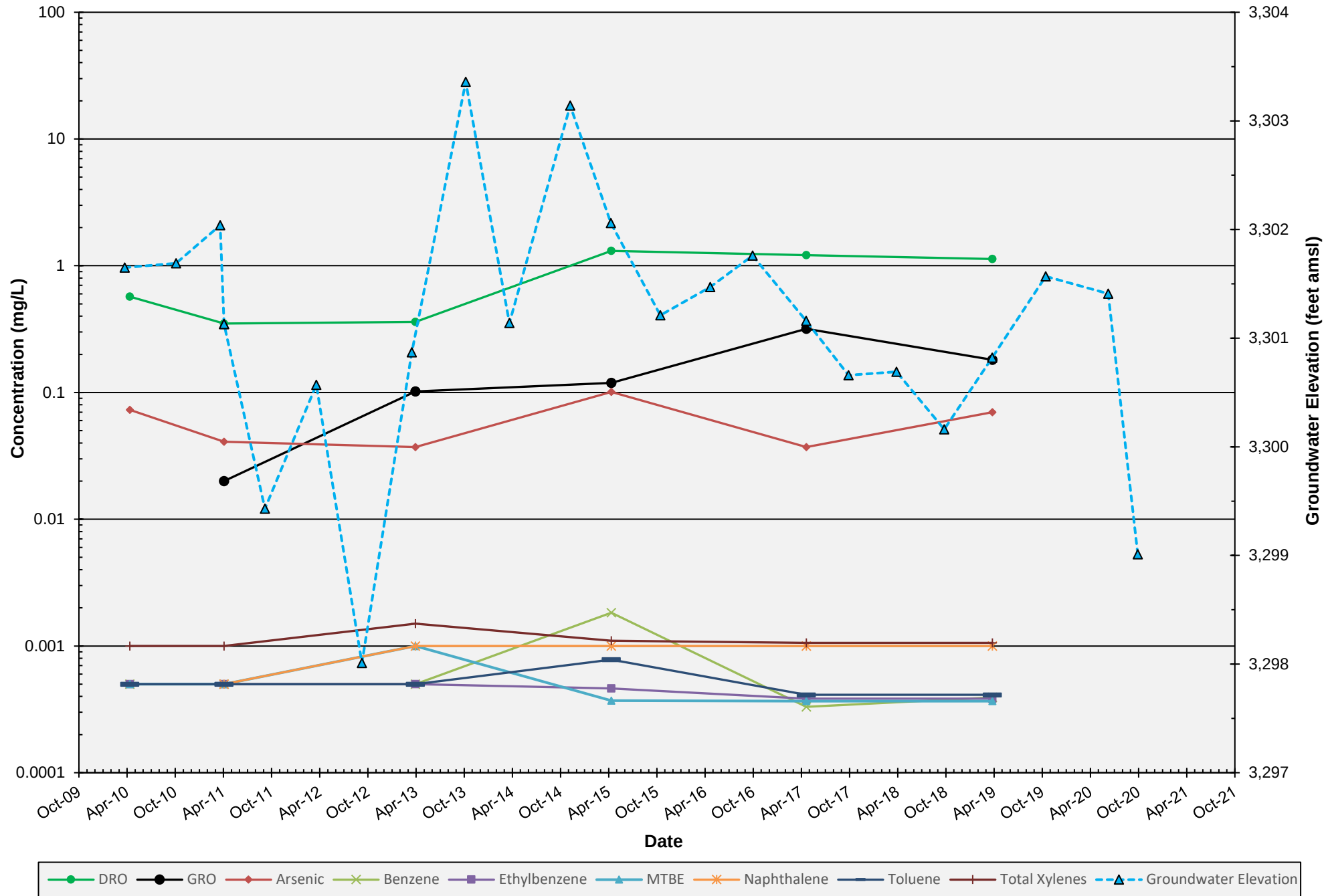
Evaporation Ponds



MW-4B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

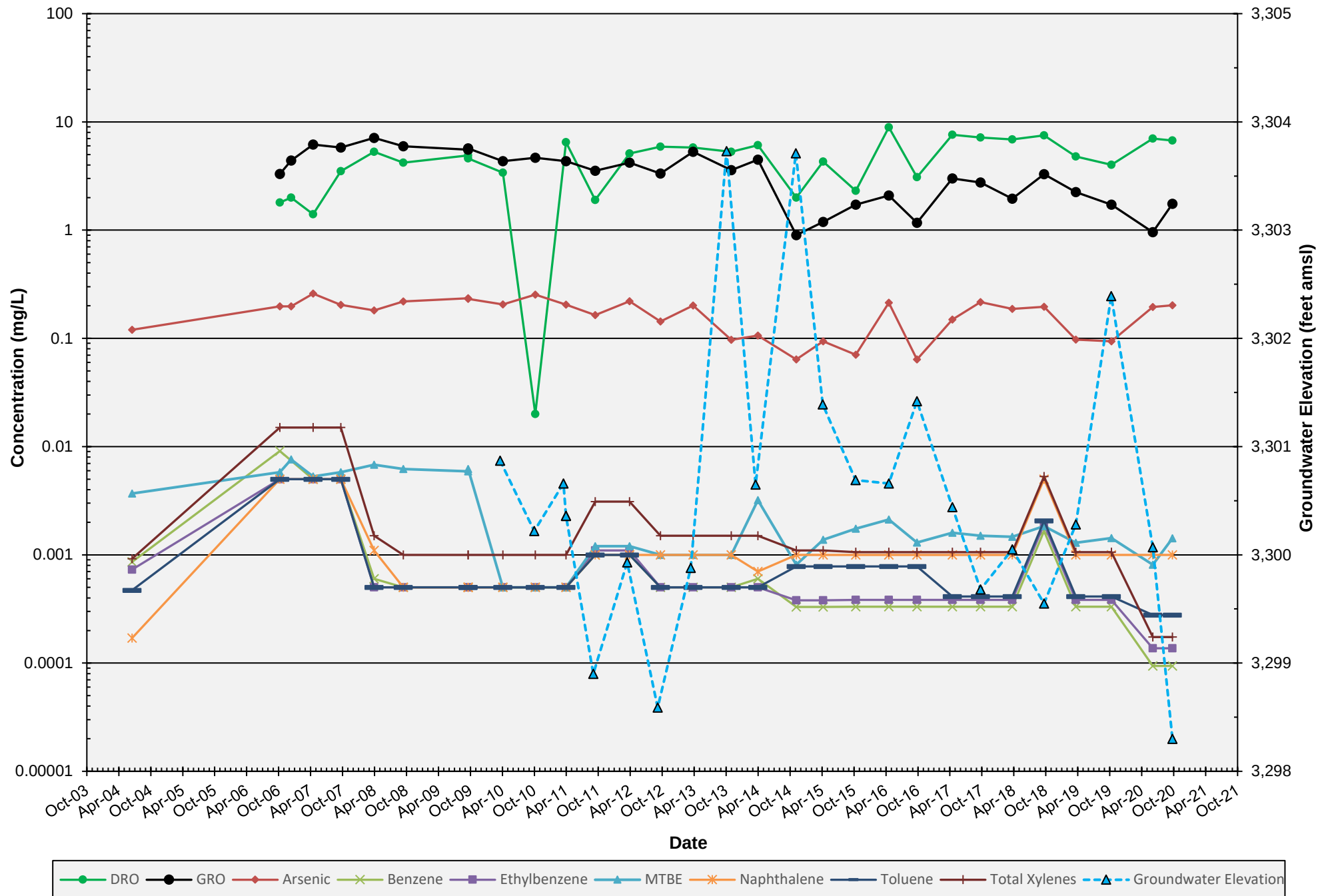
Evaporation Ponds



MW-5A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

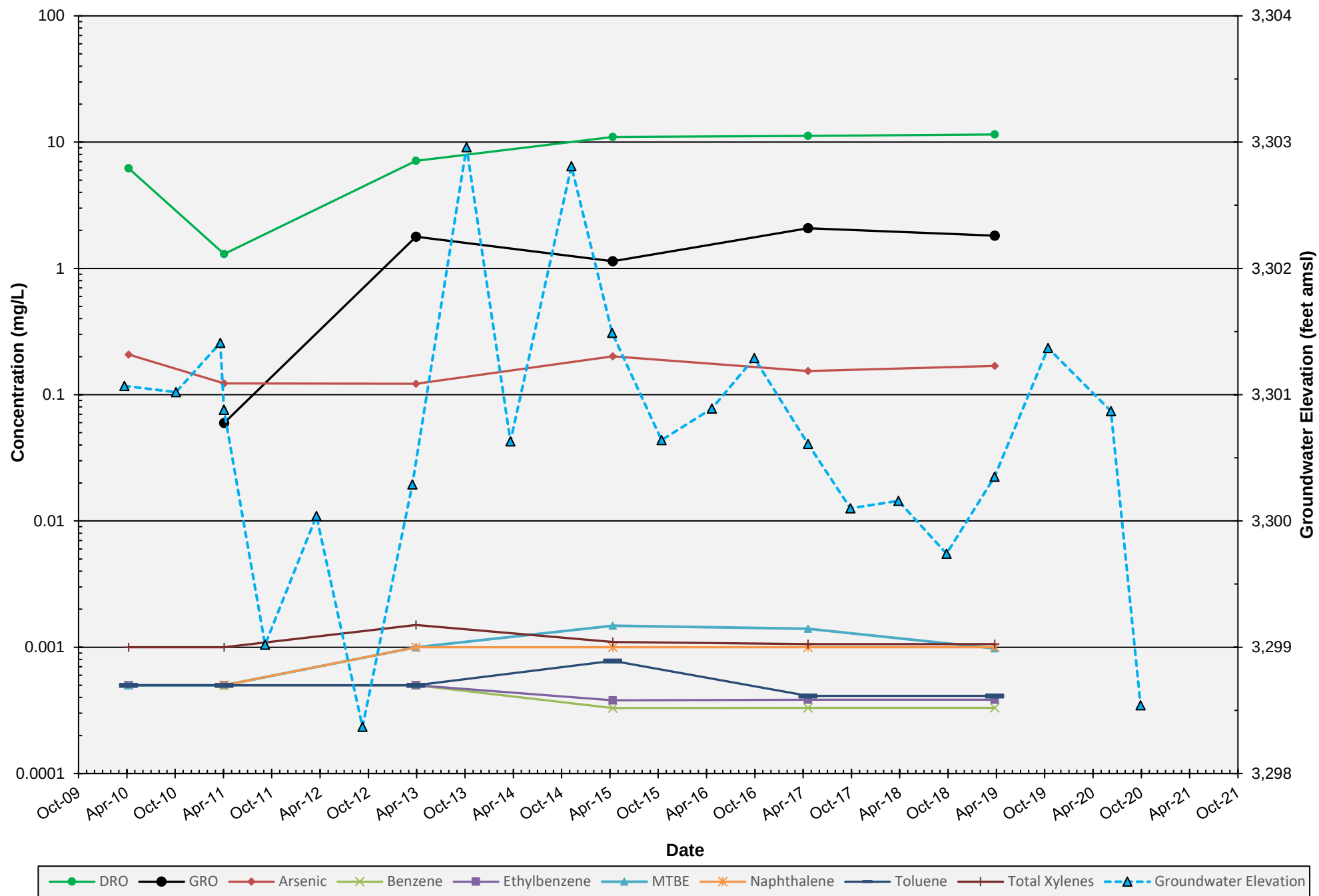
Evaporation Ponds



MW-5B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

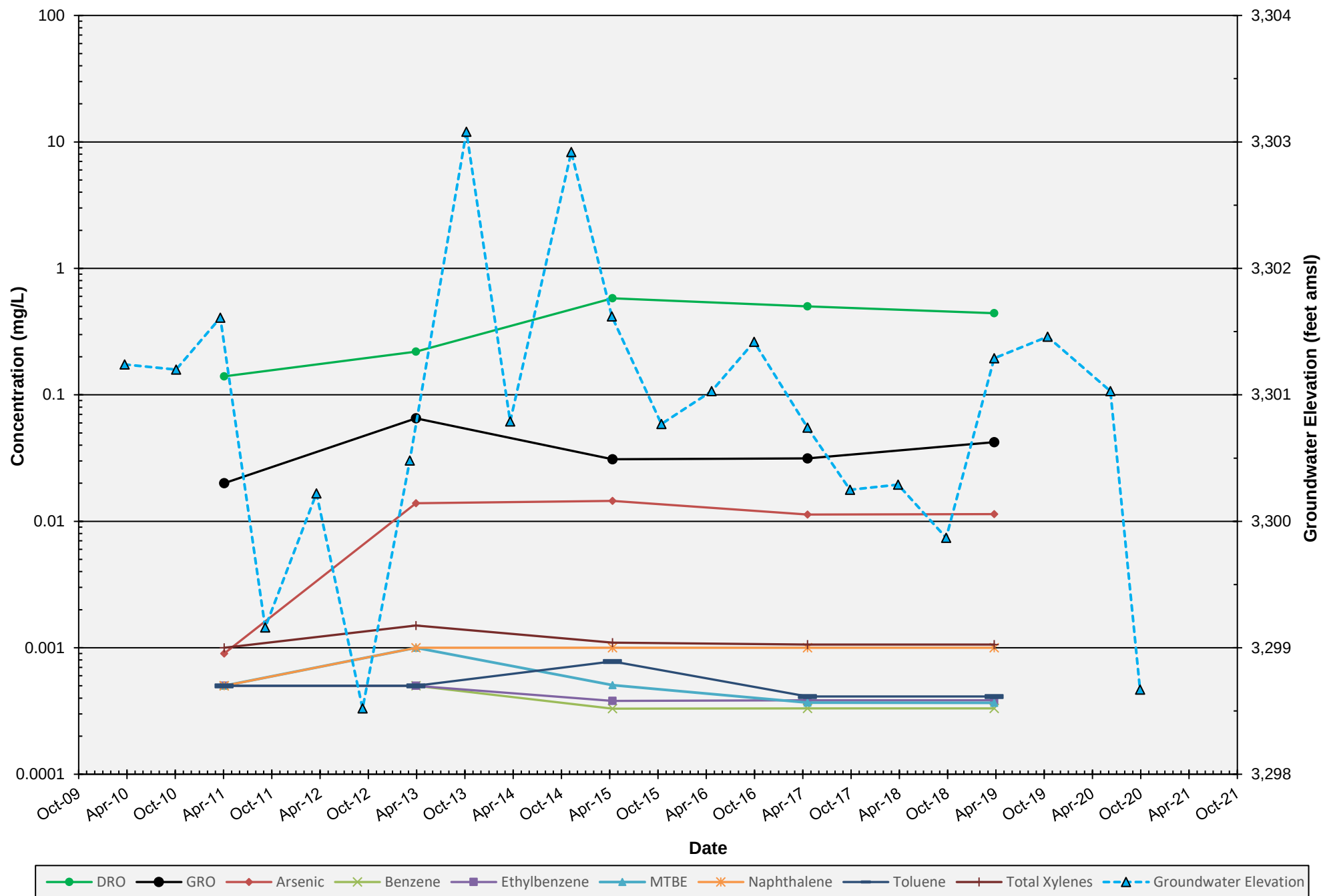
Evaporation Ponds



MW-5C: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

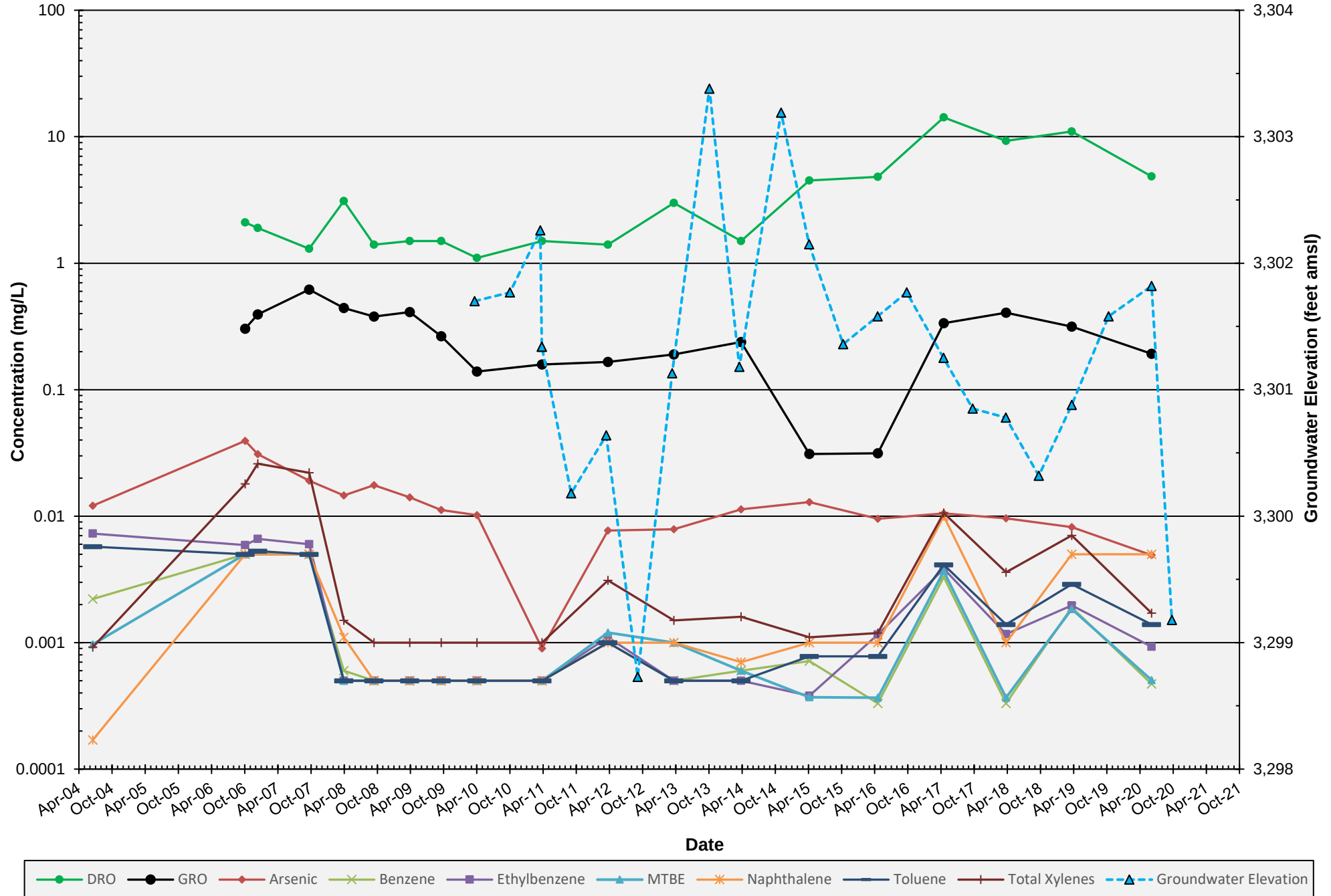
Evaporation Ponds



MW-6A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

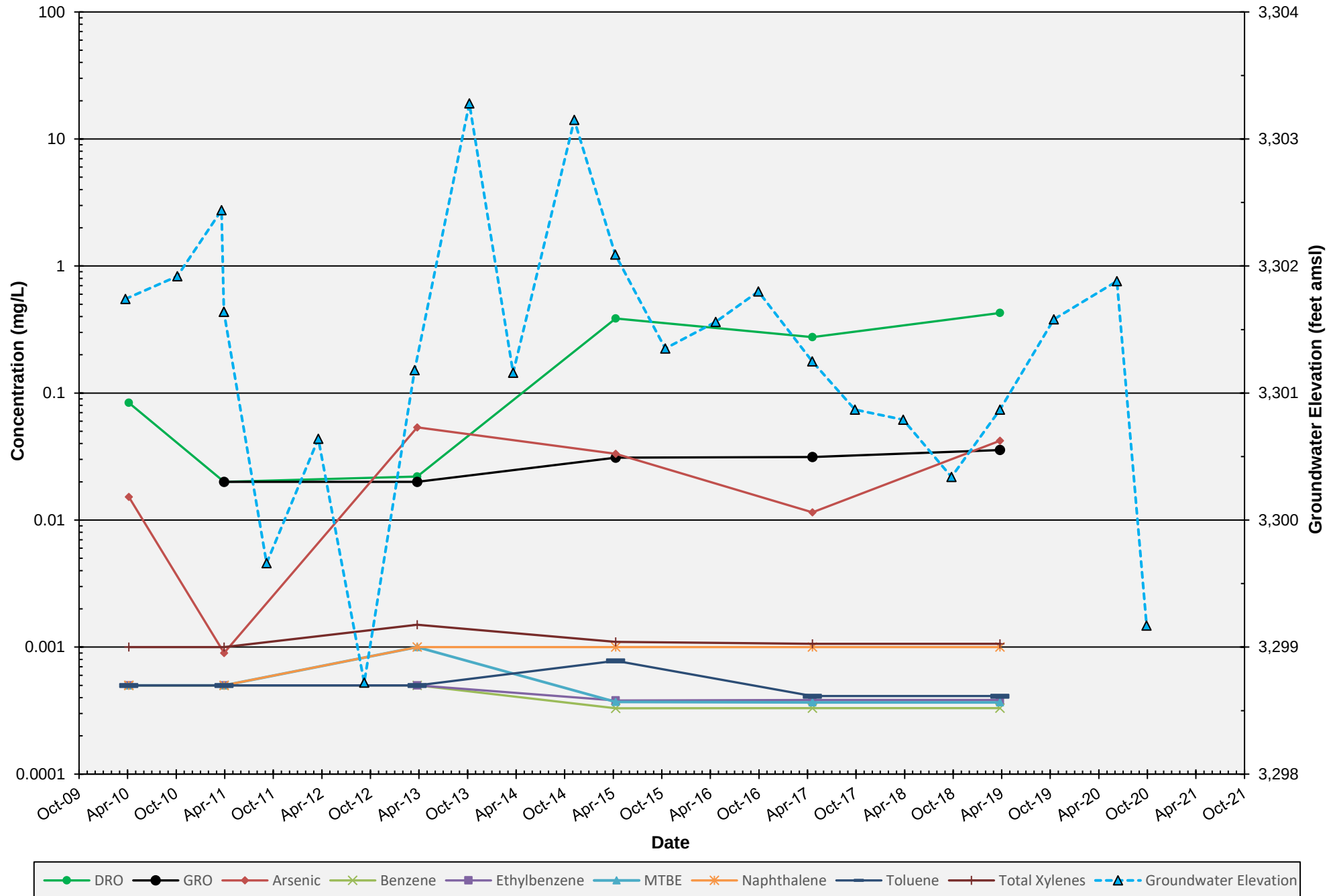
Evaporation Ponds



MW-6B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

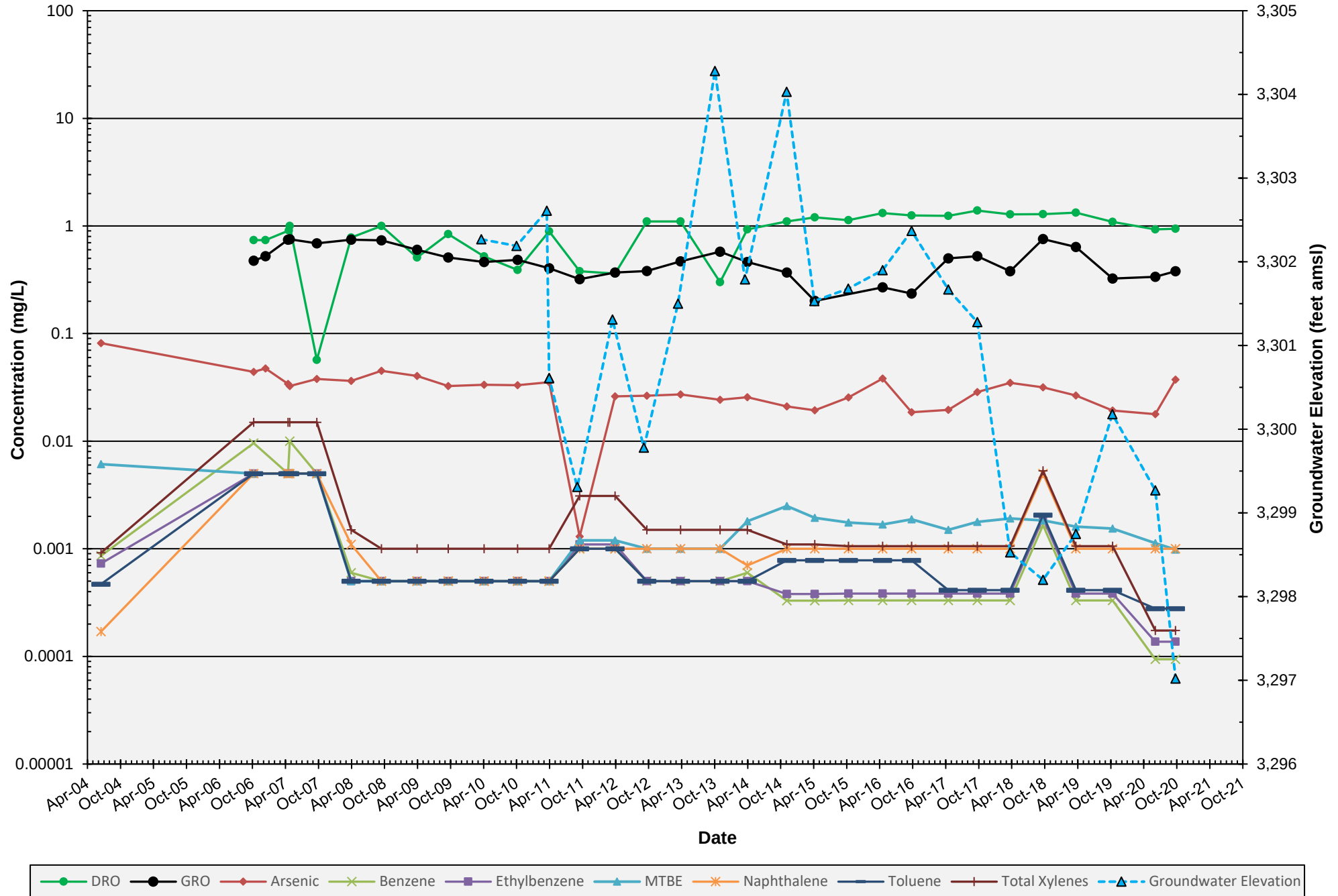
Evaporation Ponds



MW-7A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

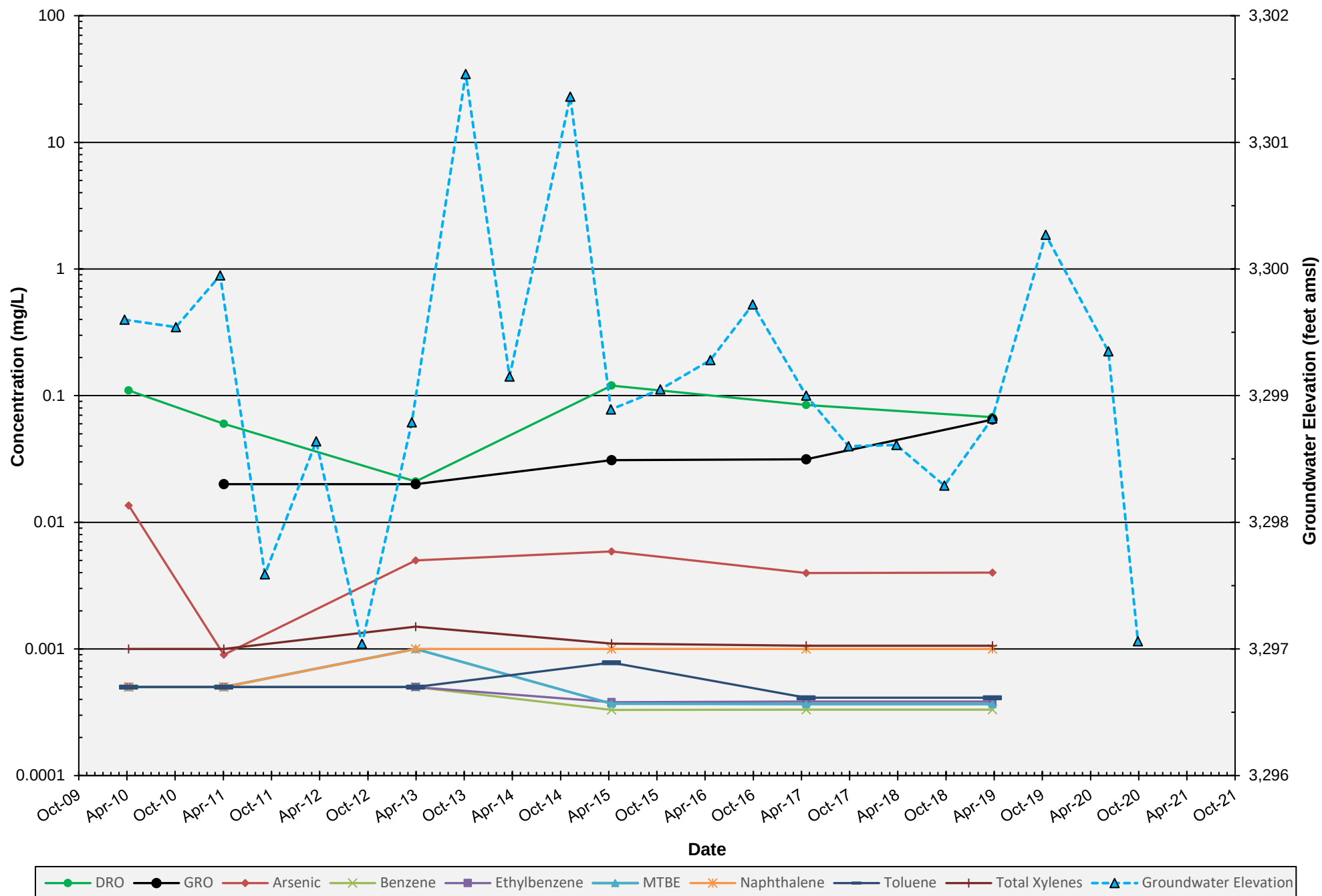
Evaporation Ponds



MW-7B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

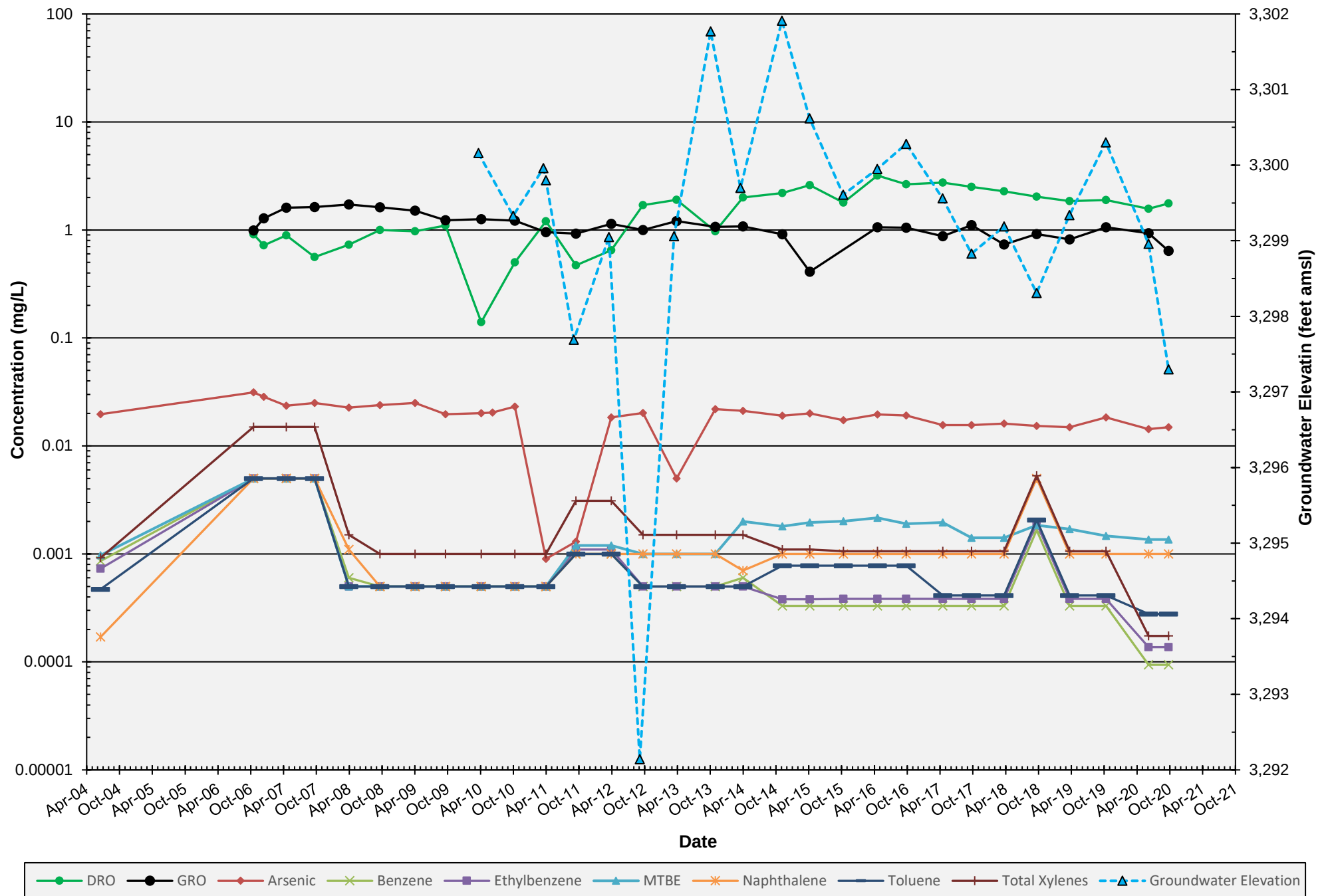
Evaporation Ponds



MW-10: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

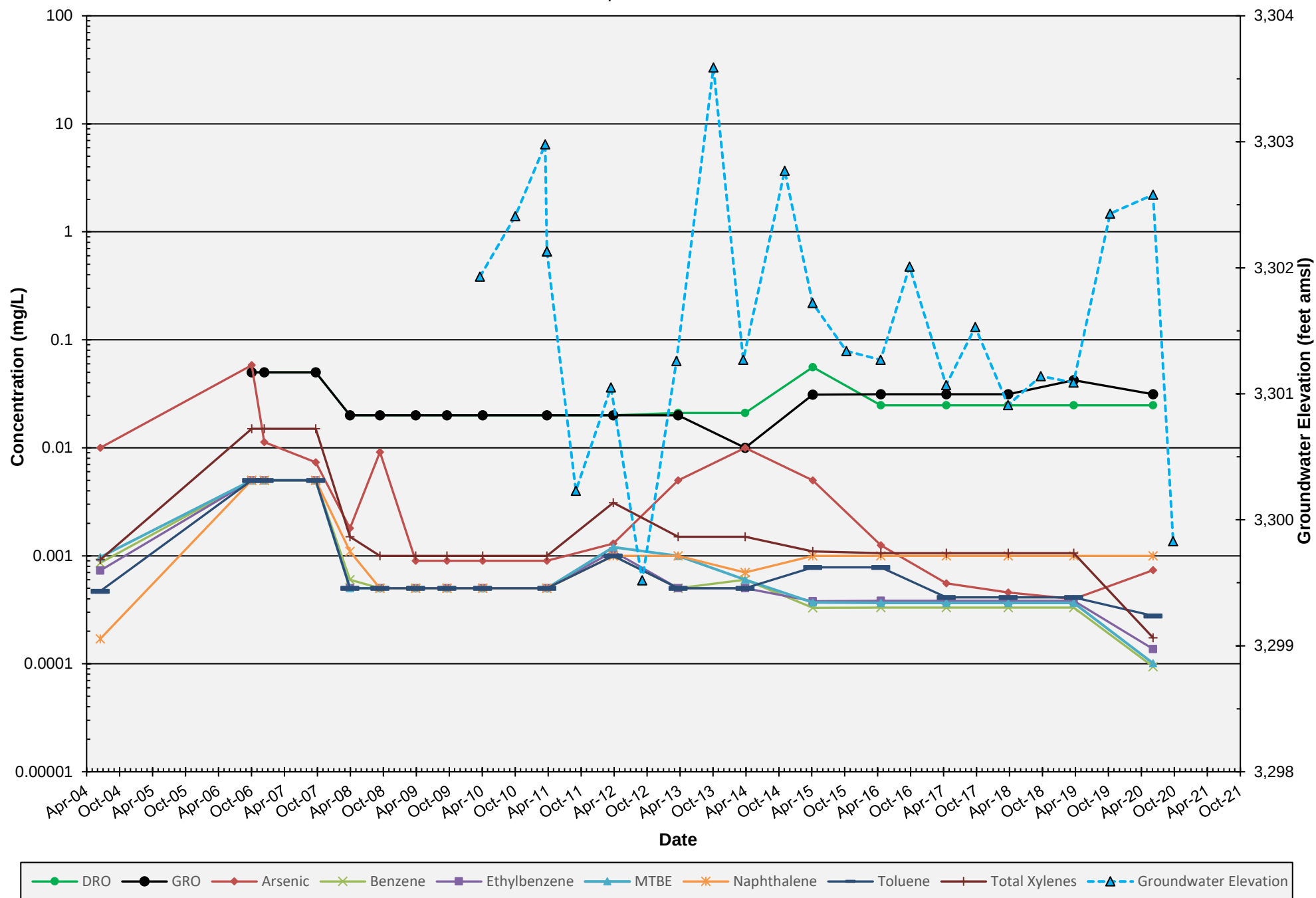
Evaporation Ponds



MW-11A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

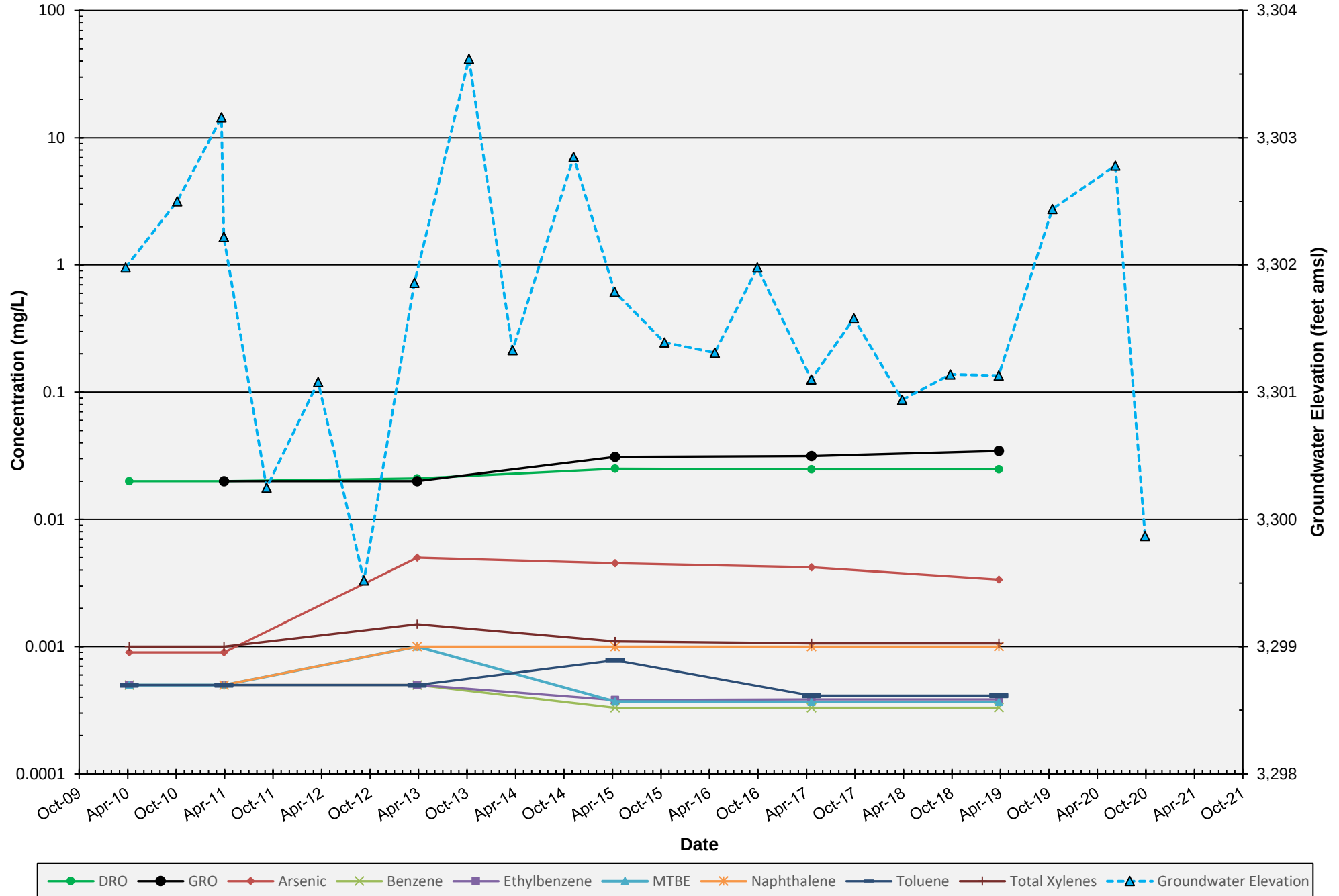
Evaporation Ponds



MW-11B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

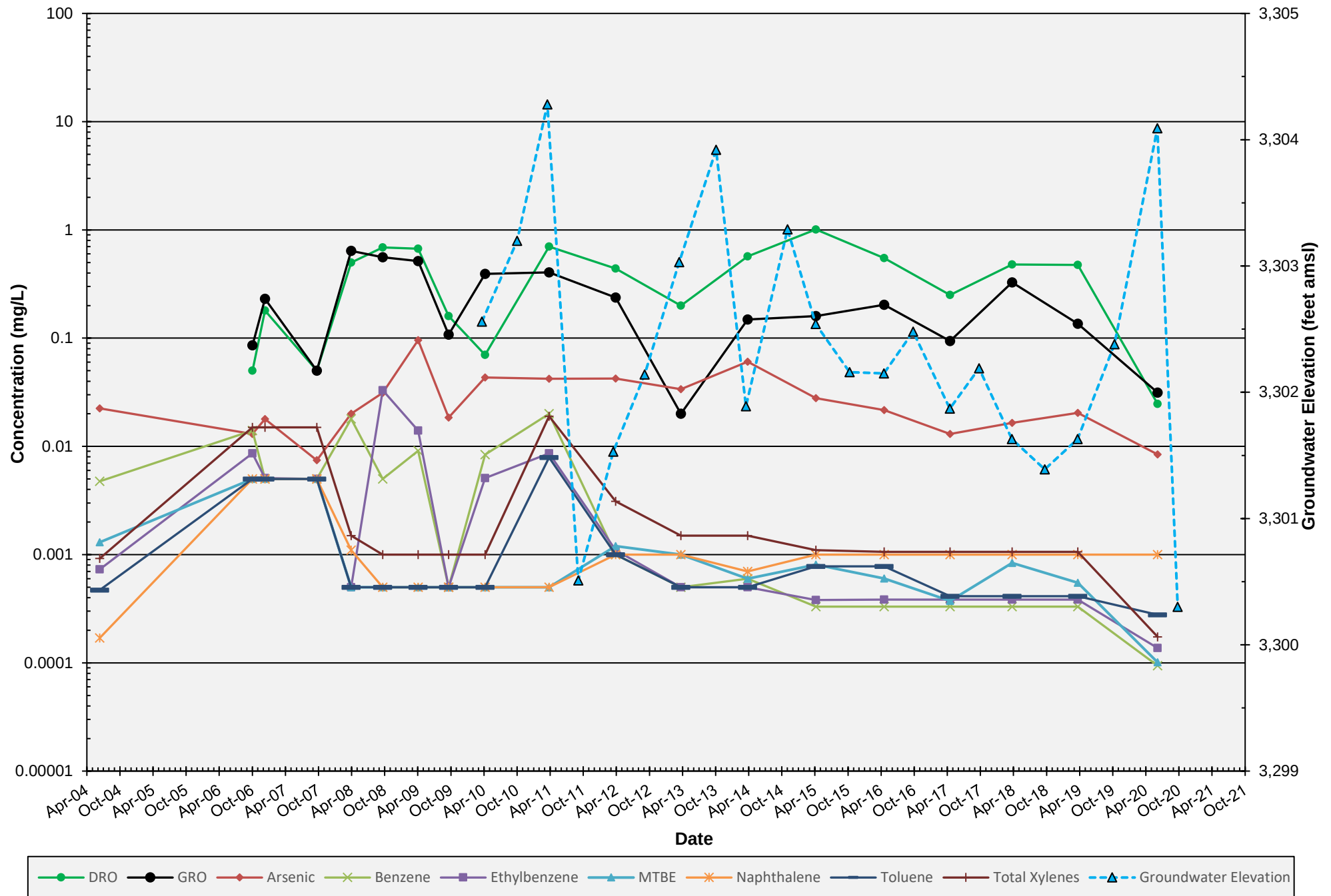
Evaporation Ponds



MW-15: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

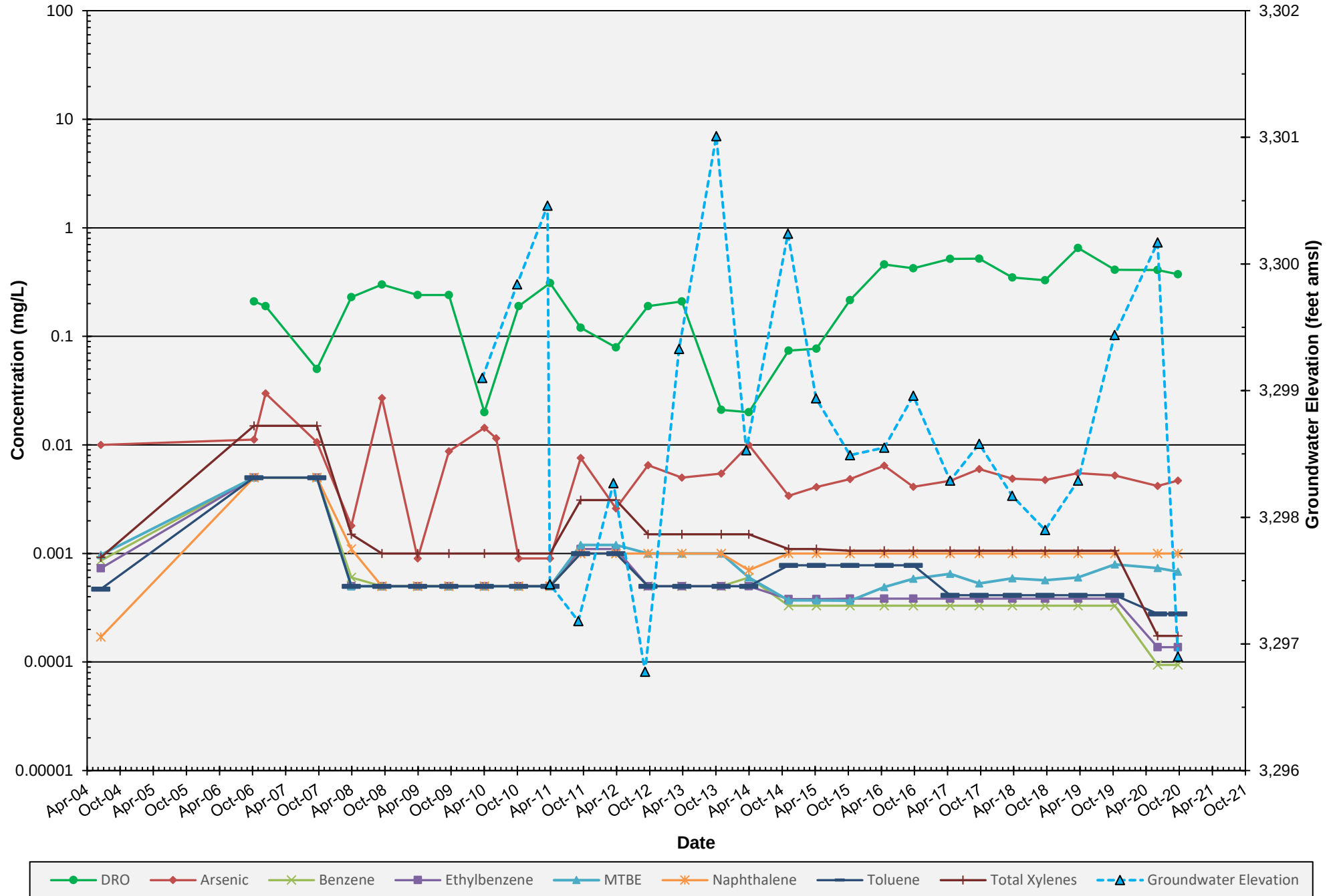
Evaporation Ponds



MW-18A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

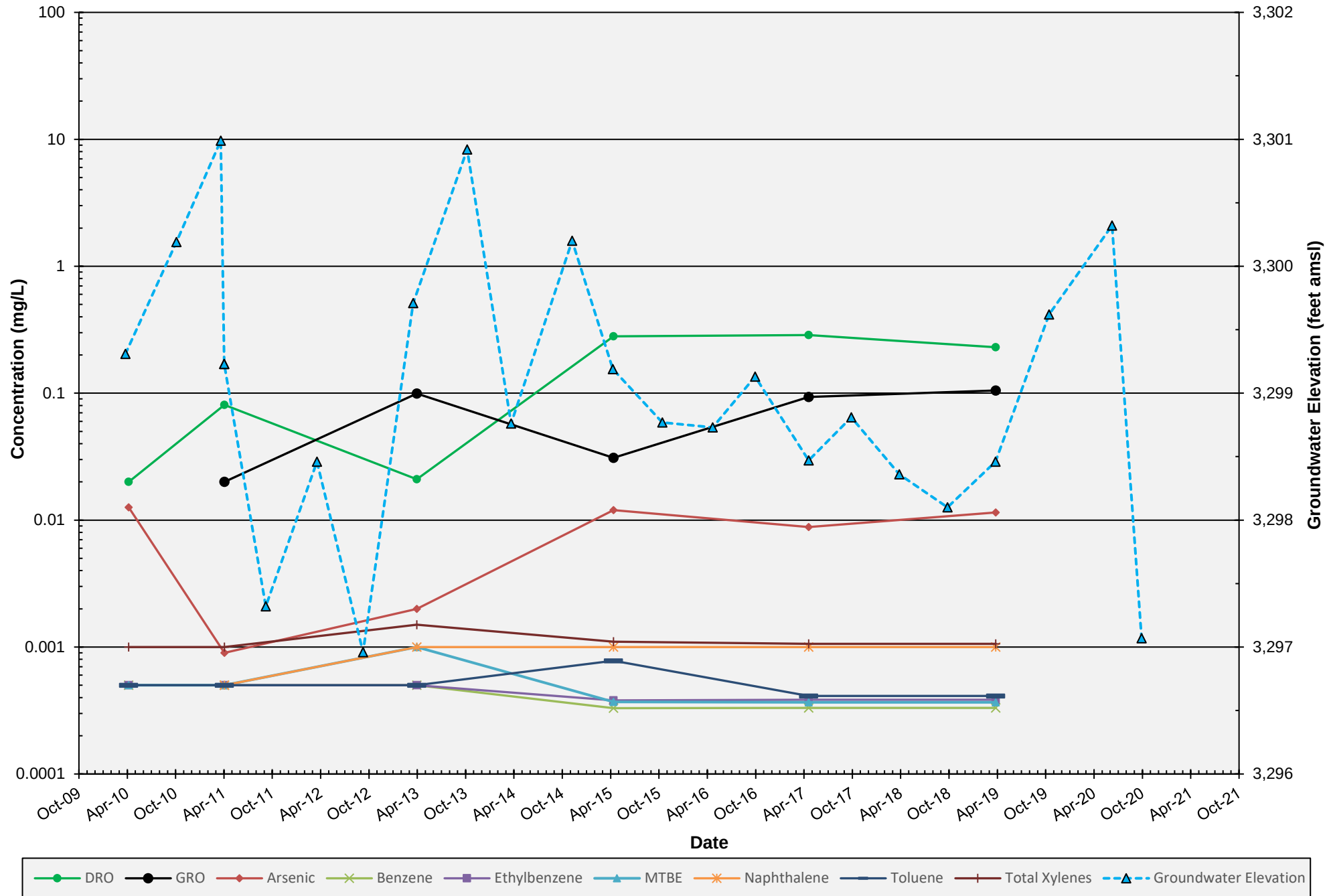
Evaporation Ponds



MW-18B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

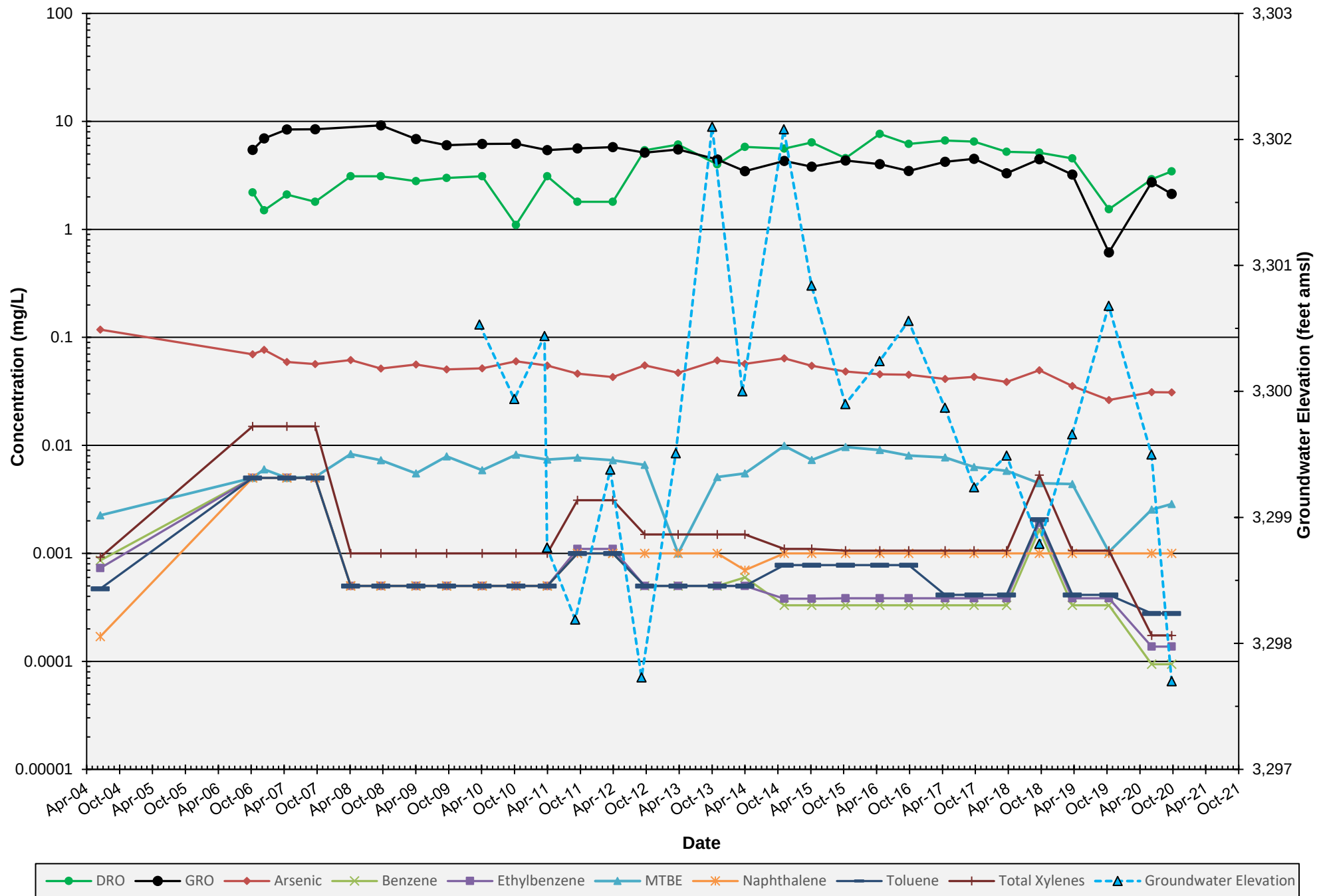
Evaporation Ponds



MW-22A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

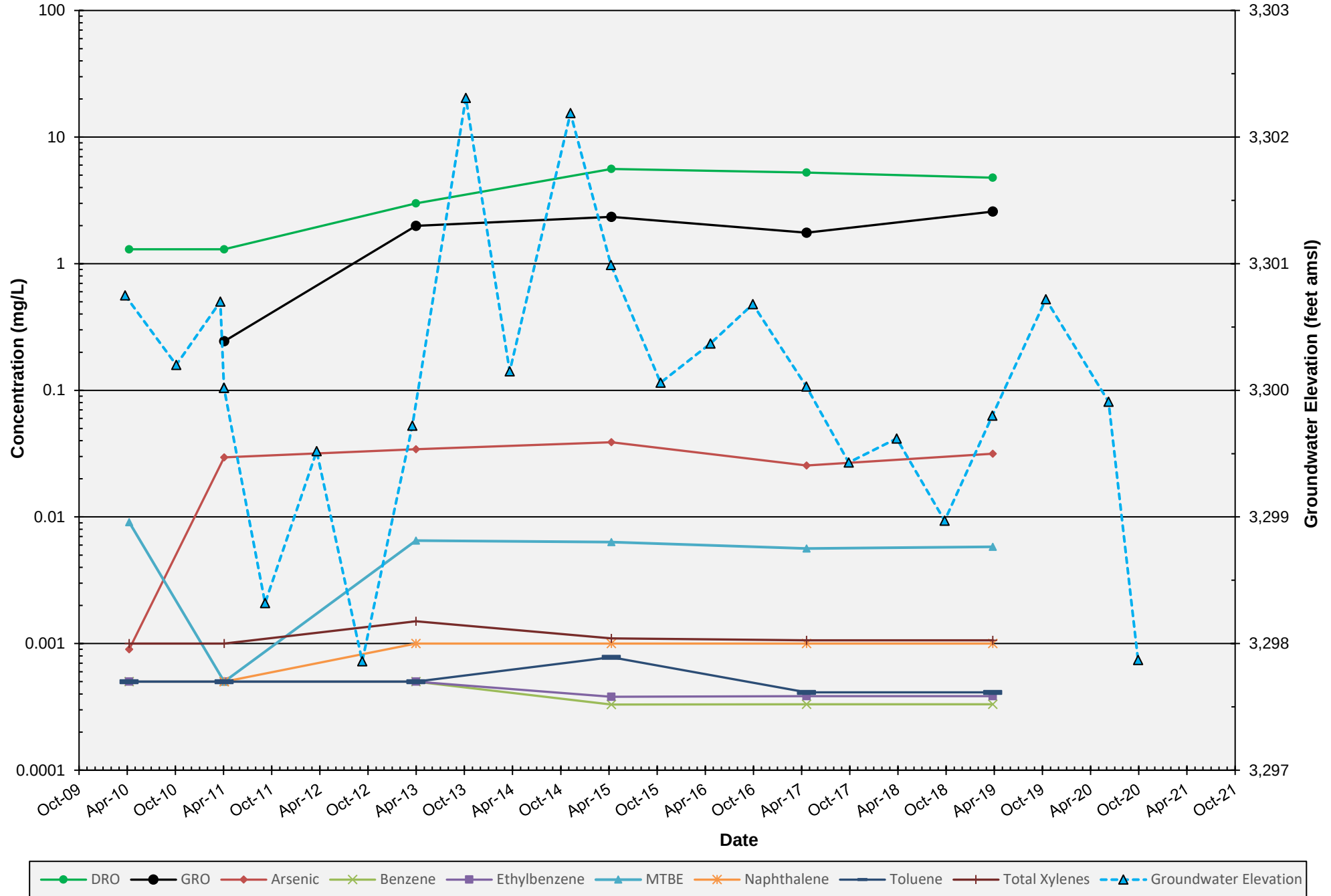
Evaporation Ponds



MW-22B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

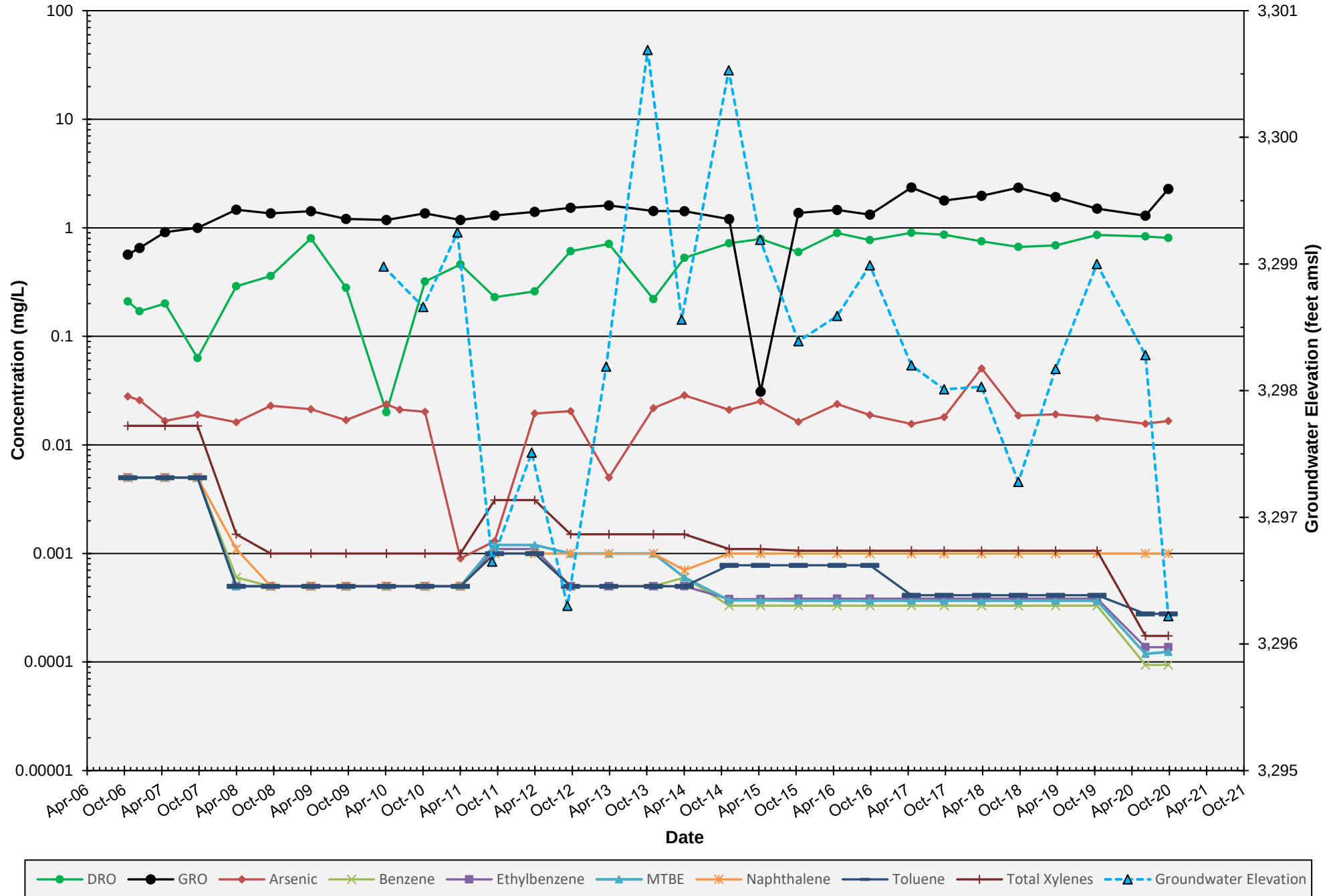
Evaporation Ponds



MW-70: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

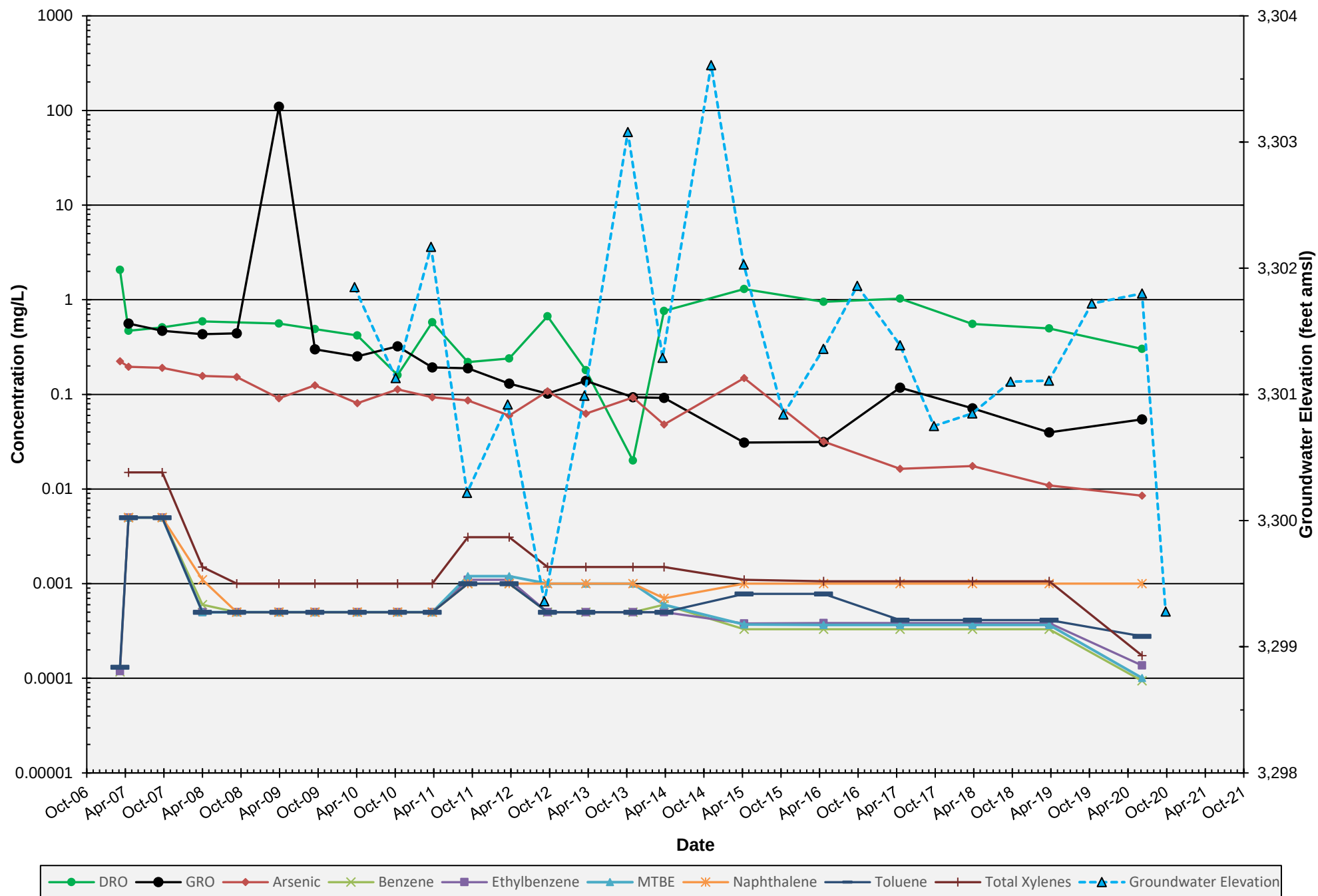
Evaporation Ponds



MW-72: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

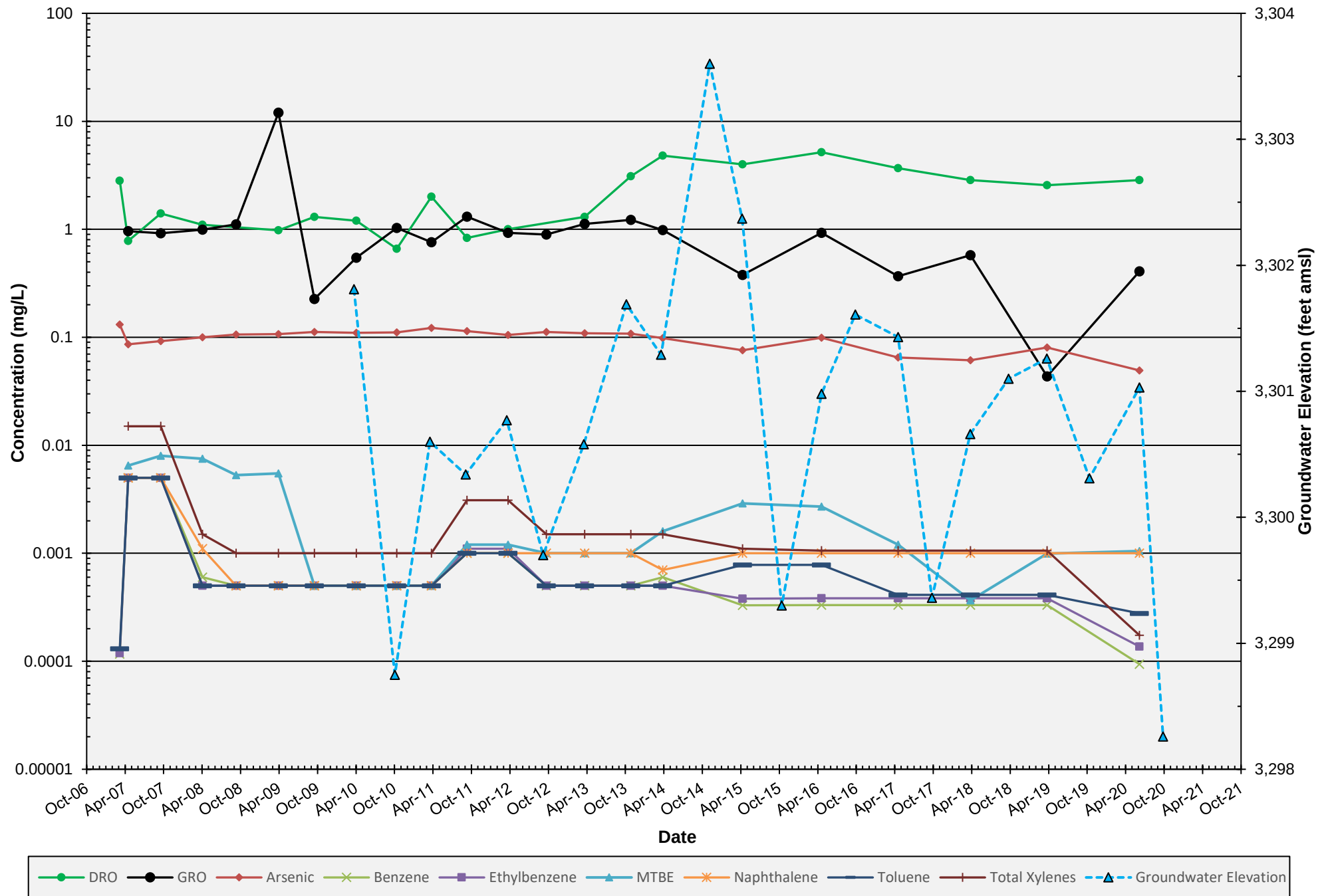
Evaporation Ponds



MW-73: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

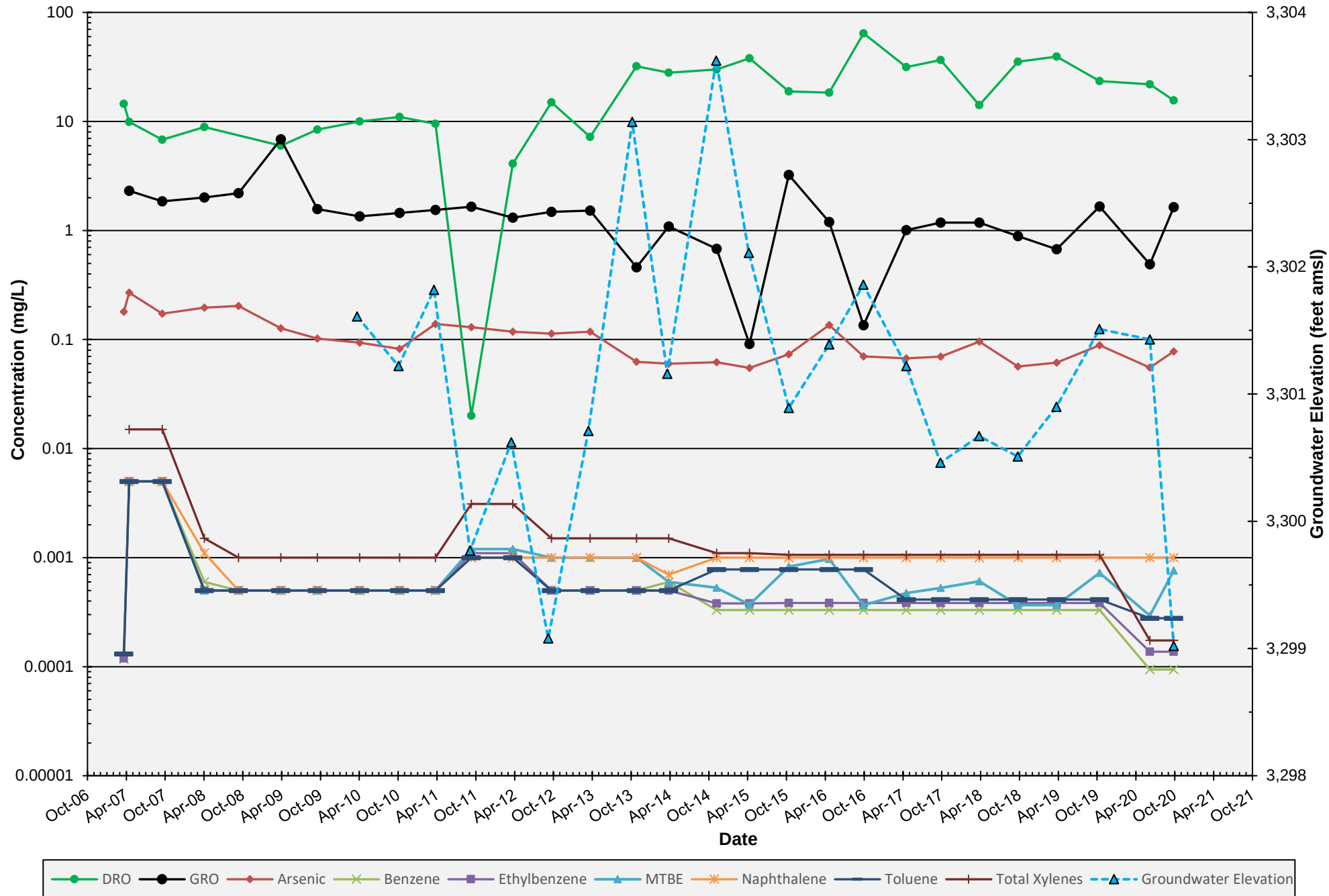
Evaporation Ponds



MW-74: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

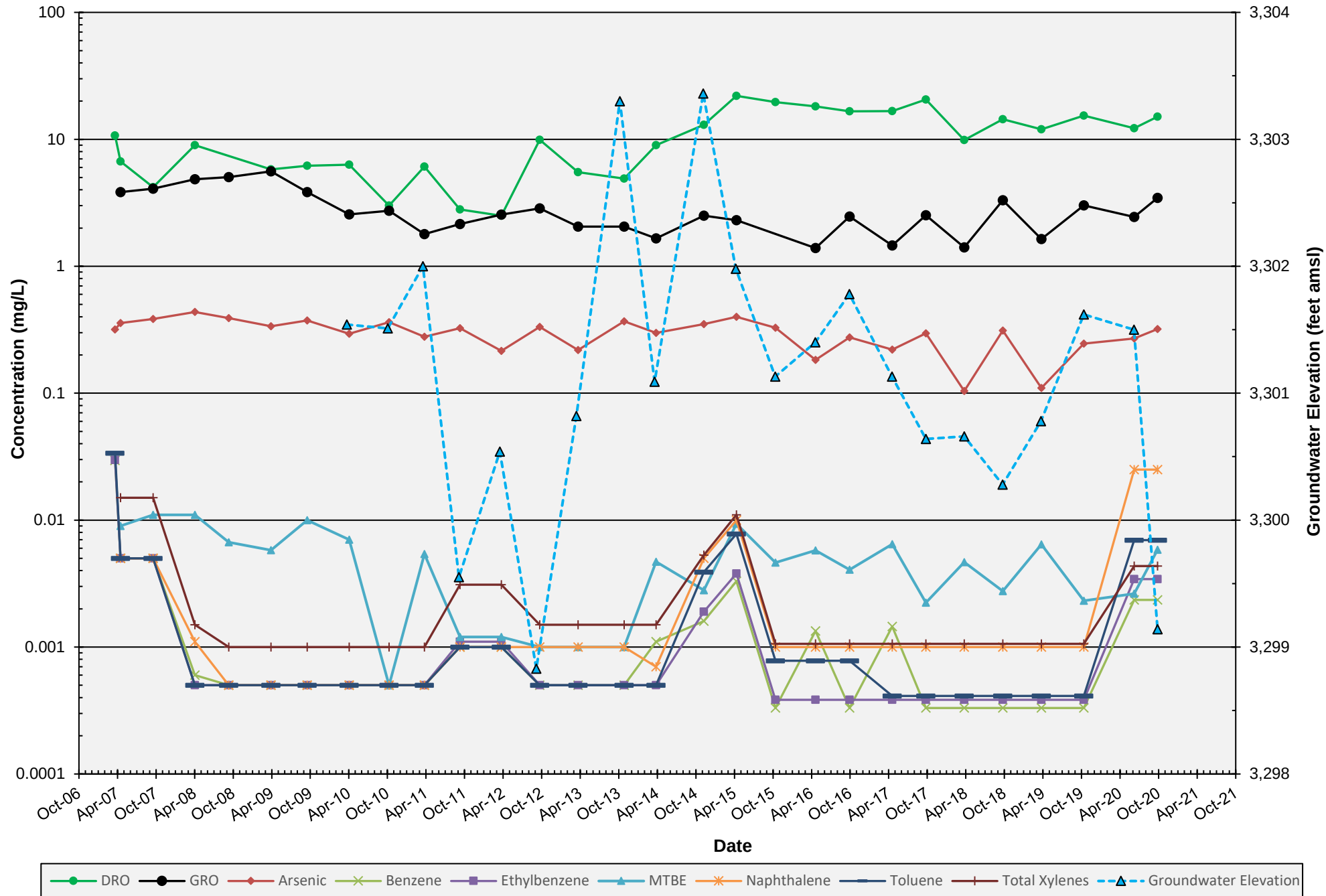
Evaporation Ponds



MW-75: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

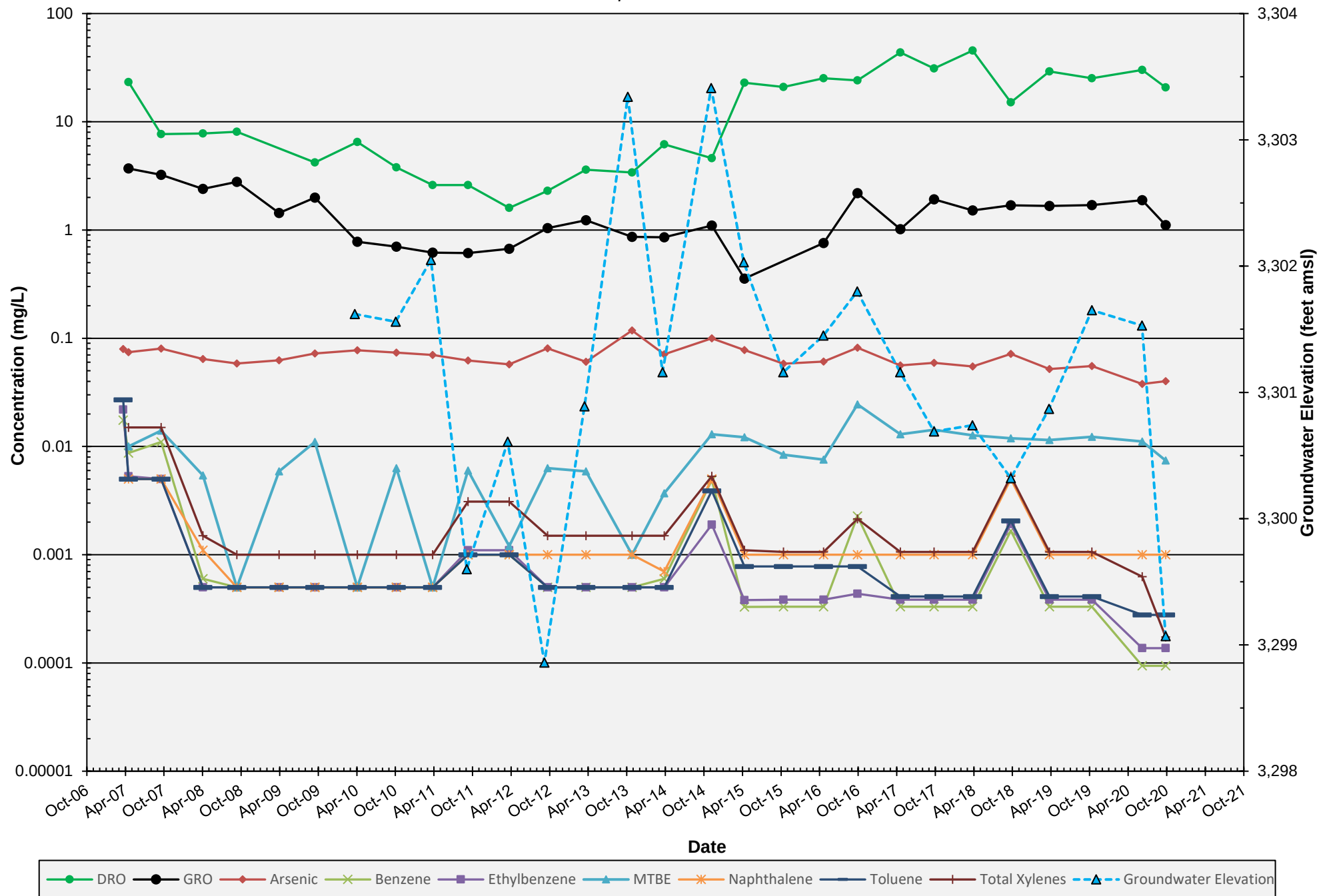
Evaporation Ponds



MW-76: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

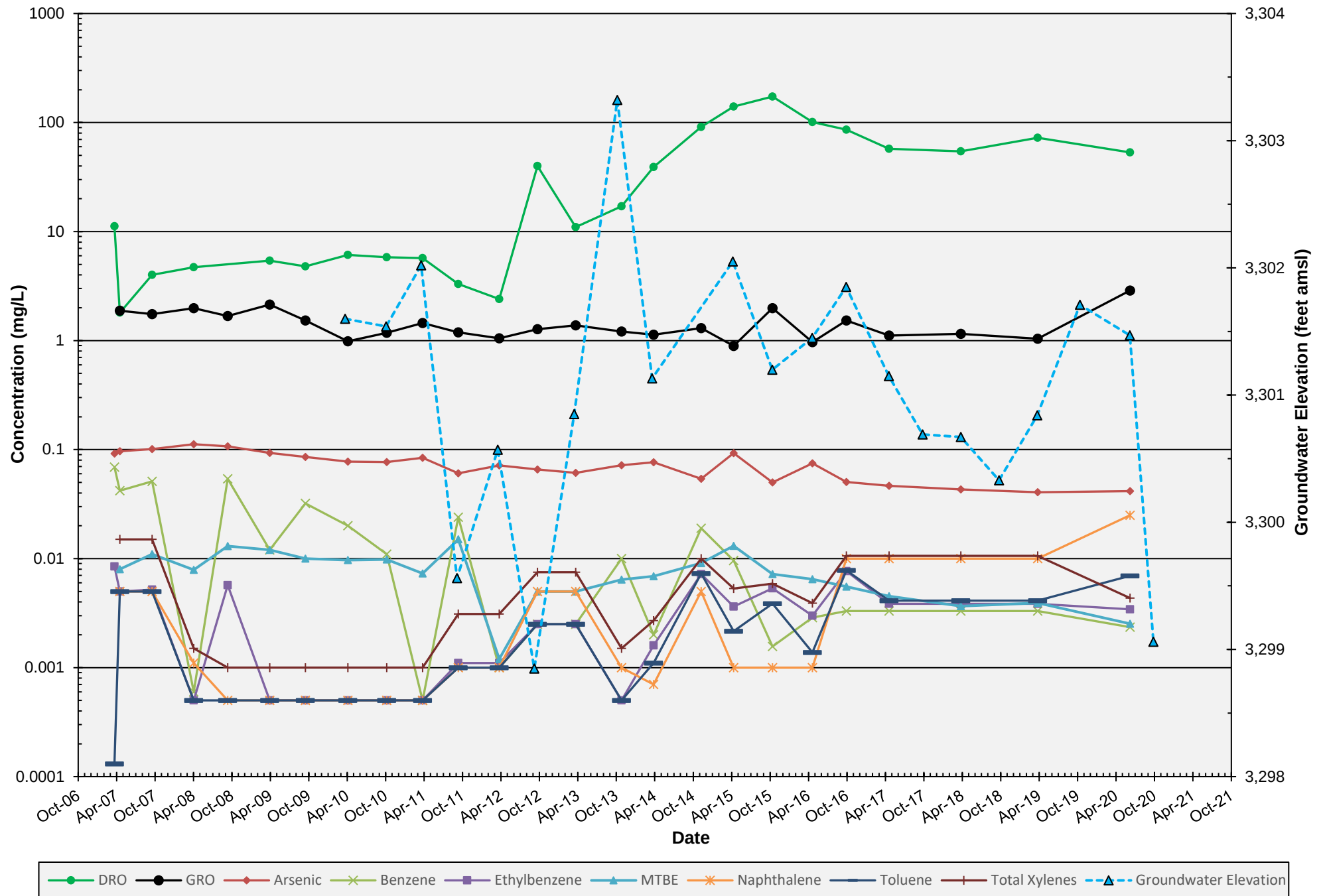
Evaporation Ponds



MW-77: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

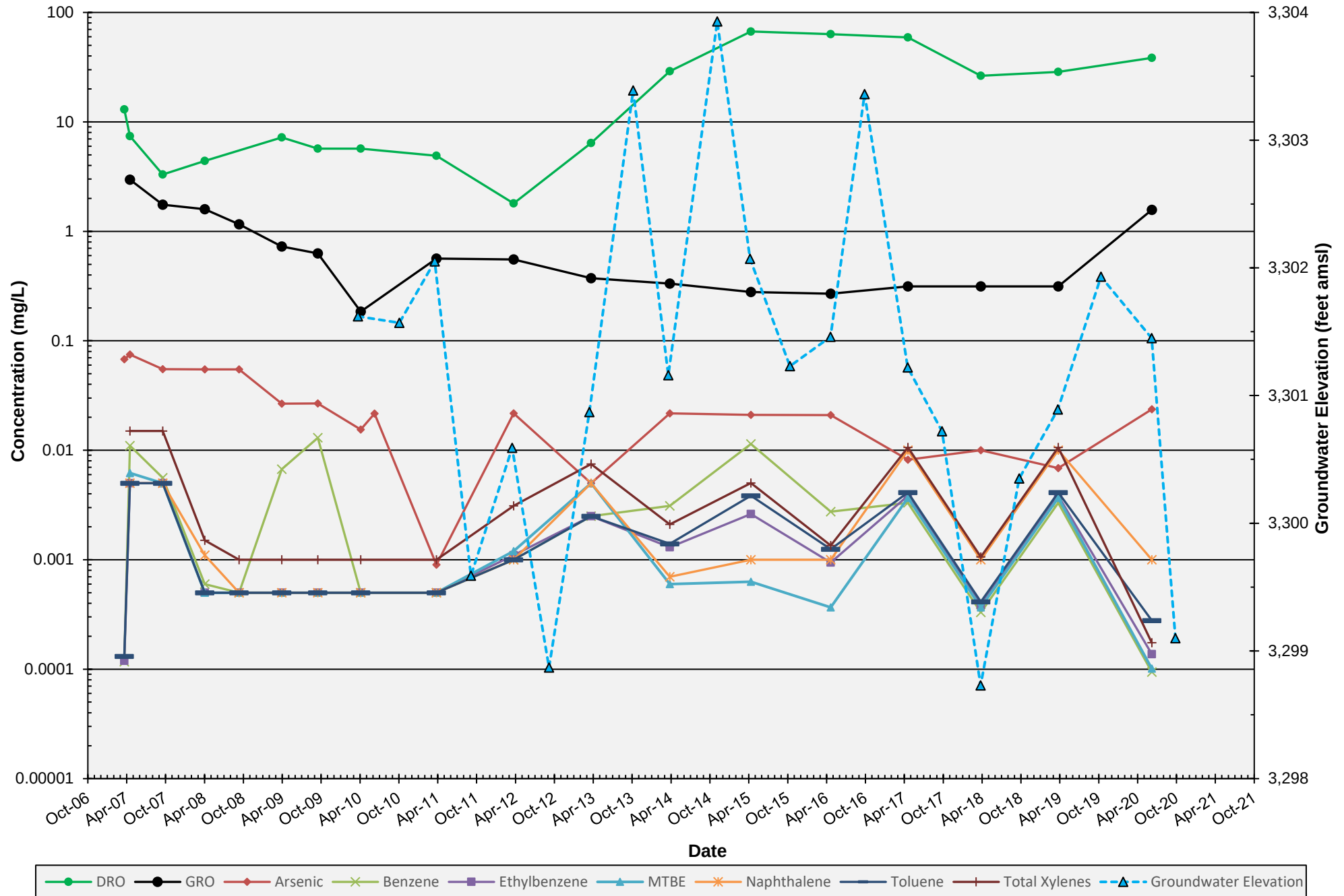
Evaporation Ponds



MW-78: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

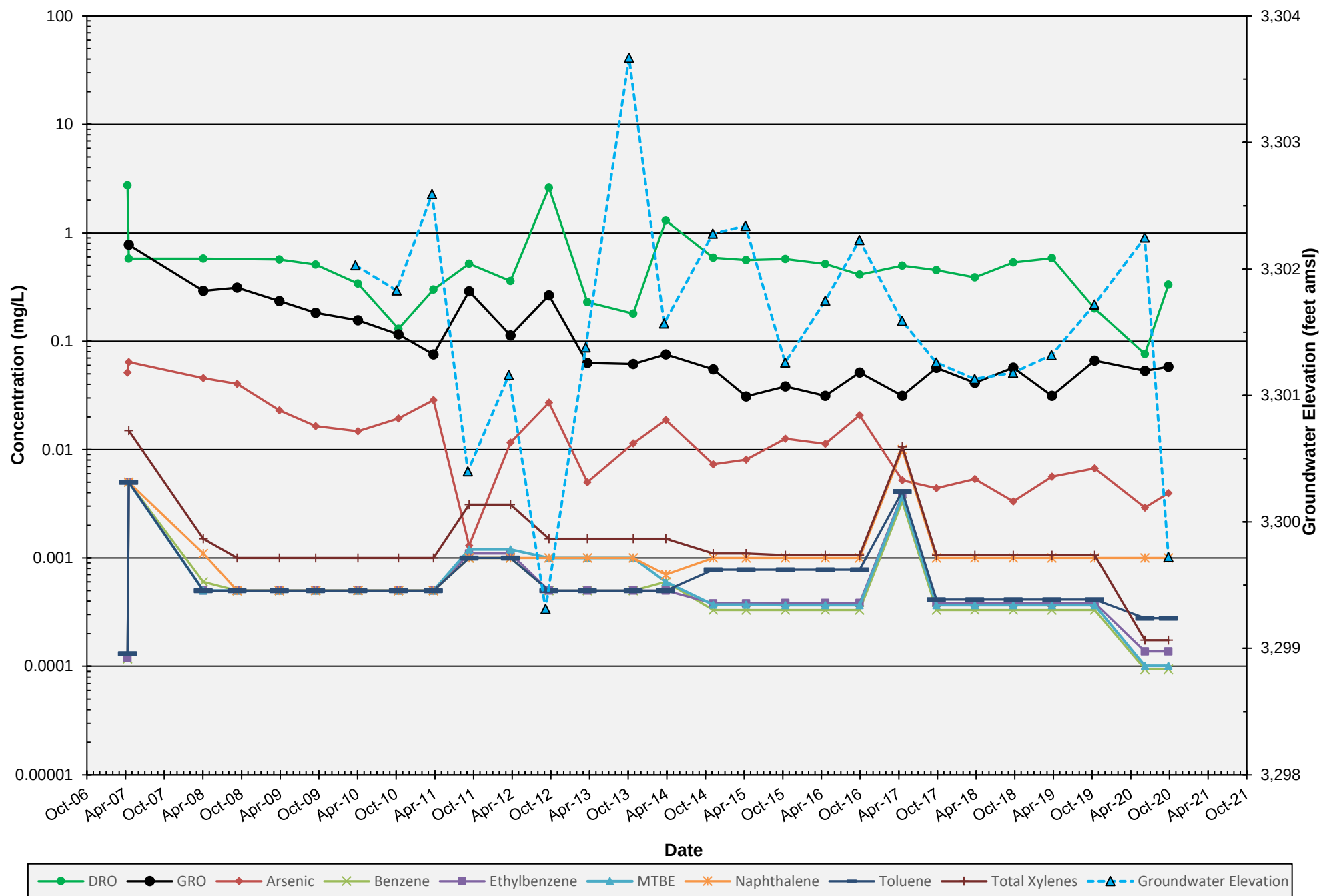
Evaporation Ponds



MW-79: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

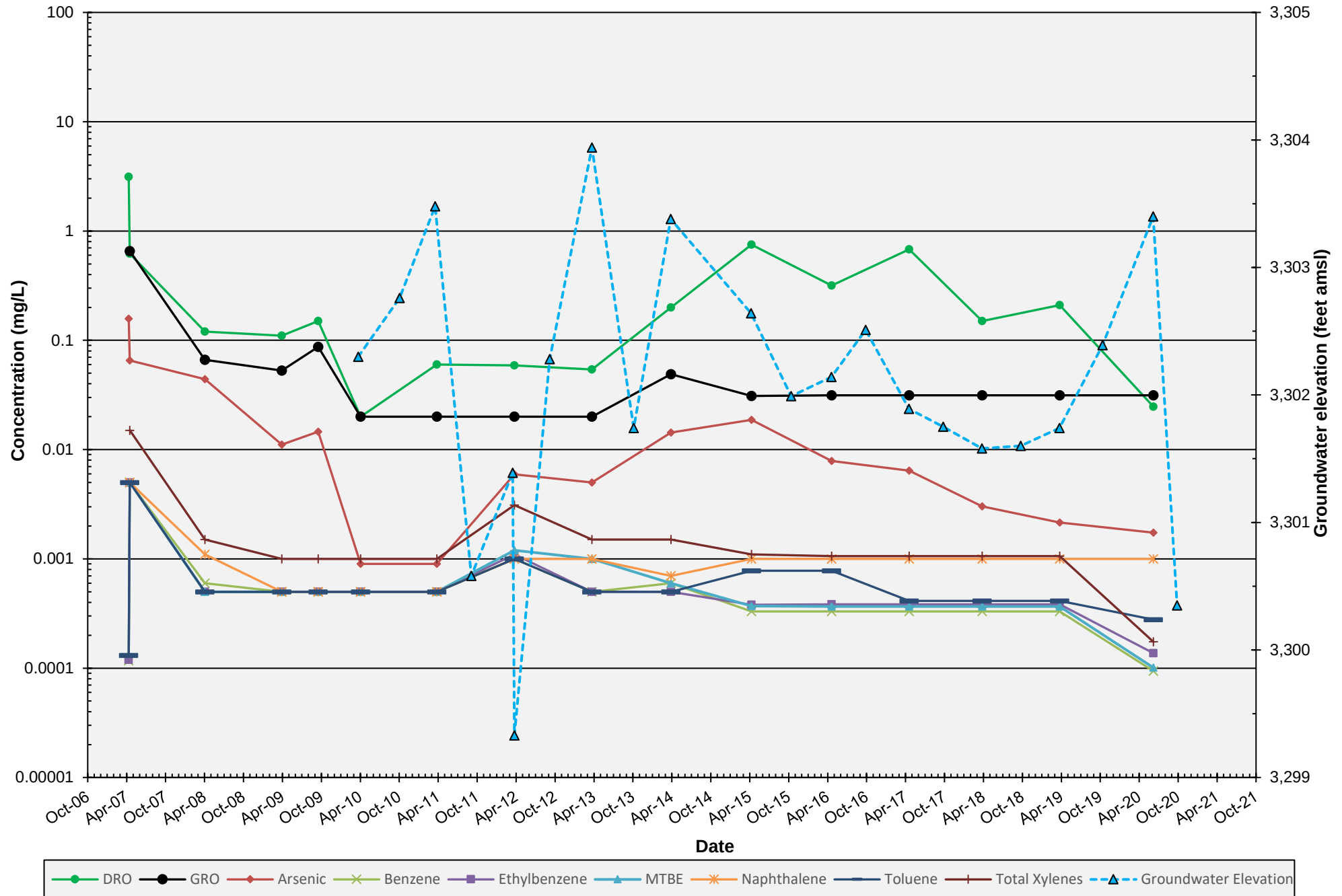
Evaporation Ponds



MW-80: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

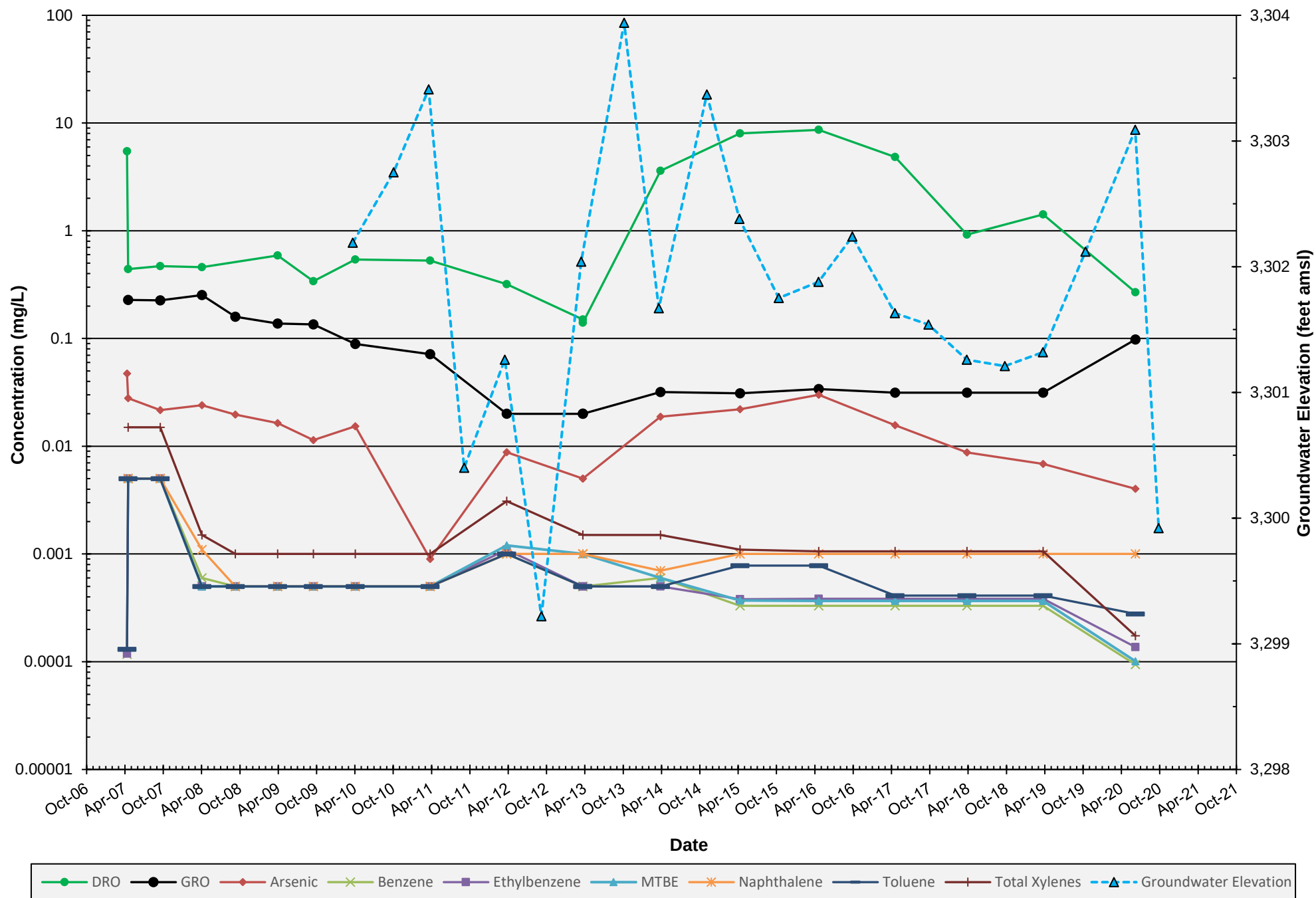
Evaporation Ponds



MW-81: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

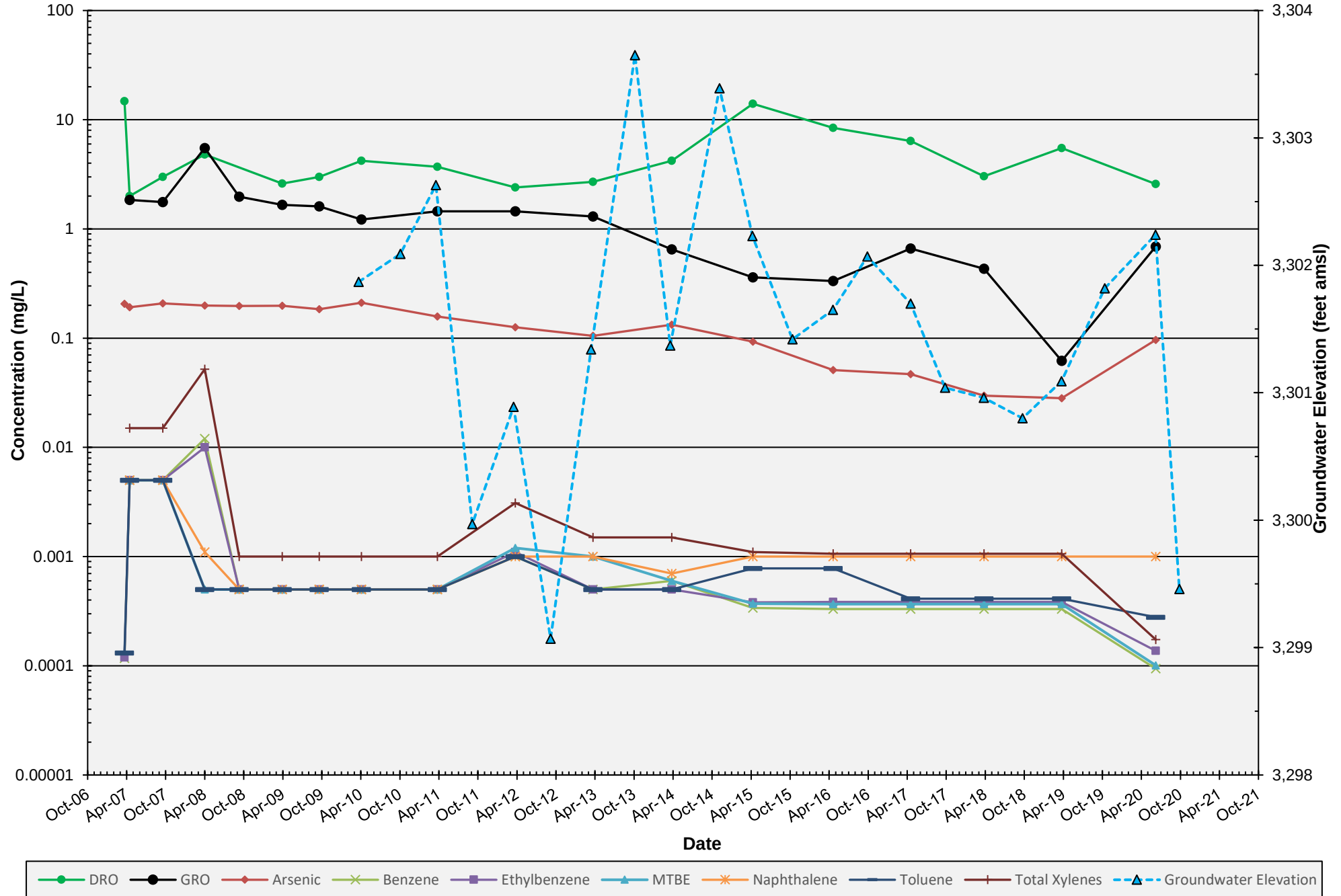
Evaporation Ponds



MW-82: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

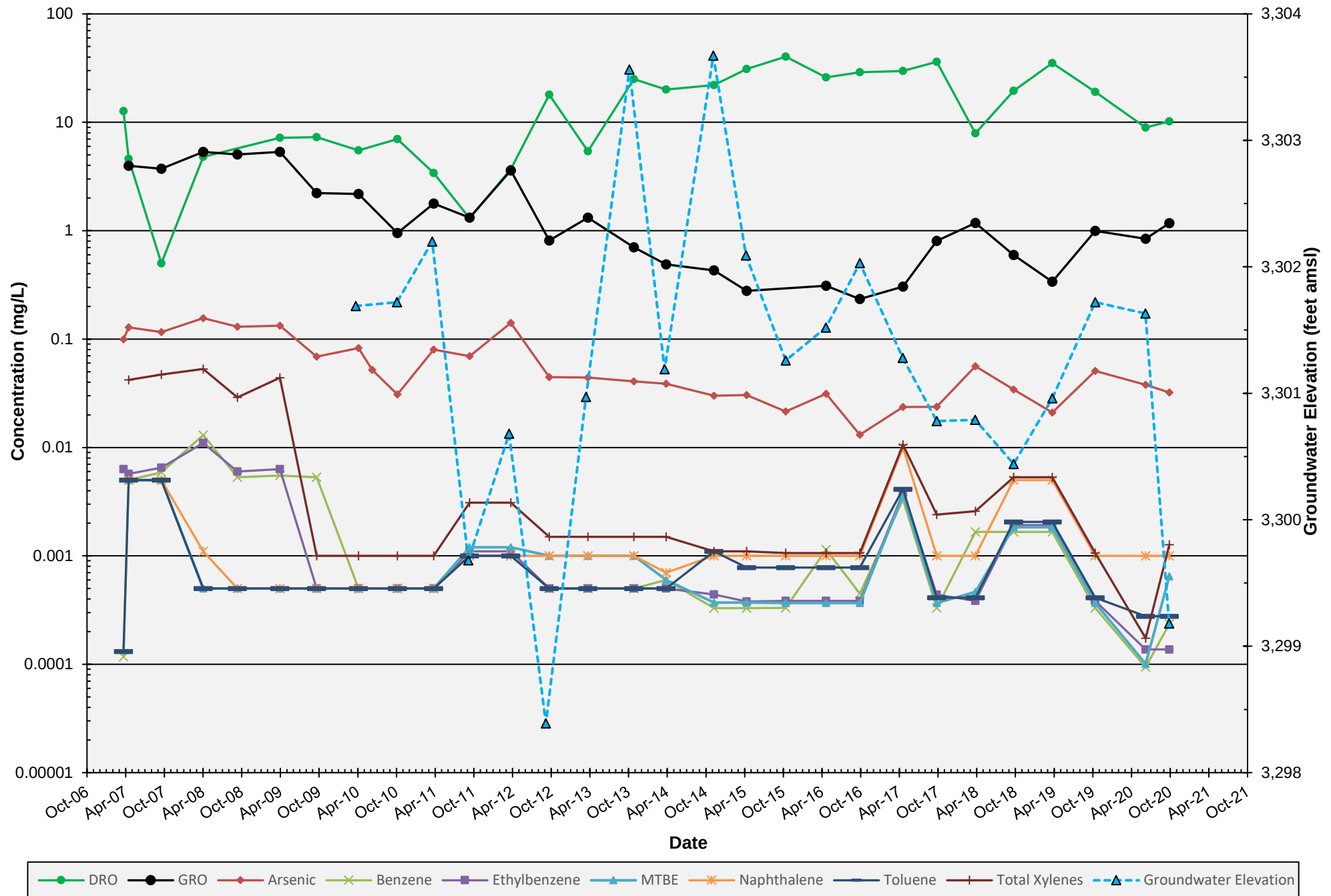
Evaporation Ponds



MW-83: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

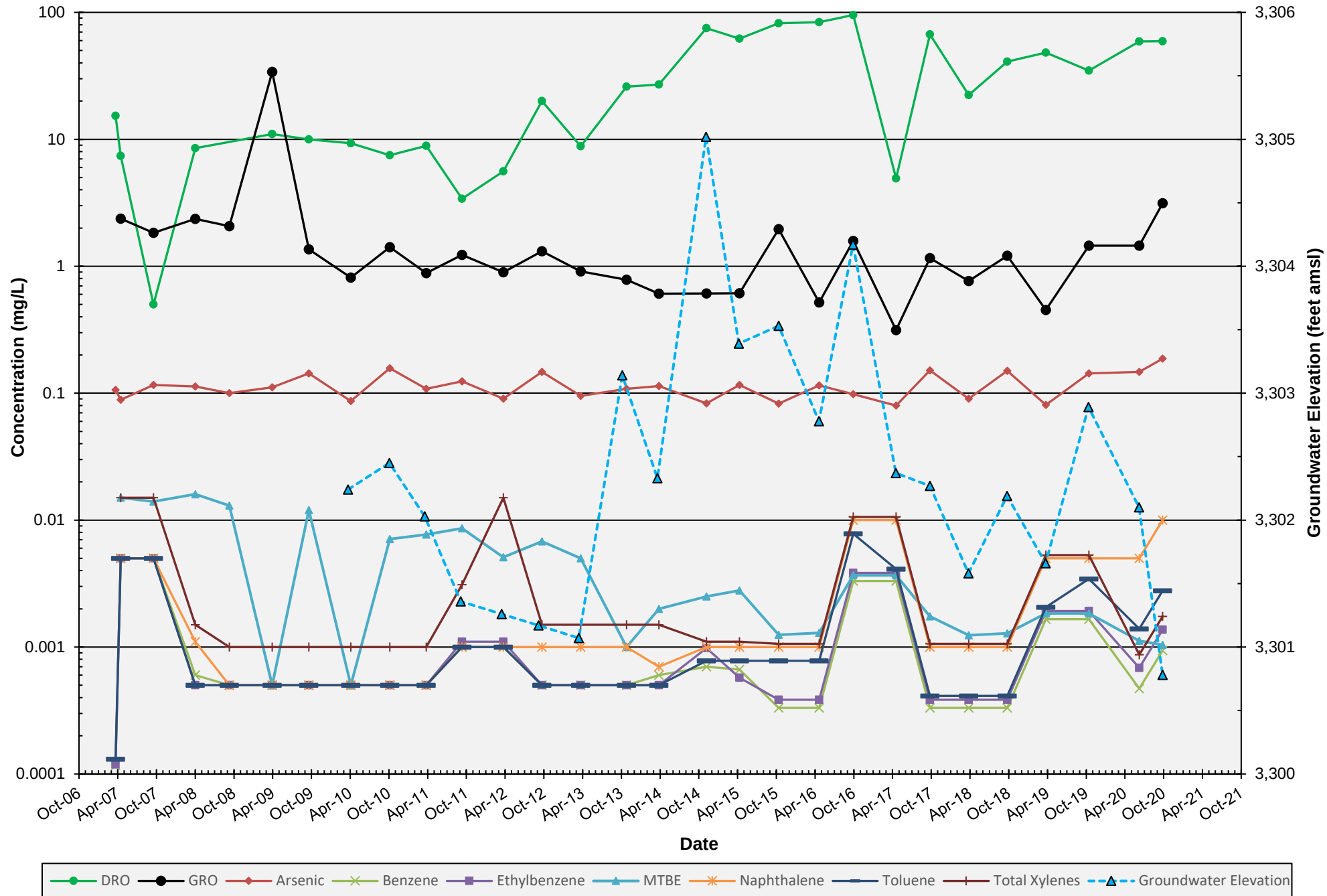
Evaporation Ponds



MW-84: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

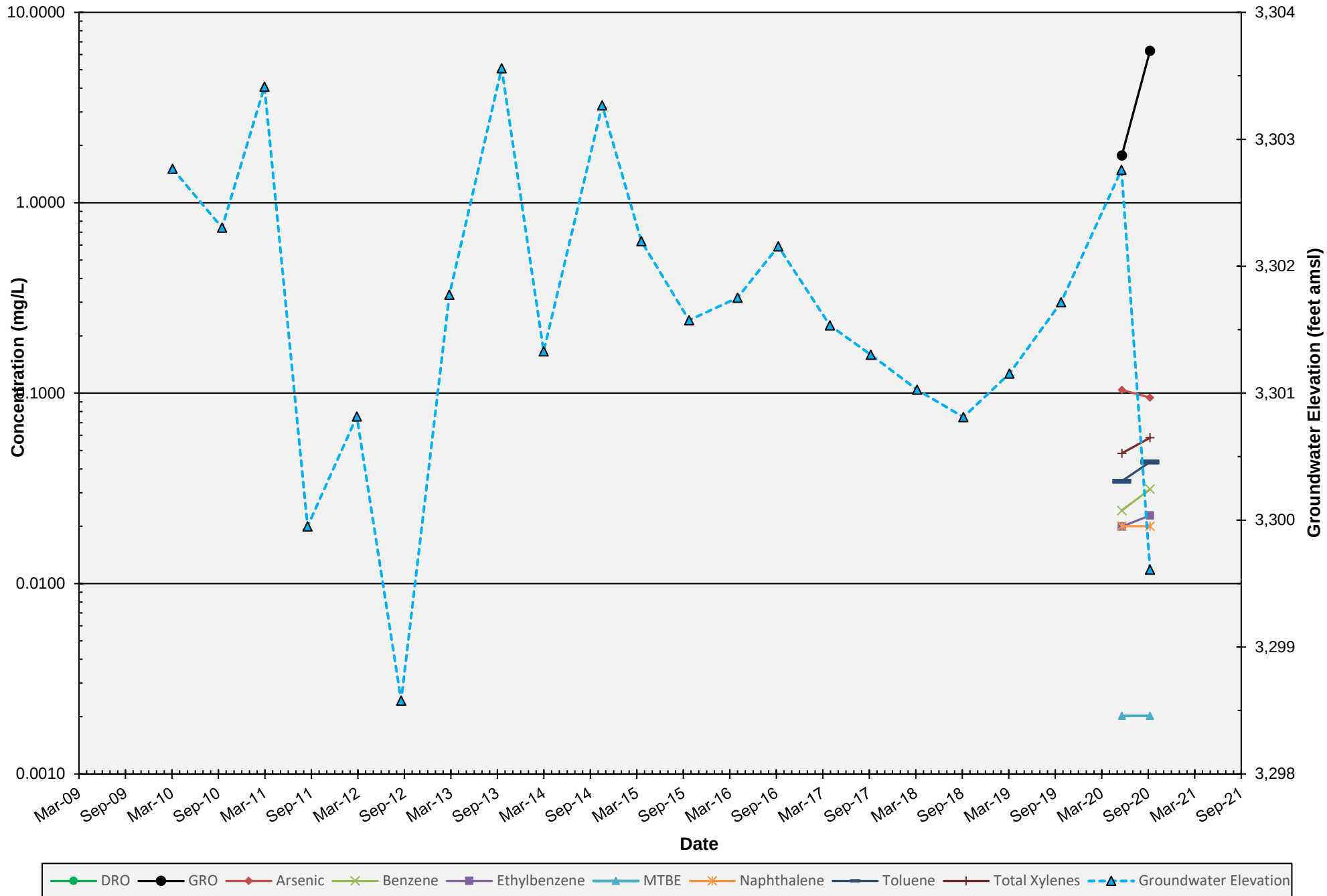
Evaporation Ponds



MW-86: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

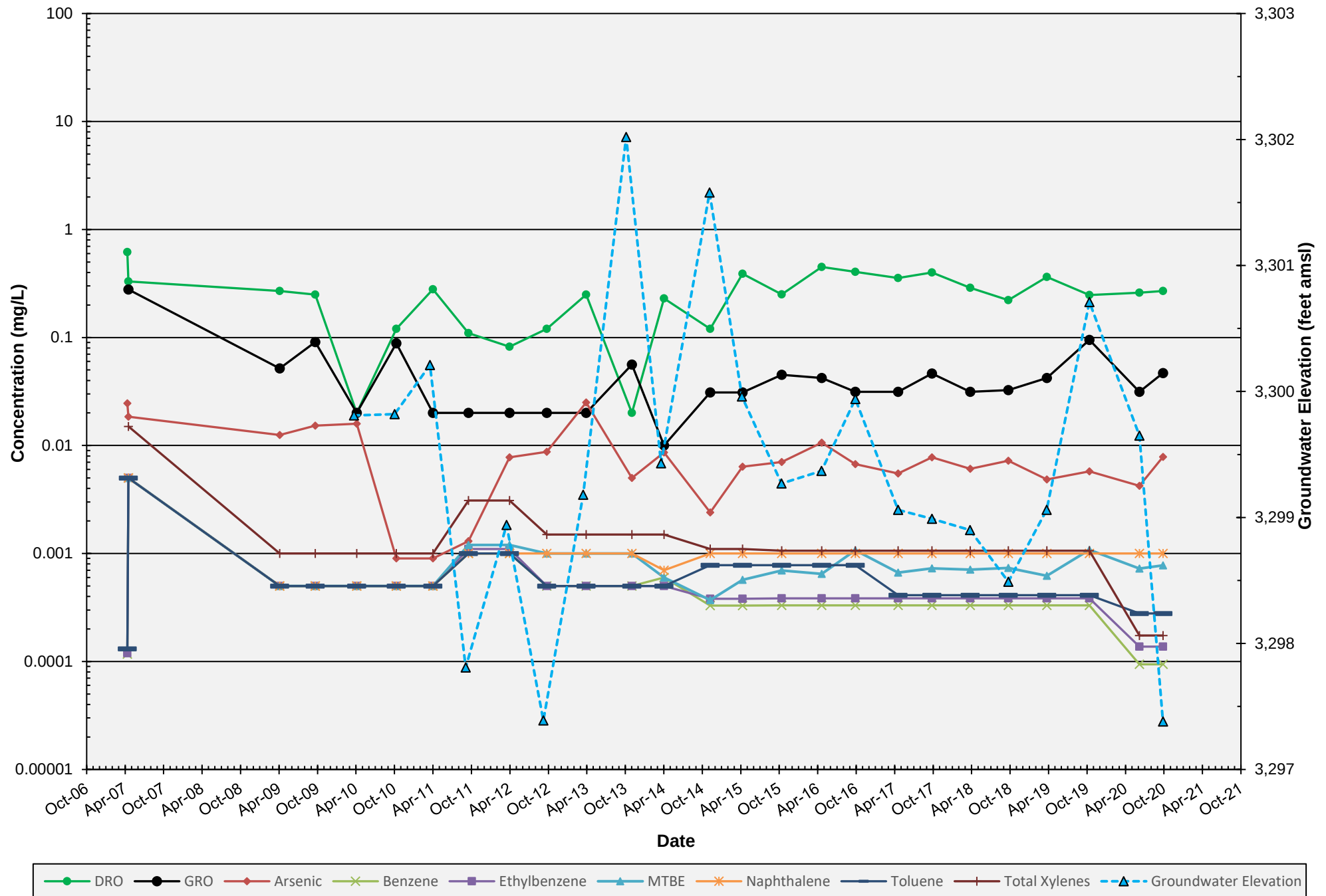
Evaporation Ponds



MW-87: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

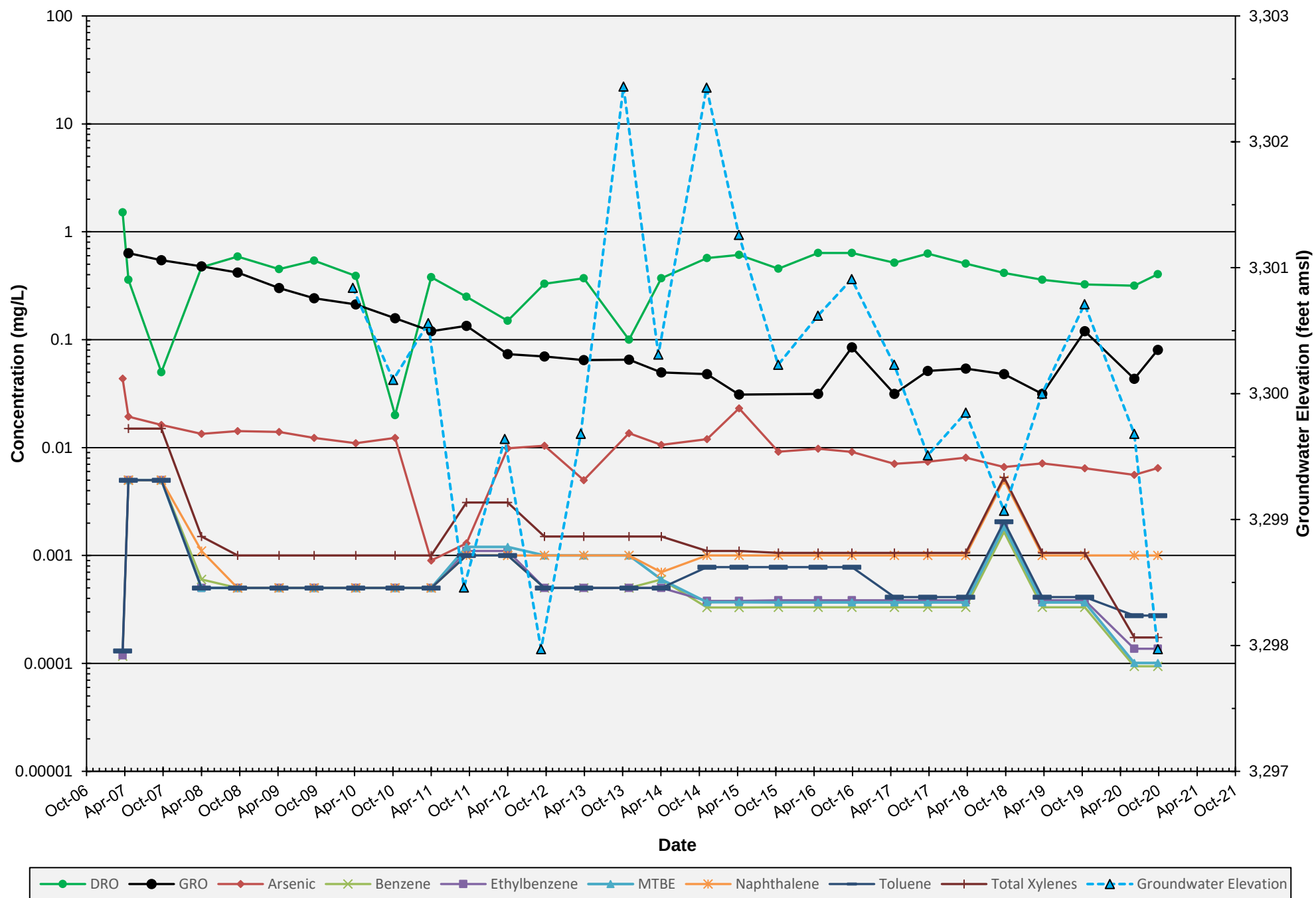
Evaporation Ponds



MW-88: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

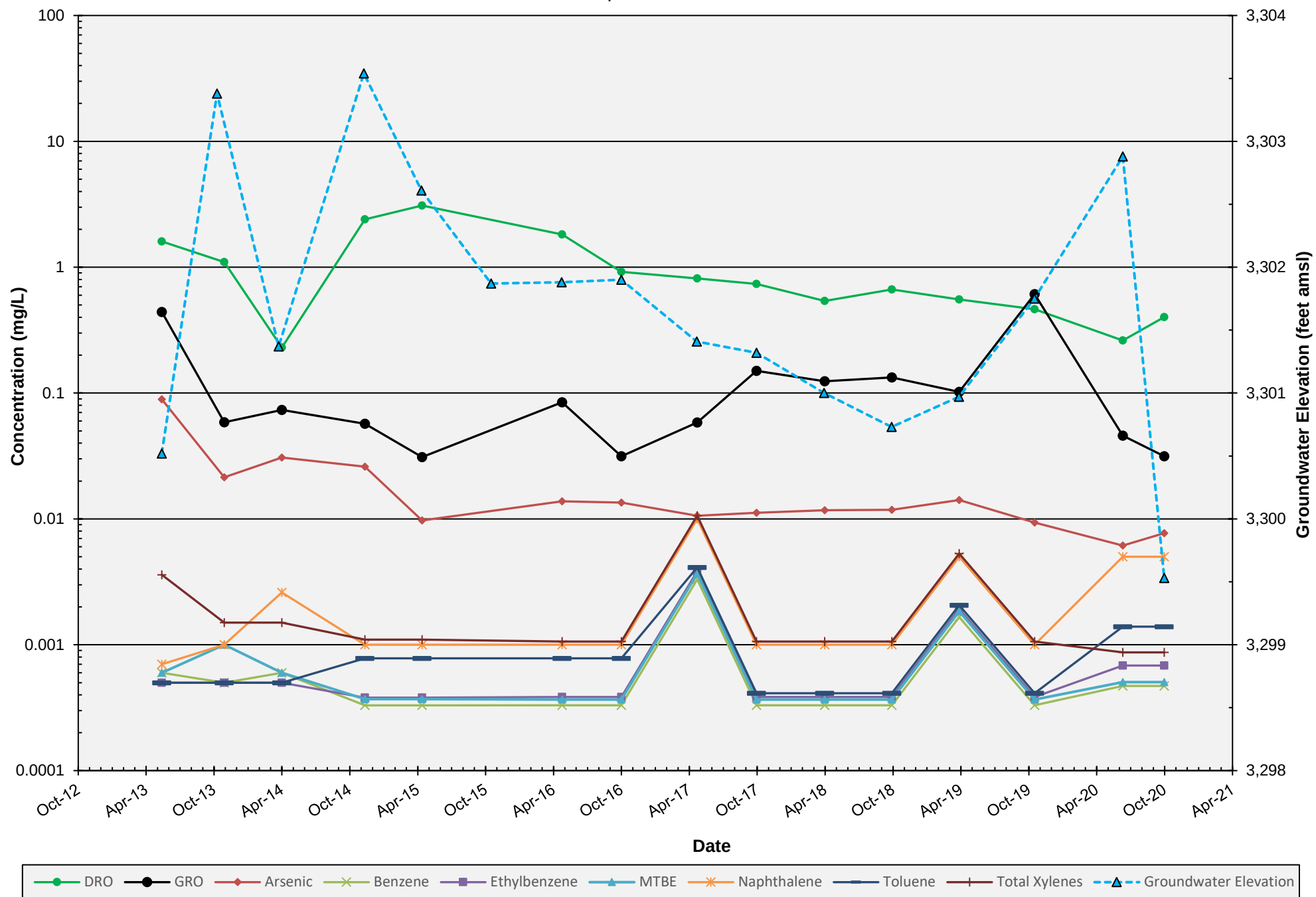
Evaporation Ponds



MW-120: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

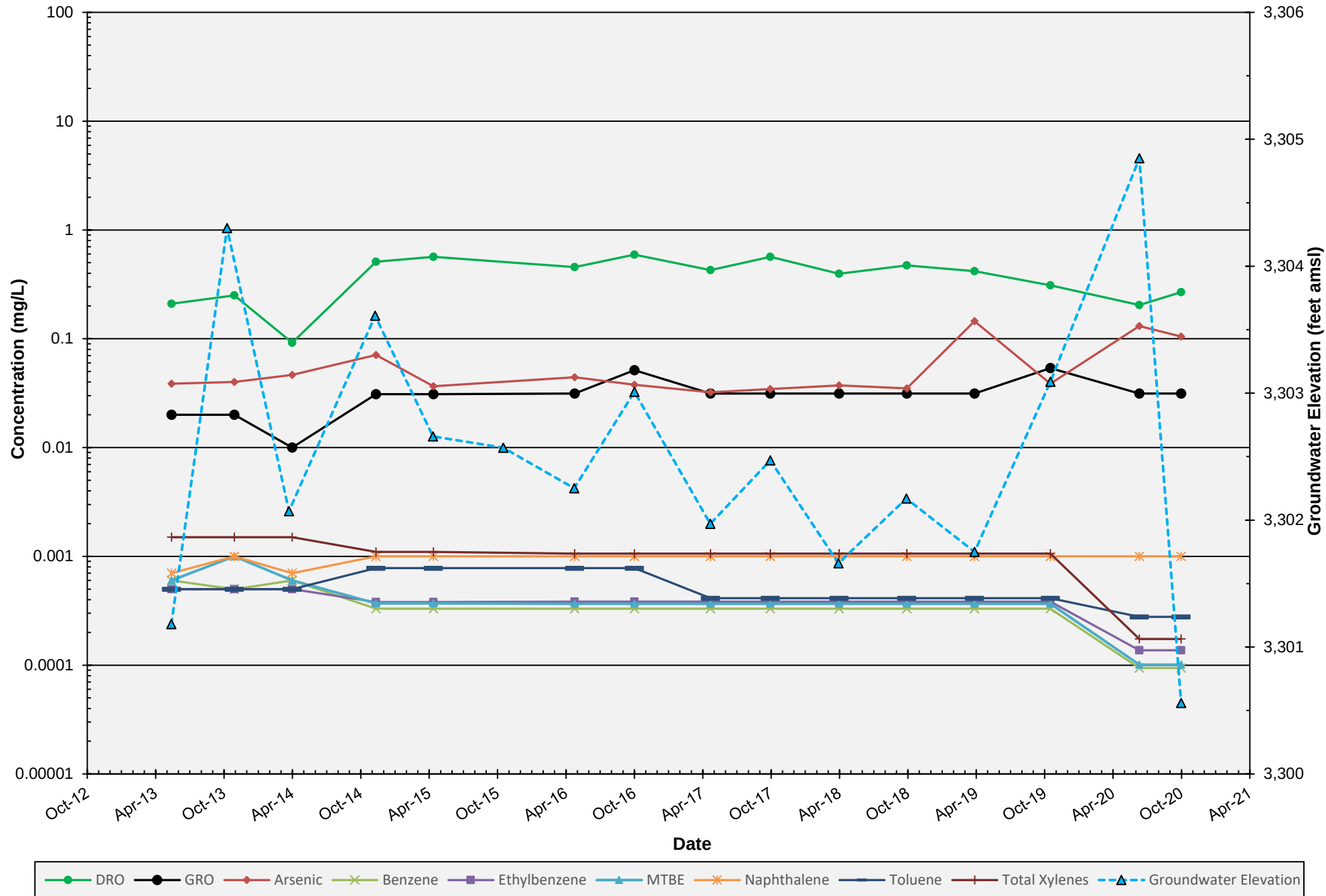
Evaporation Ponds



MW-121: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

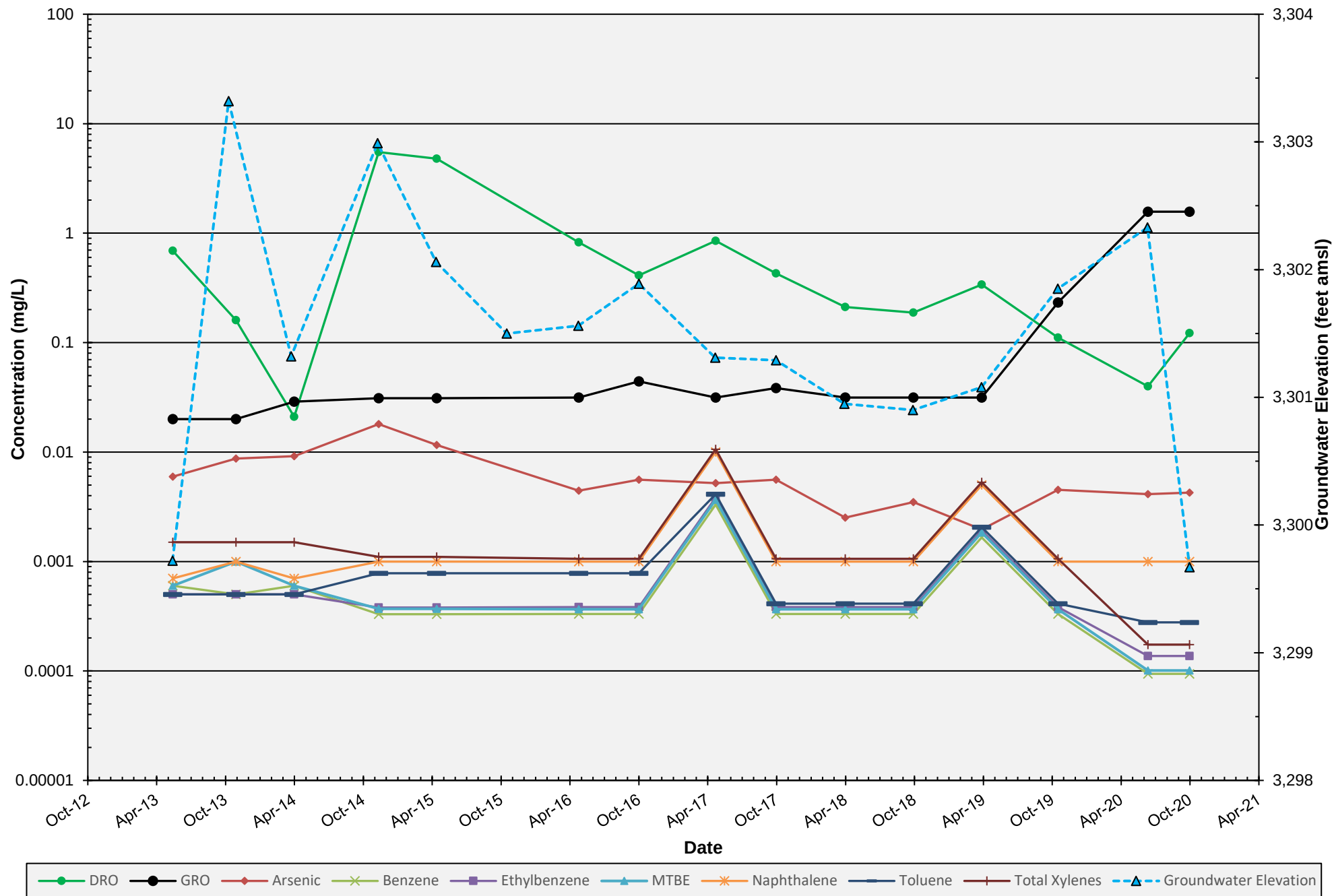
Evaporation Ponds



MW-122: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

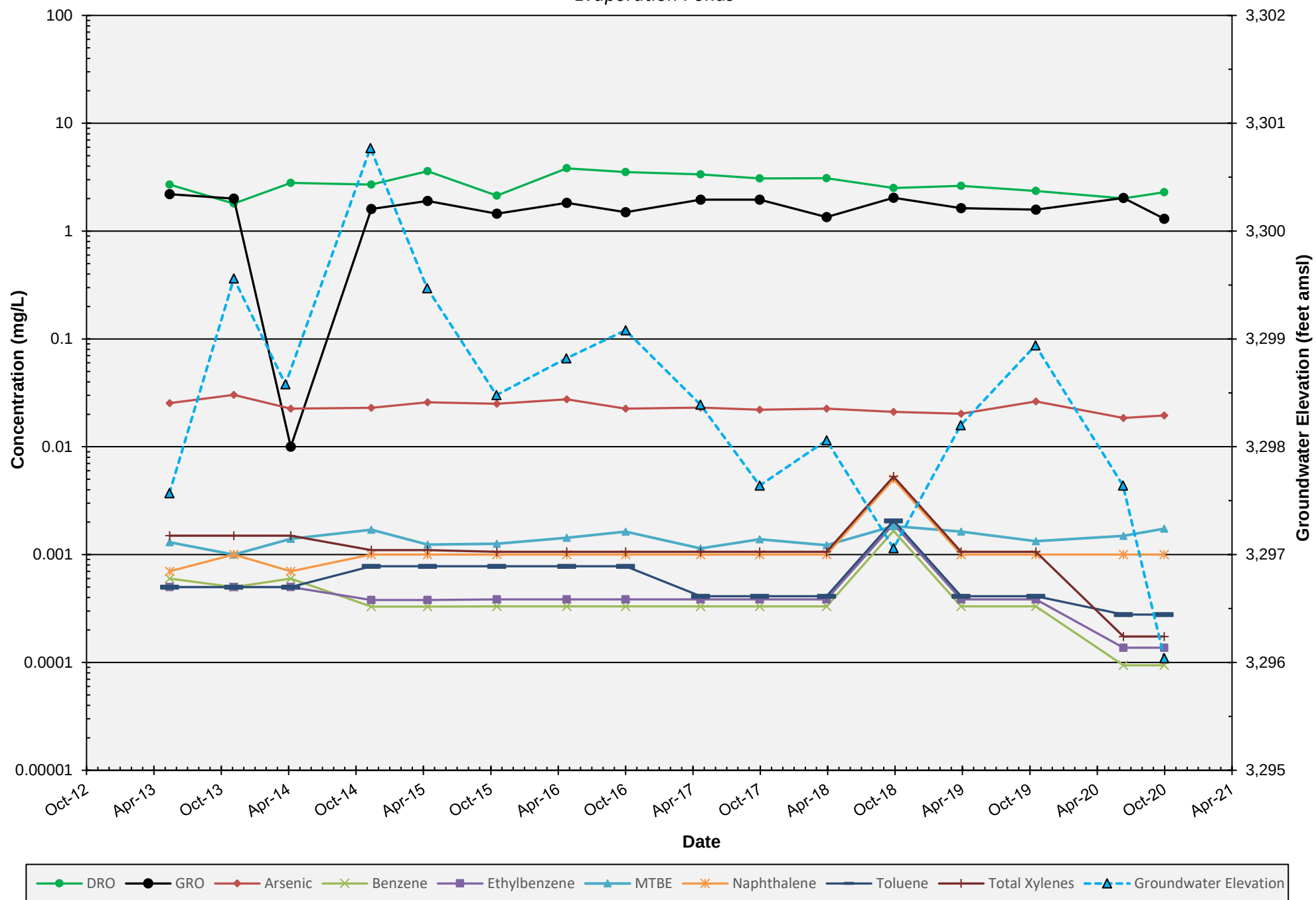
Evaporation Ponds



MW-123: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

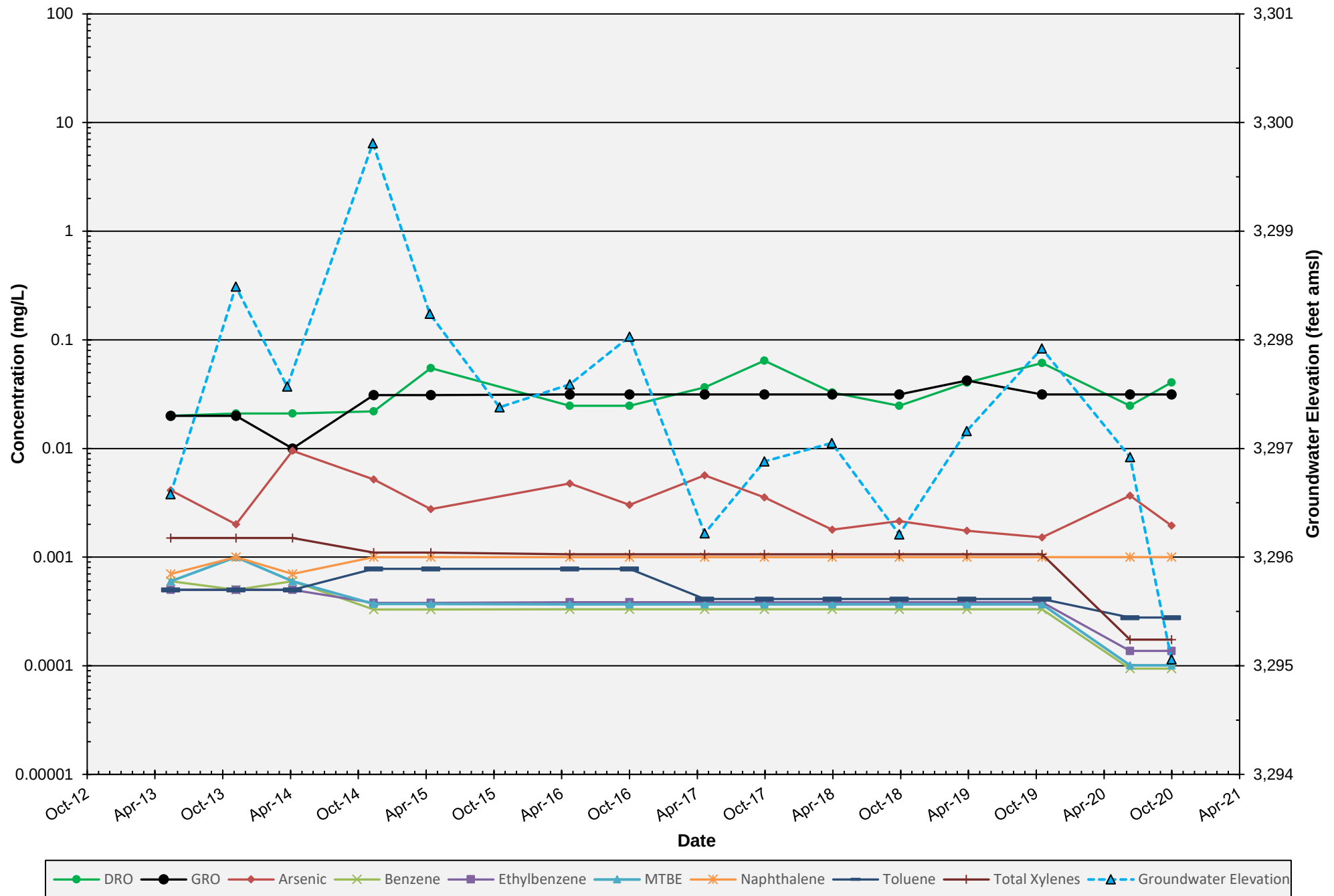
Evaporation Ponds



MW-124: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

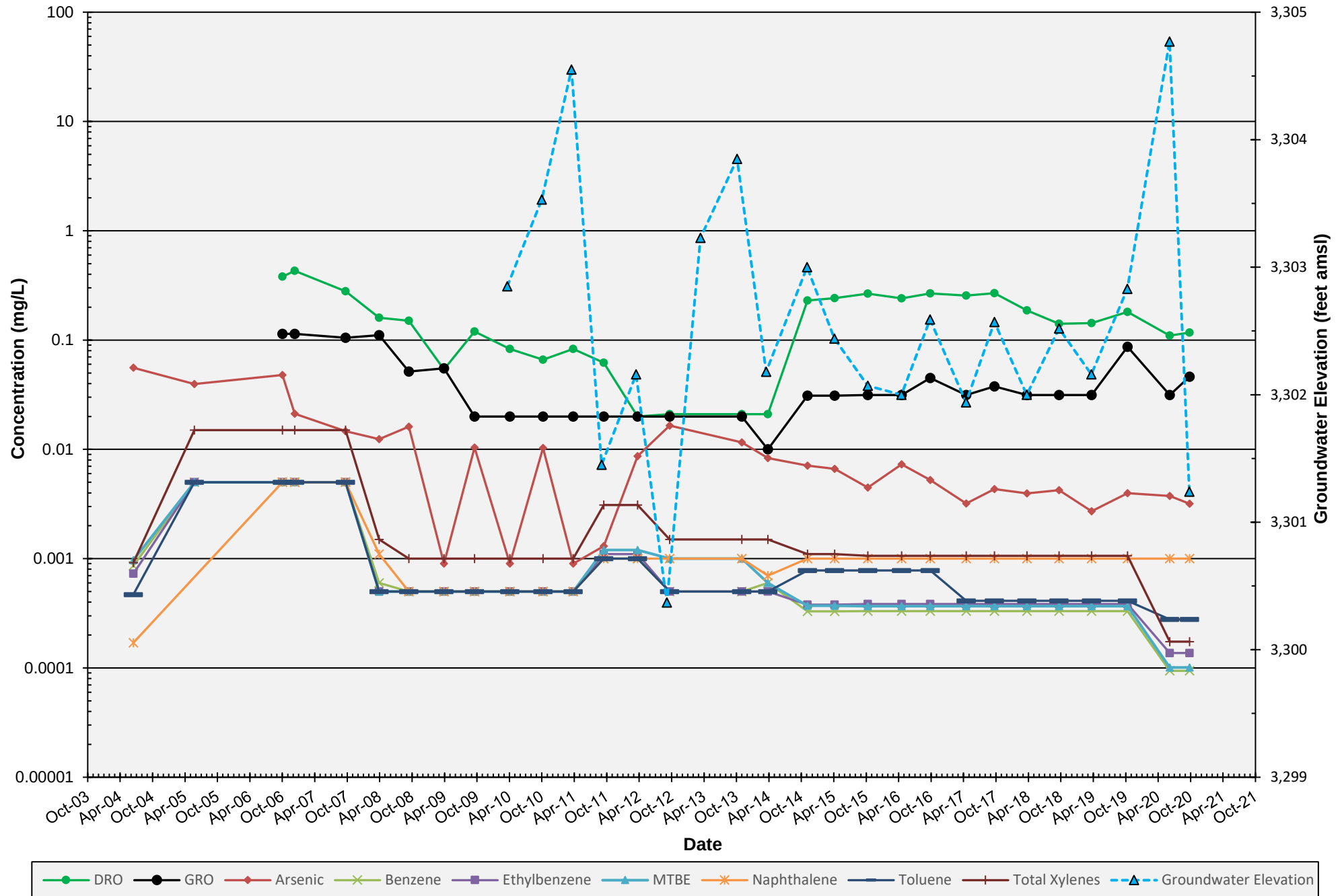
Evaporation Ponds



OCD-1 & OCD-1R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

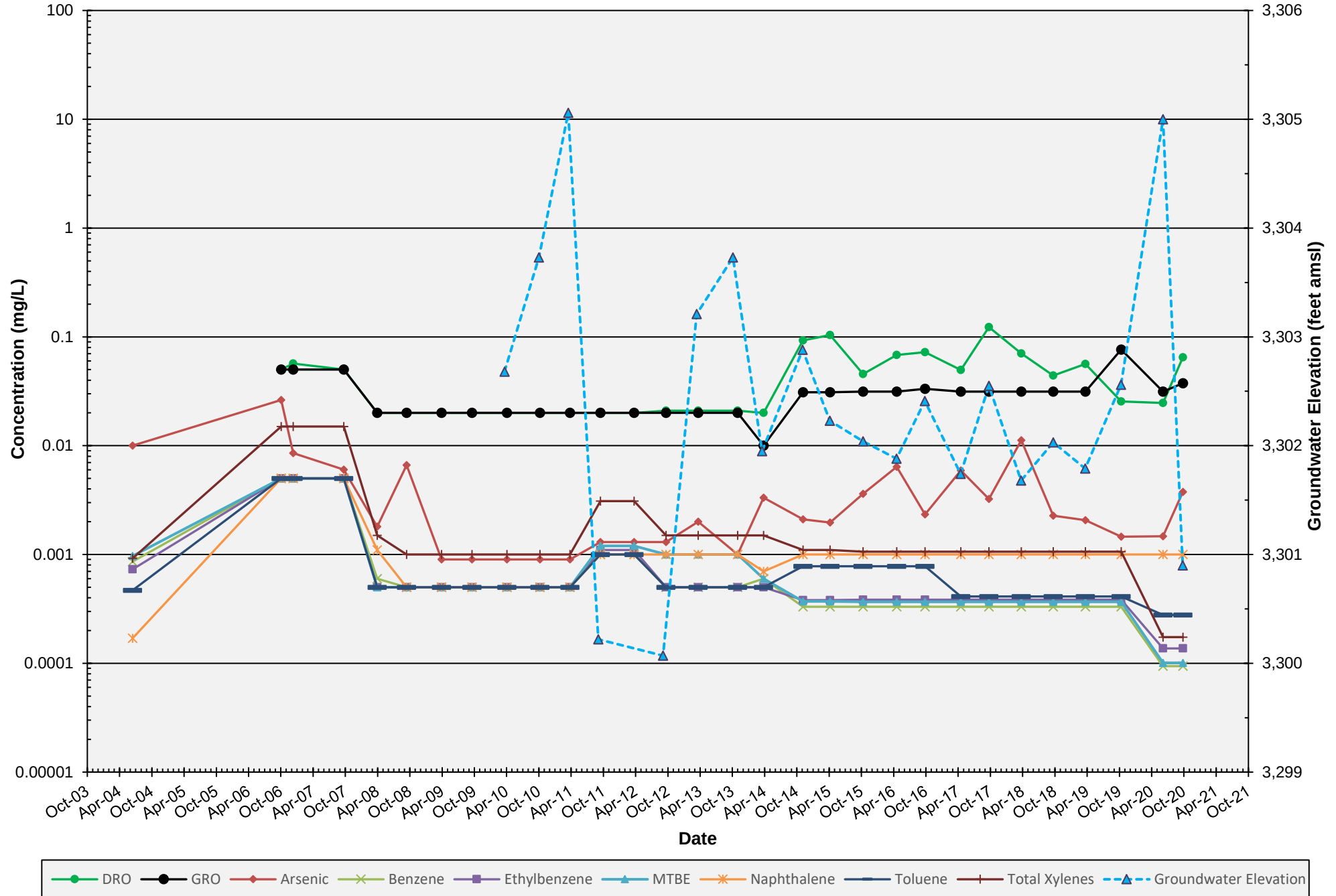
Evaporation Ponds



OCD-2A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

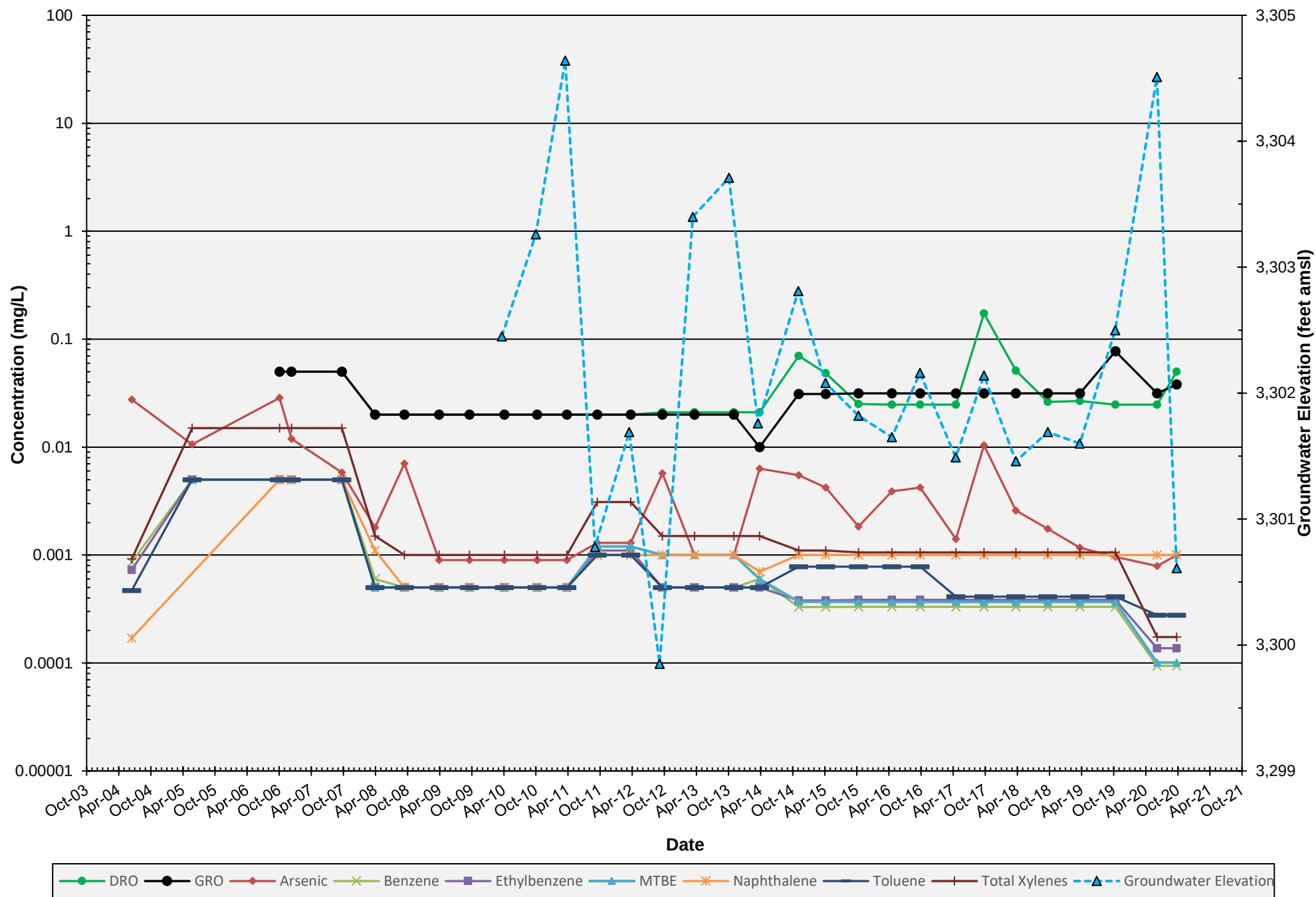
Evaporation Ponds



OCD-3: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

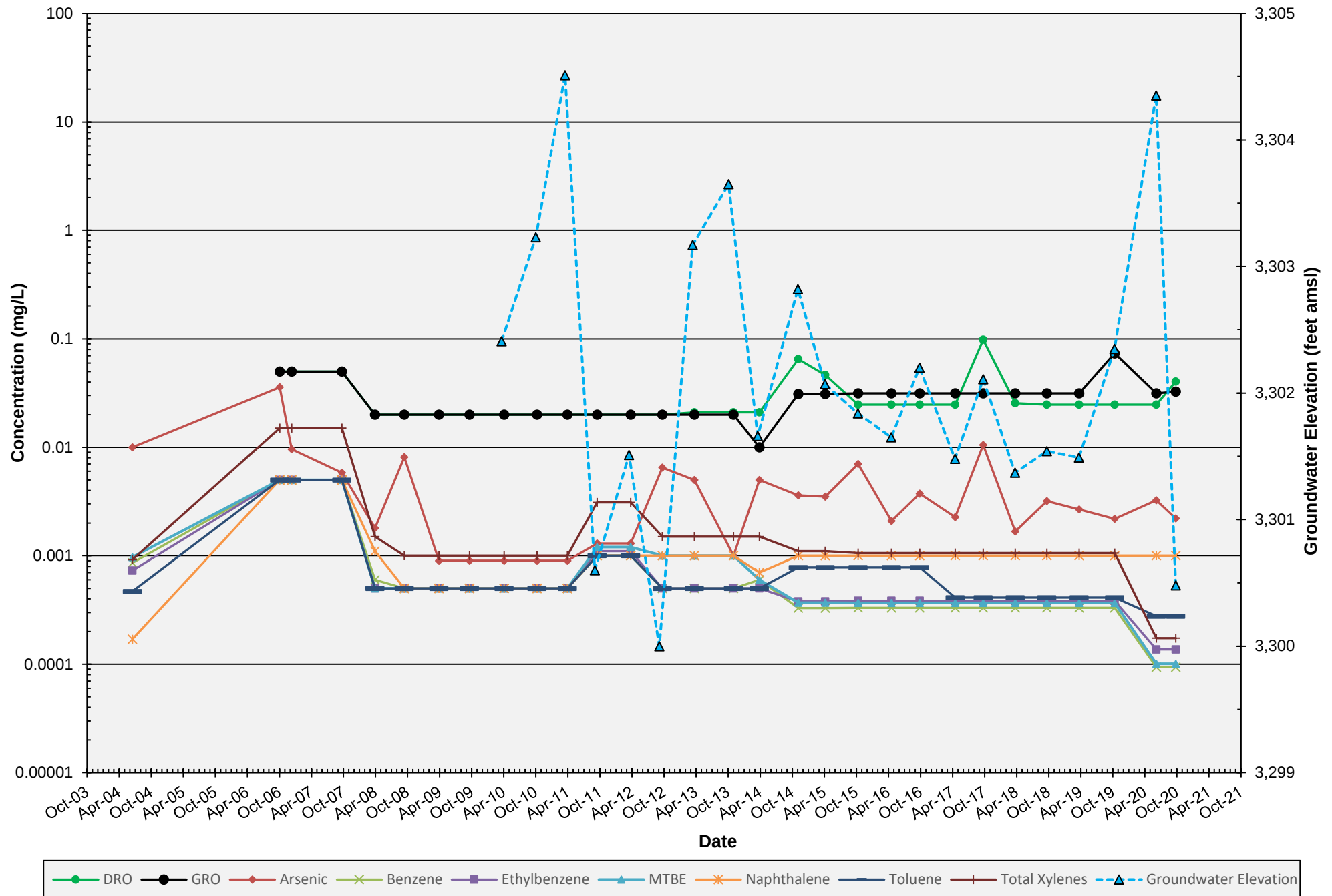
Evaporation Ponds



OCD-4: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

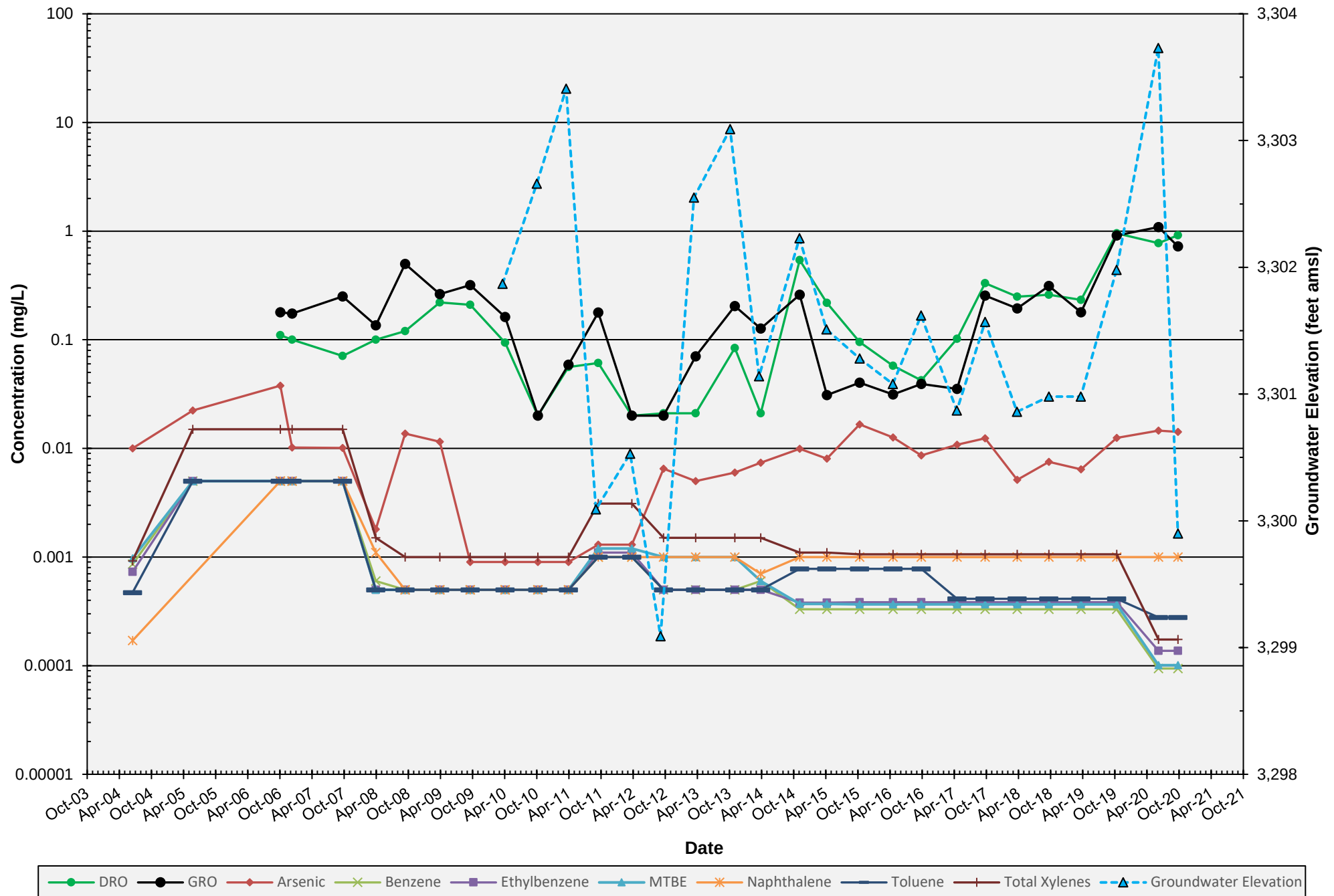
Evaporation Ponds



OCD-5: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

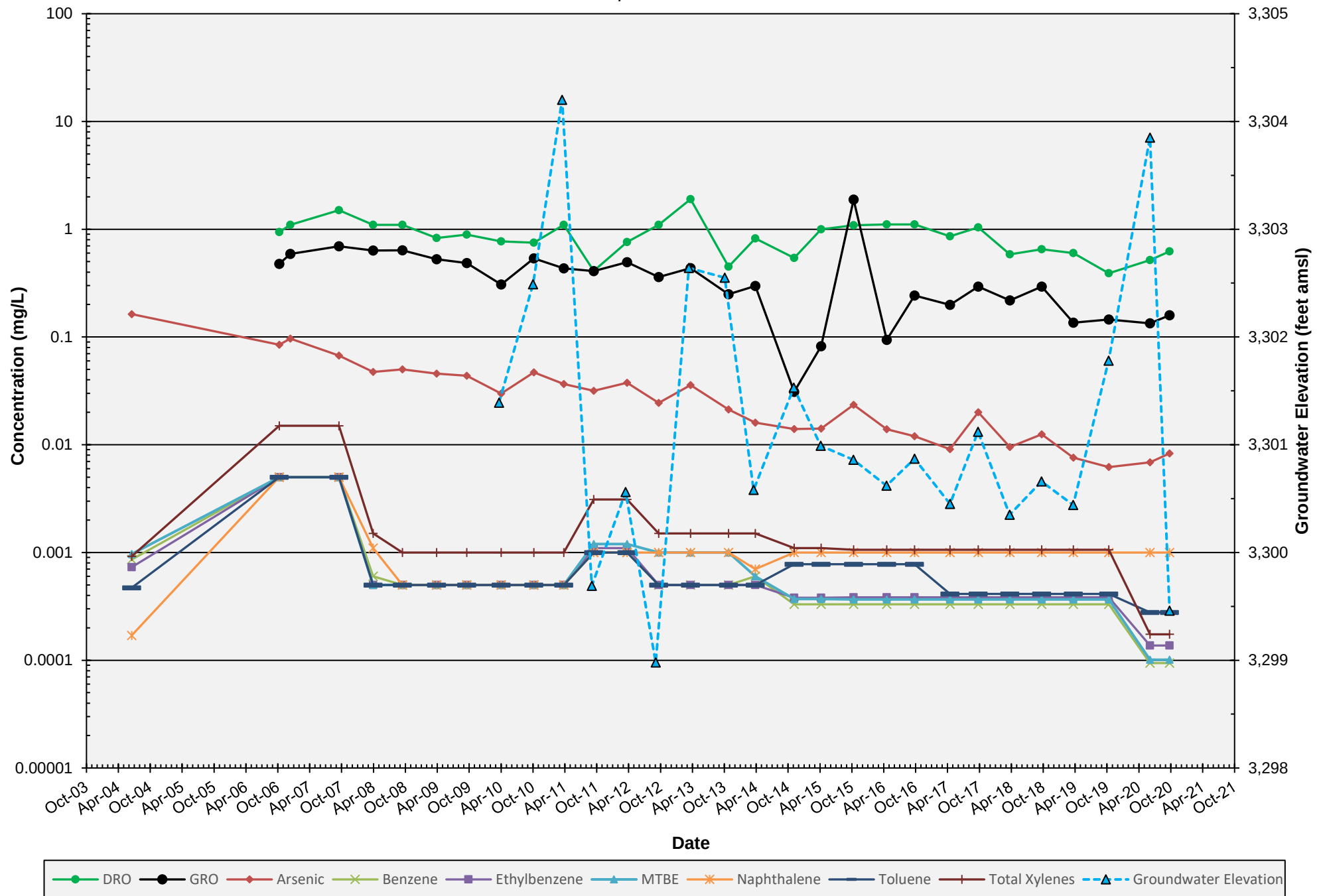
Evaporation Ponds



OCD-6: COC Concentrations and Groundwater Elevations

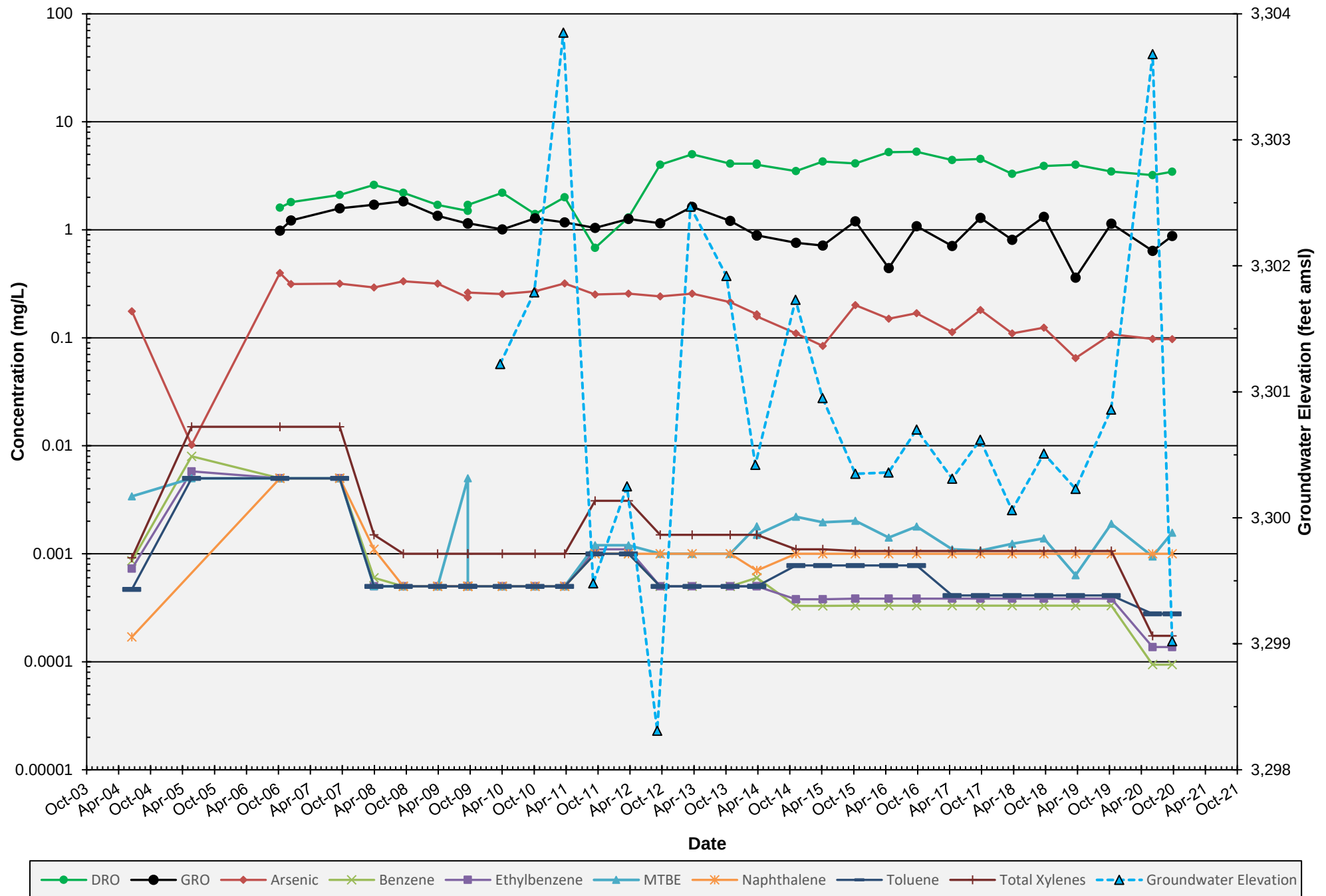
HollyFrontier Navajo Refining LLC - Artesia Refinery

Evaporation Ponds



OCD-7A & OCD-7AR: COC Concentrations and Groundwater Elevations

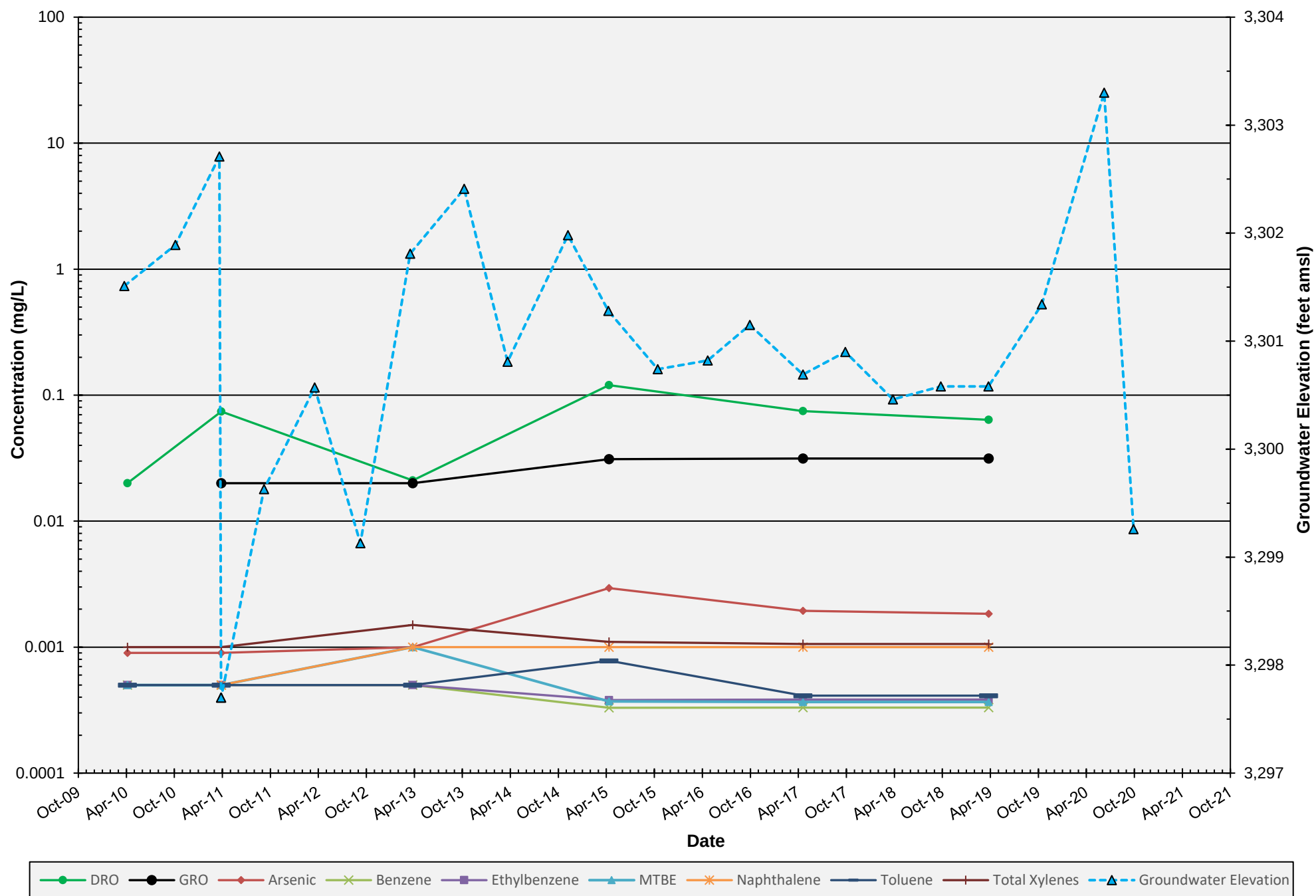
HollyFrontier Navajo Refining LLC - Artesia Refinery
Evaporation Ponds



OCD-7B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

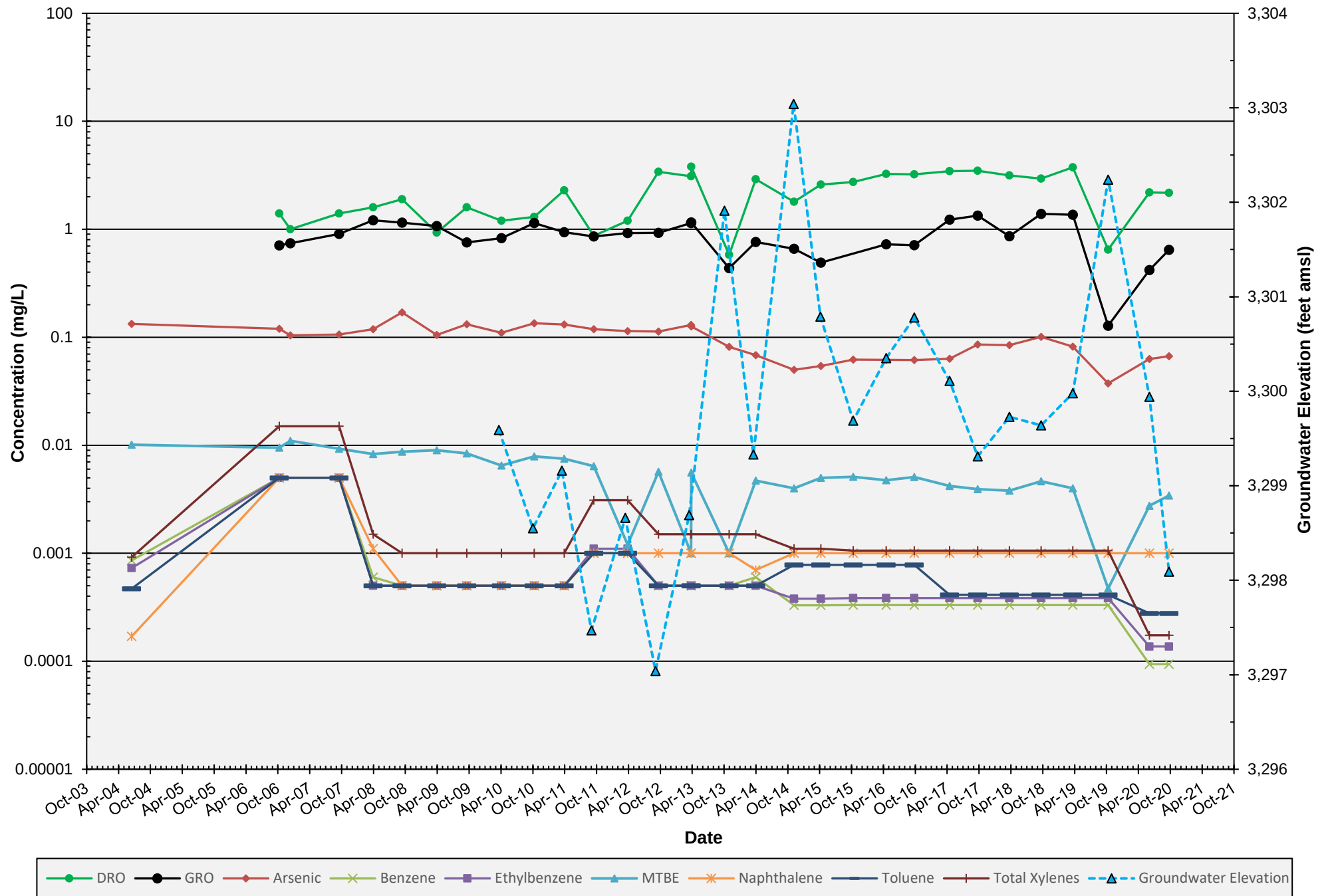
Evaporation Ponds



OCD-8A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

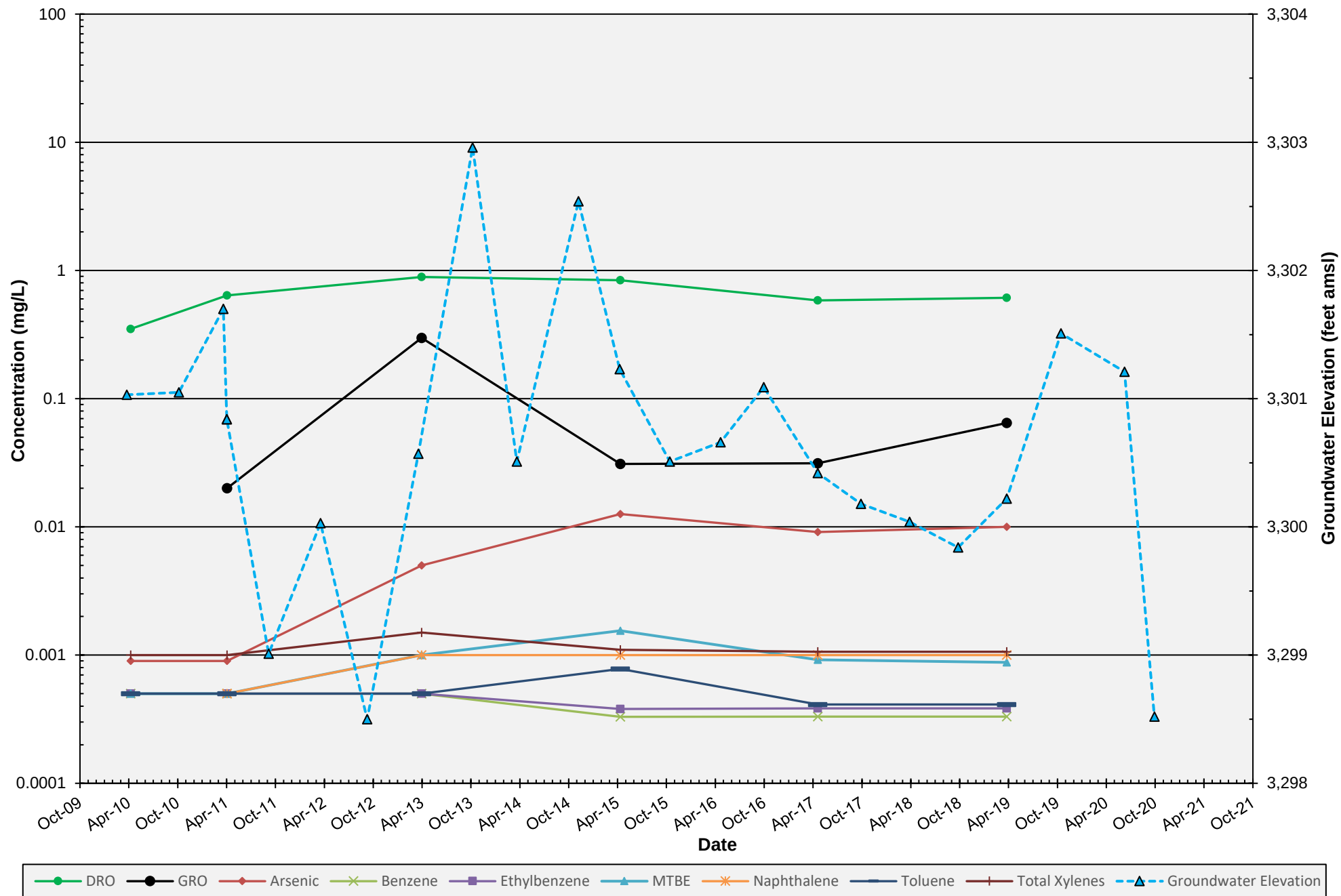
Evaporation Ponds



OCD-8B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

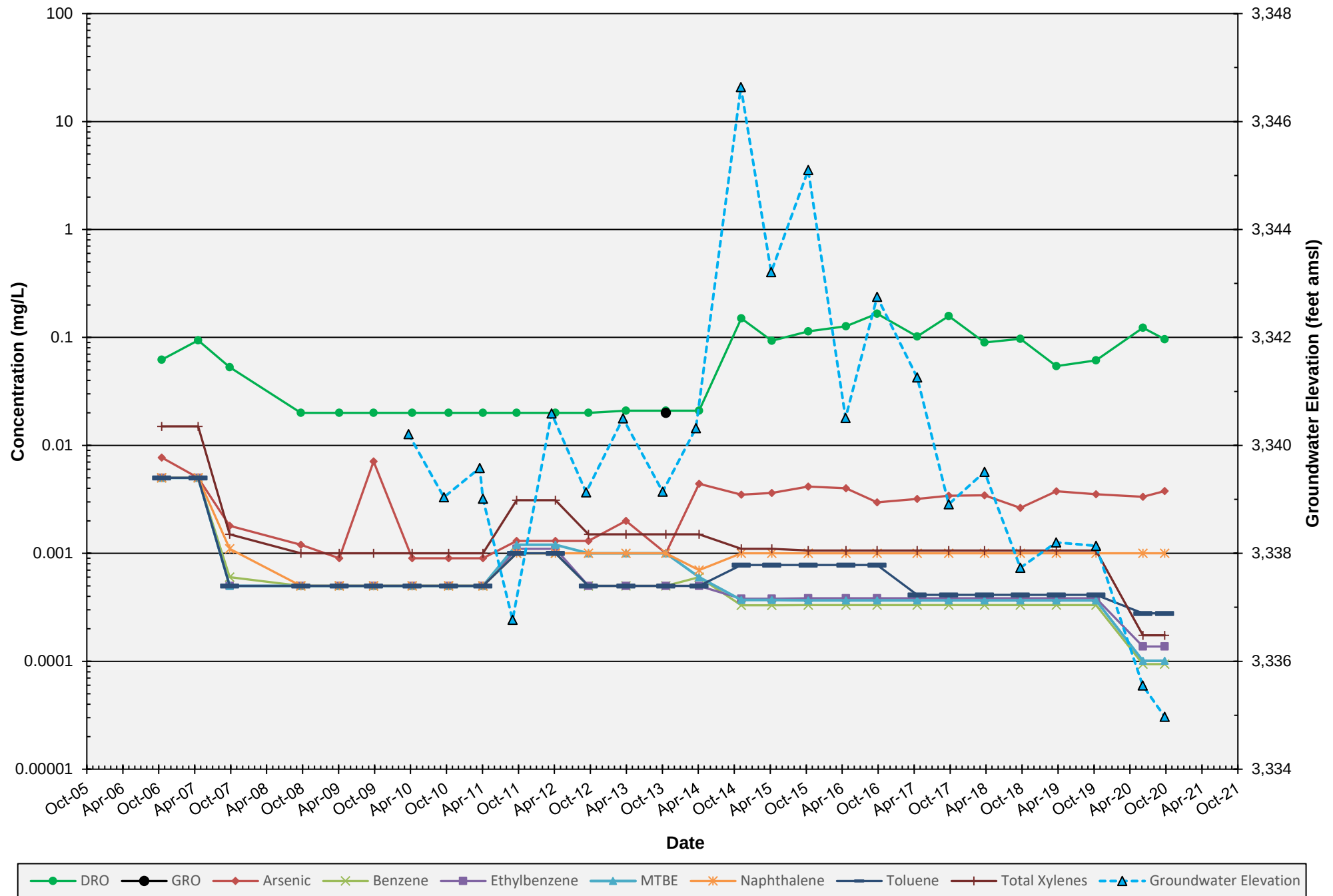
Evaporation Ponds



KWB-1A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

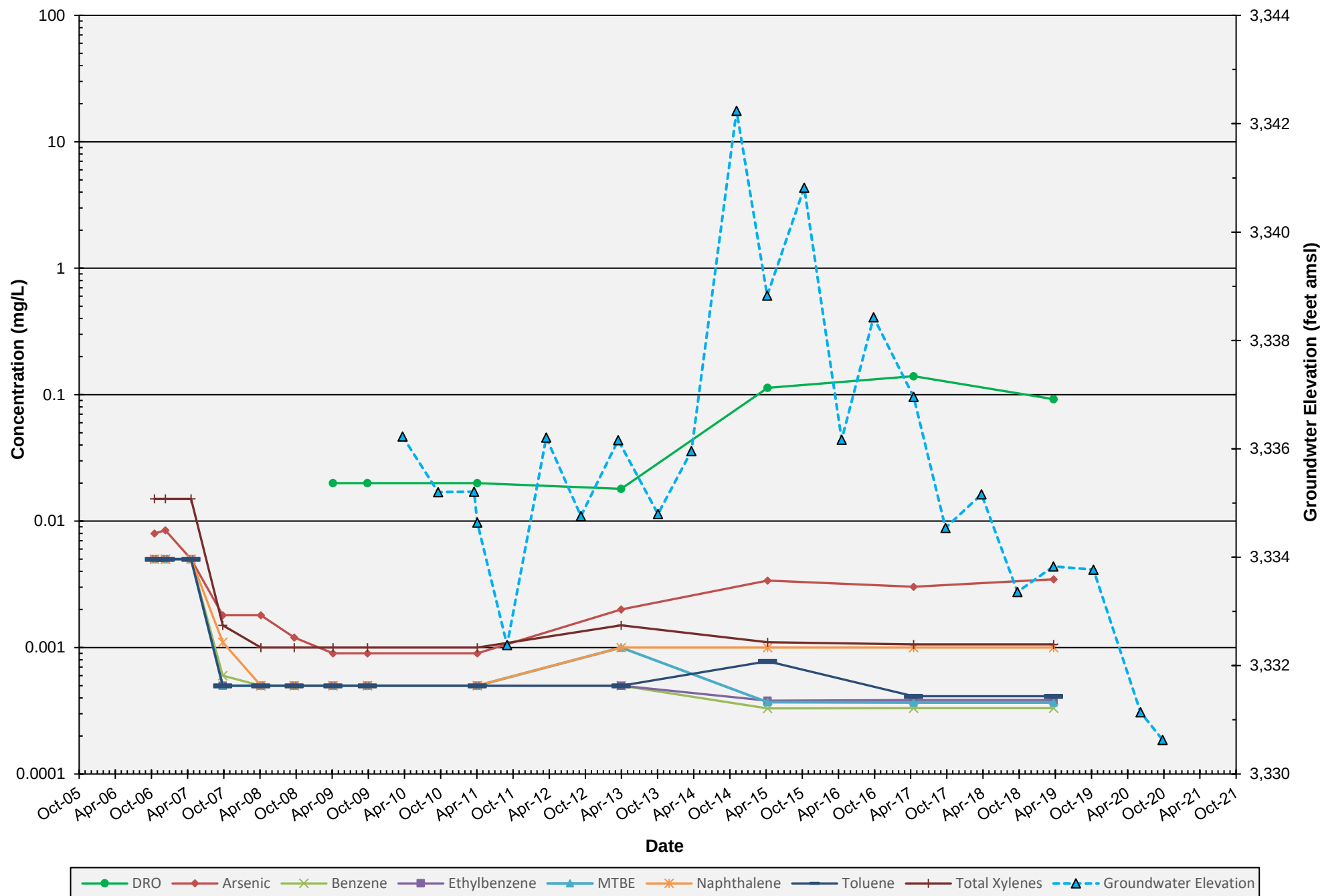
Field East of Refinery



KWB-1C: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

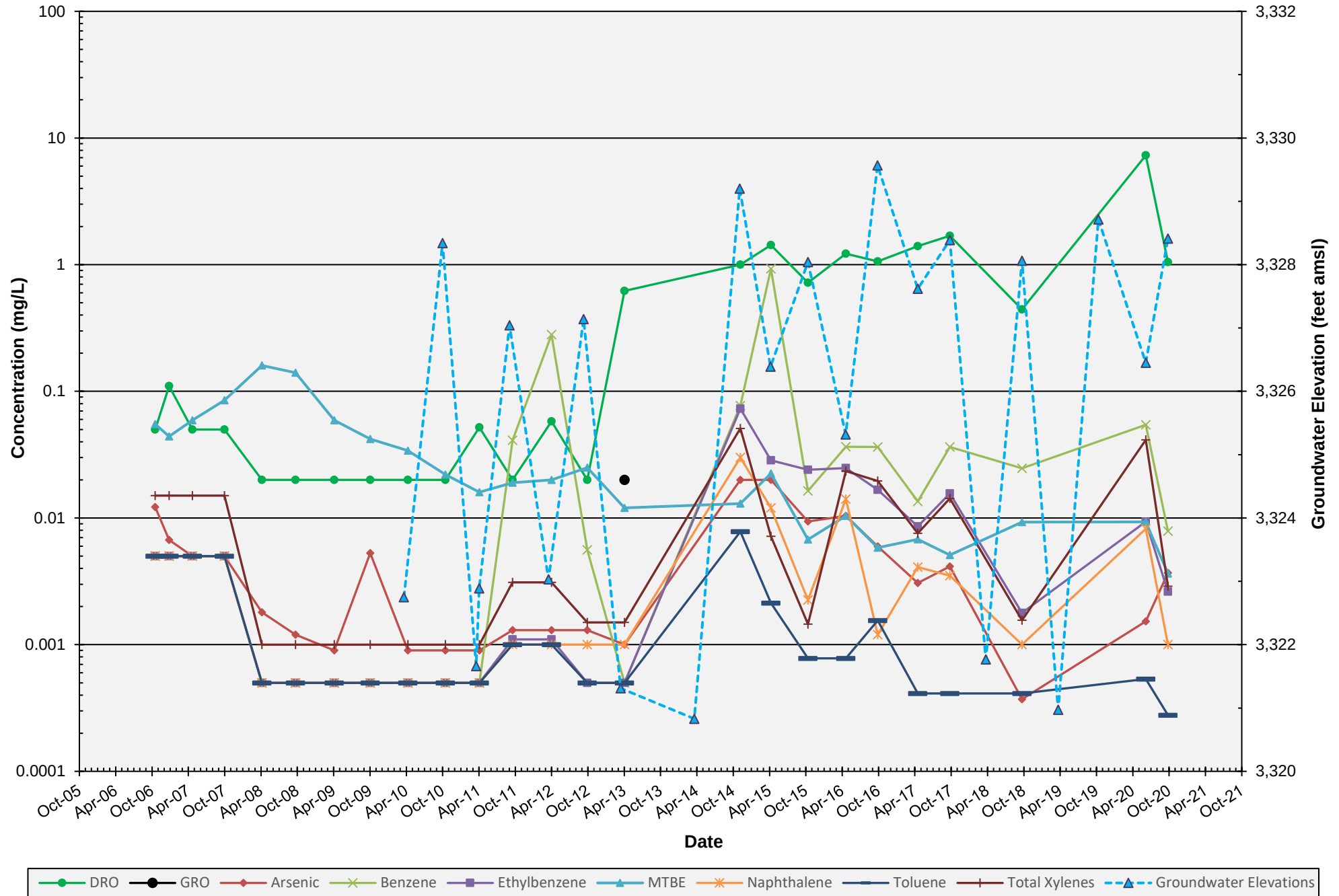
Field East of Refinery



KWB-7: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

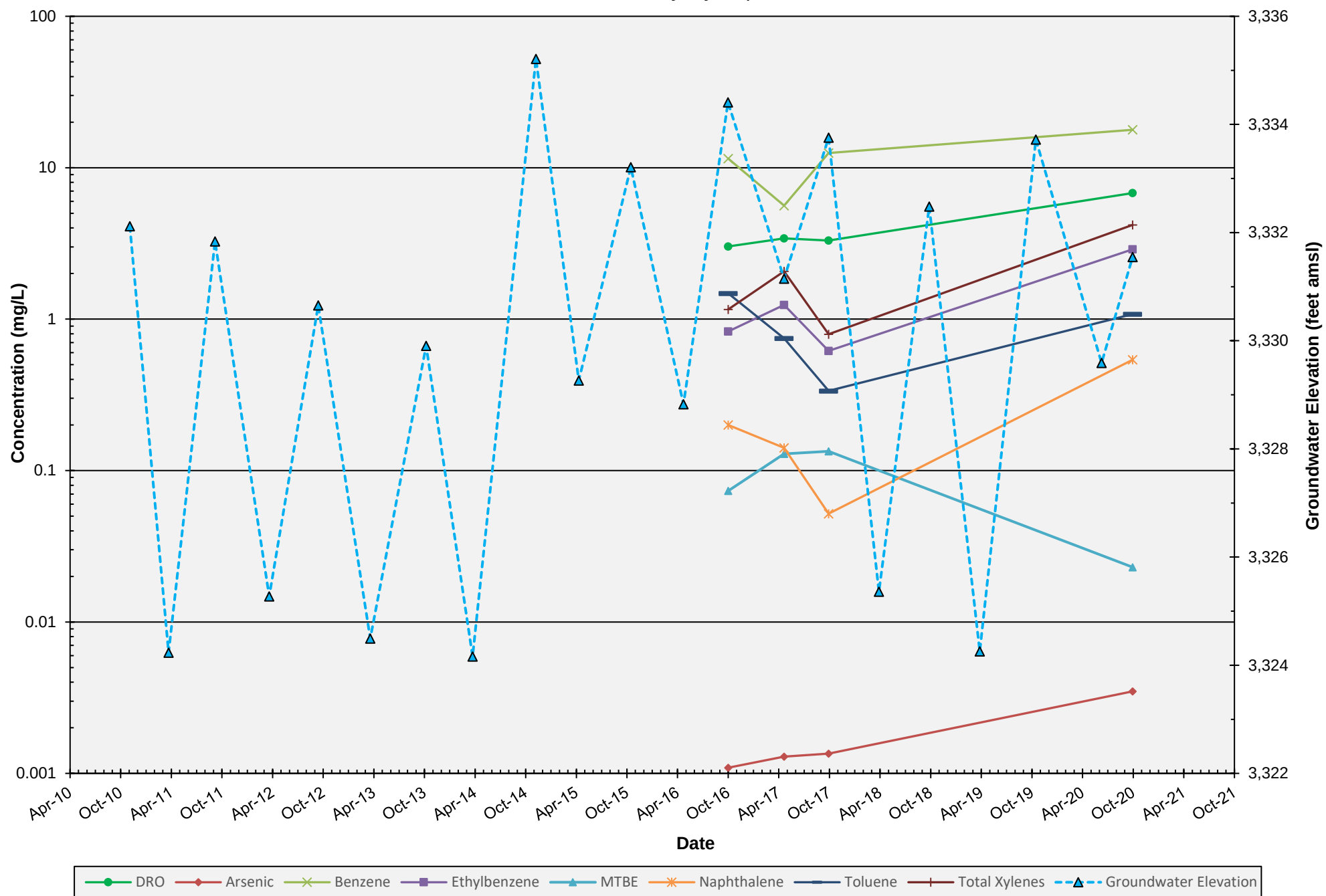
Field East of Refinery



KWB-8: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

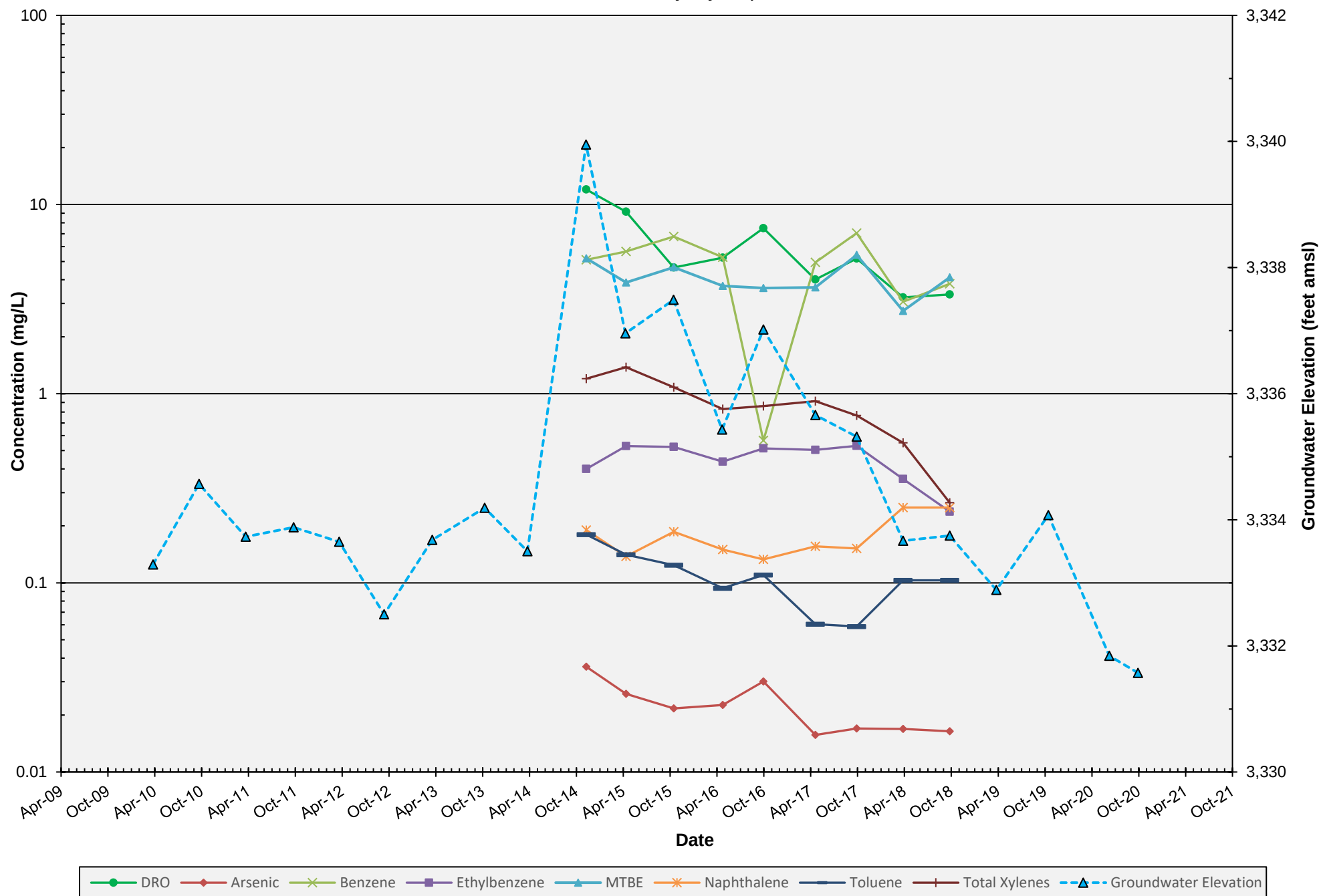
Field East of Refinery



KWB-10R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

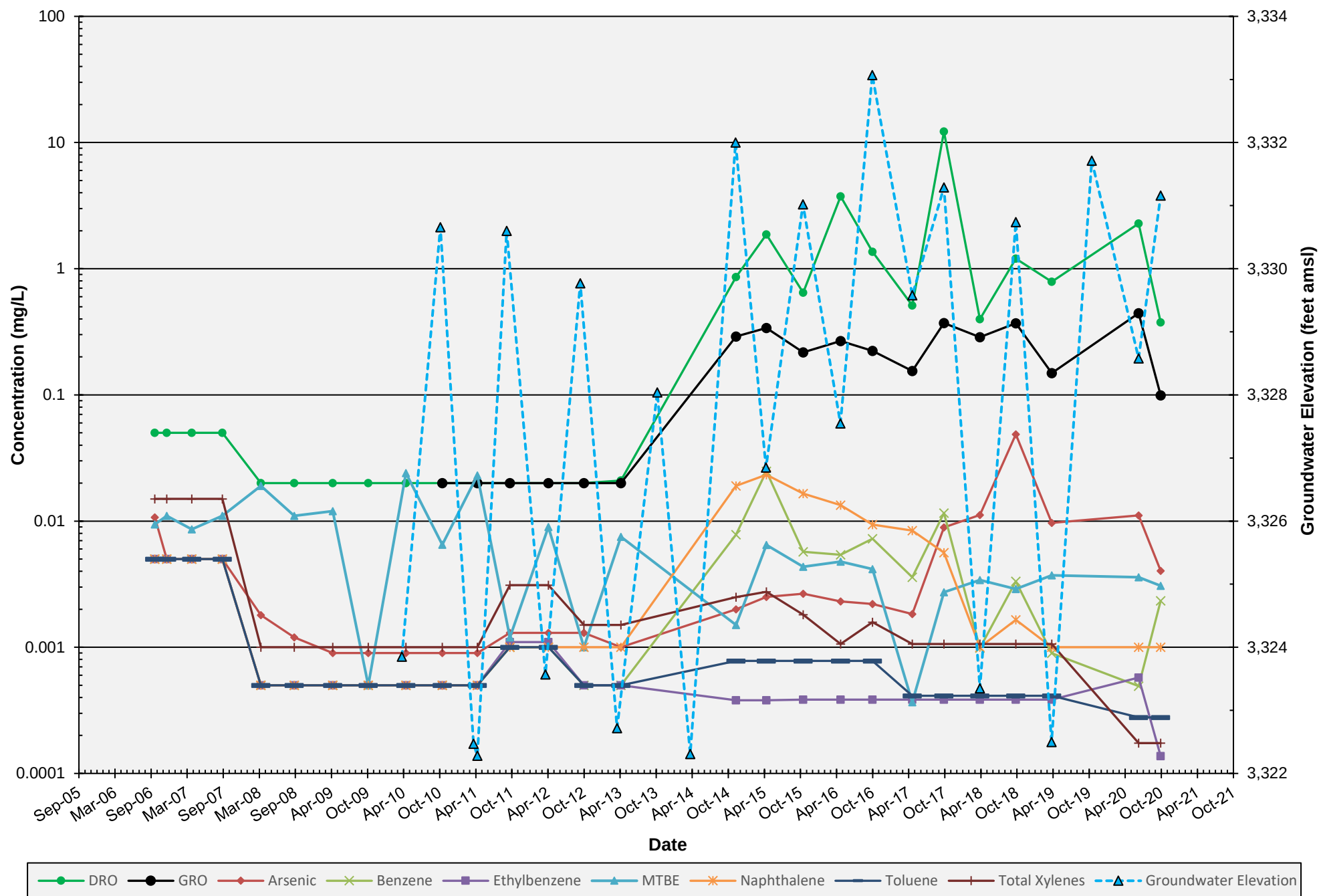
Field East of Refinery



KWB-11A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

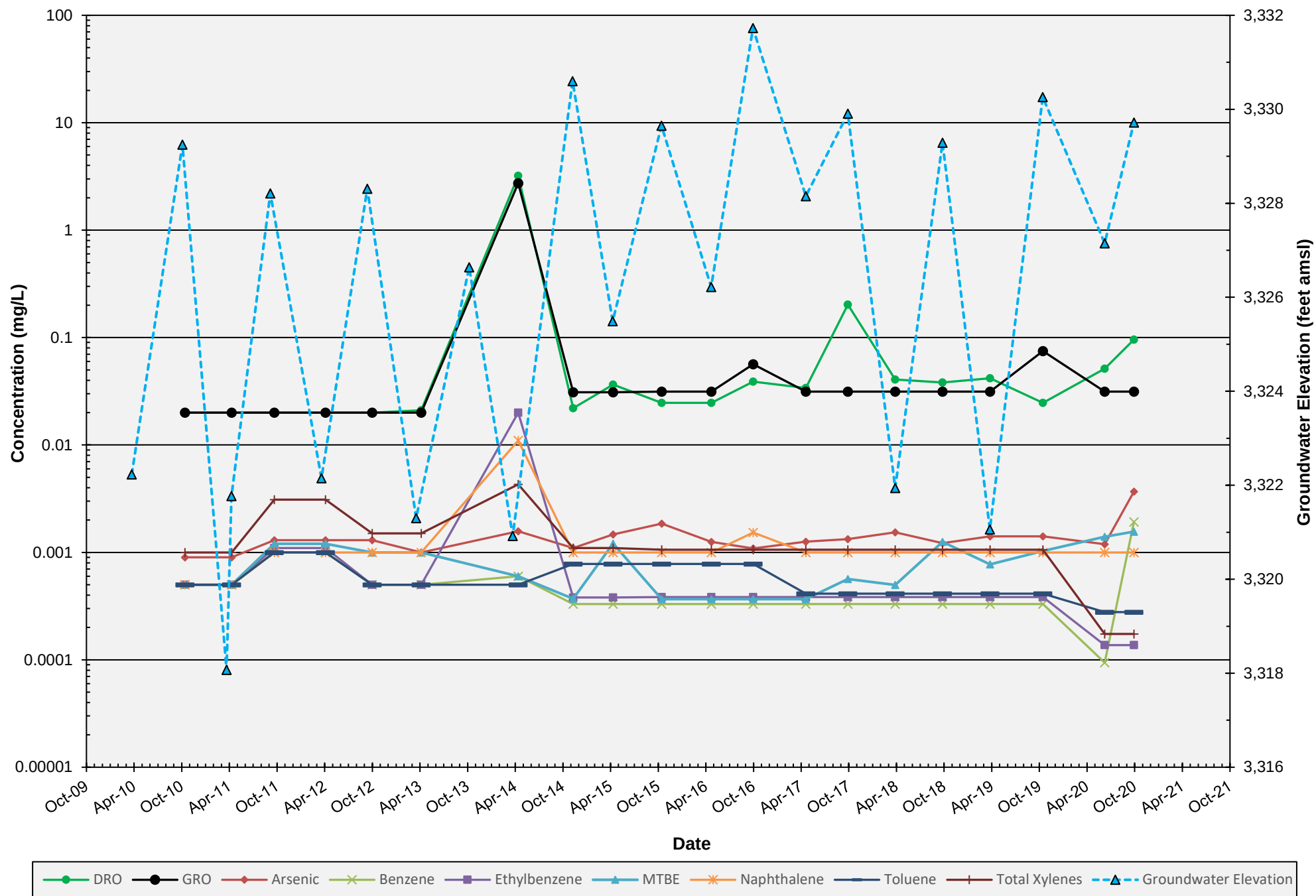
Field East of Refinery



KWB-11B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

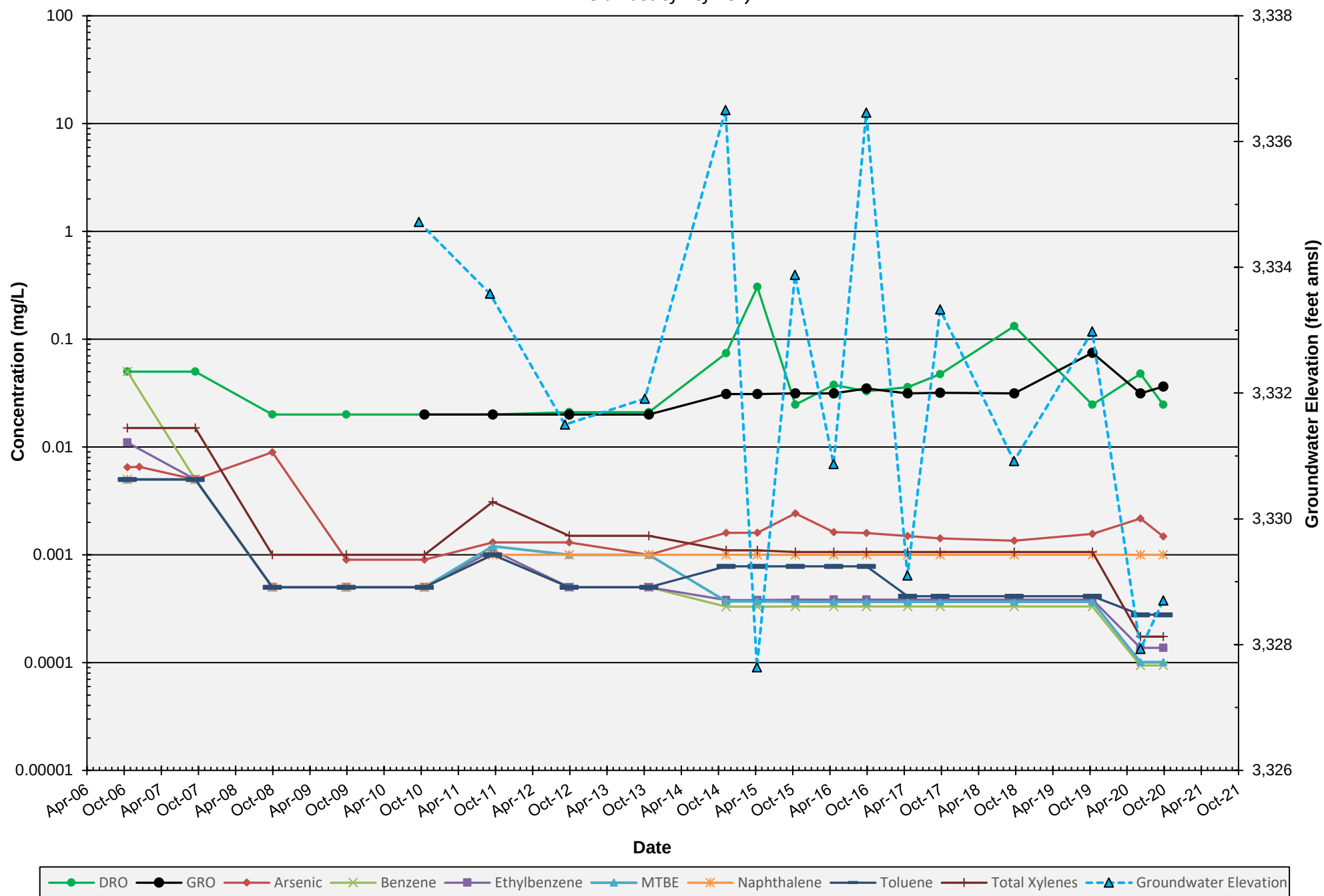
Field East of Refinery



KWB-12A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

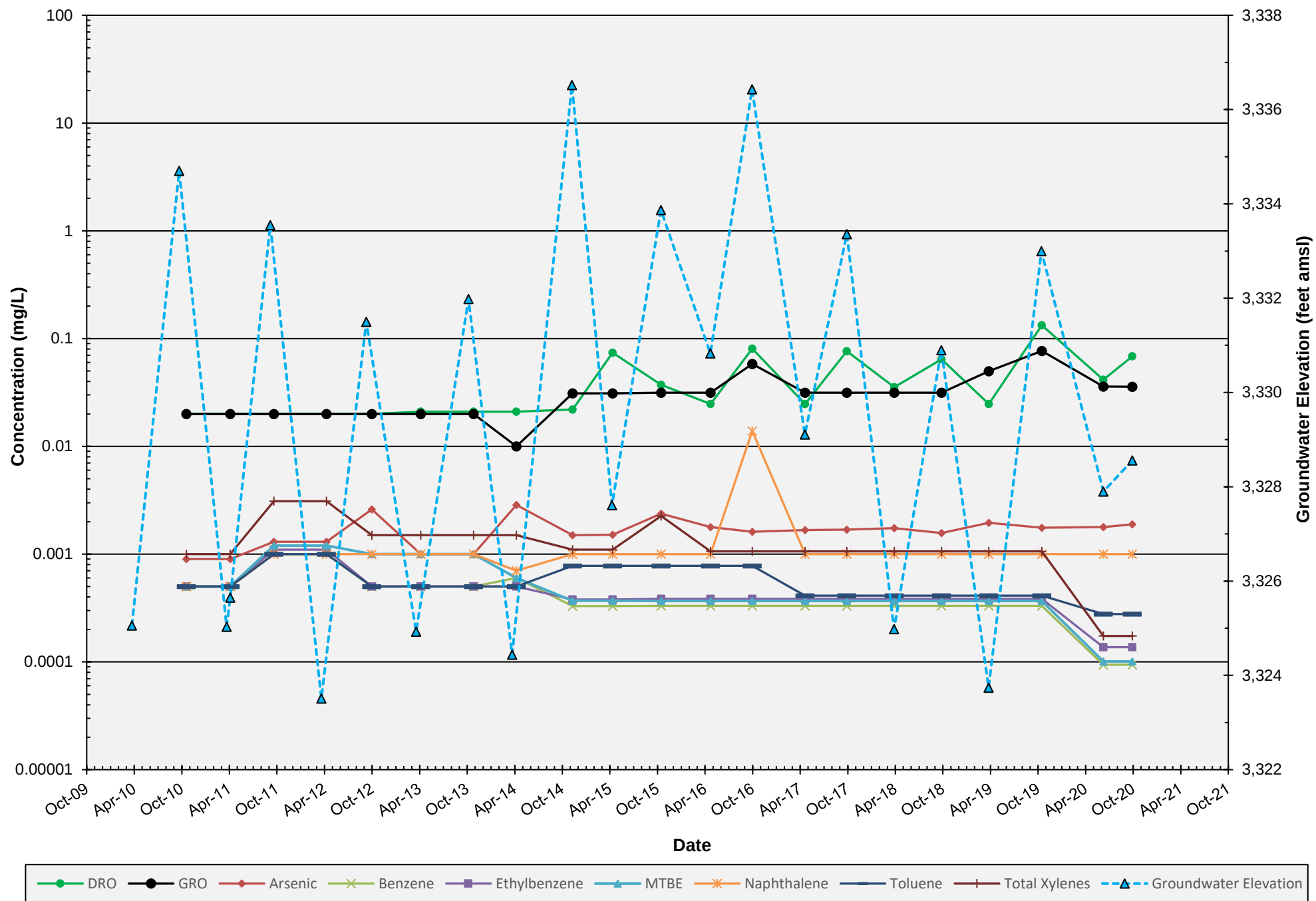
Field East of Refinery



KWB-12B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

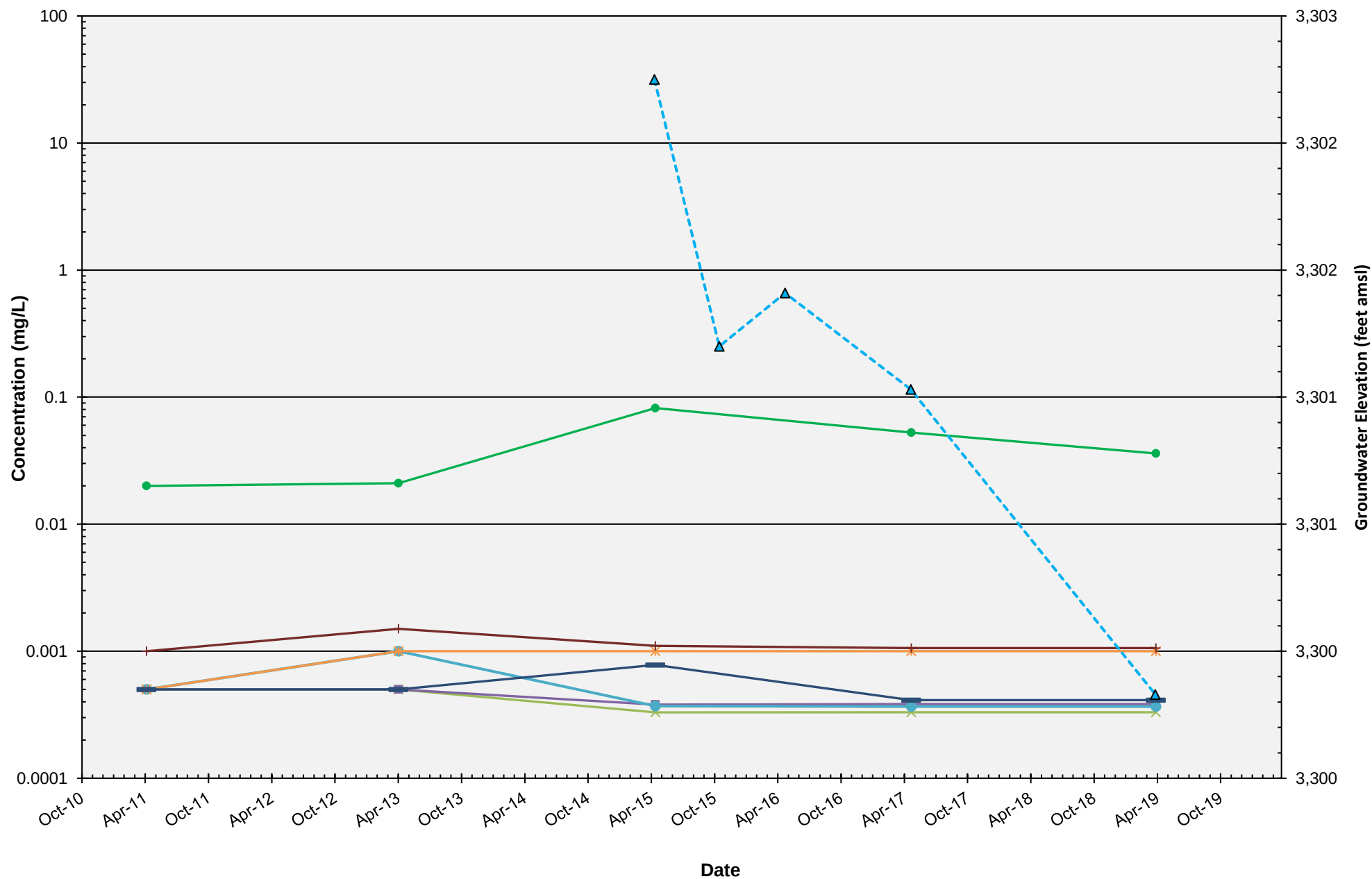
Field East of Refinery



KWB-P4: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

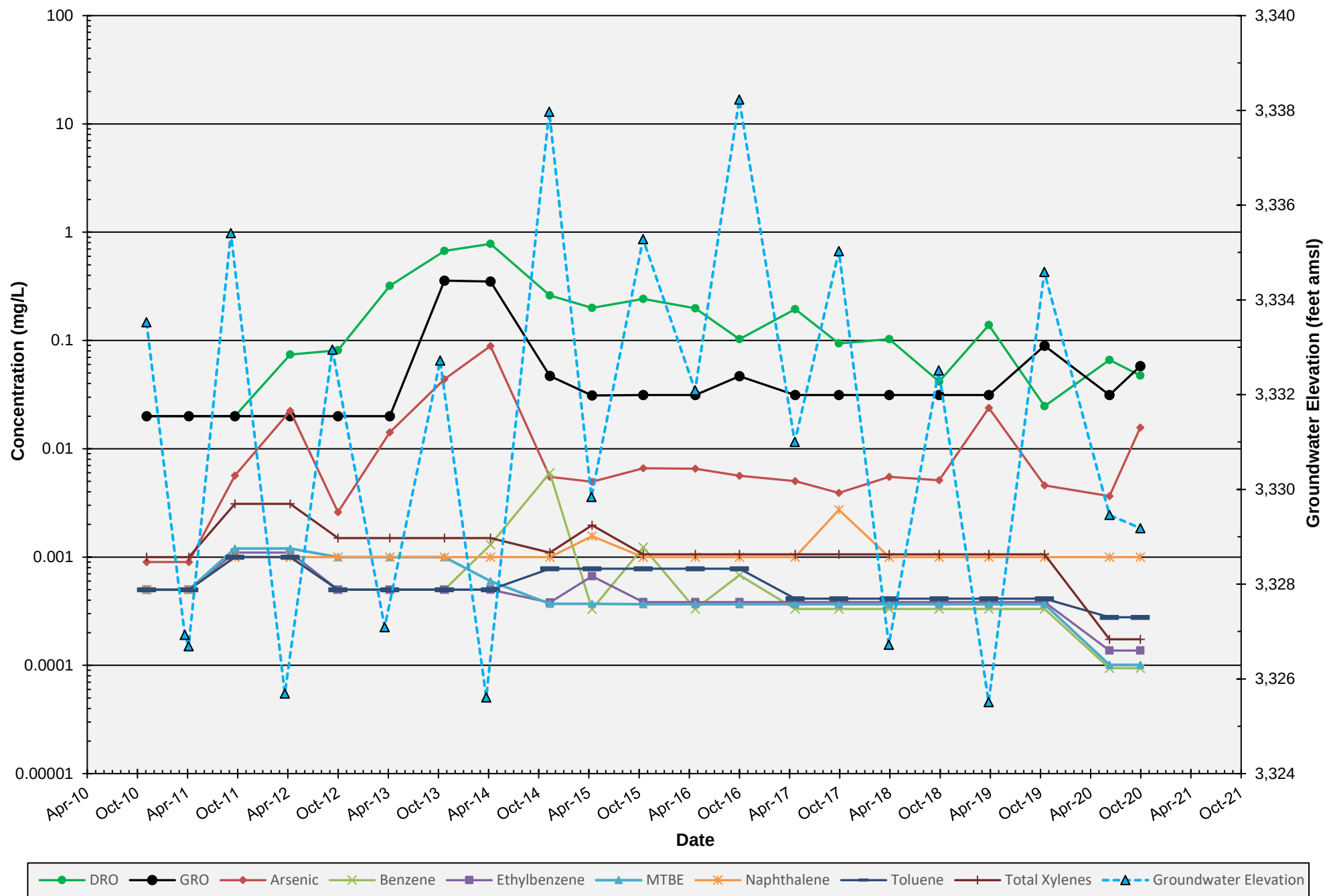
Field East of Refinery



MW-57: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

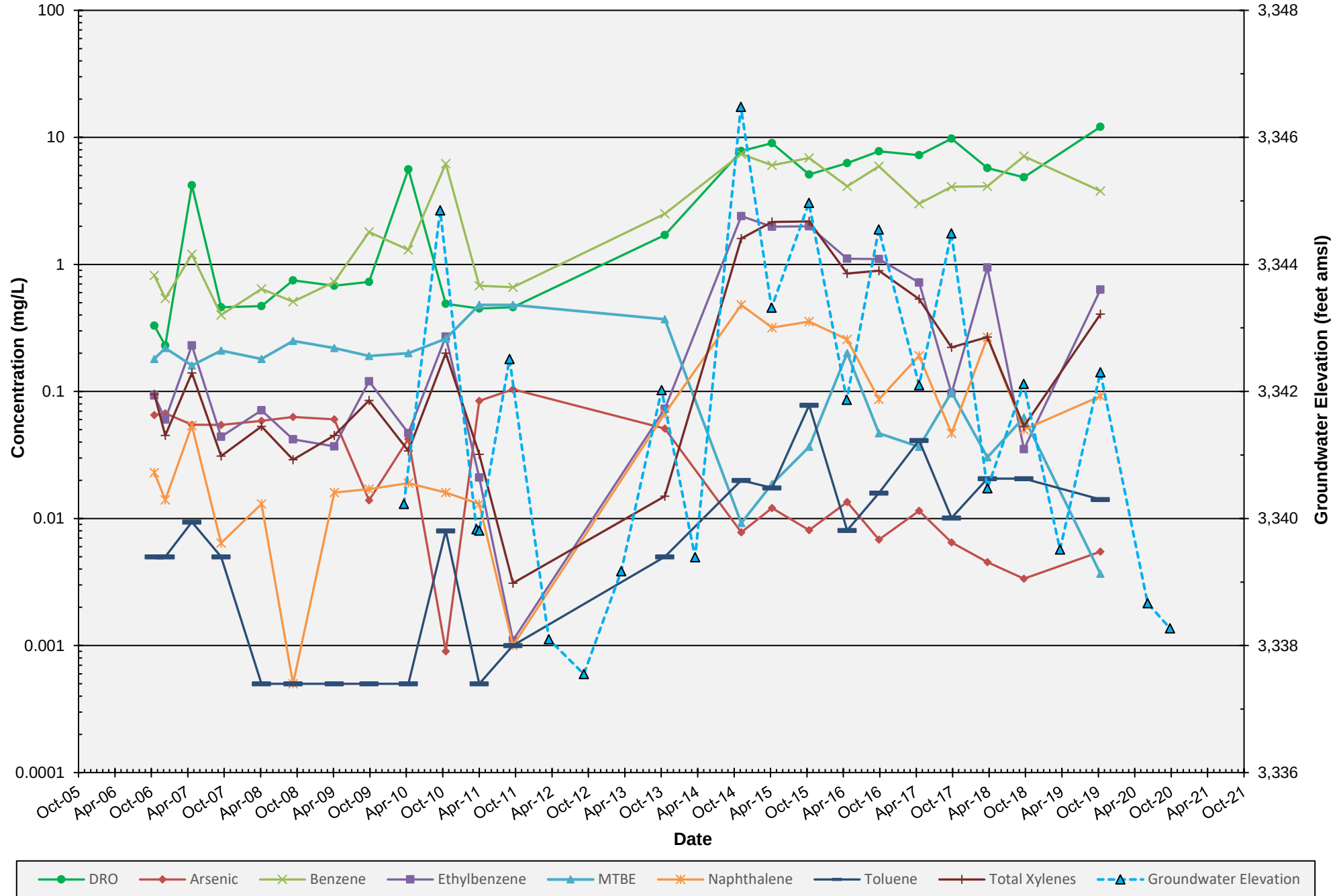
Field East of Refinery



MW-58: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

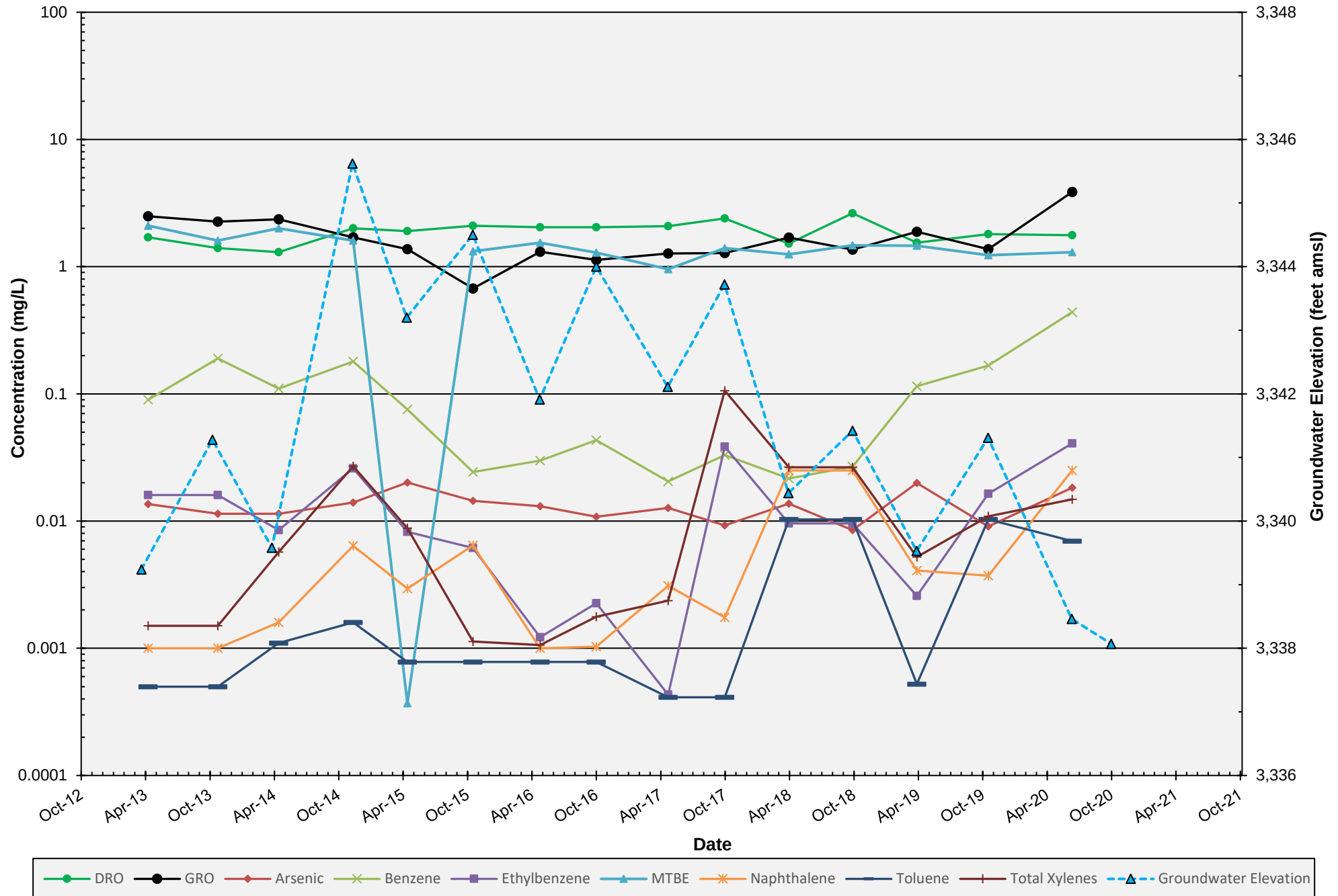
Field East of Refinery



MW-111: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

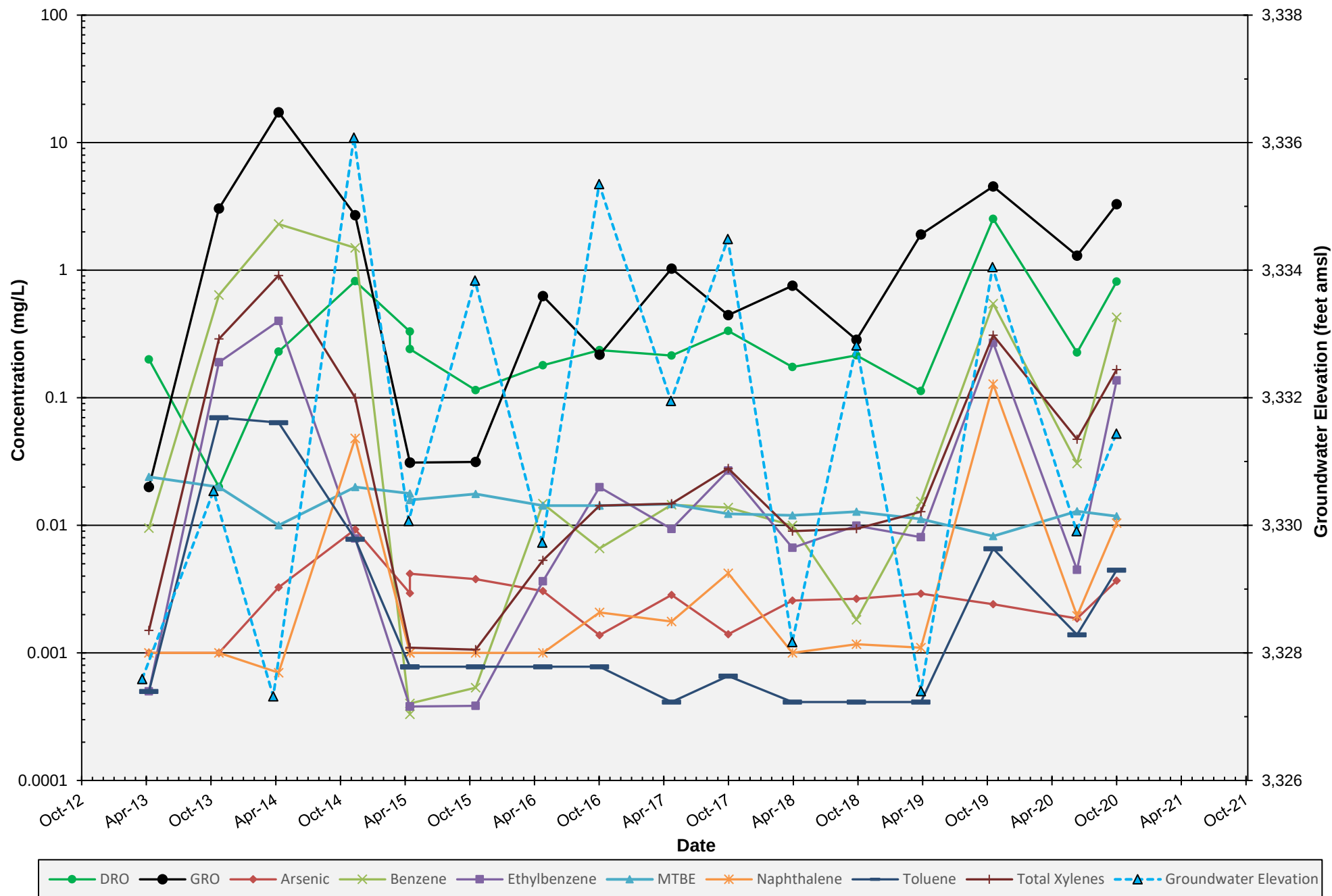
Field East of Refinery



MW-113: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

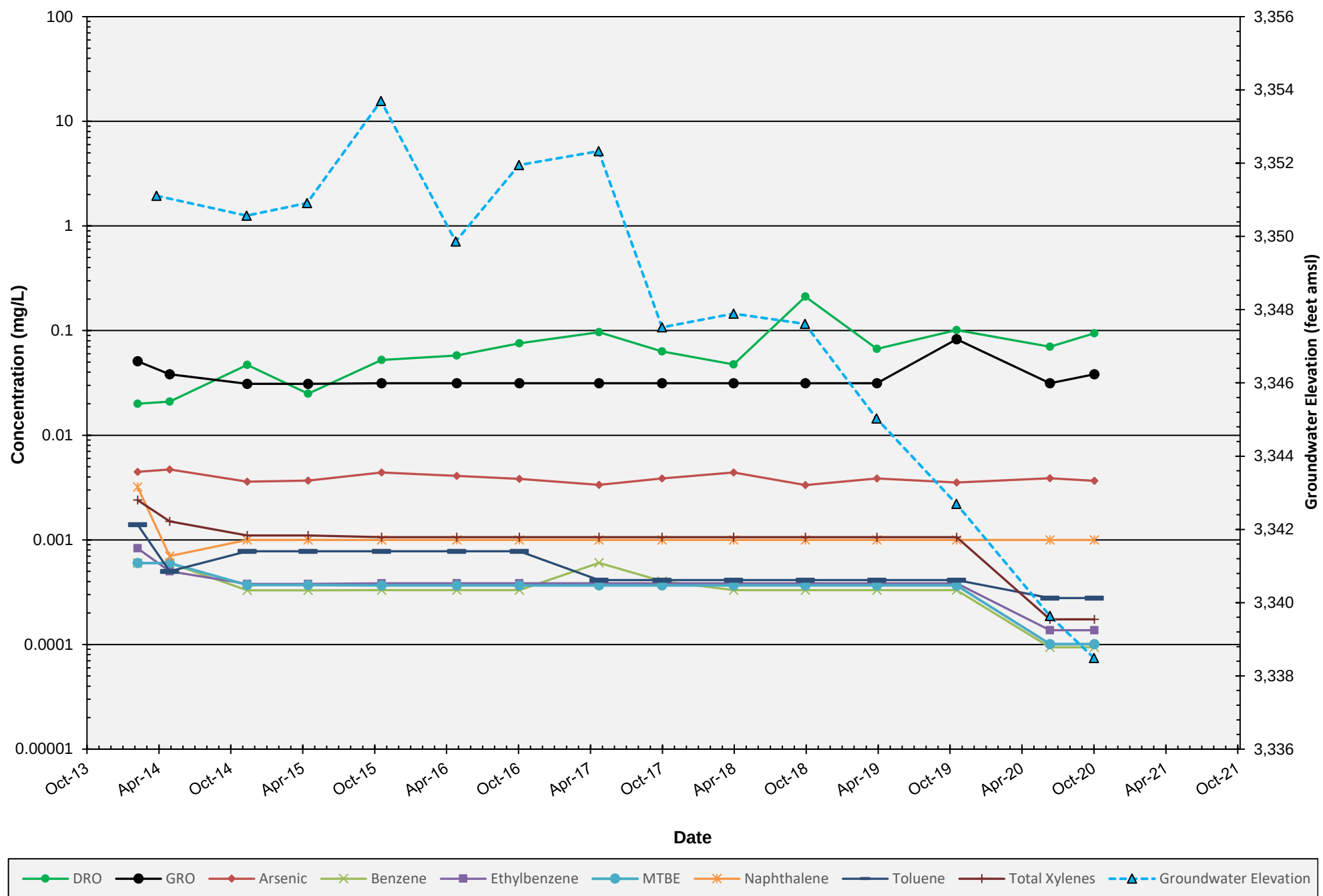
Field East of Refinery



MW-125: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

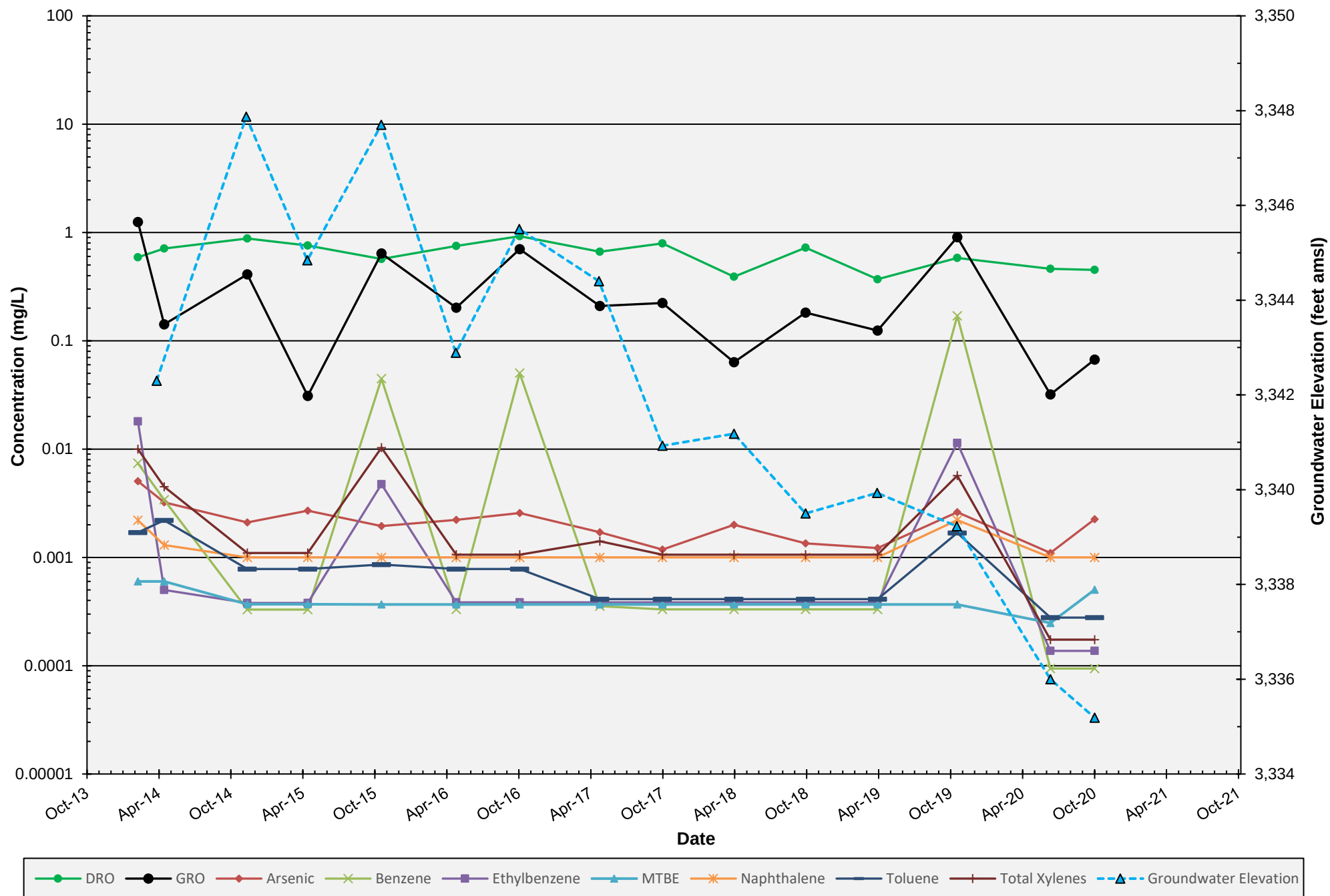
Field East of Refinery



MW-126A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

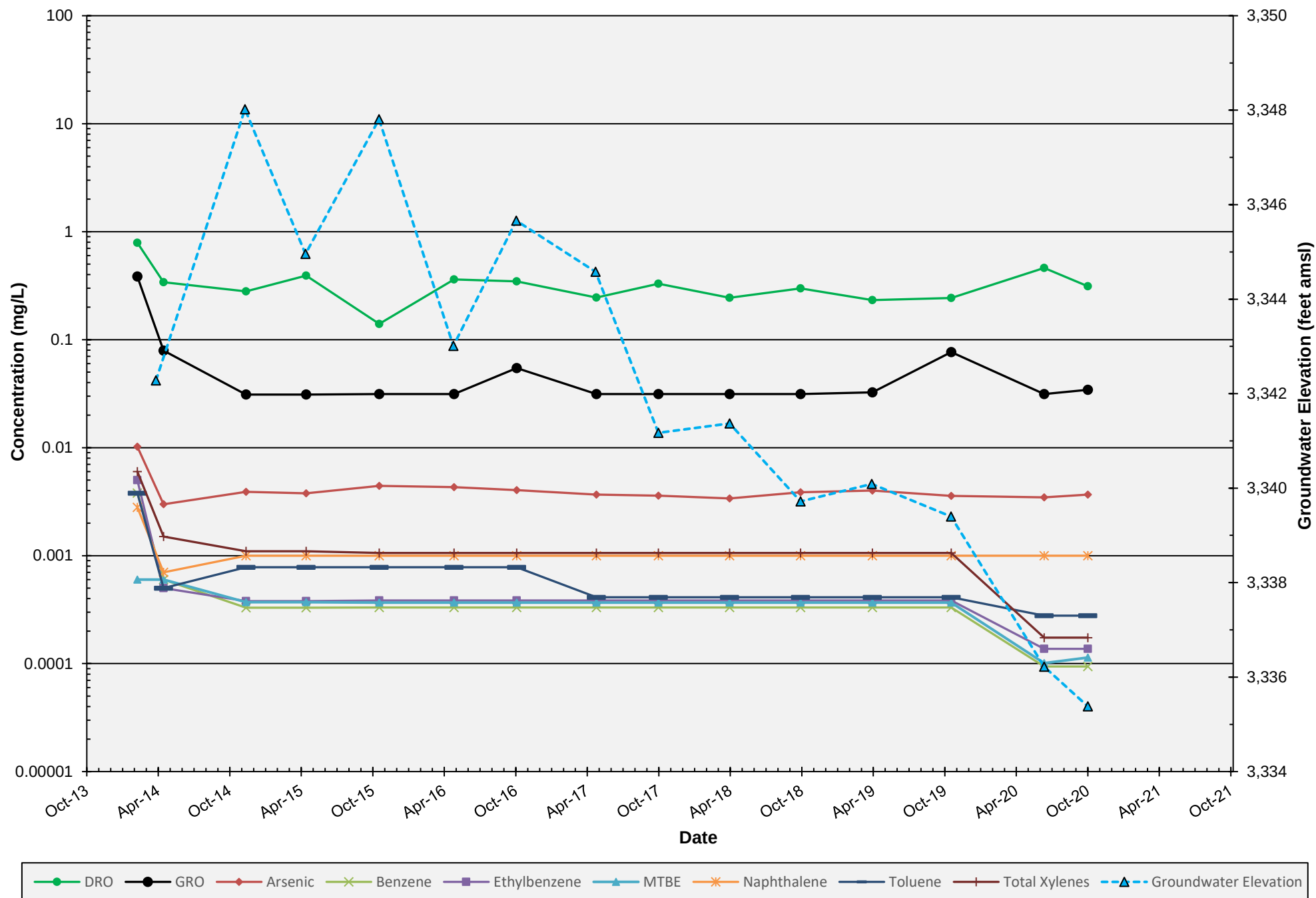
Field East of Refinery



MW-126B: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

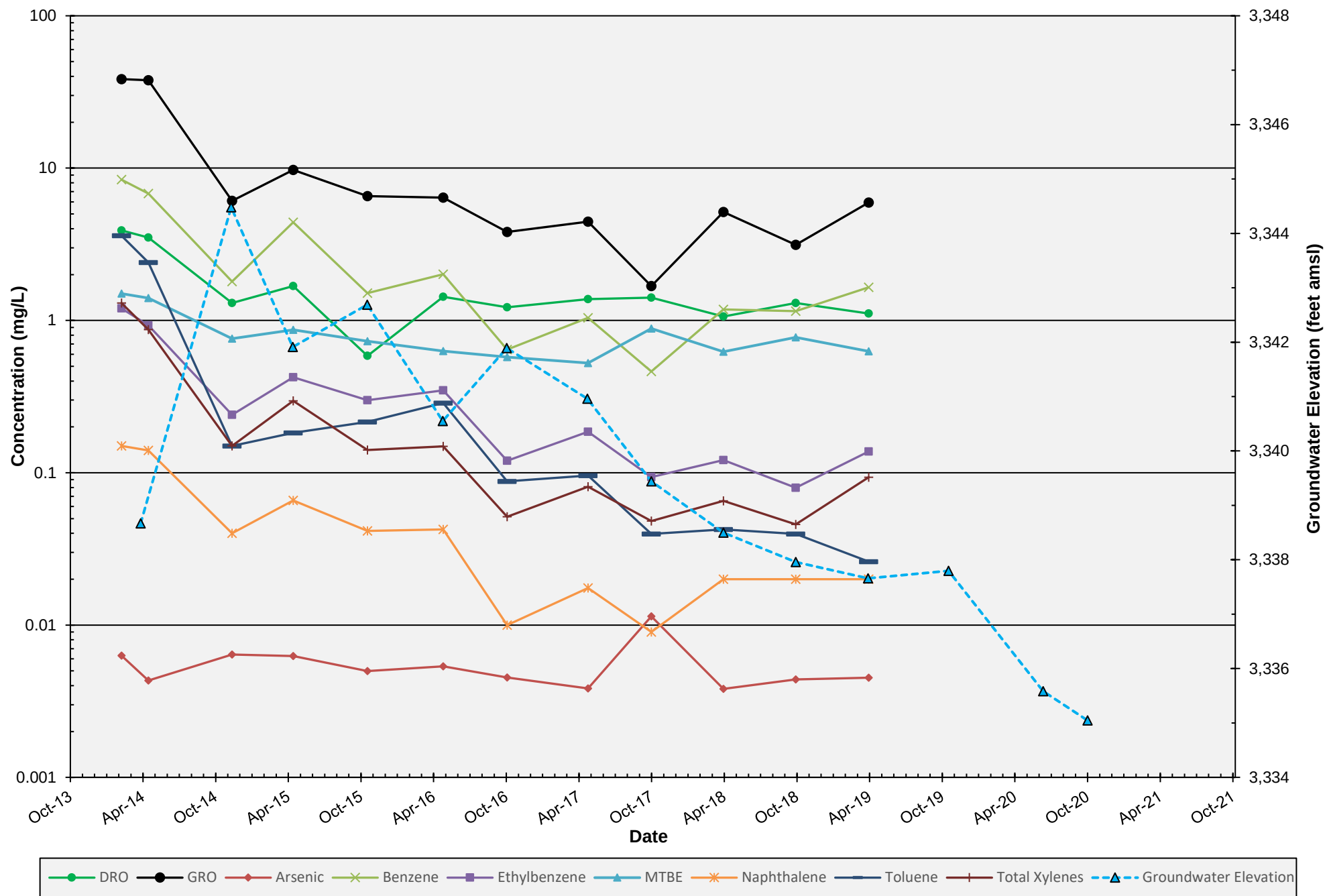
Field East of Refinery



MW-127: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

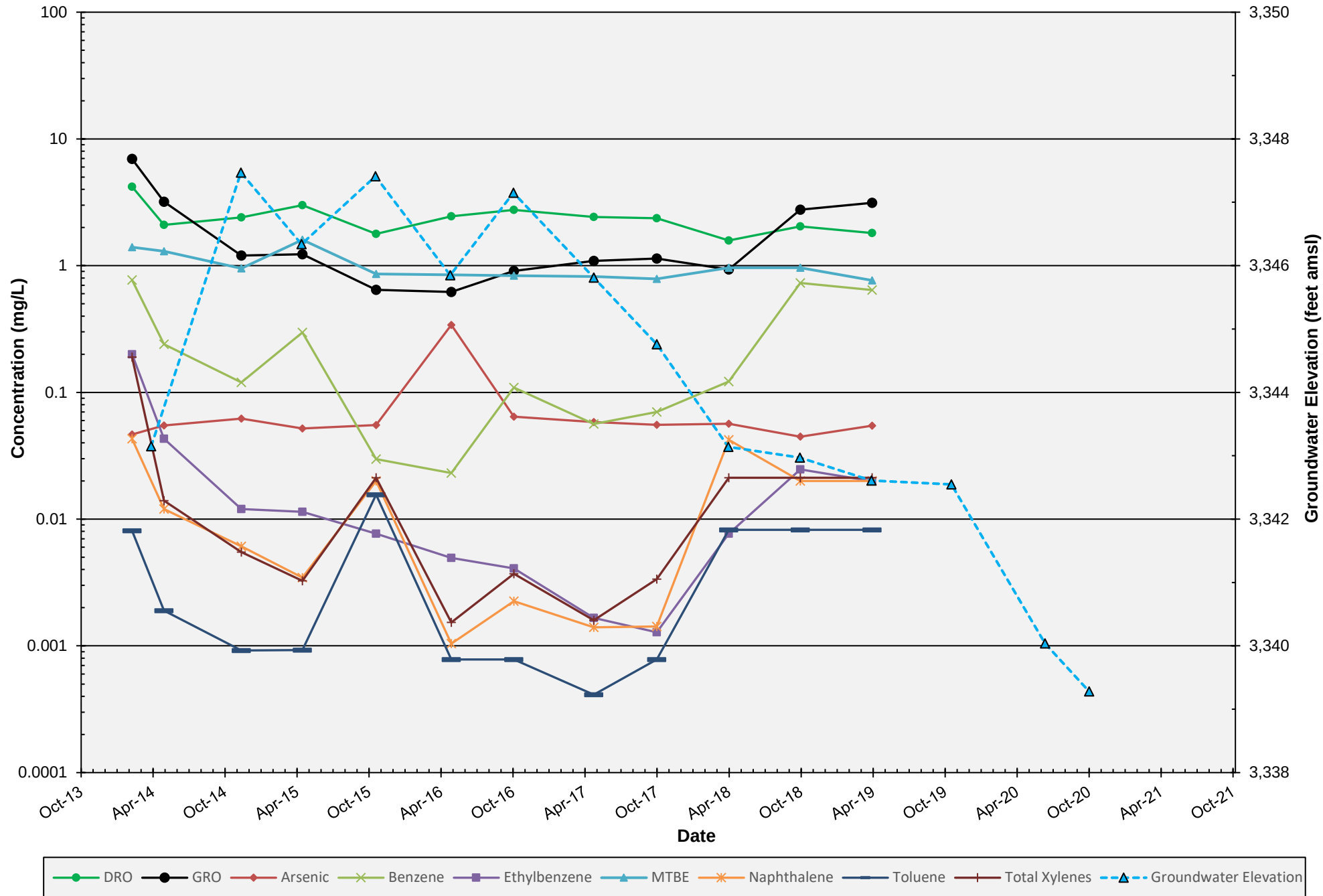
Field East of Refinery



MW-128: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

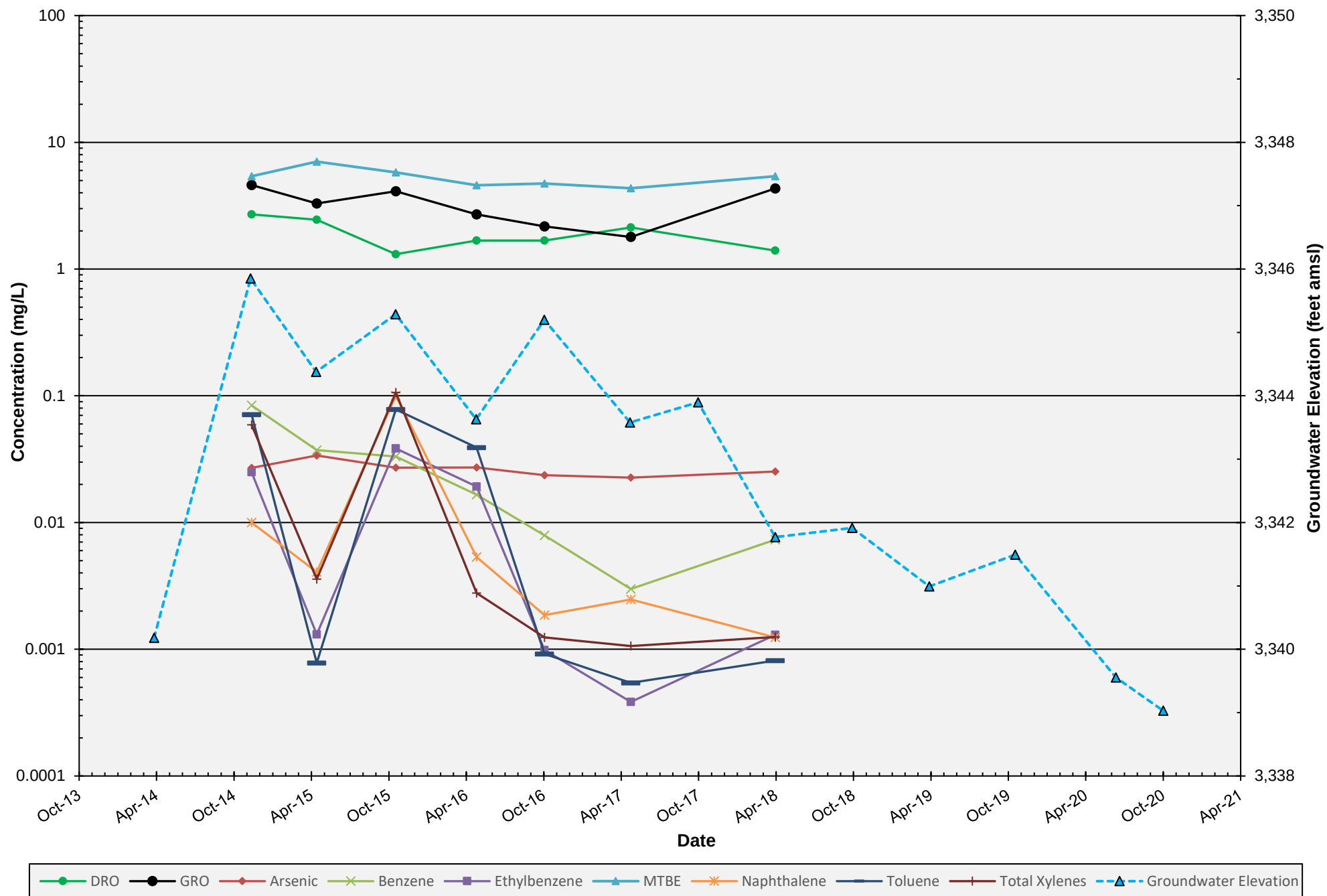
Field East of Refinery



MW-129: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

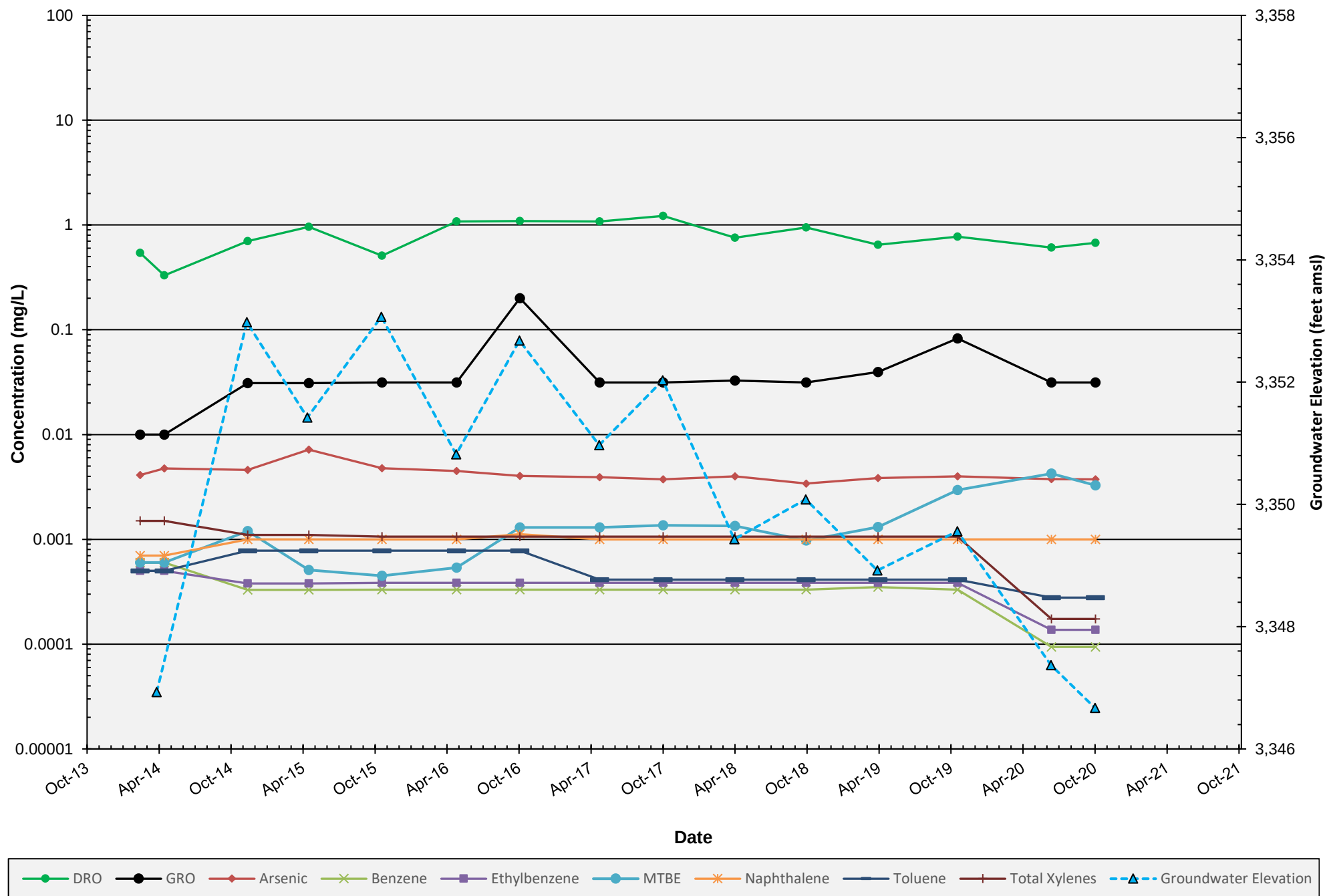
Field East of Refinery



MW-130: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

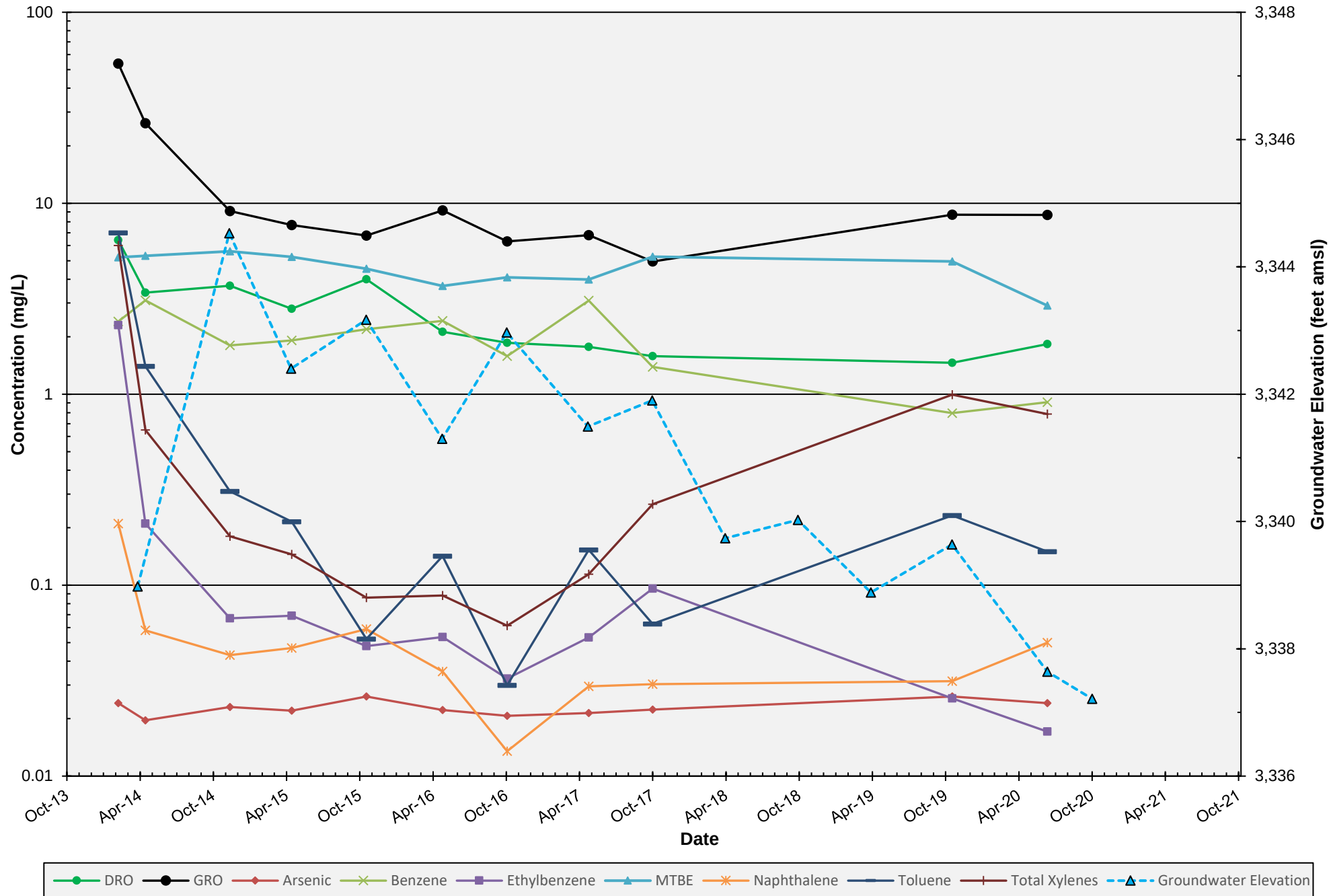
Field East of Refinery



MW-131: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

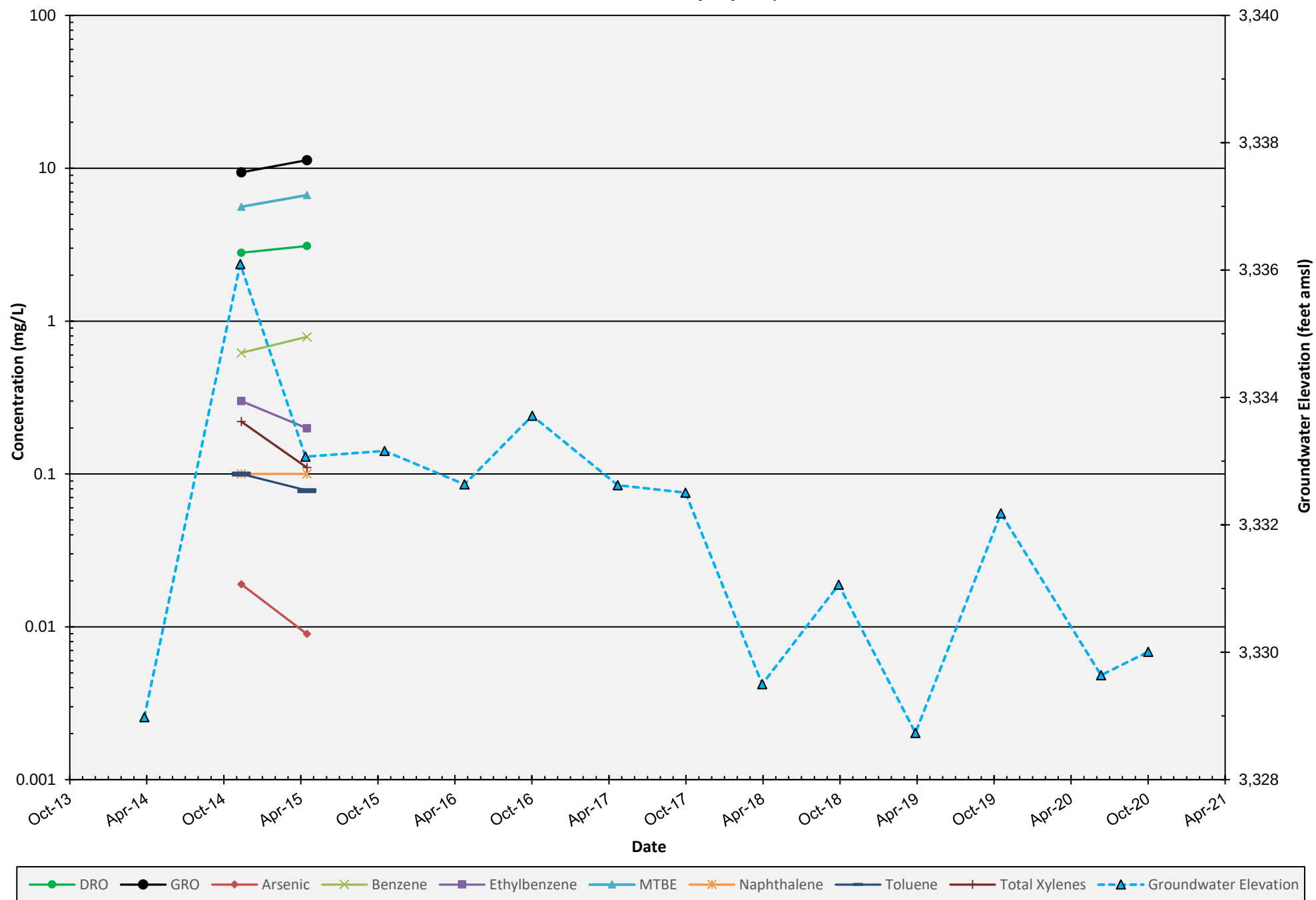
Field East of Refinery



MW-133: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

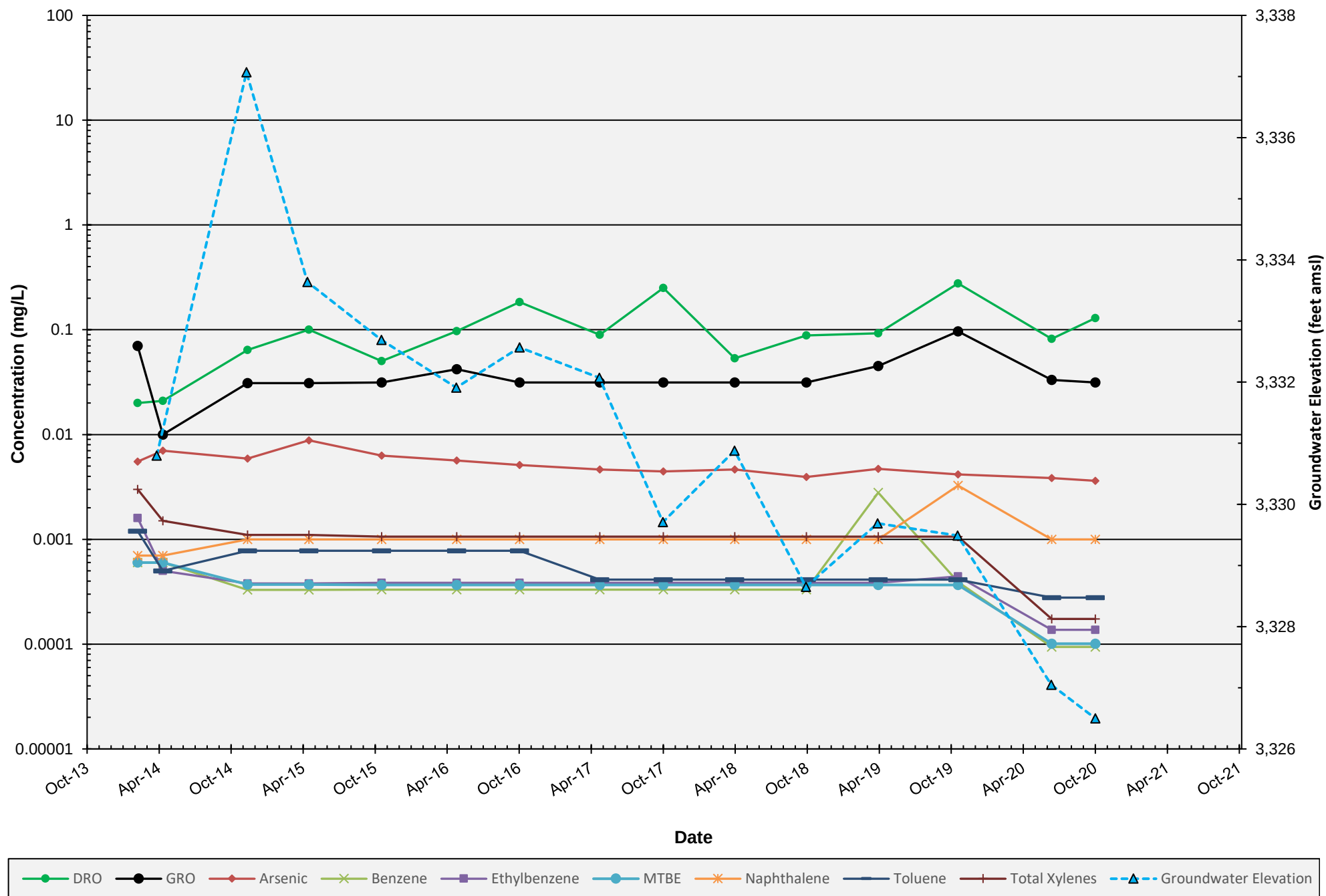
Field East of Refinery



MW-134: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

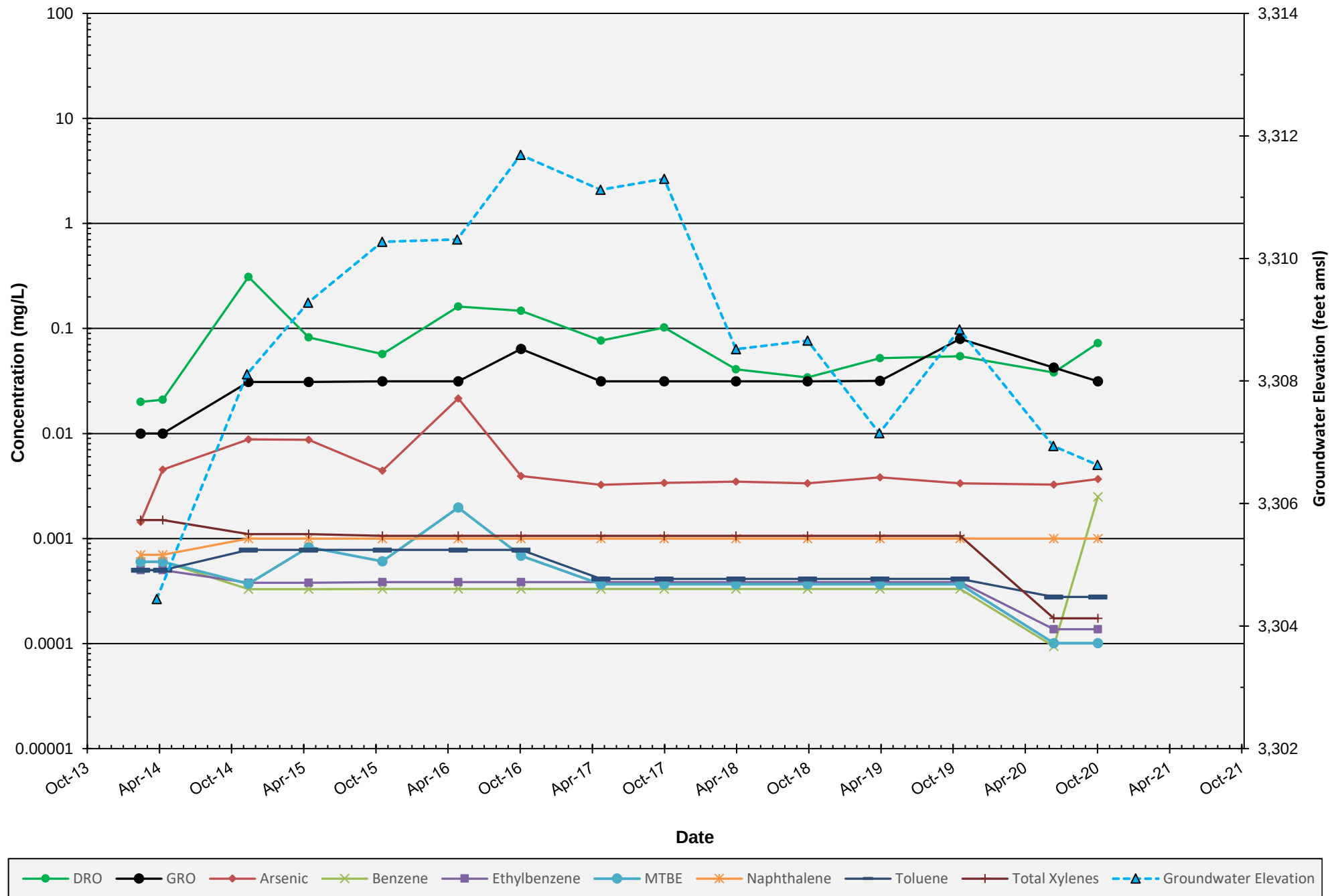
Field East of Refinery



MW-135: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

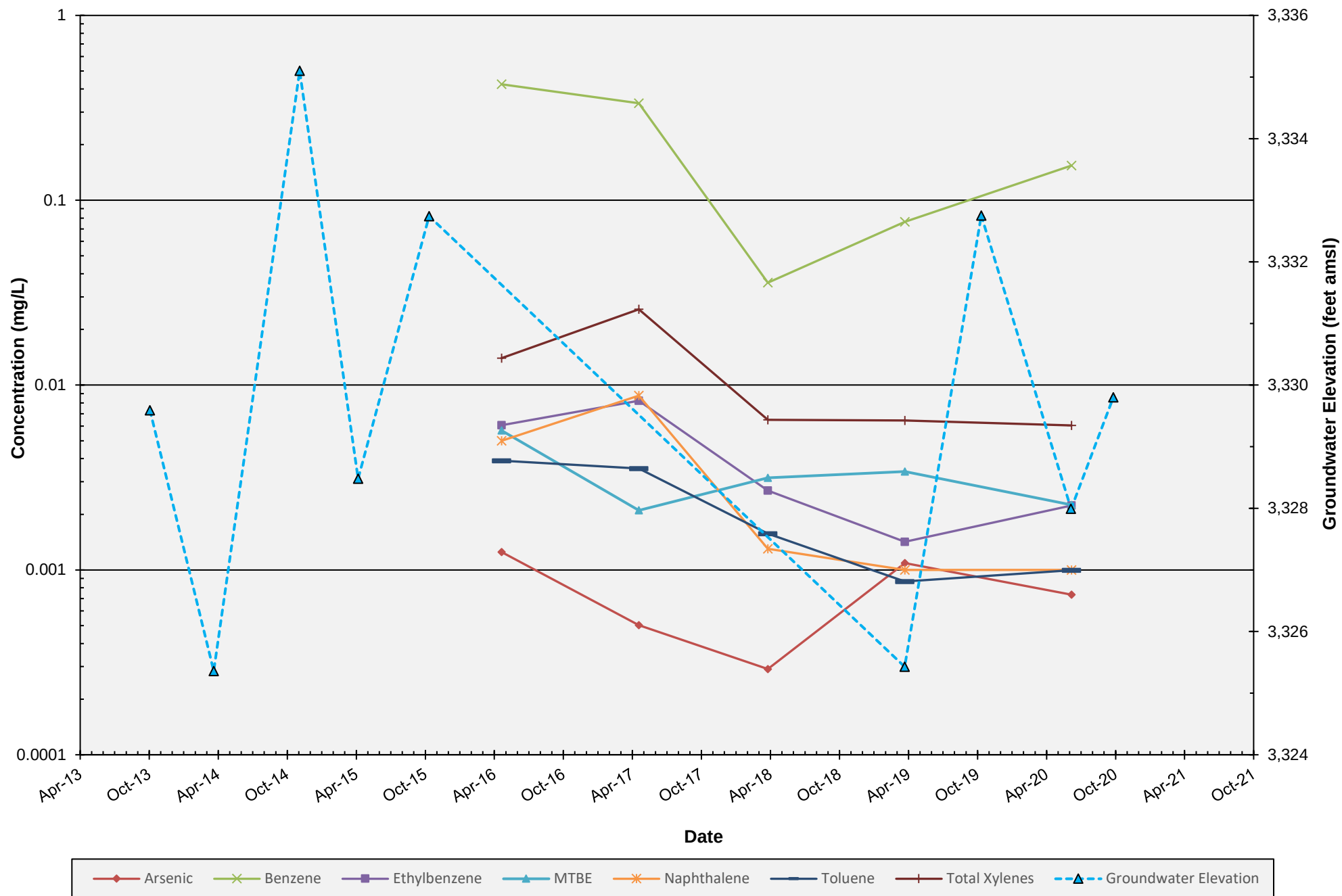
Field East of Refinery



RW-12R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

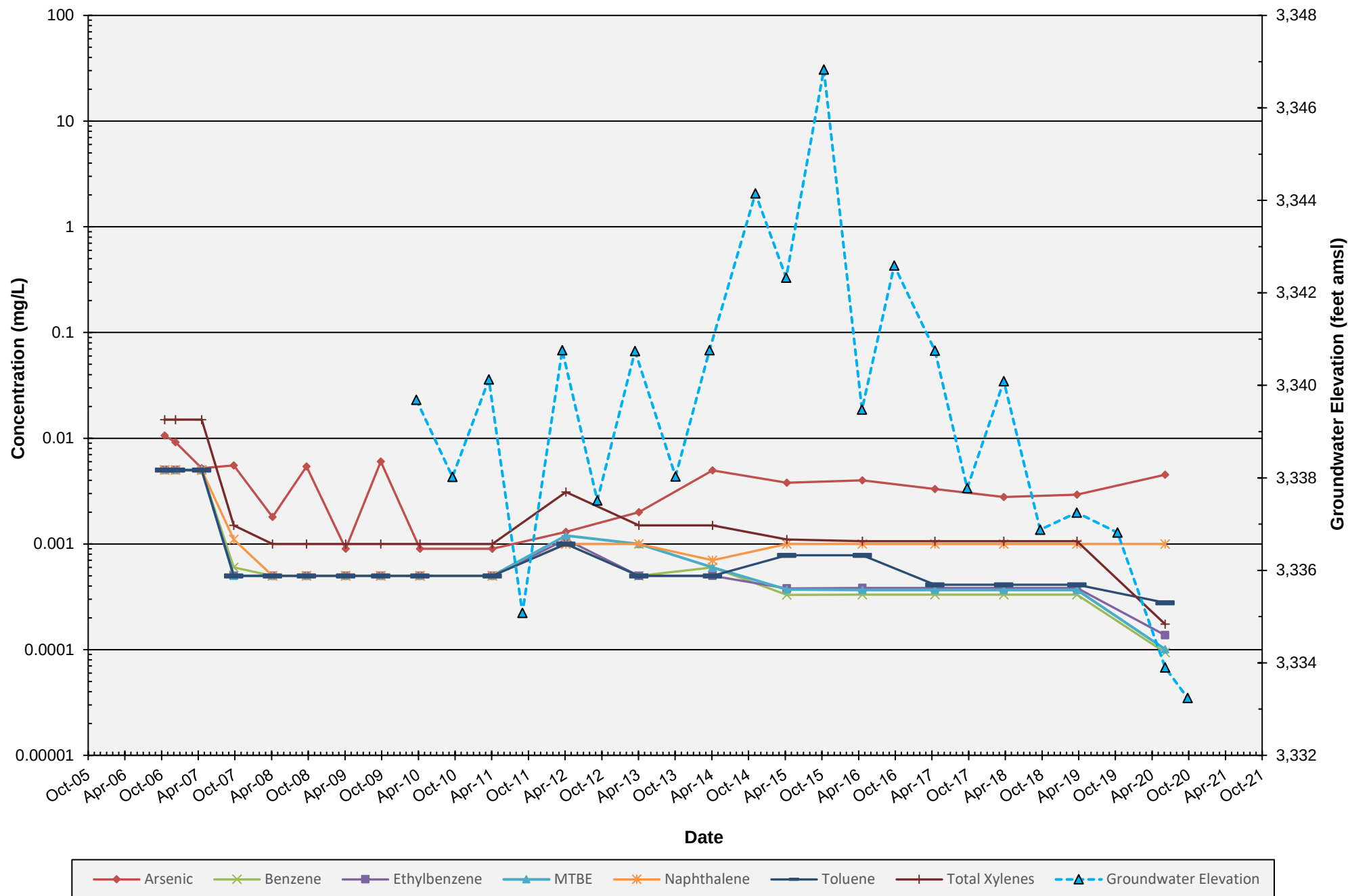
Field East of Refinery



RW-18A: COC Concentrations and Groundwater Elevations

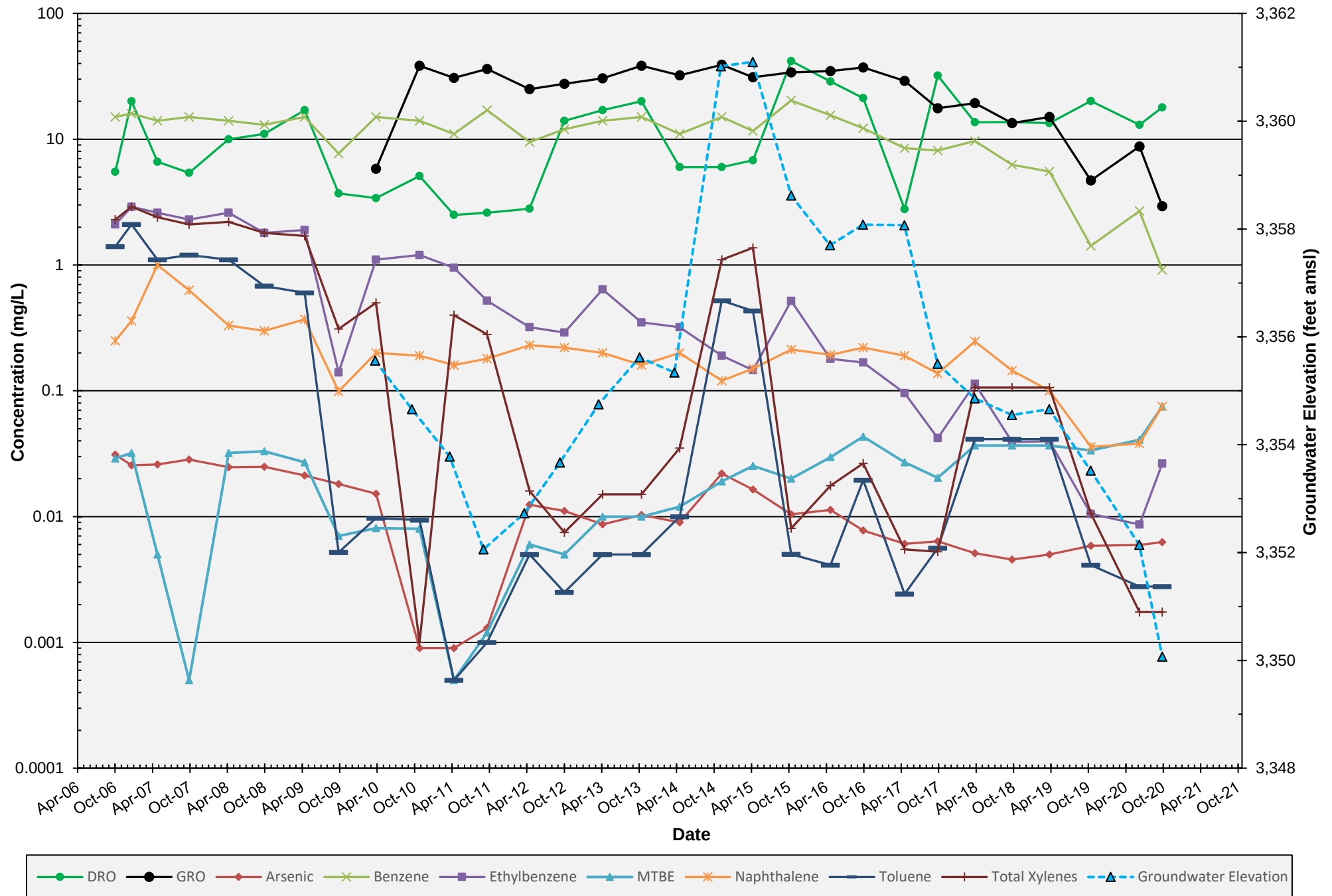
HollyFrontier Navajo Refining LLC - Artesia Refinery

Field East of Refinery



MW-23: COC Concentrations and Groundwater Elevations

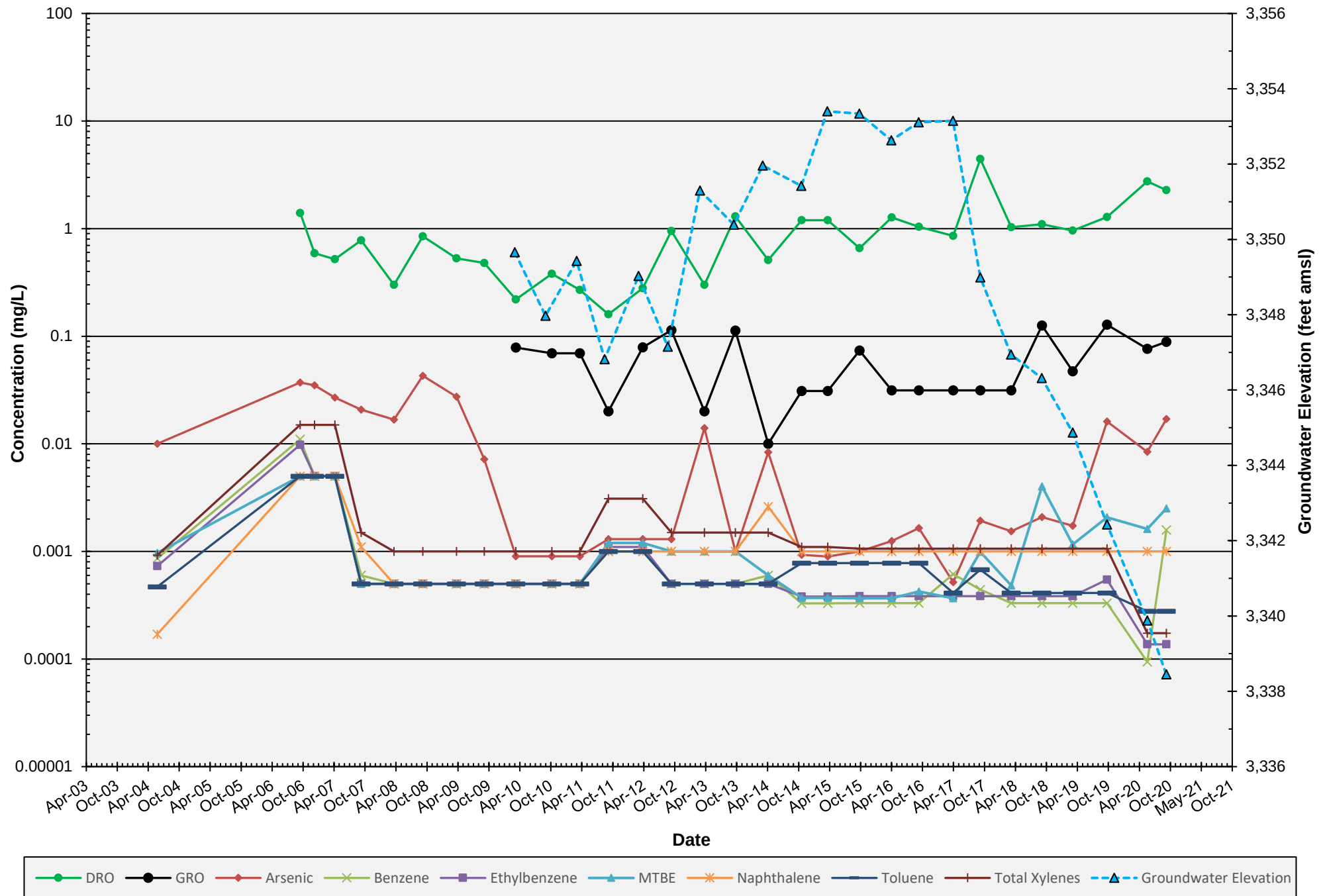
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery Area



MW-29: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

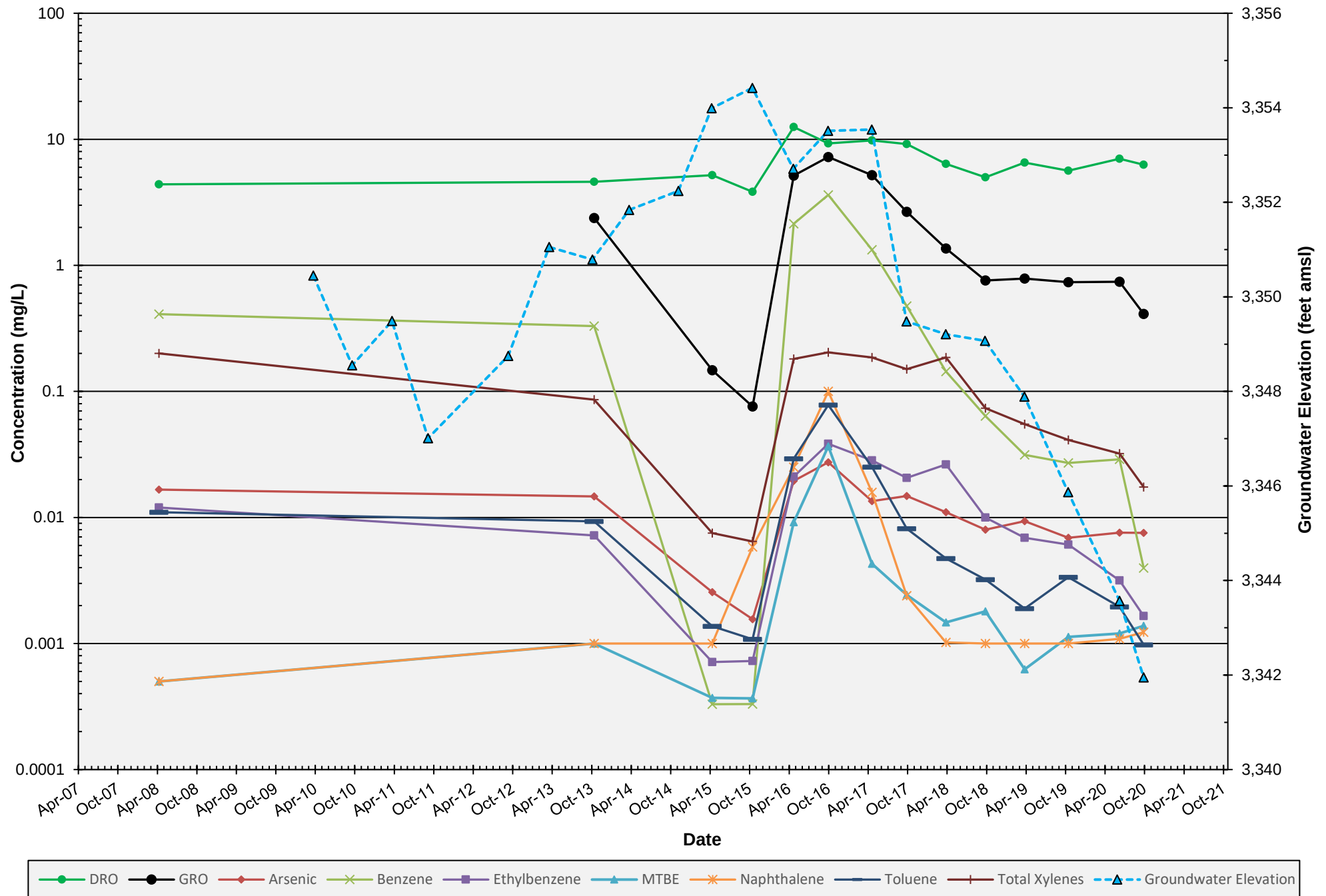
North Refinery Area



MW-39: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

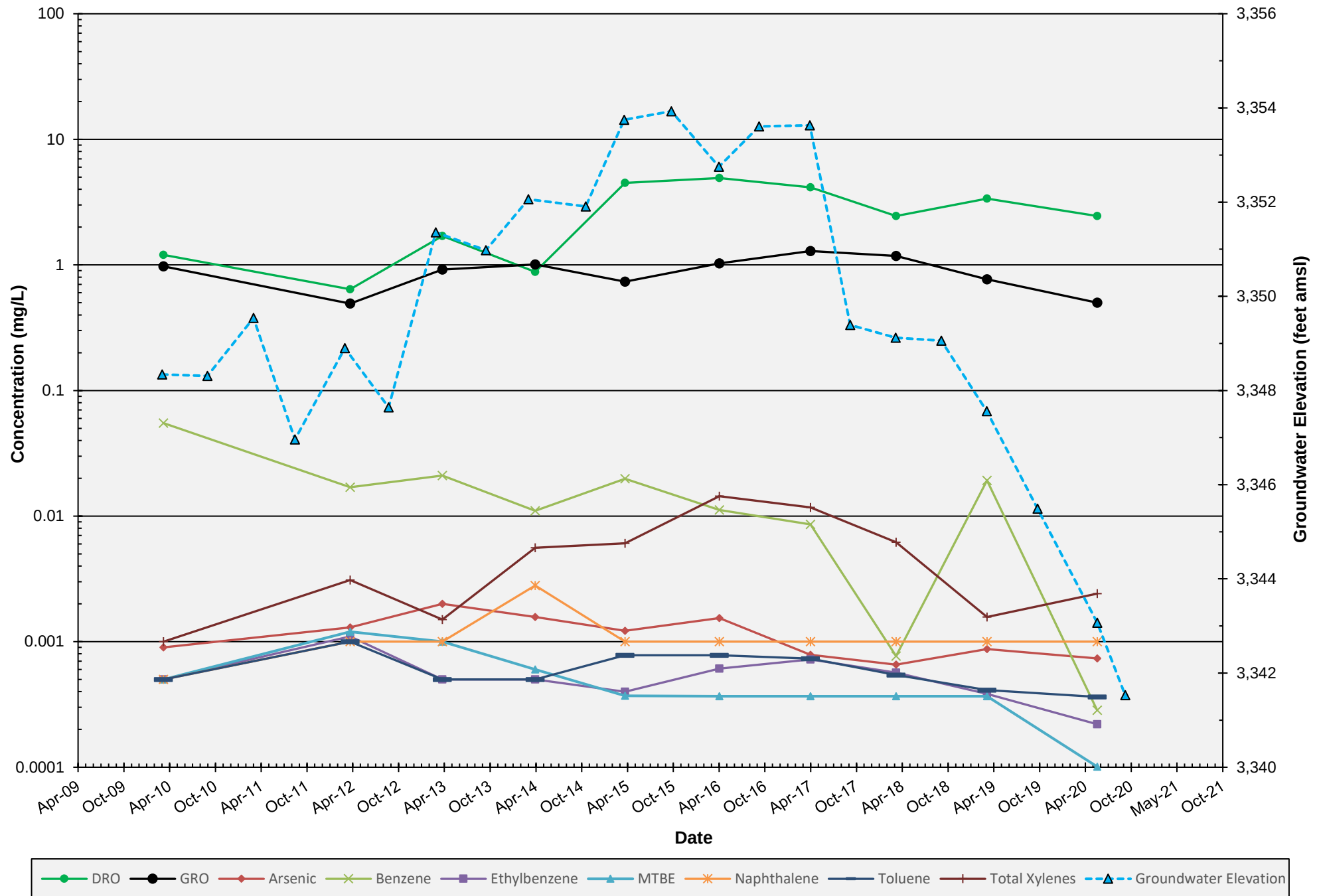
North Refinery Area



MW-40: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

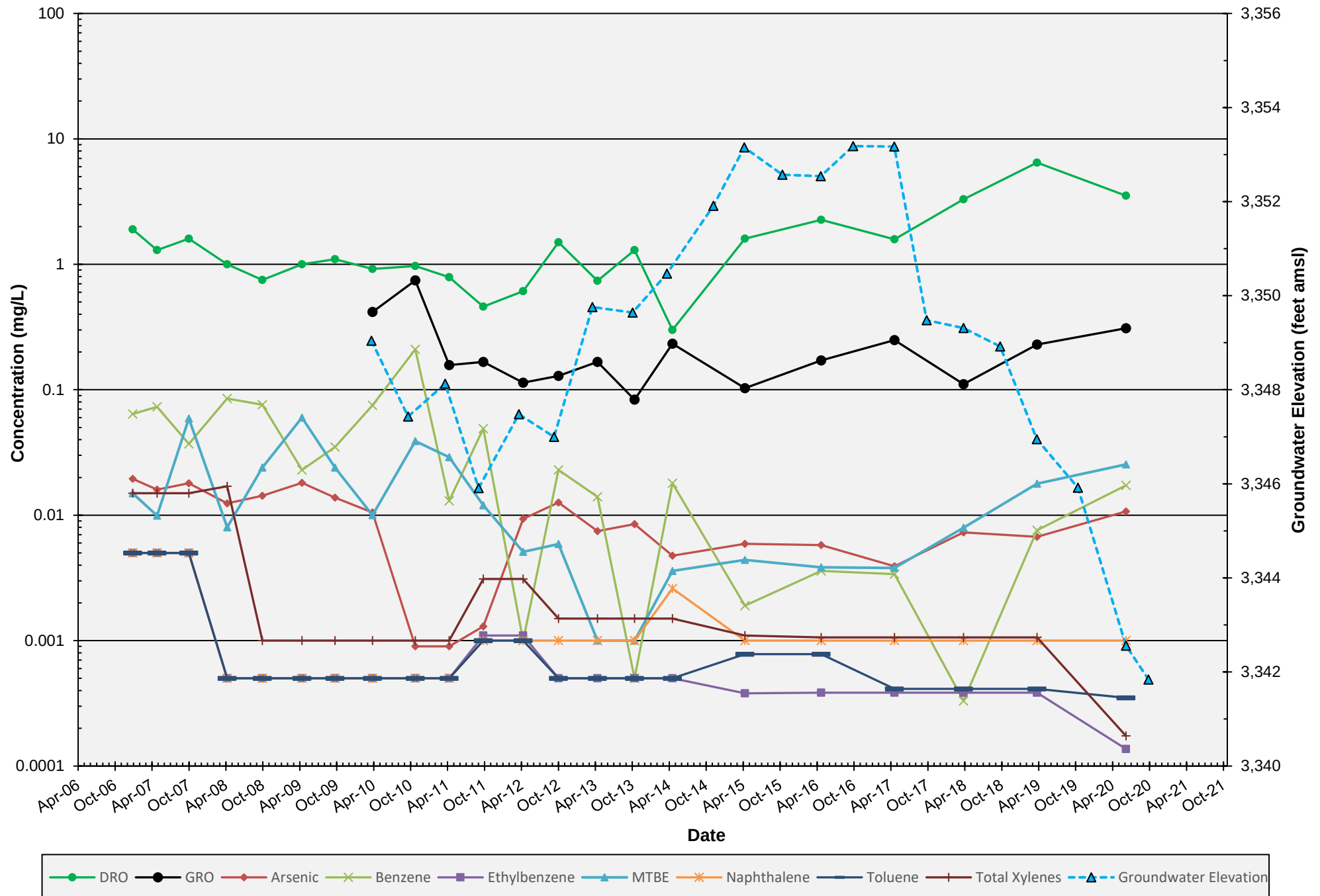
North Refinery Area



MW-41: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

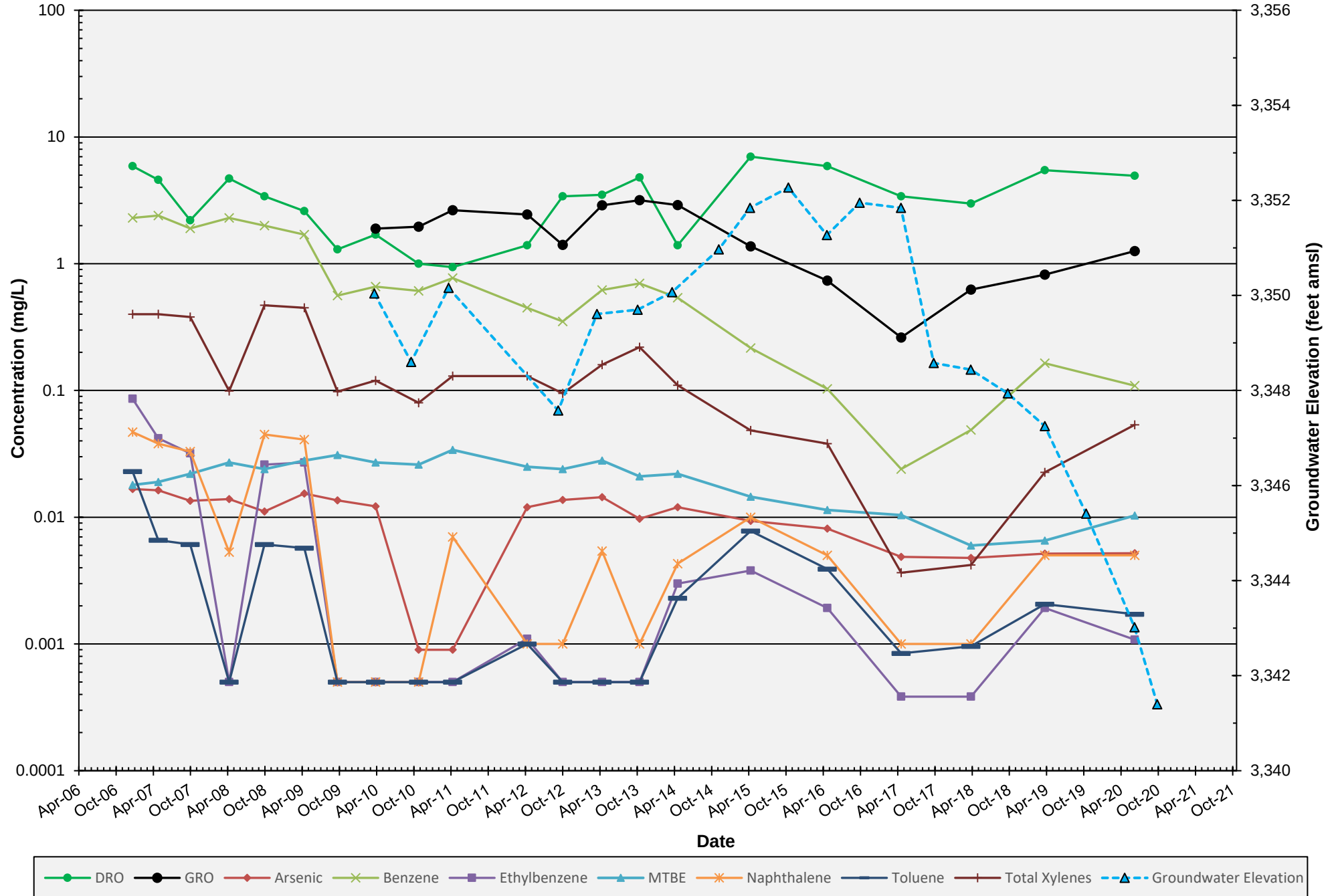
North Refinery Area



MW-42: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

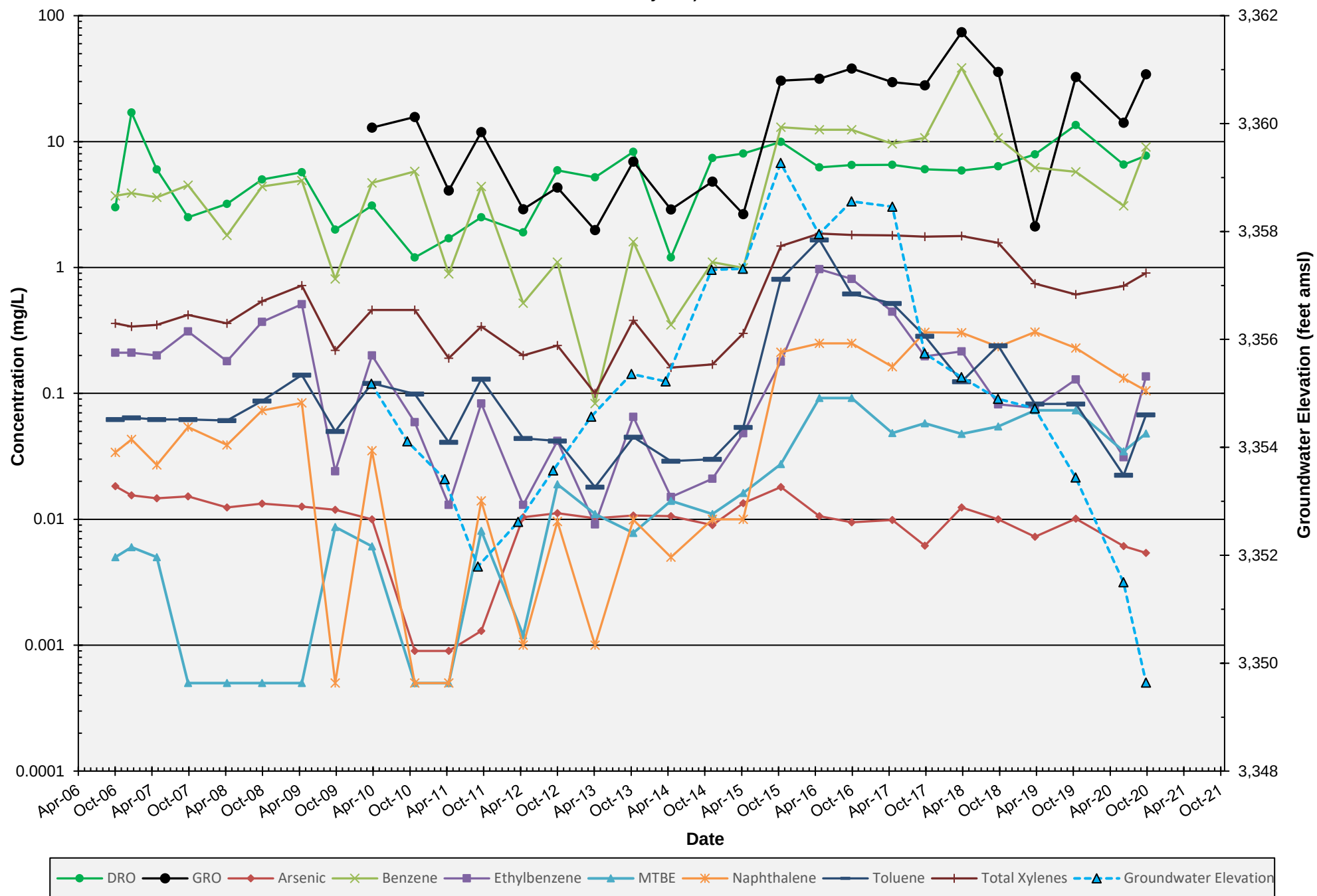
North Refinery Area



MW-43: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

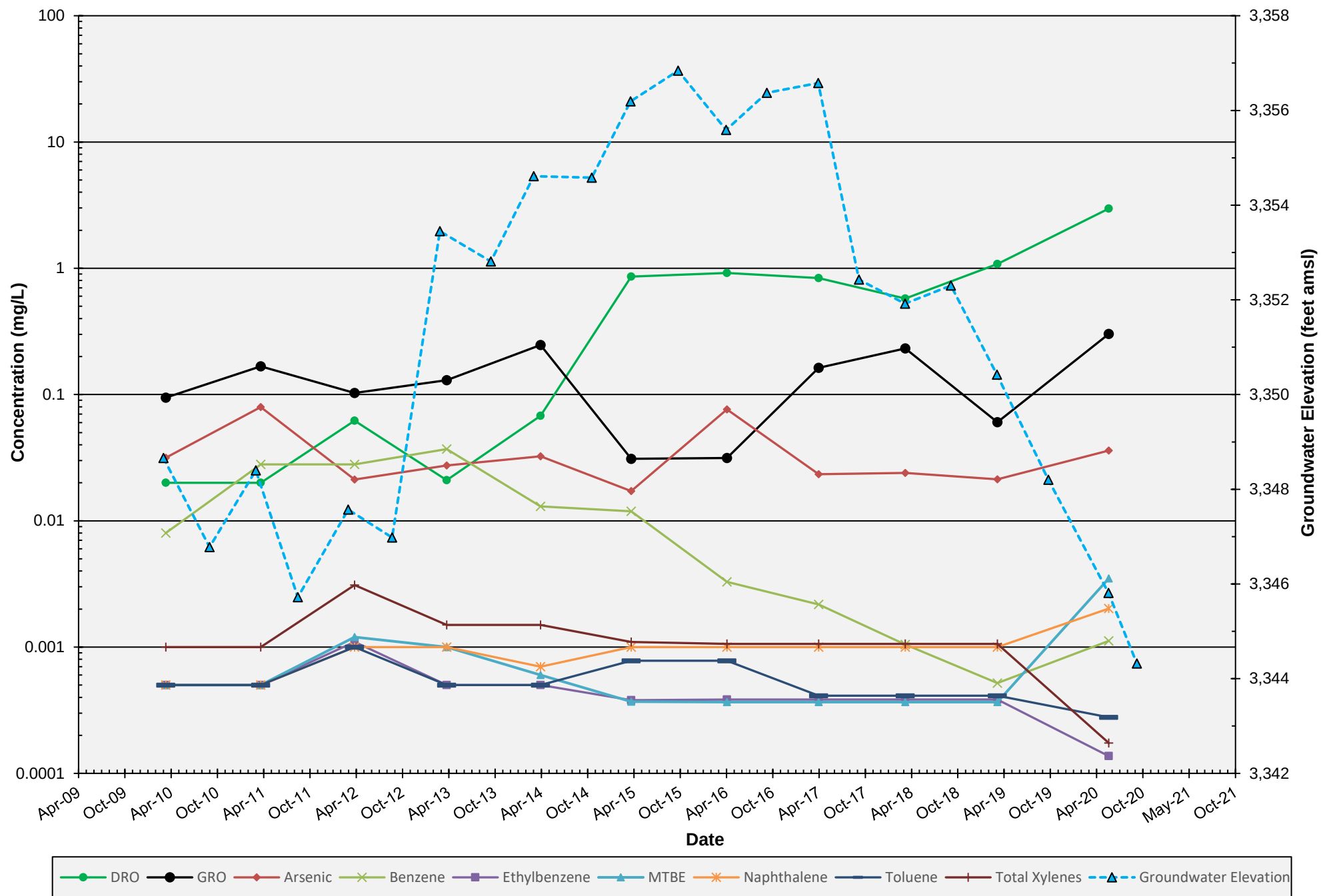
North Refinery Area



MW-59: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

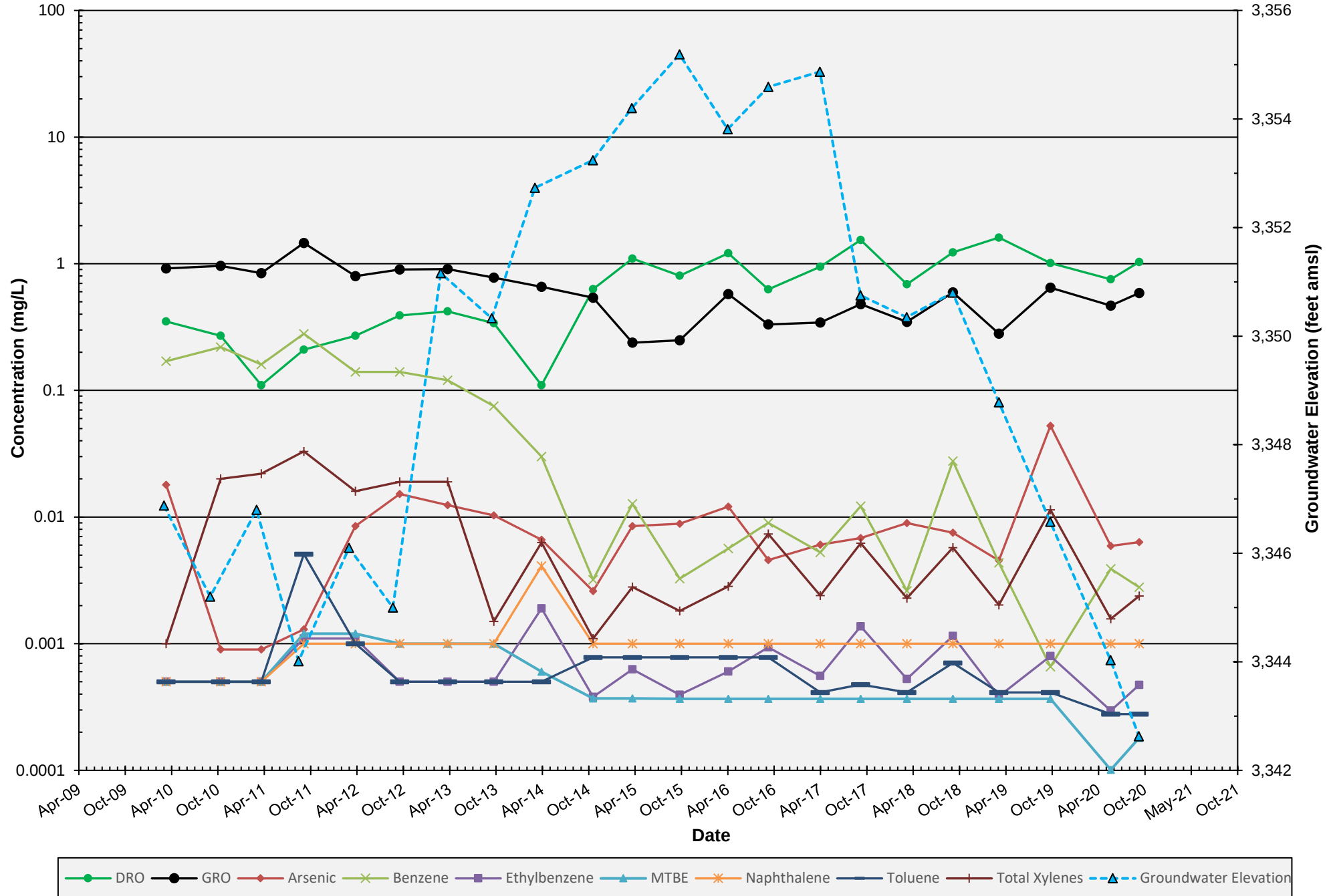
North Refinery Area



MW-60: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

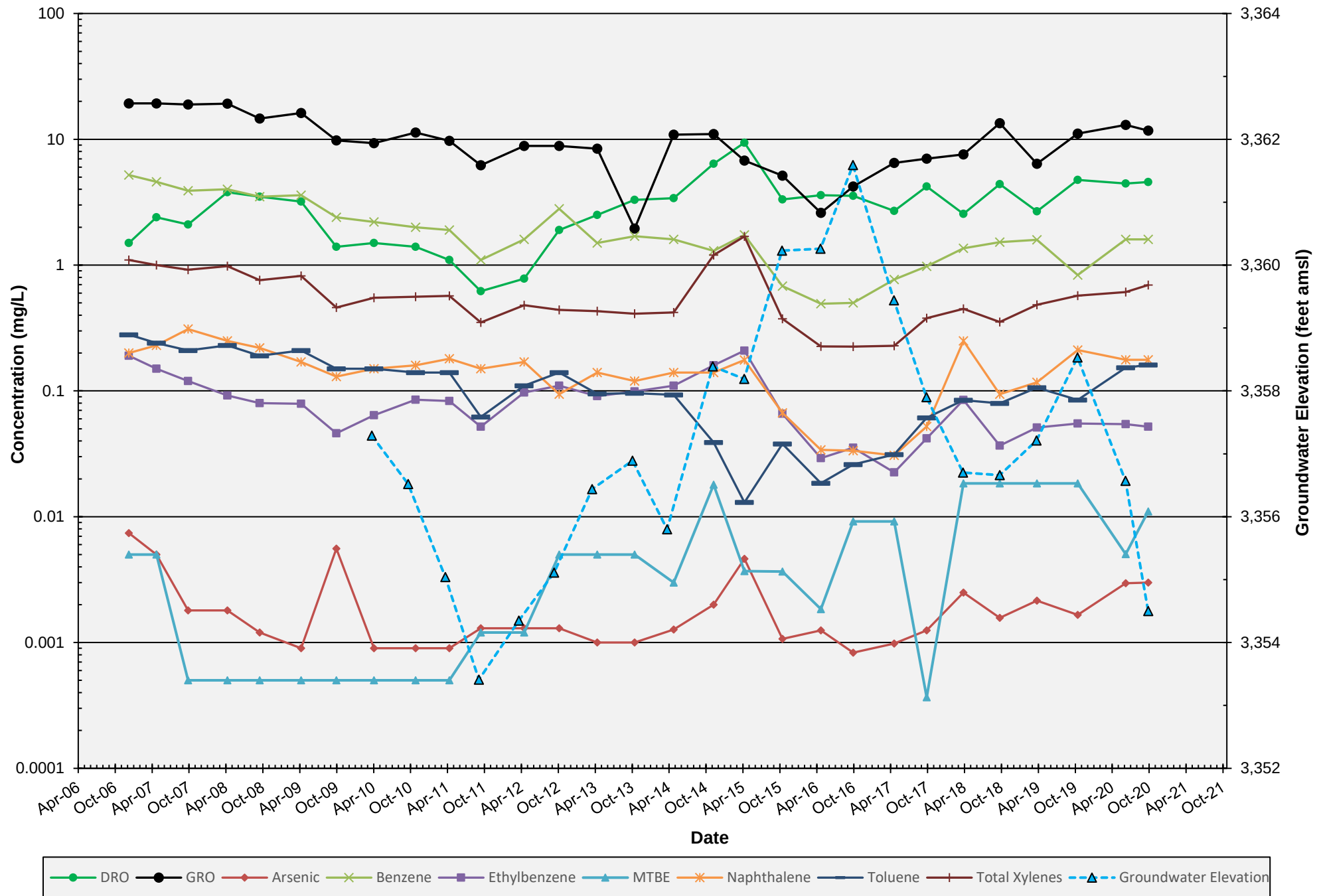
North Refinery Area



MW-61: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

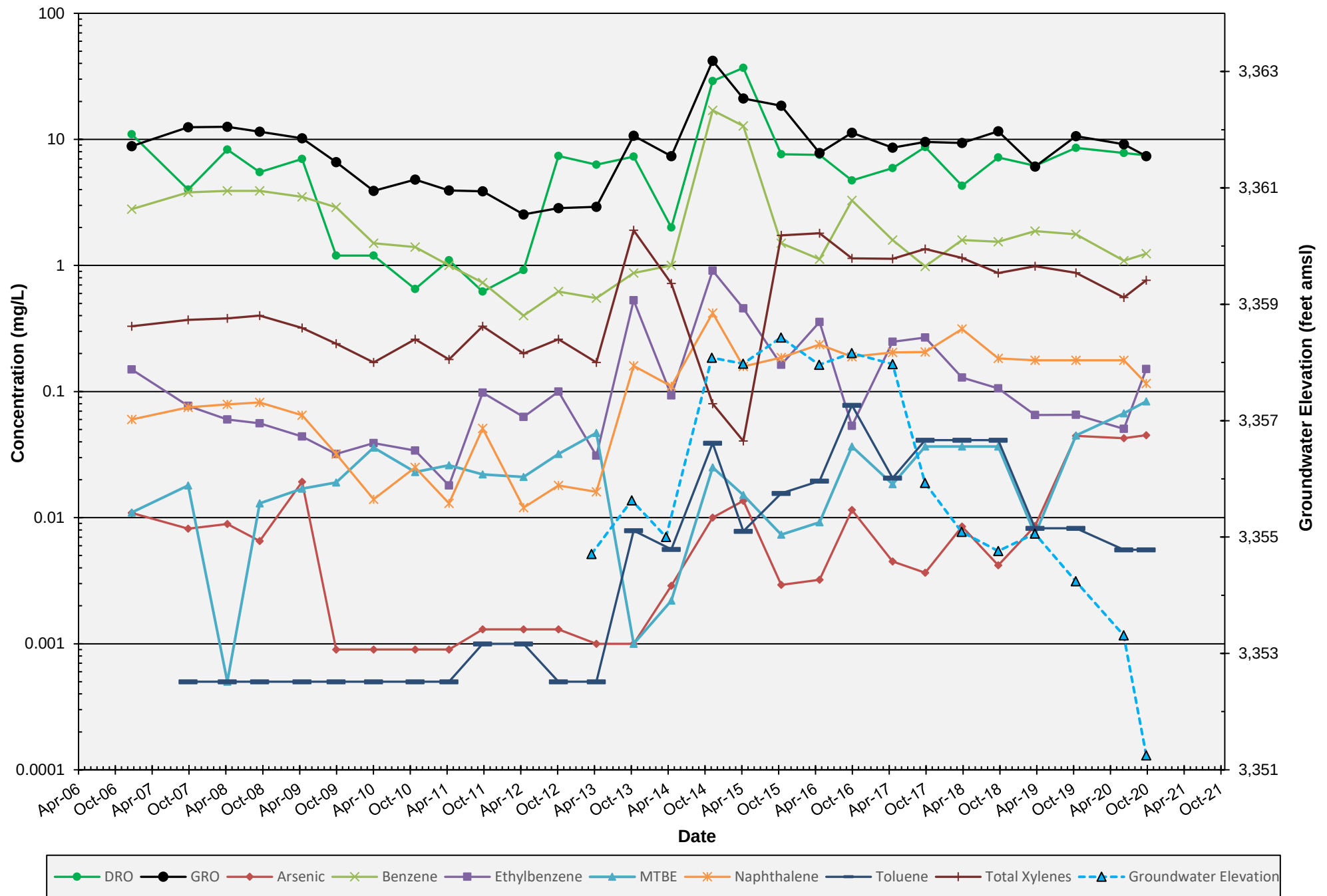
North Refinery Area



MW-62: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

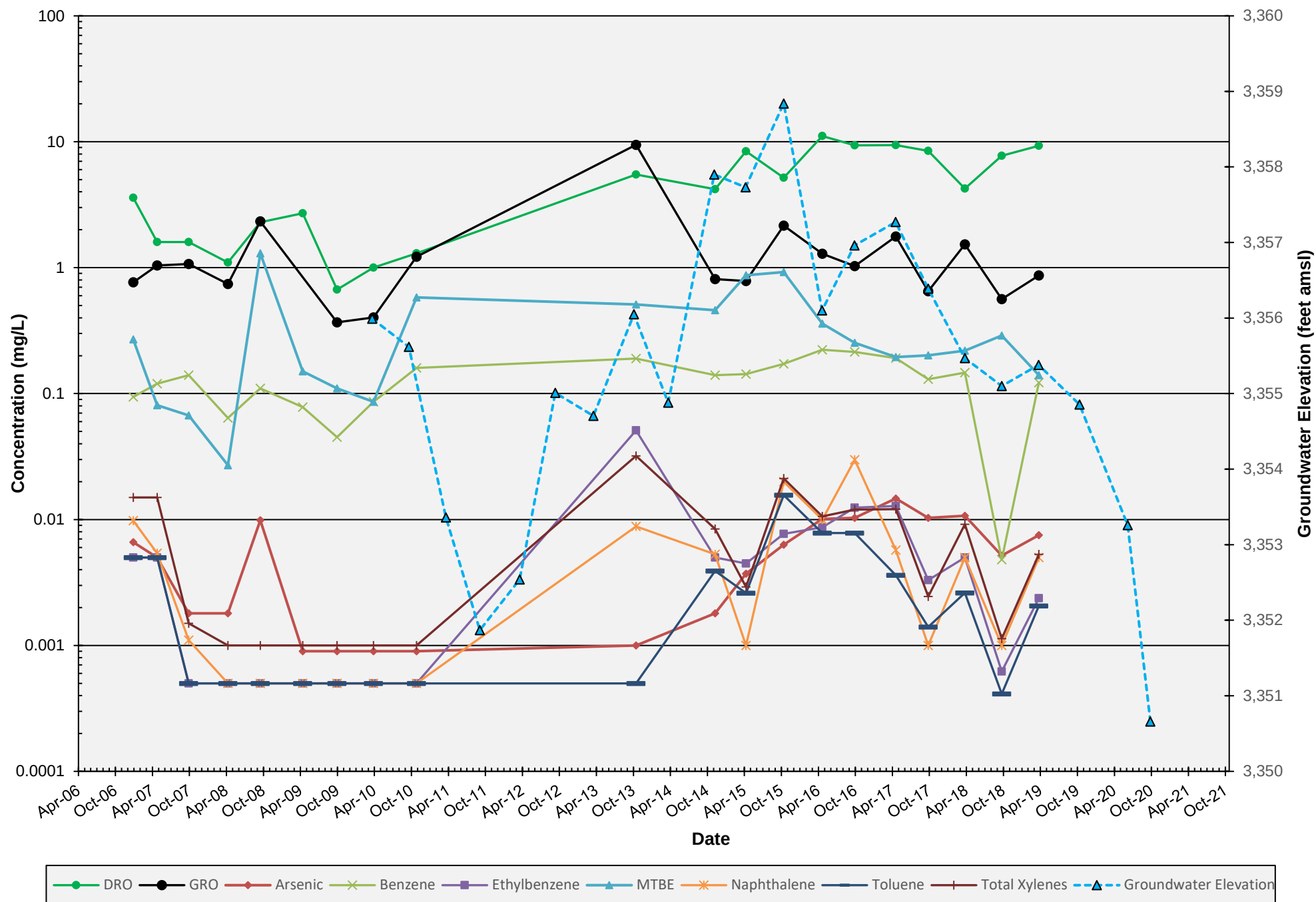
North Refinery Area



MW-67: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

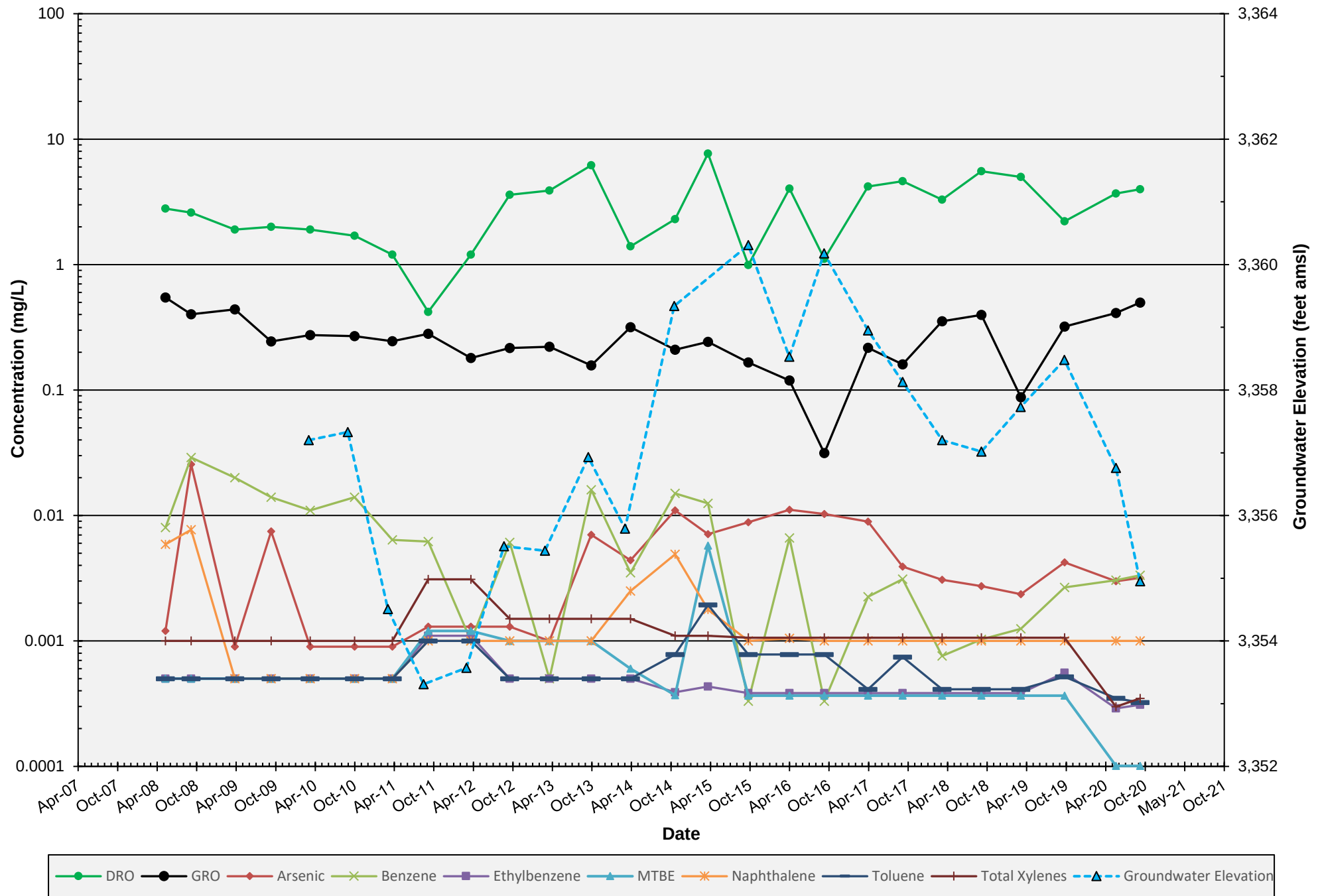
North Refinery Area



MW-90: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

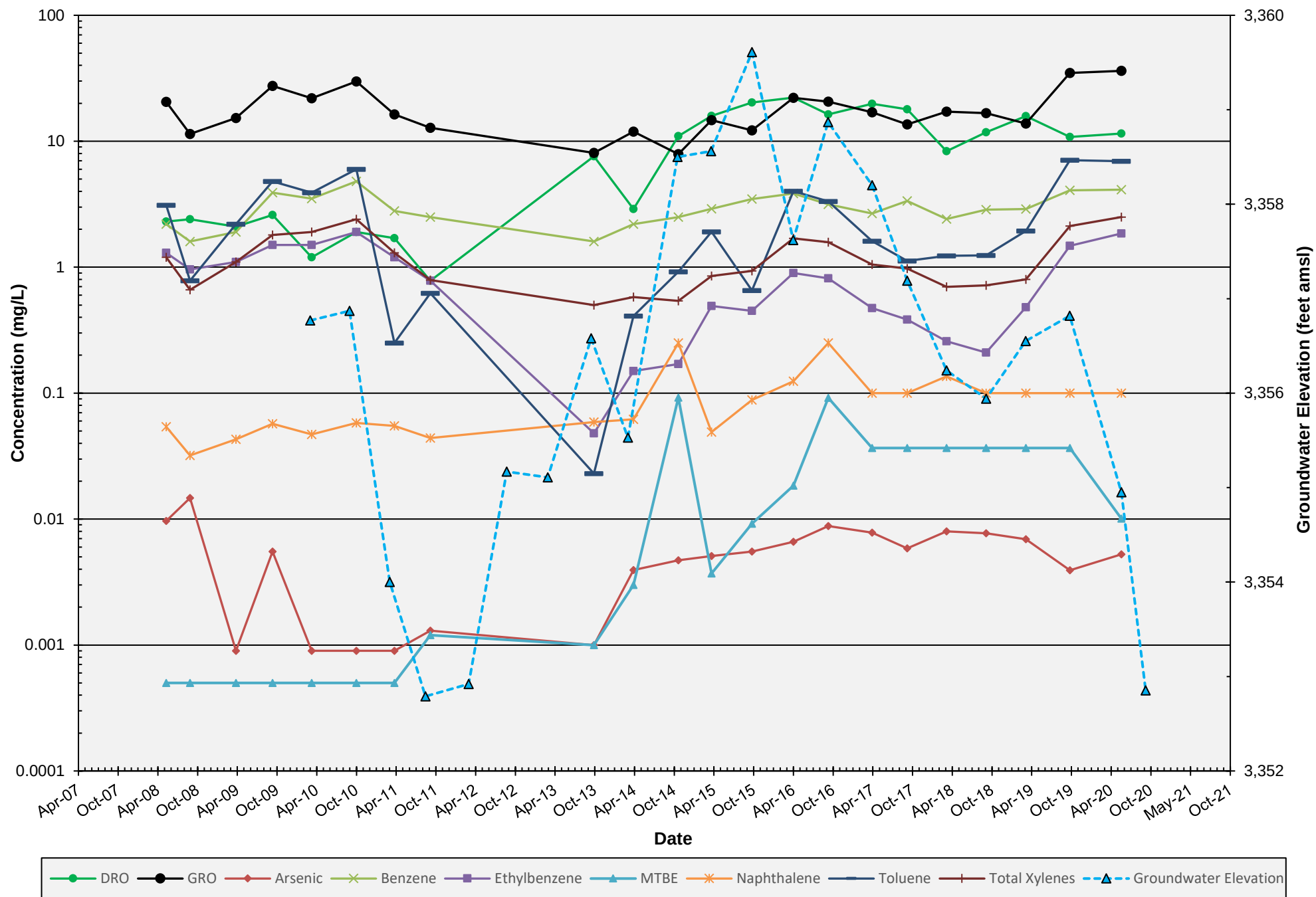
North Refinery Area



MW-91: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

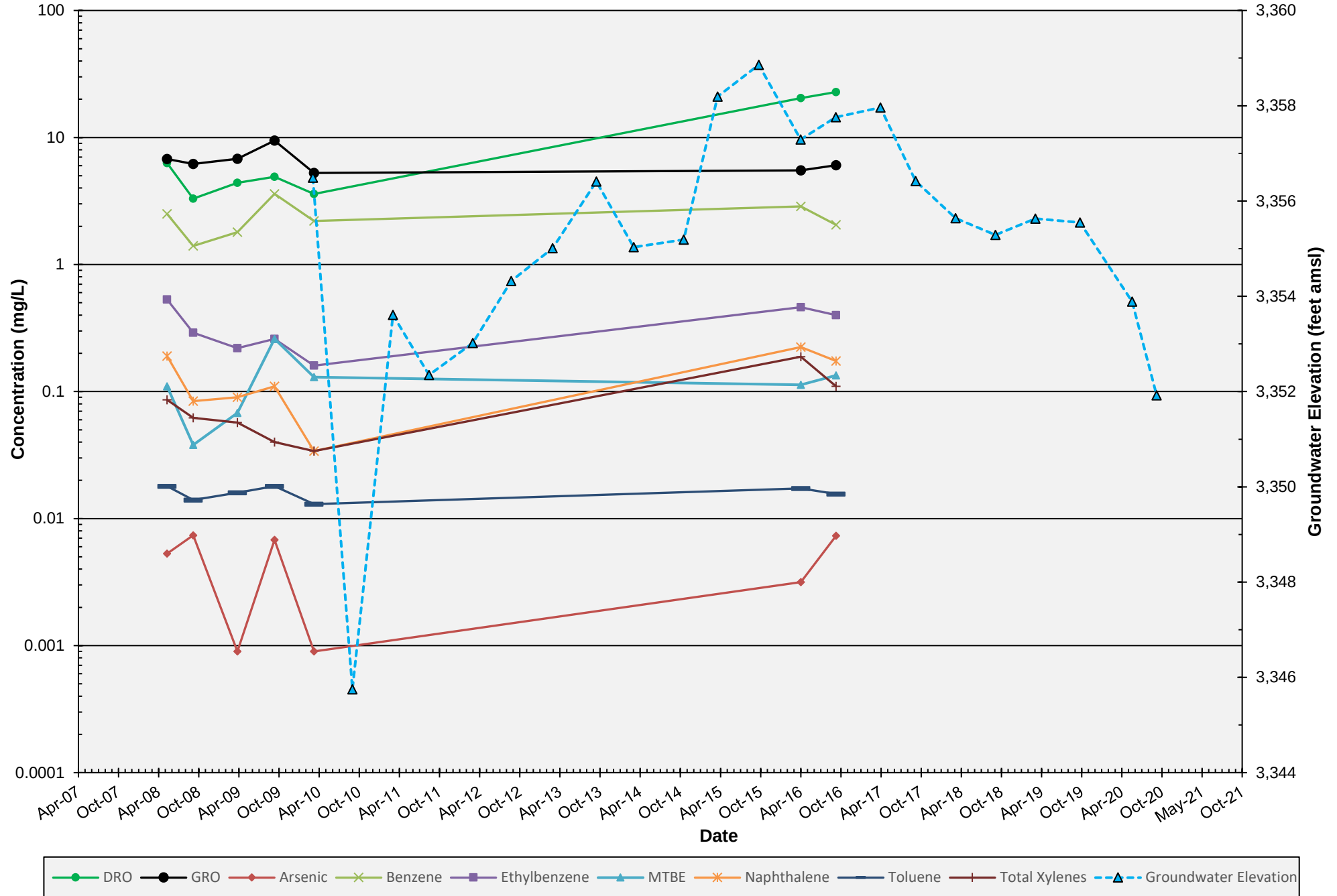
North Refinery Area



MW-92: COC Concentrations and Groundwater Elevations

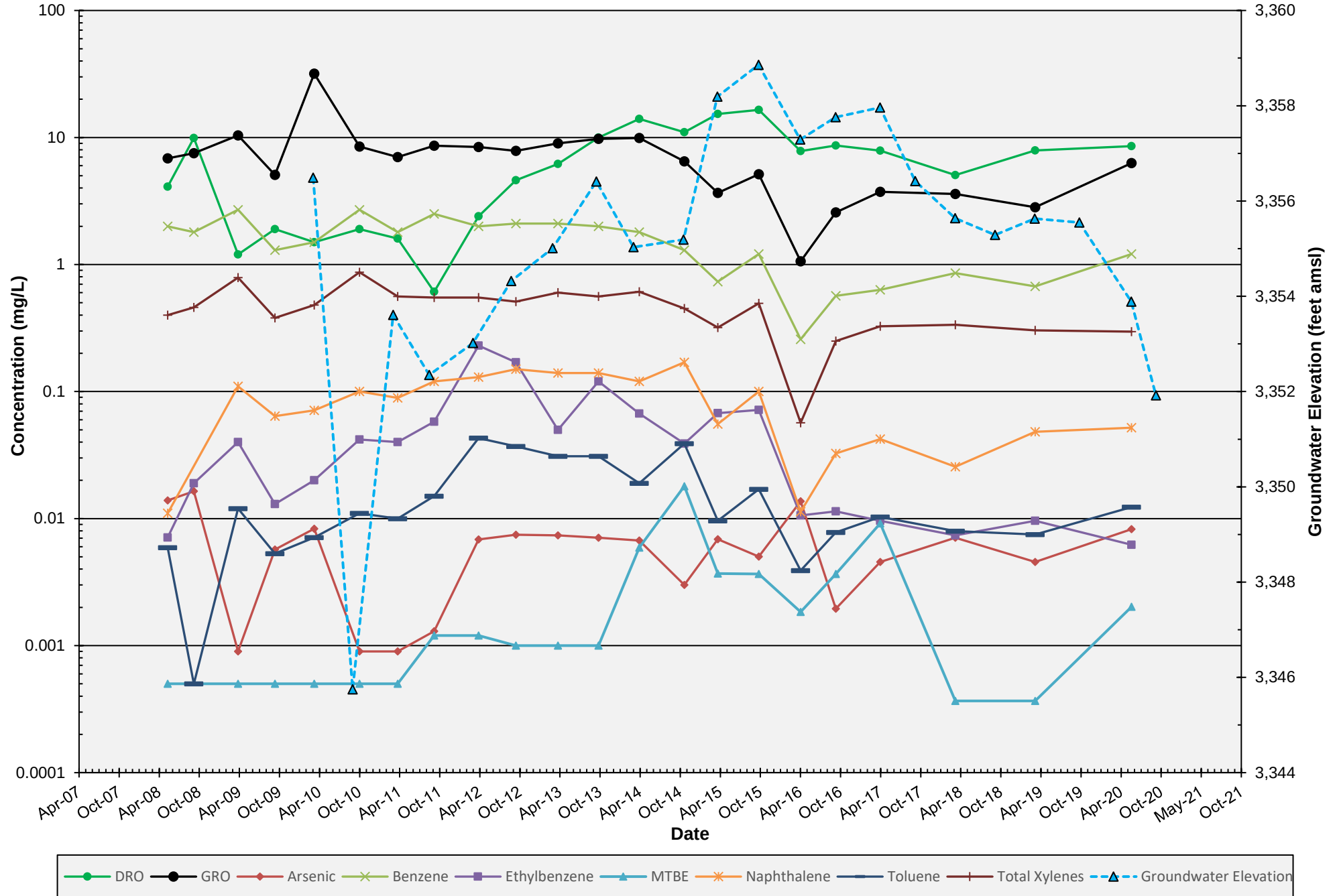
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Refinery Area



MW-93: COC Concentrations and Groundwater Elevations

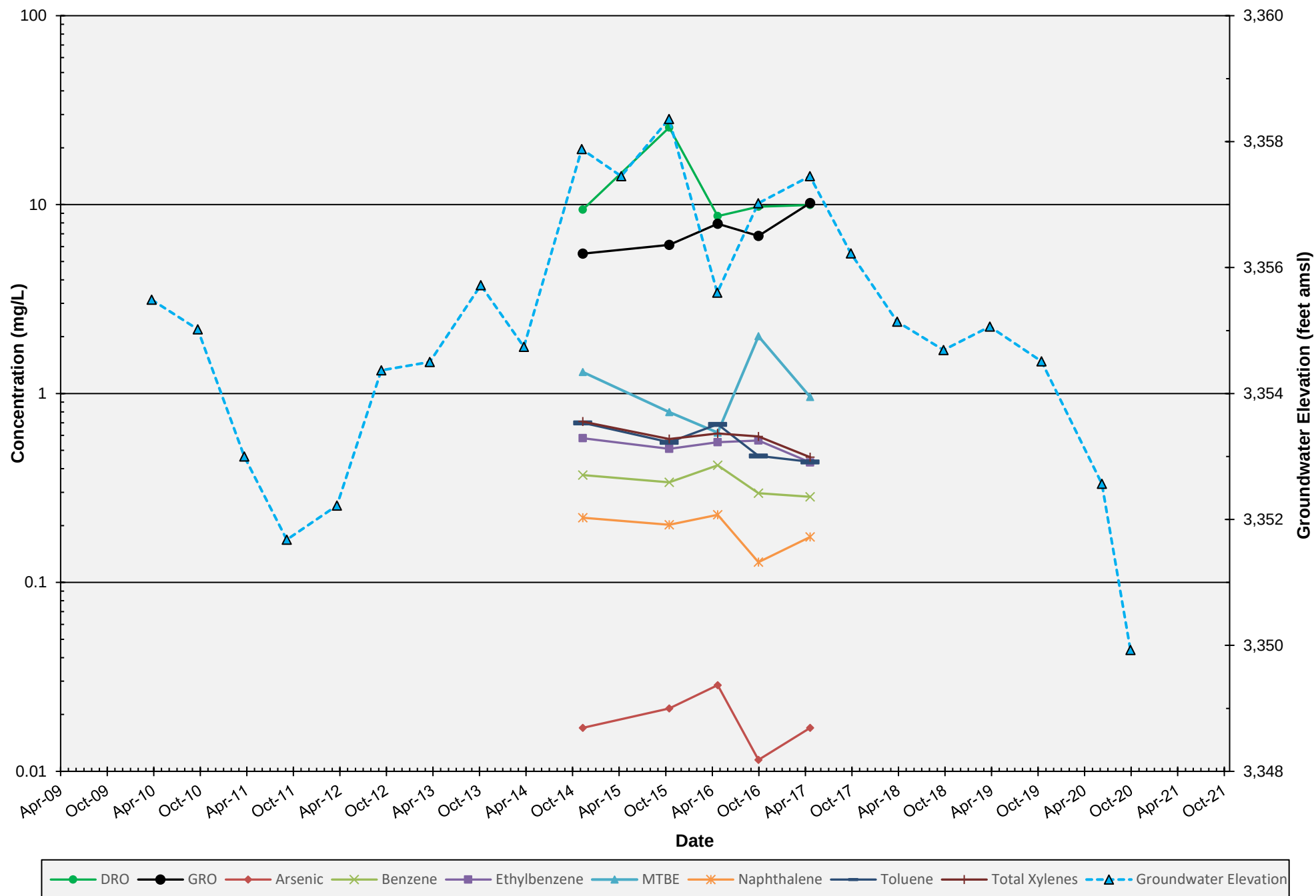
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery Area



MW-94: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

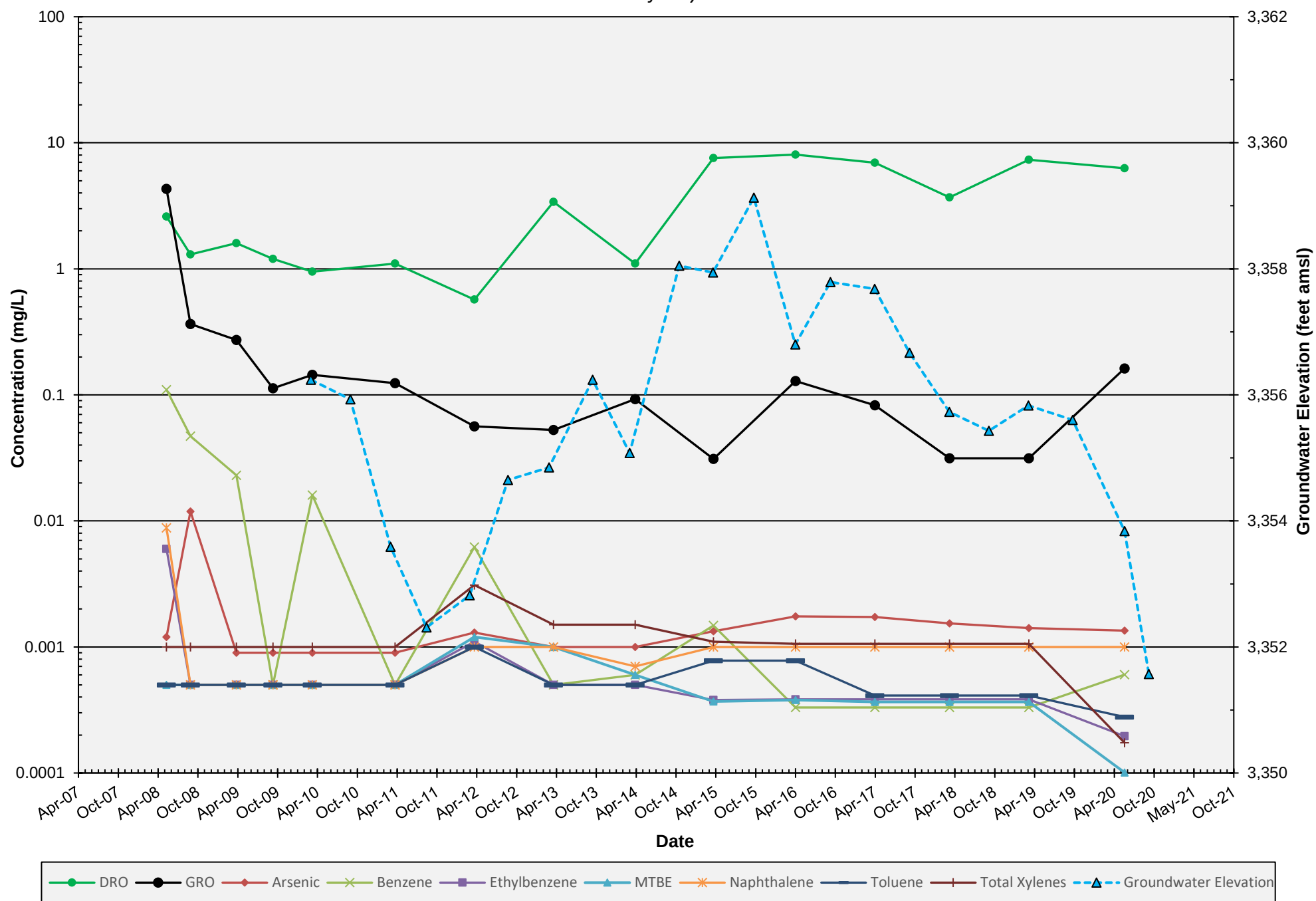
North Refinery Area



MW-95: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

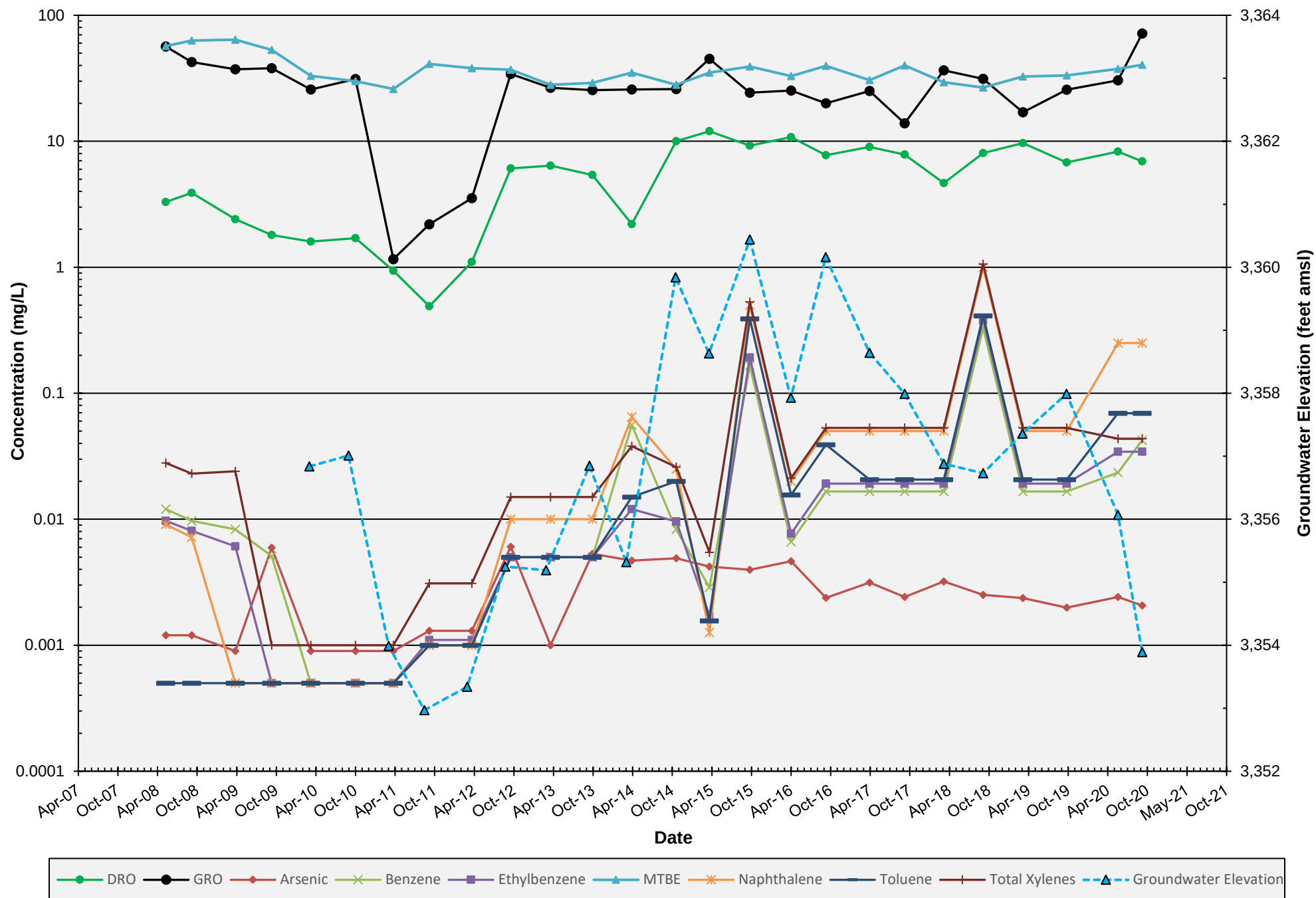
North Refinery Area



MW-96: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

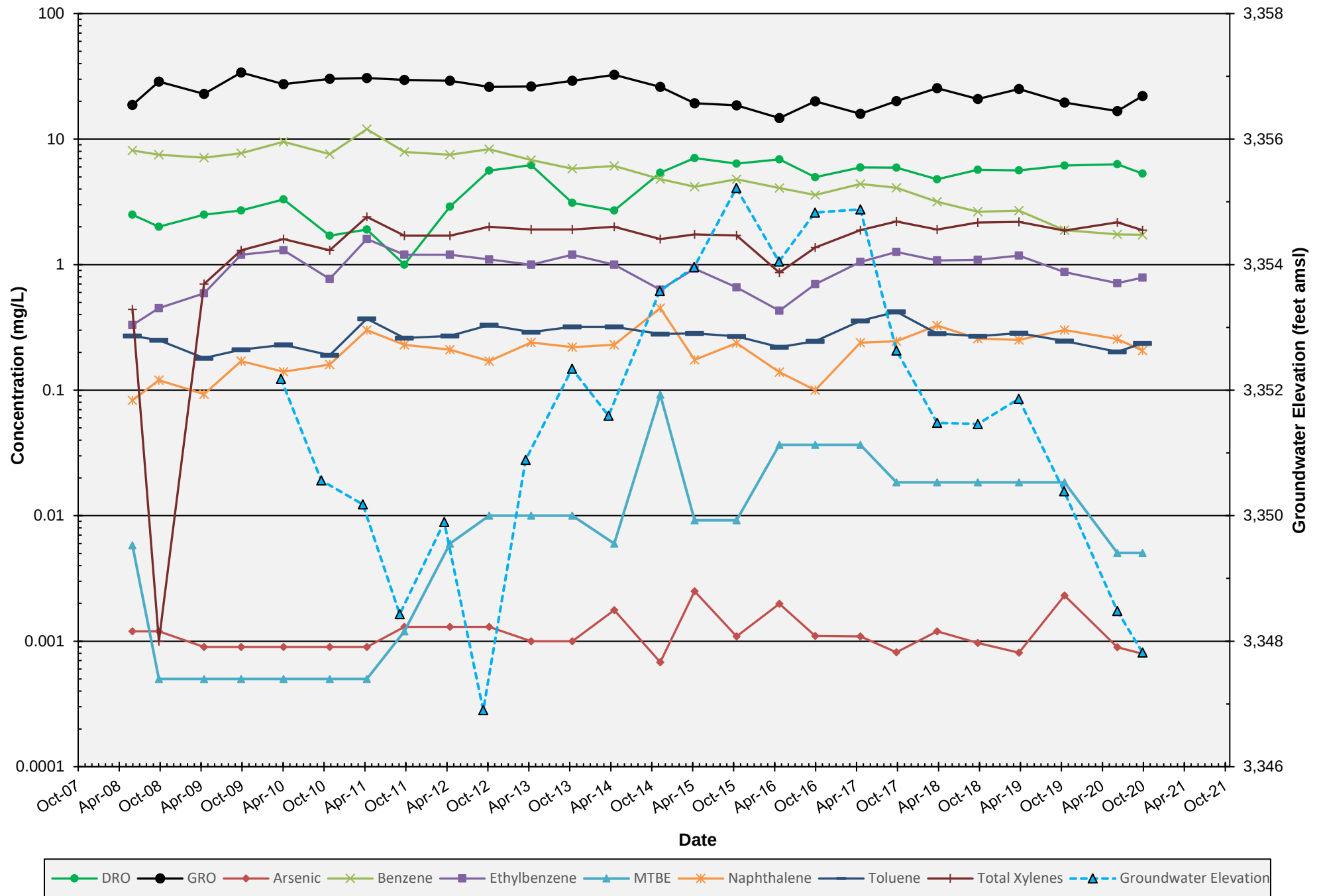
North Refinery Area



MW-98: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

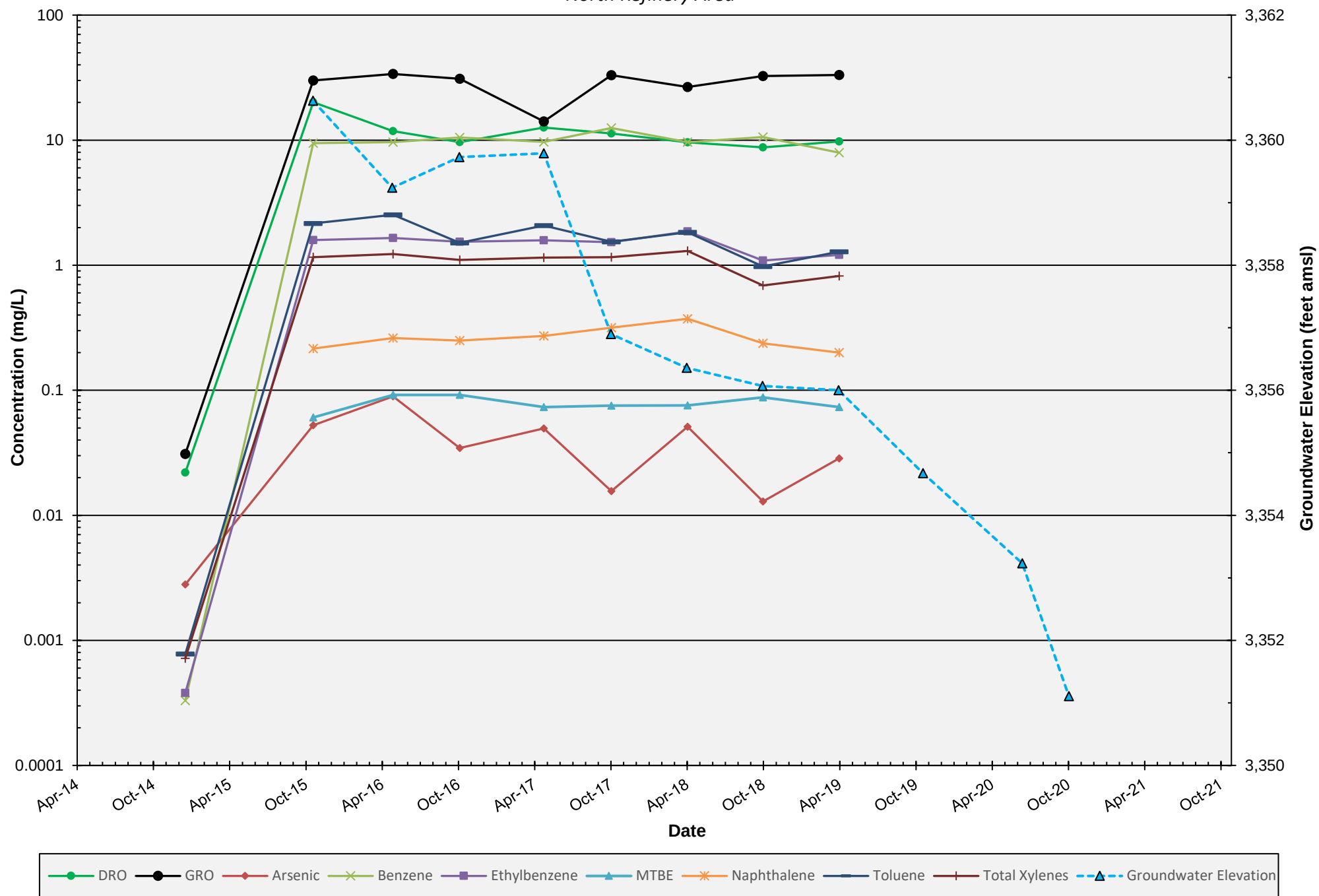
North Refinery Area



MW-137: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

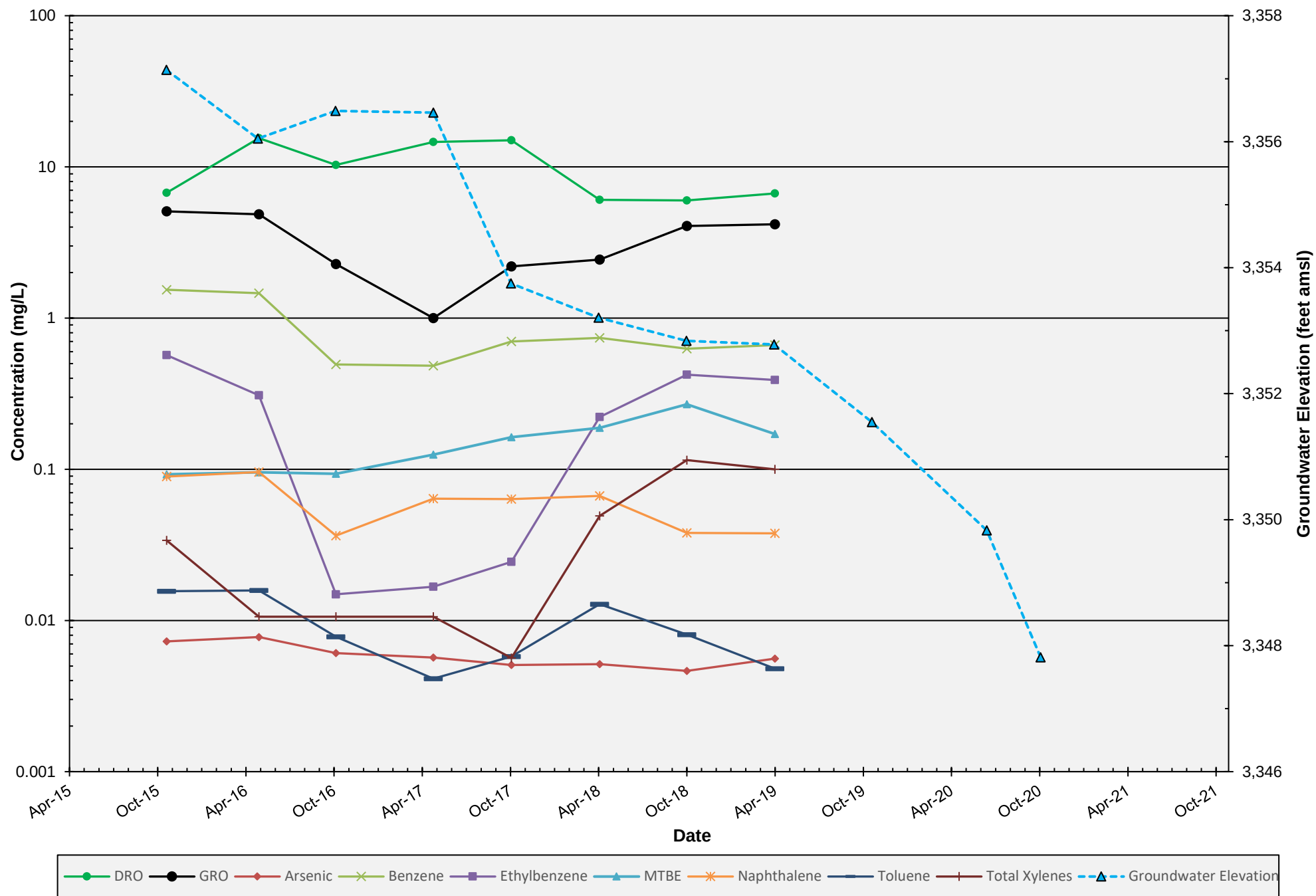
North Refinery Area



MW-138: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

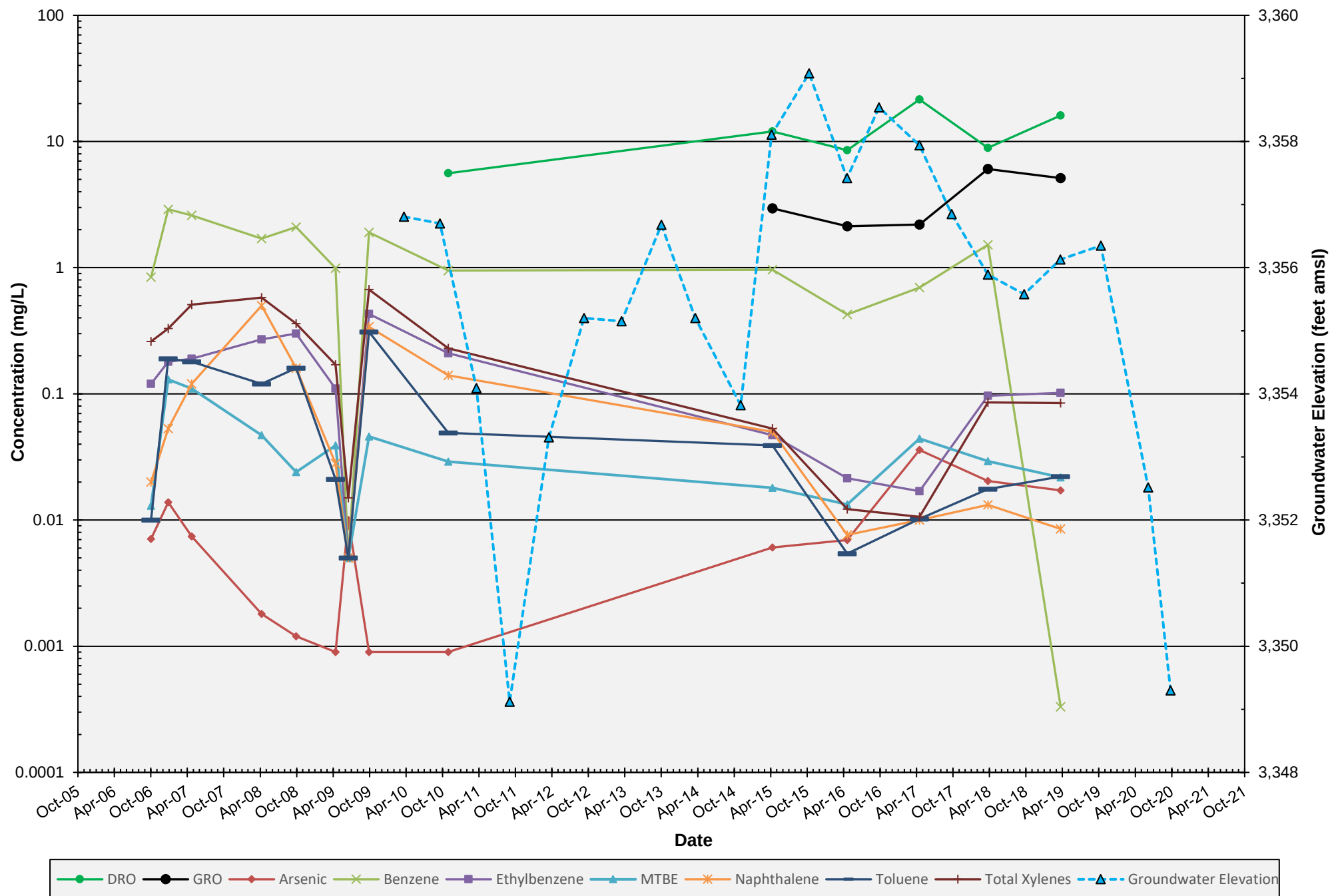
North Refinery Area



RW-1: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

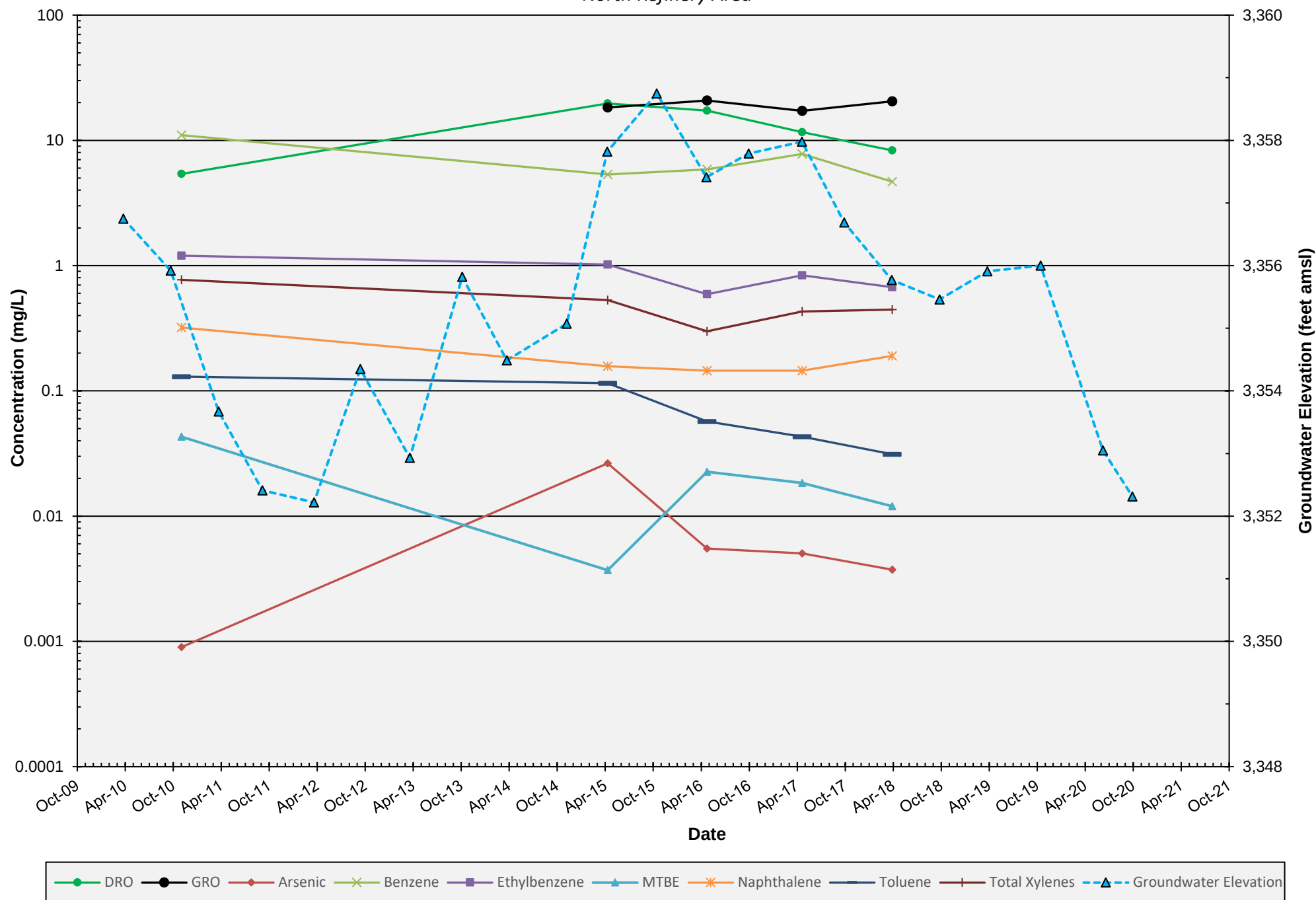
North Refinery Area



RW-2: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

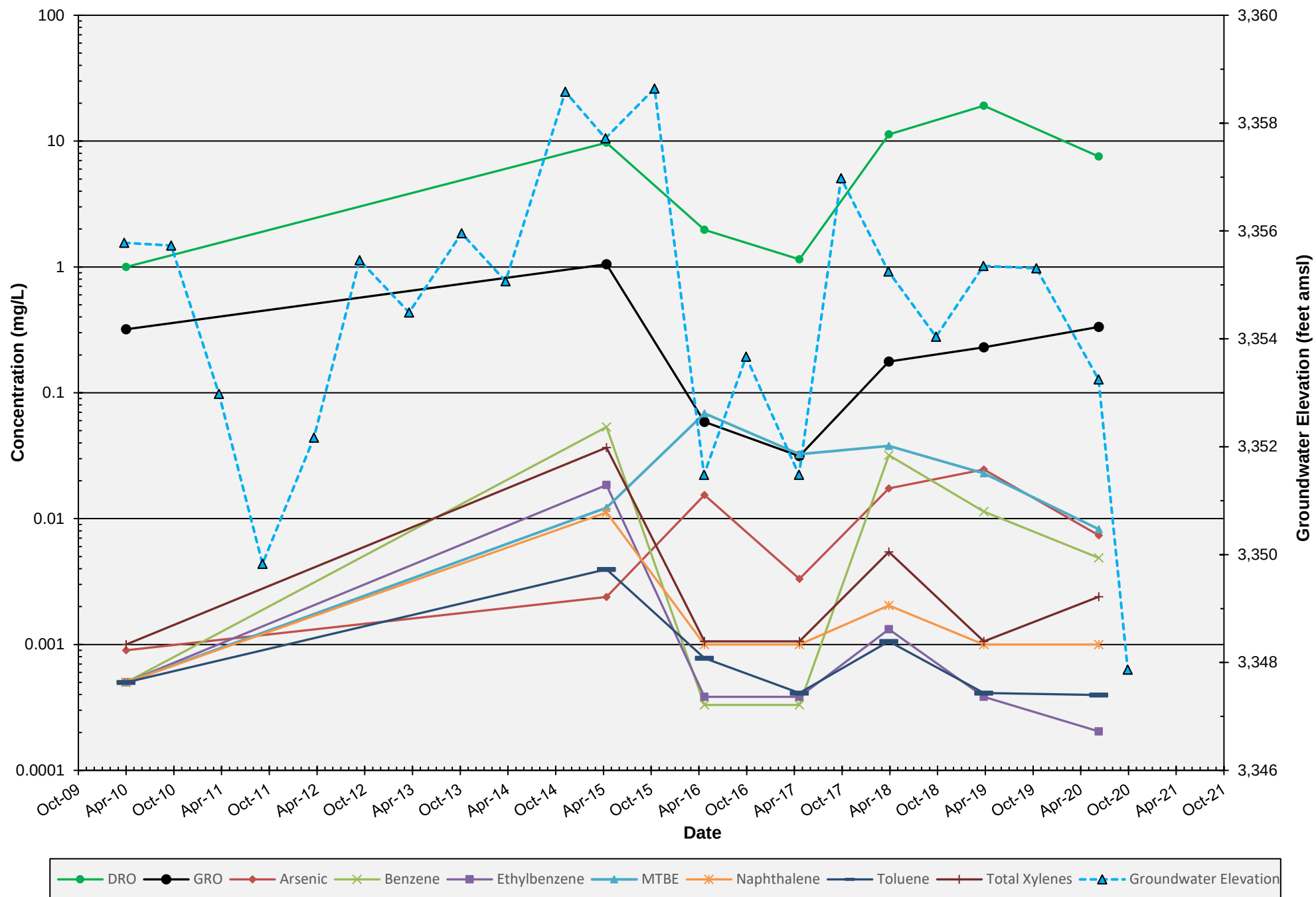
North Refinery Area



RW-7: COC Concentrations and Groundwater Elevations

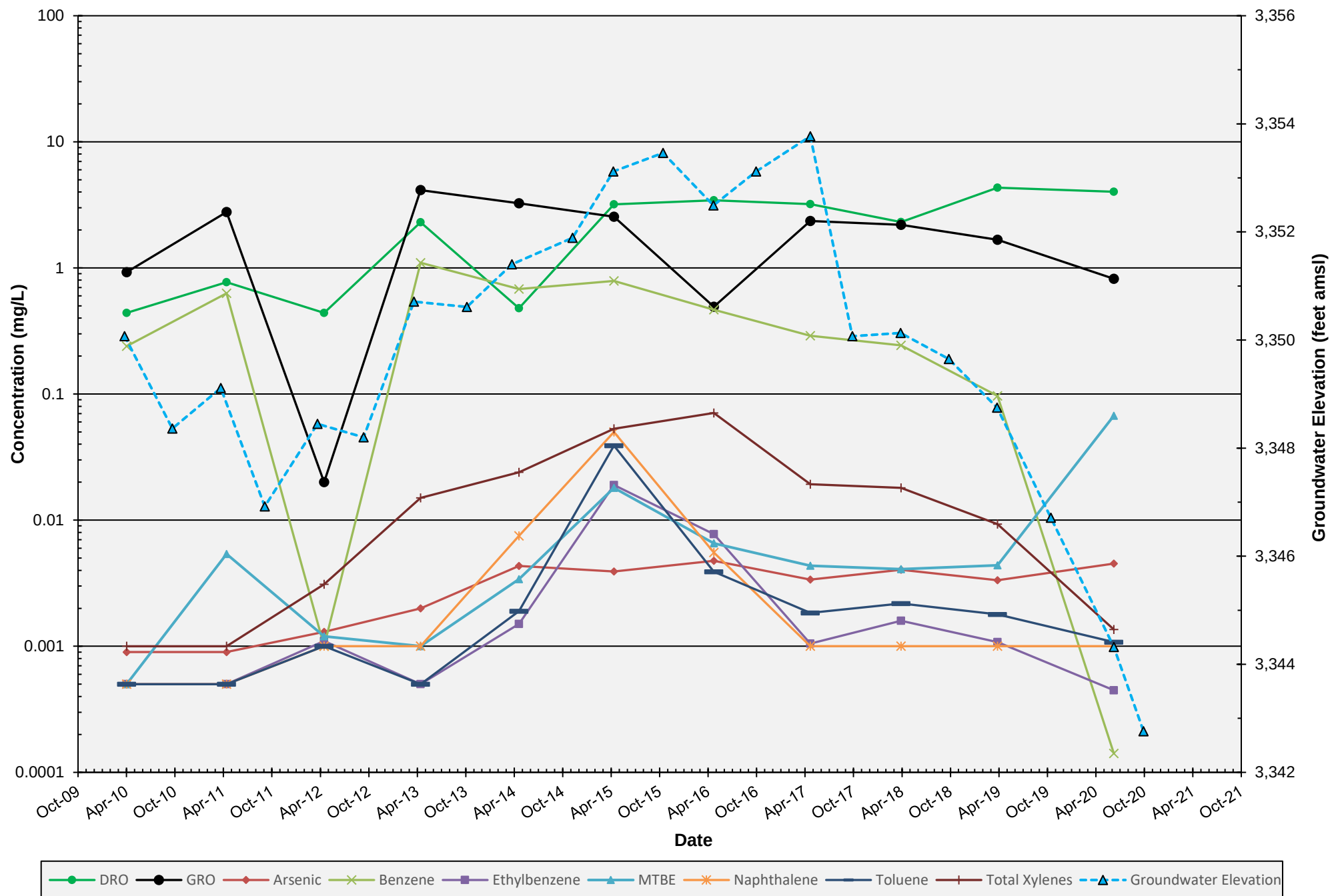
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Refinery Area



RW-9: COC Concentrations and Groundwater Elevations

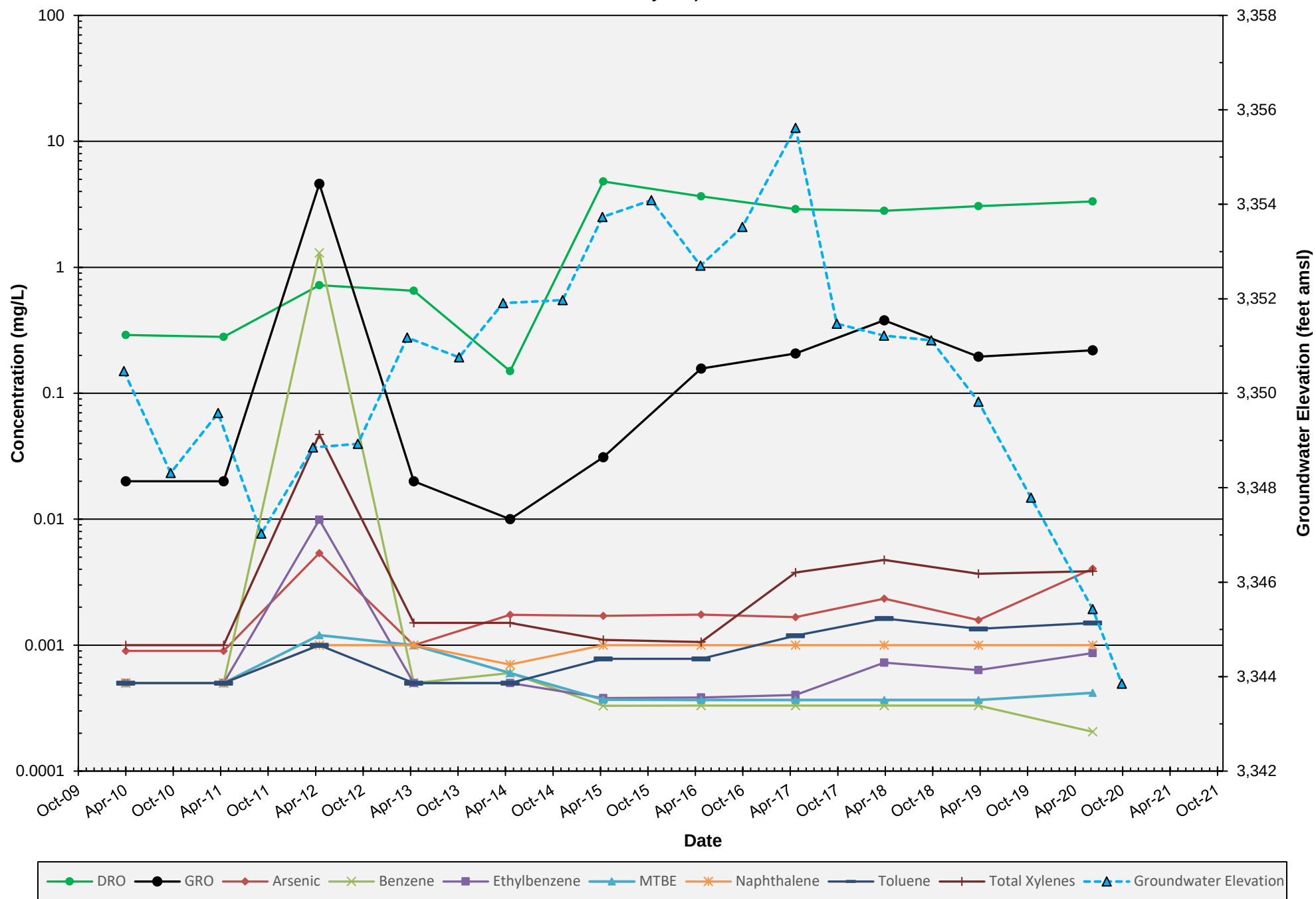
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Refinery Area



RW-10: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

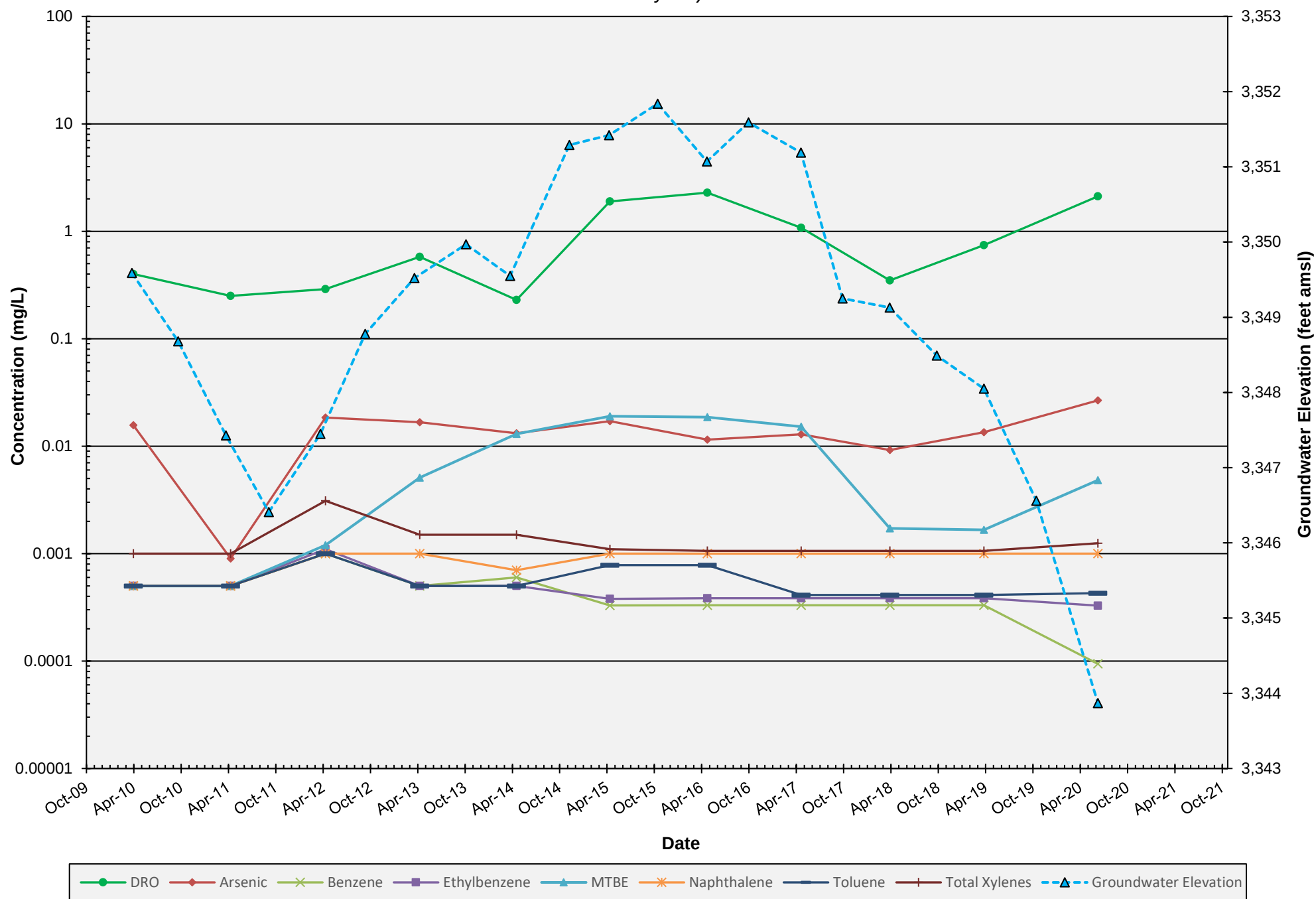
North Refinery Area



RW-16: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

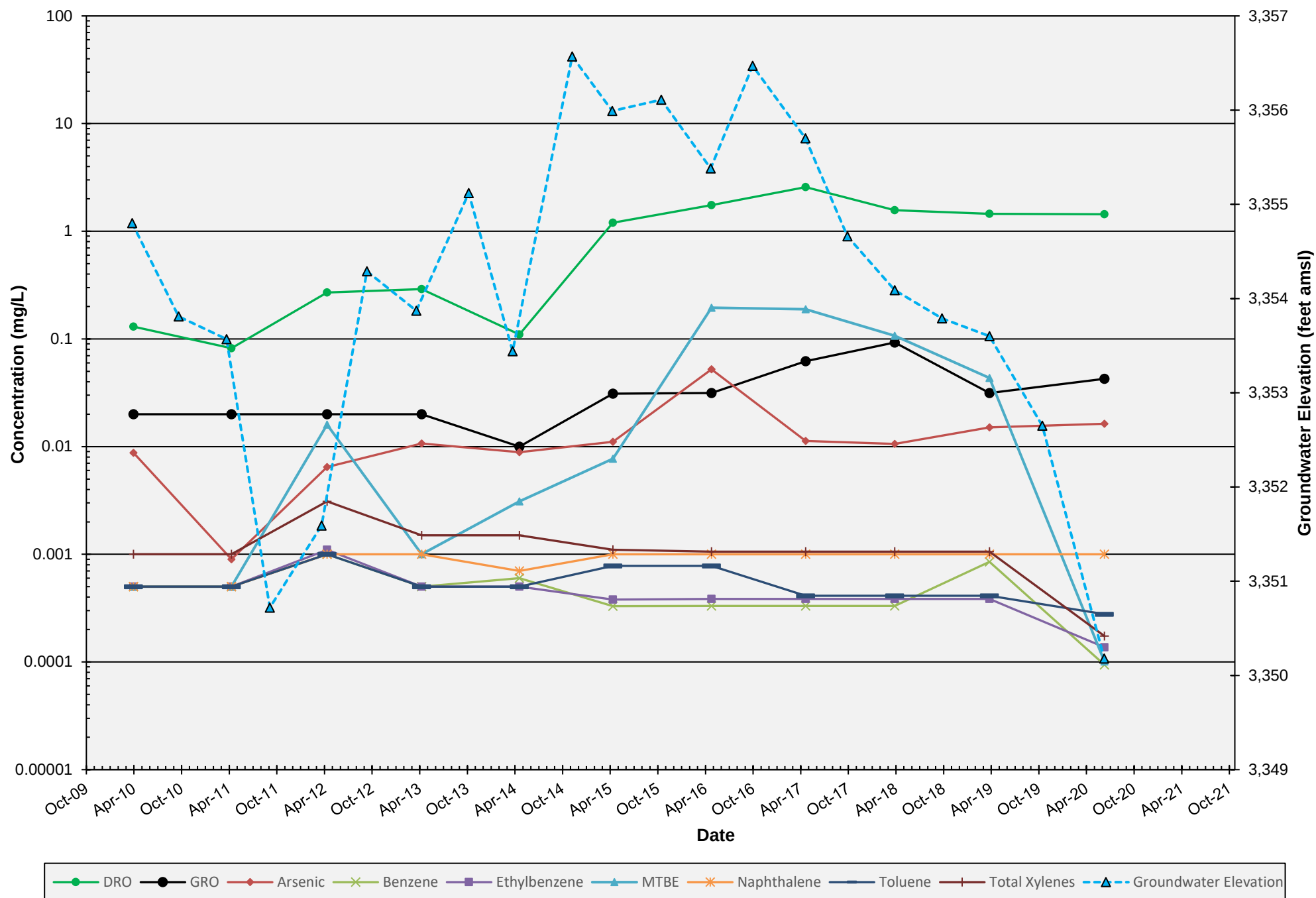
North Refinery Area



RW-17: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

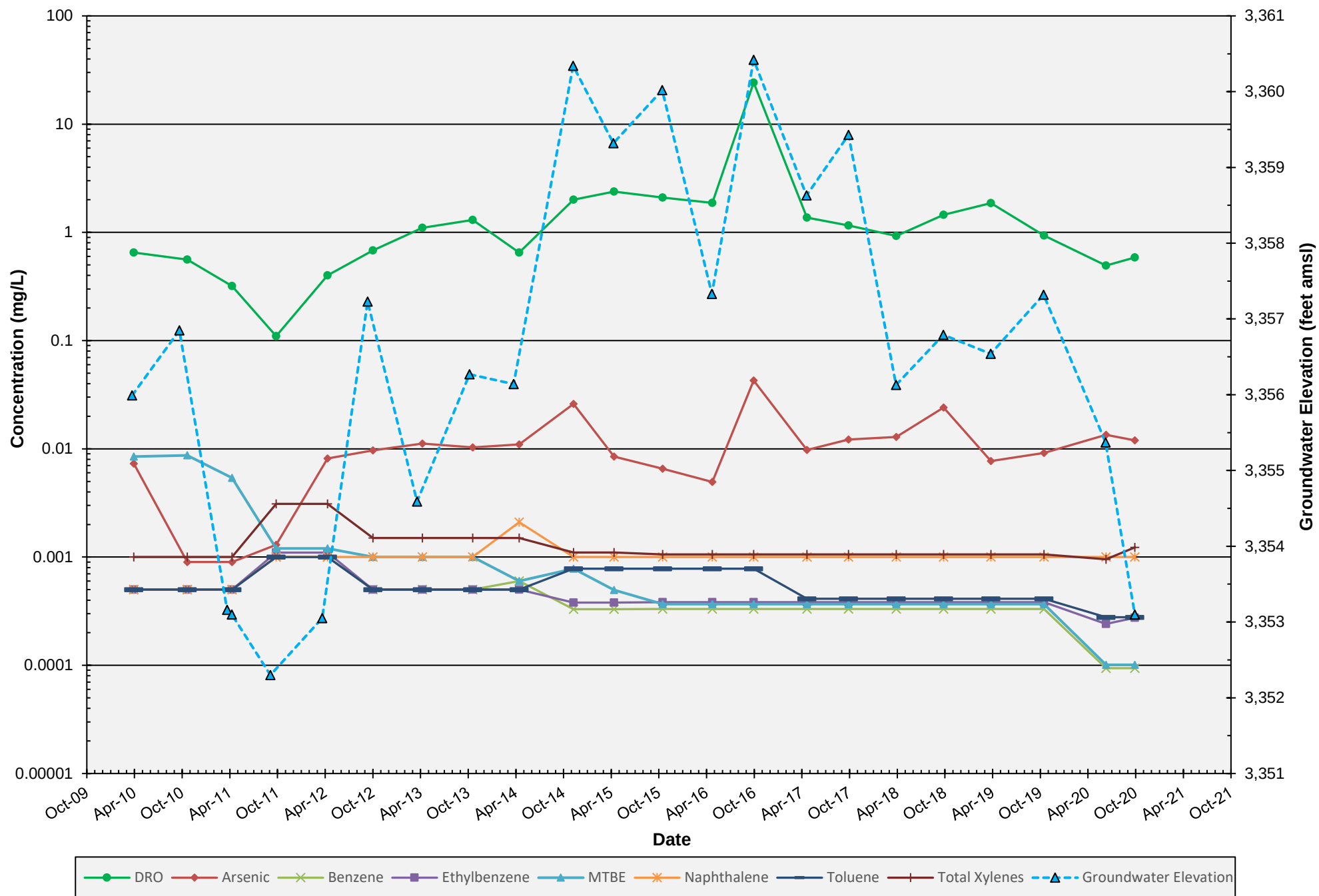
North Refinery Area



NCL-31: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

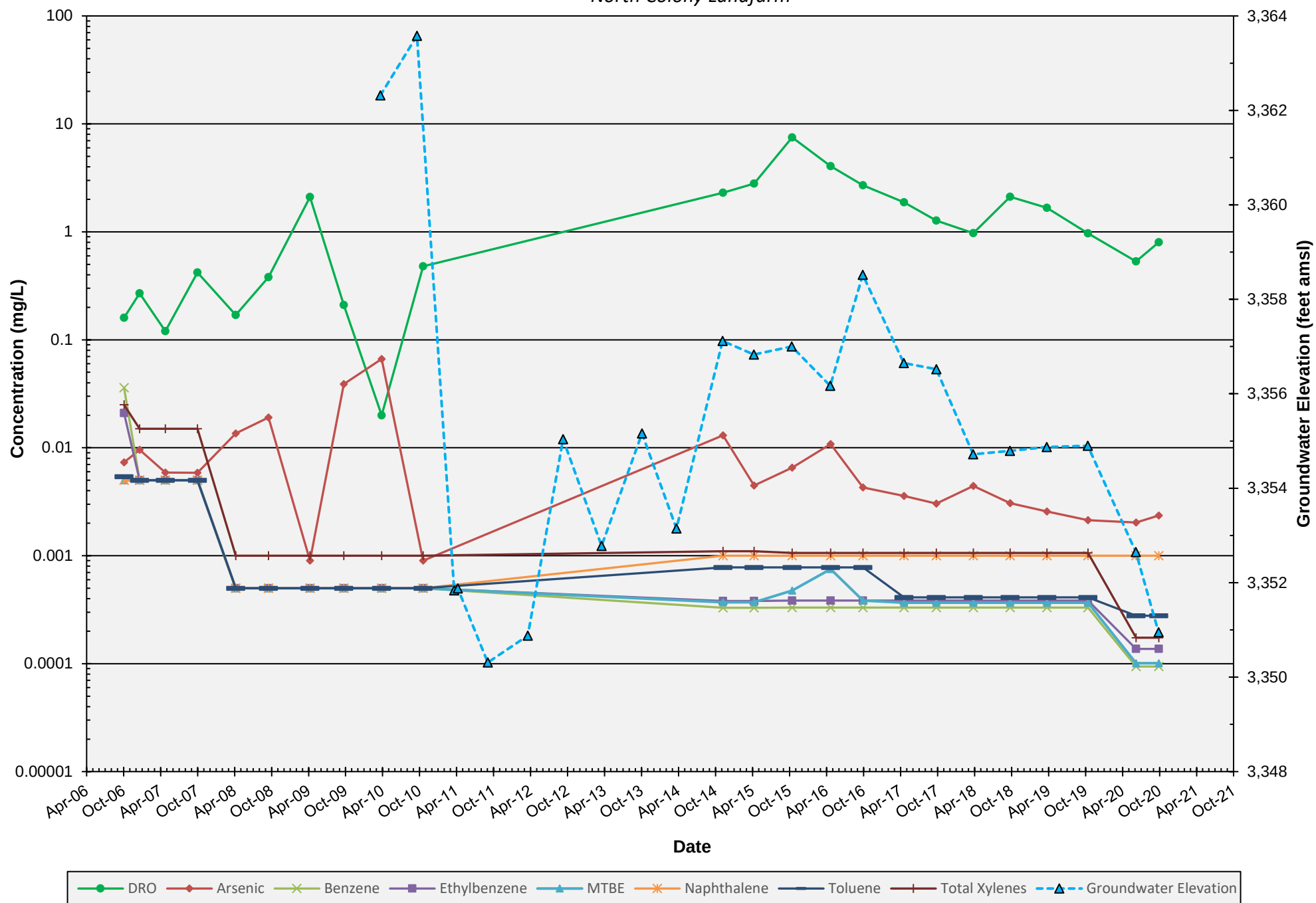
North Colony Landfarm



NCL-32: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

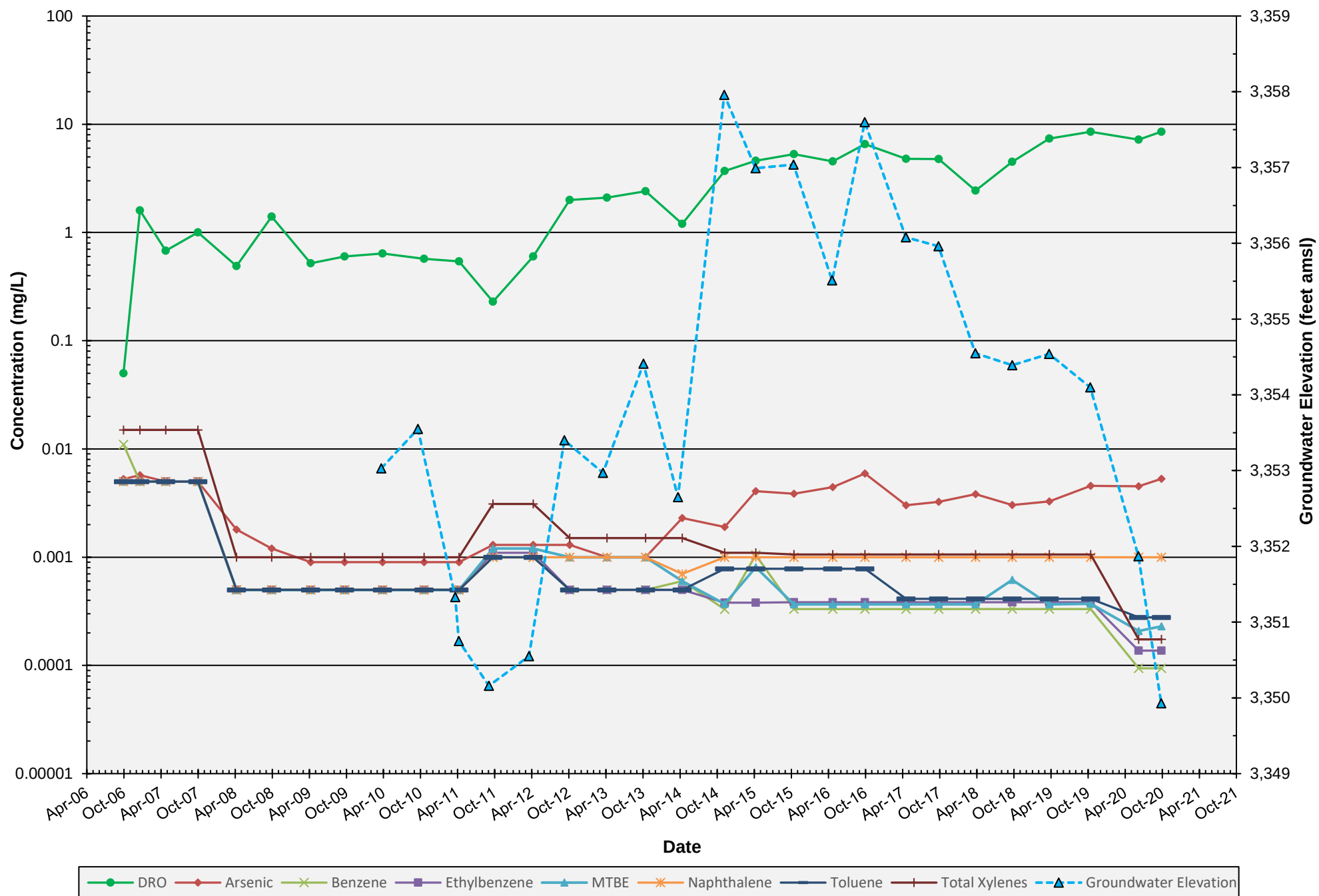
North Colony Landfarm



NCL-33: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

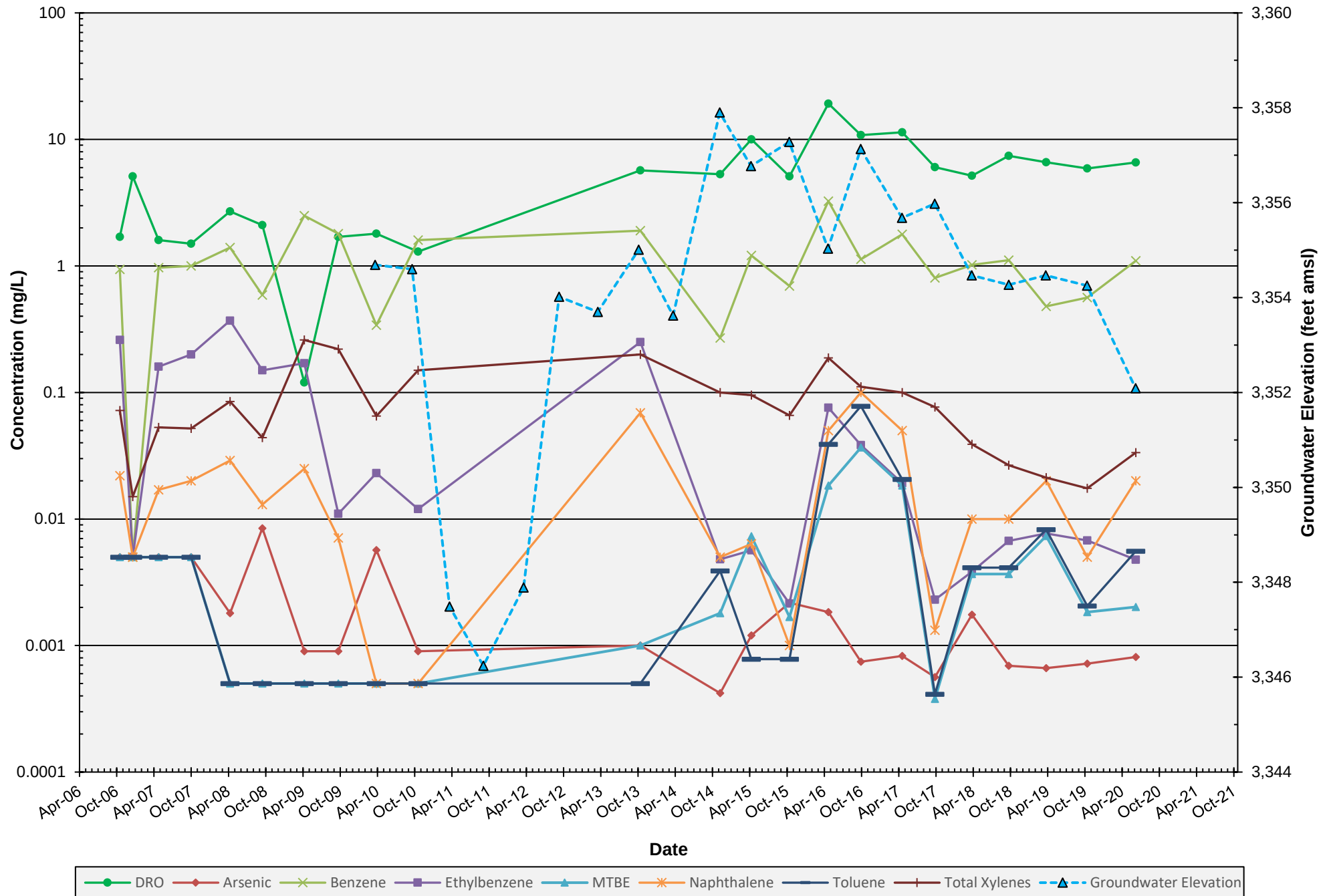
North Colony Landfarm



NCL-34A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

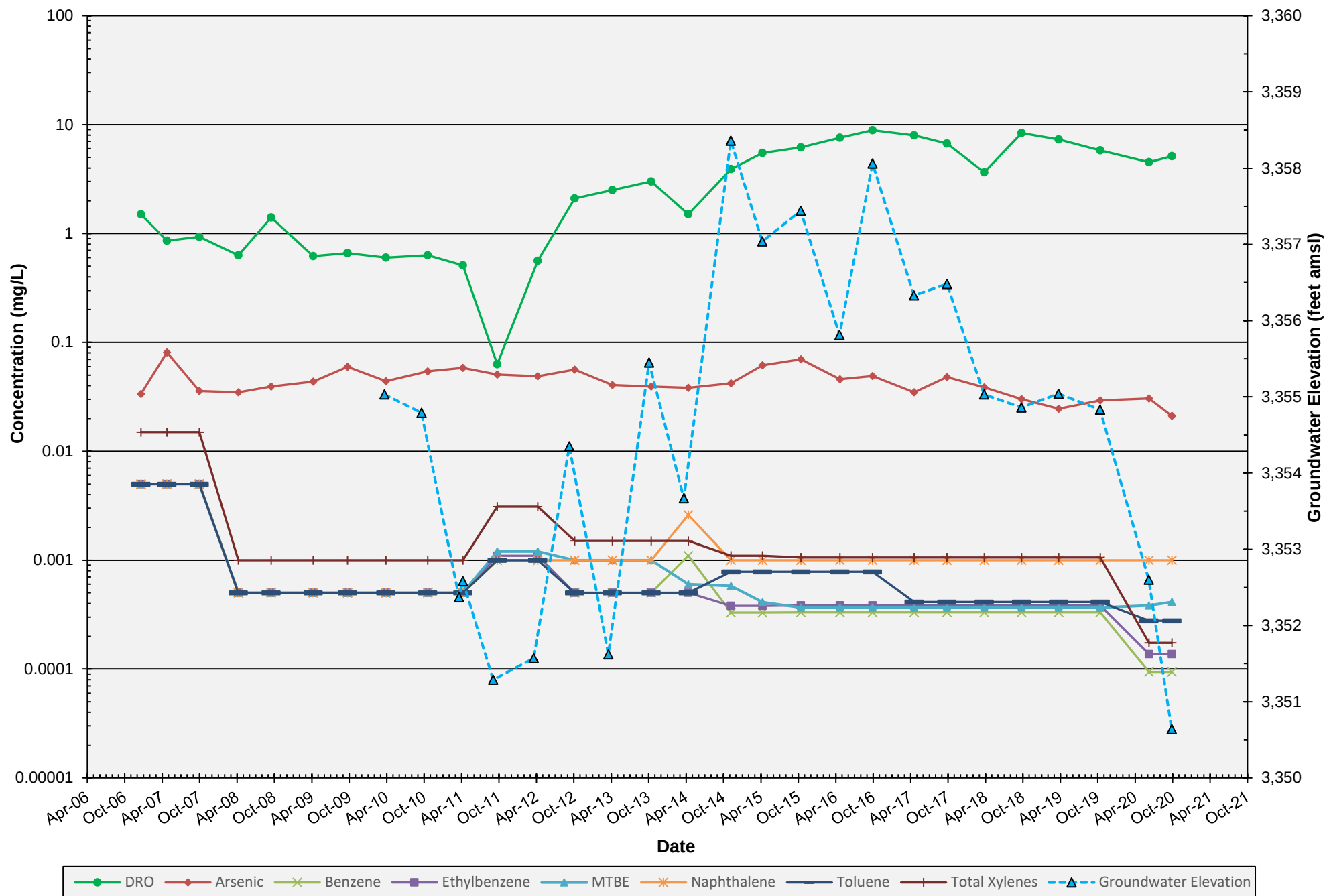
North Colony Landfarm



NCL-44: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

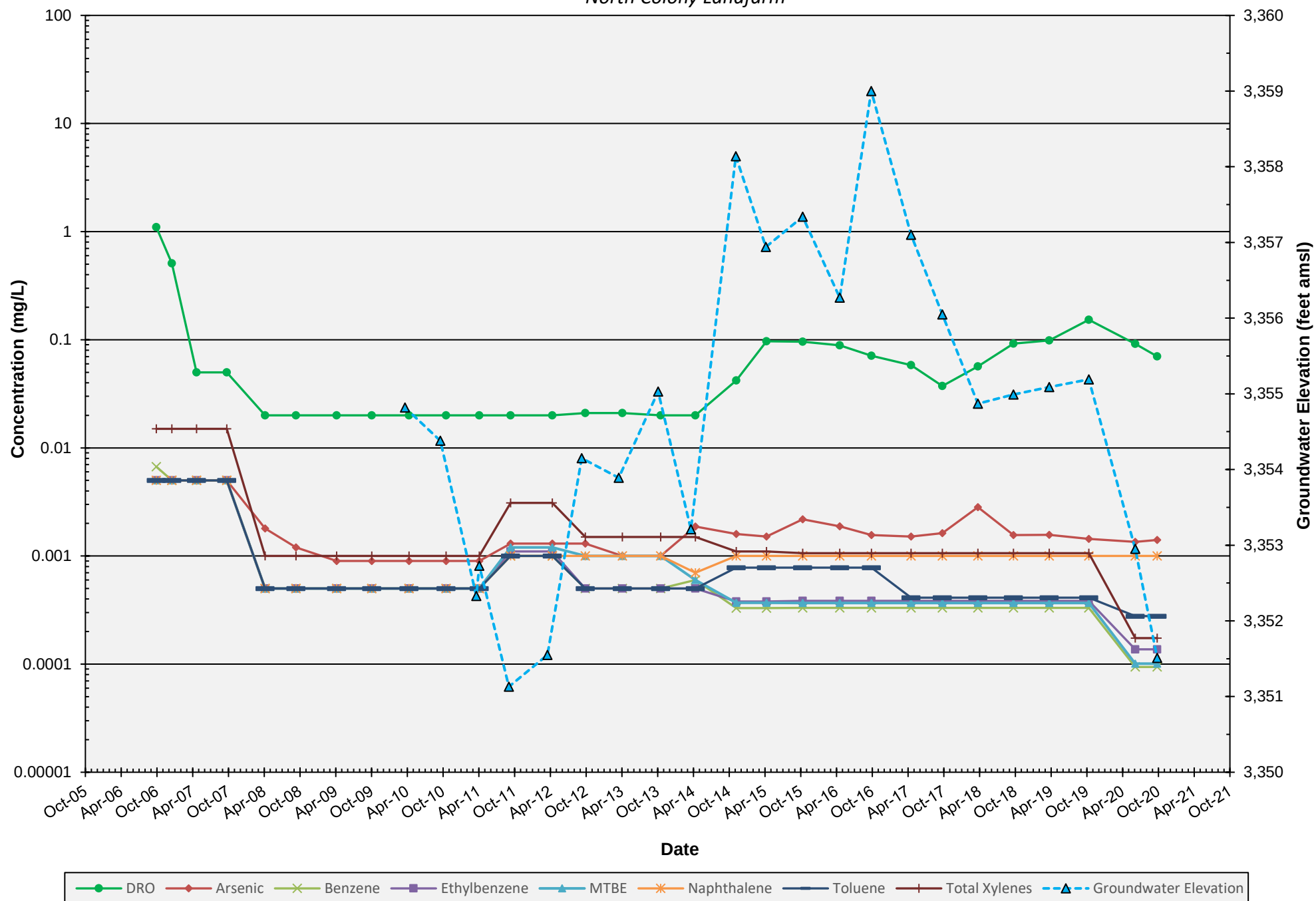
North Colony Landfarm



NCL-49: COC Concentrations and Groundwater Elevations

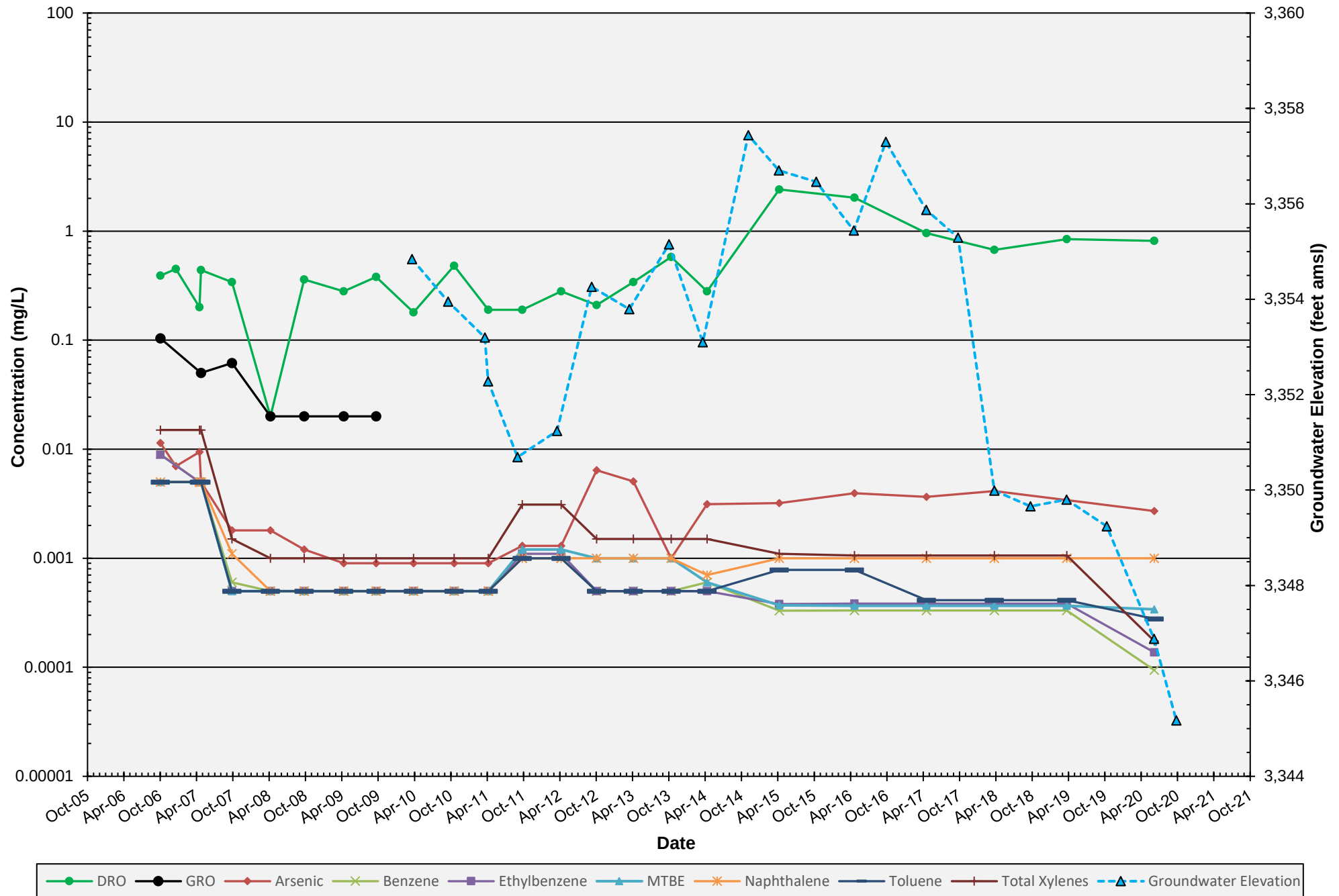
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Colony Landfarm



MW-18: COC Concentrations and Groundwater Elevations

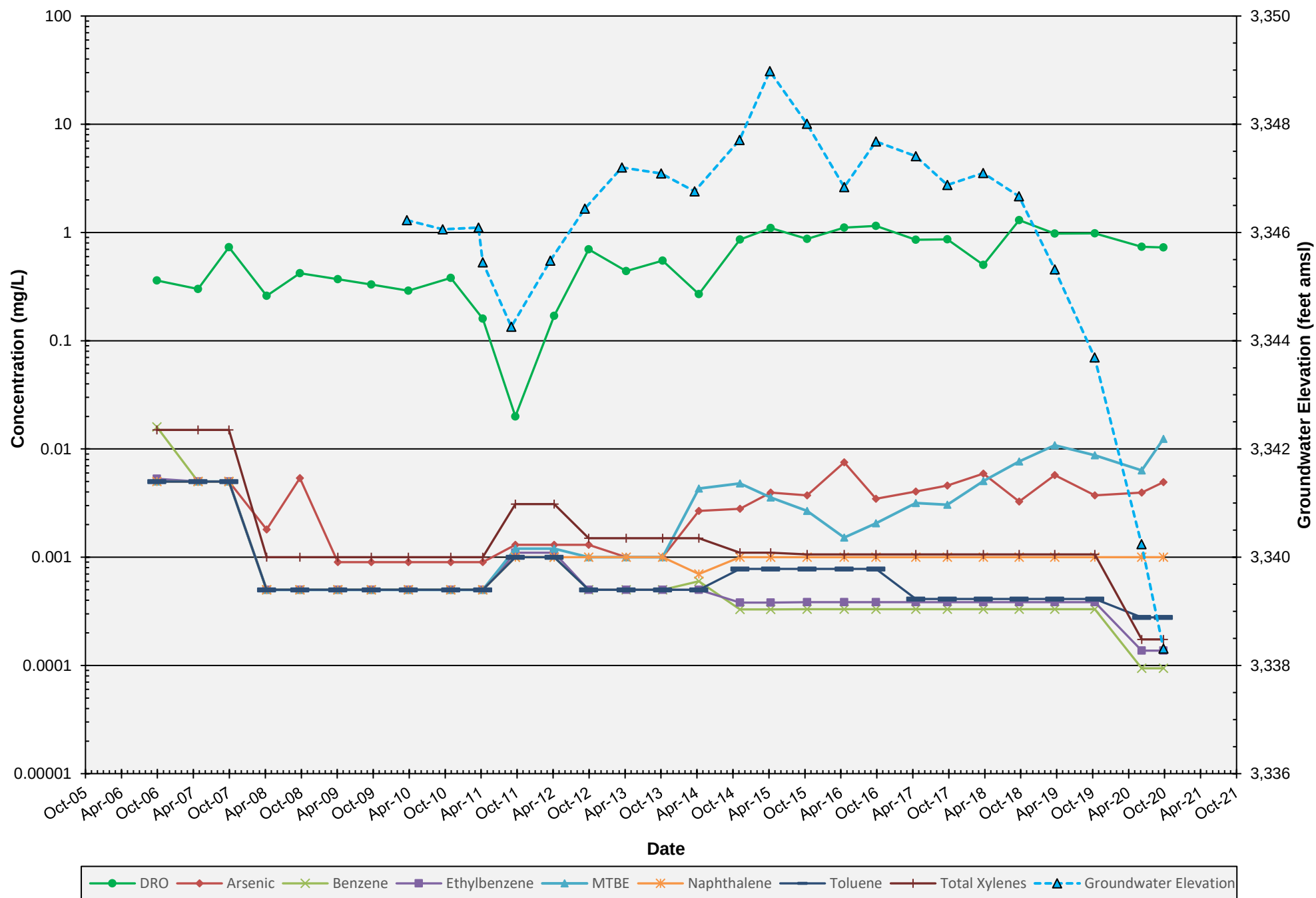
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Colony Landfarm



MW-45: COC Concentrations and Groundwater Elevations

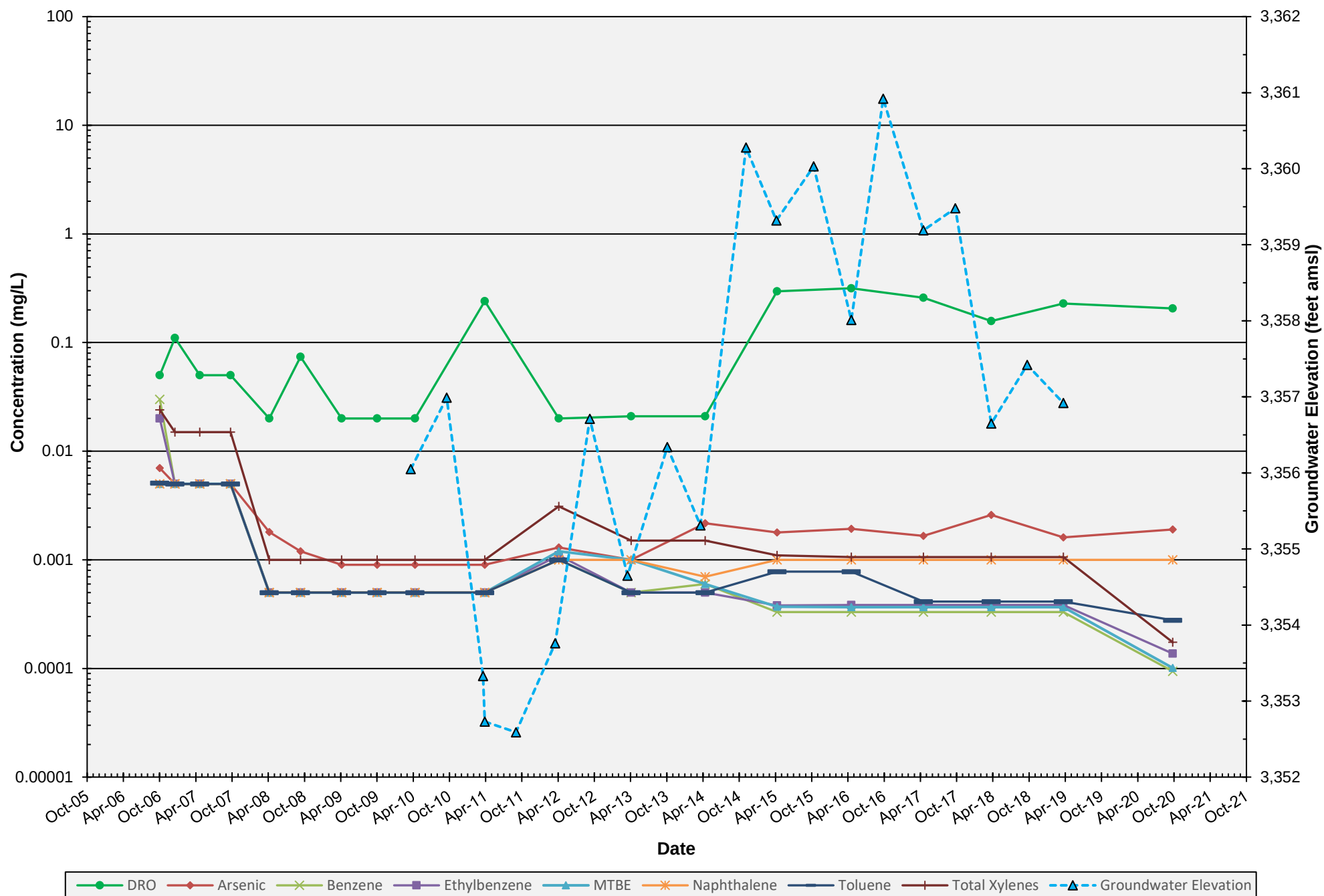
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Colony Landfarm



MW-53/MW-53R: COC Concentrations and Groundwater Elevations

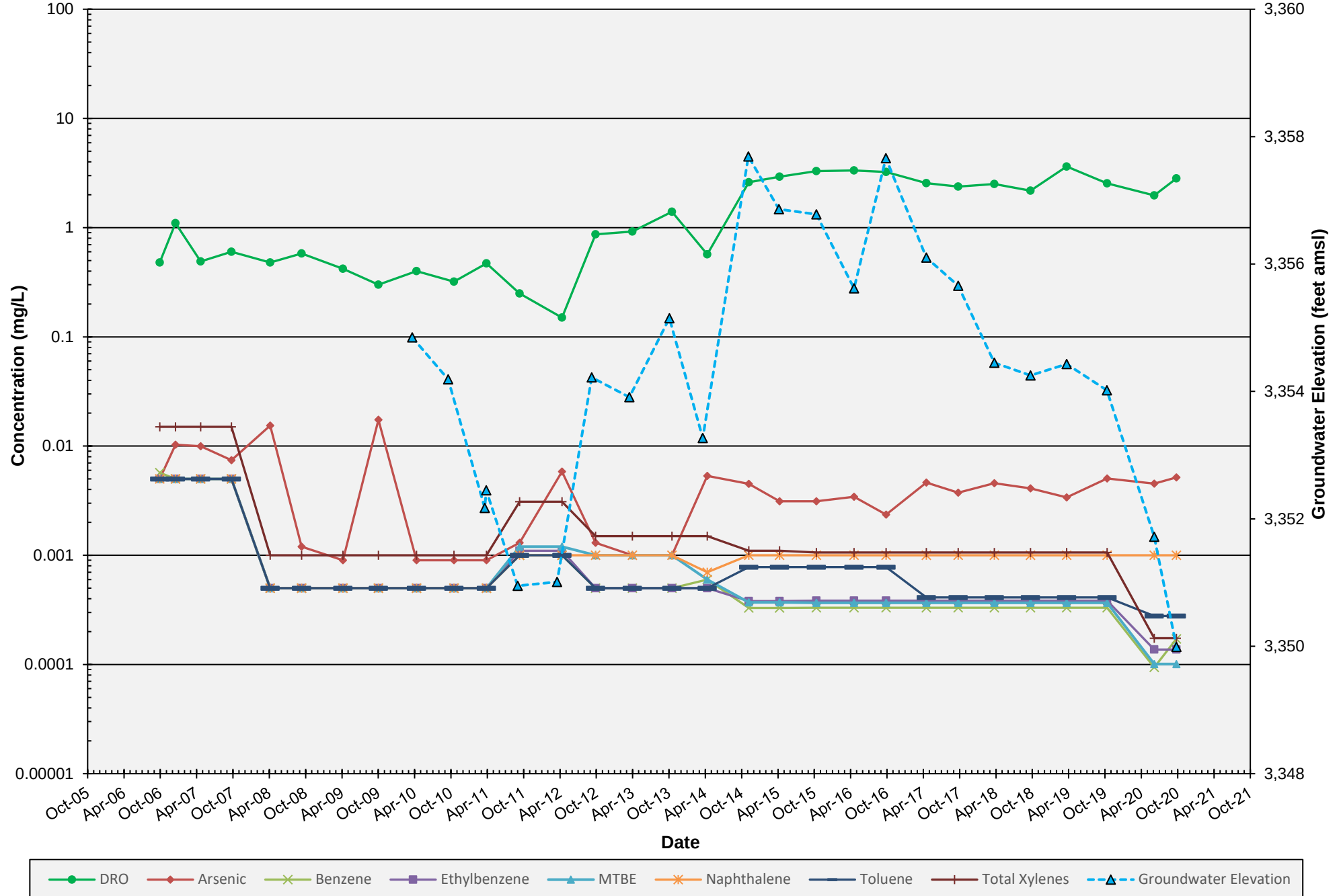
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Colony Landfarm



MW-54A: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

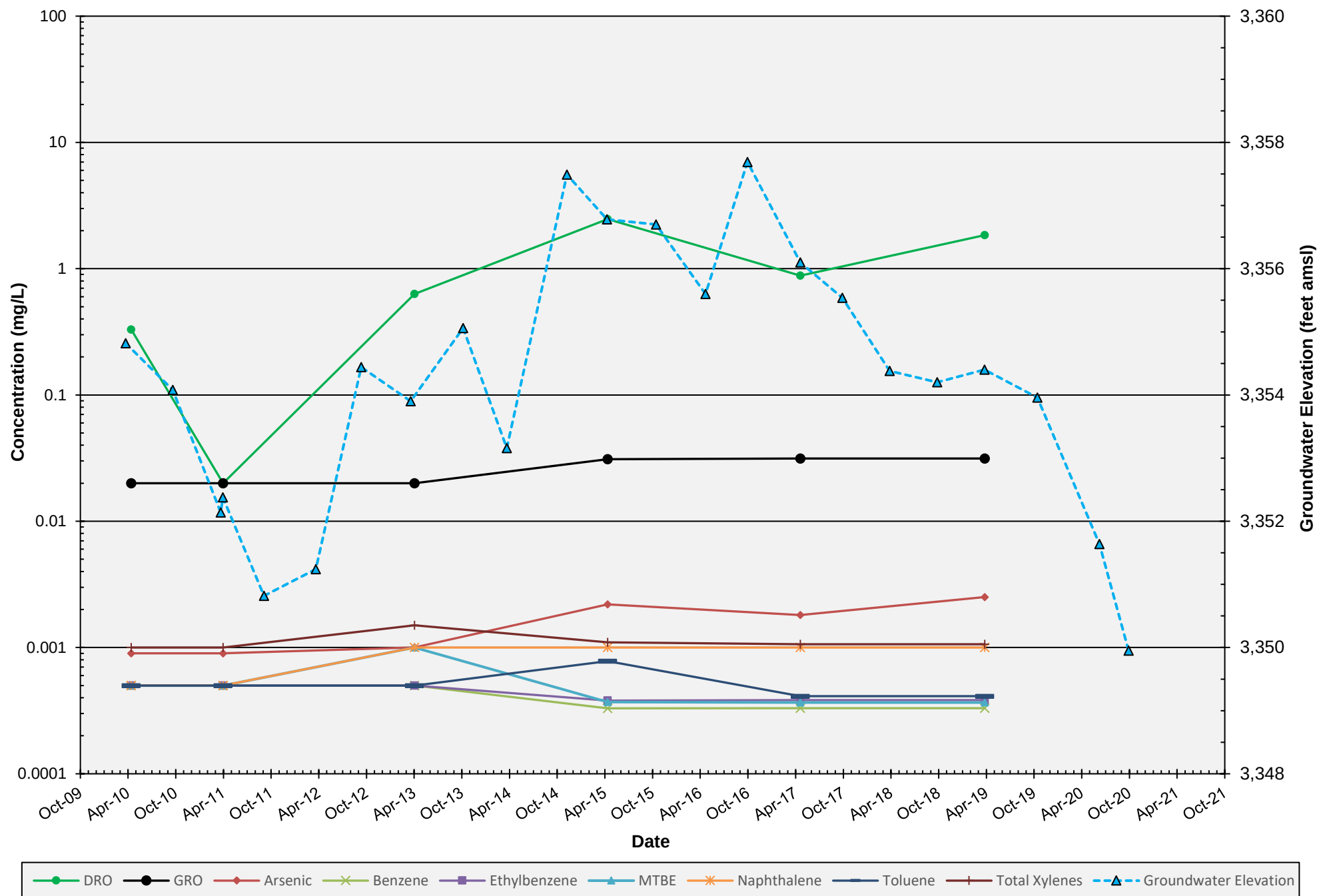
North Colony Landfarm



MW-54B: COC Concentrations and Groundwater Elevations

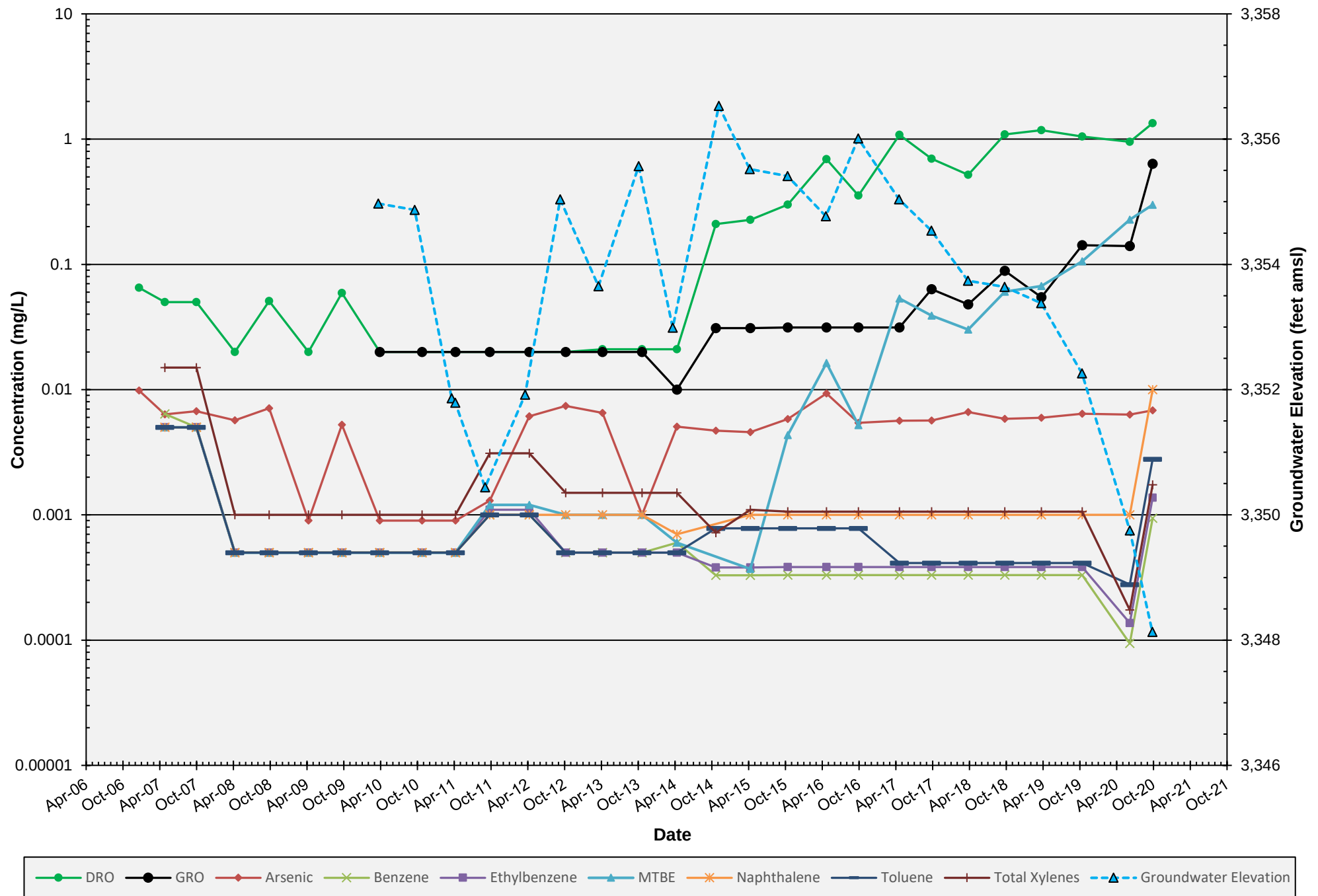
HollyFrontier Navajo Refining LLC - Artesia Refinery

North Colony Landfarm



MW-55: COC Concentrations and Groundwater Elevations

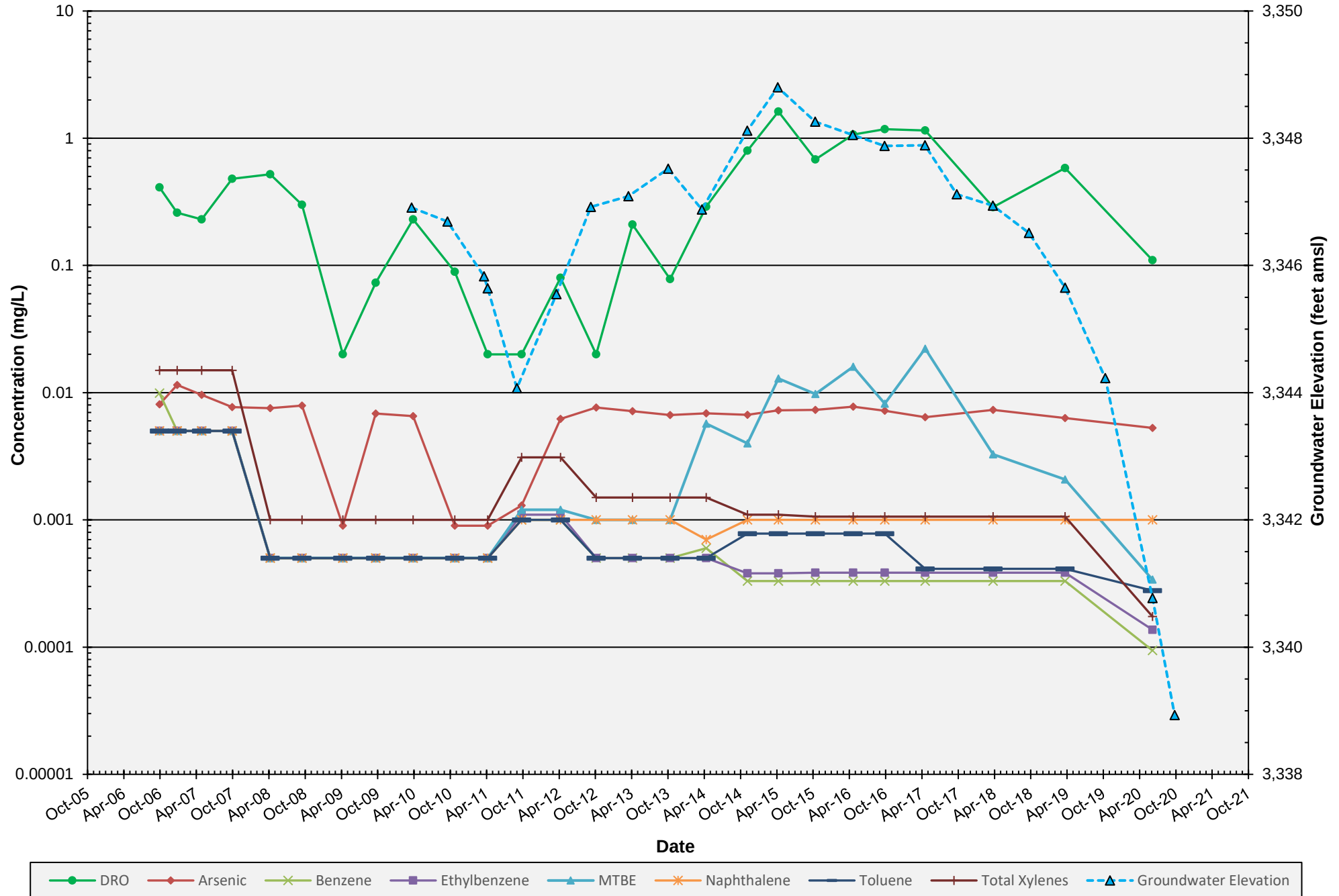
HollyFrontier Navajo Refining LLC - Artesia Refinery
North Colony Landfarm



MW-56: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

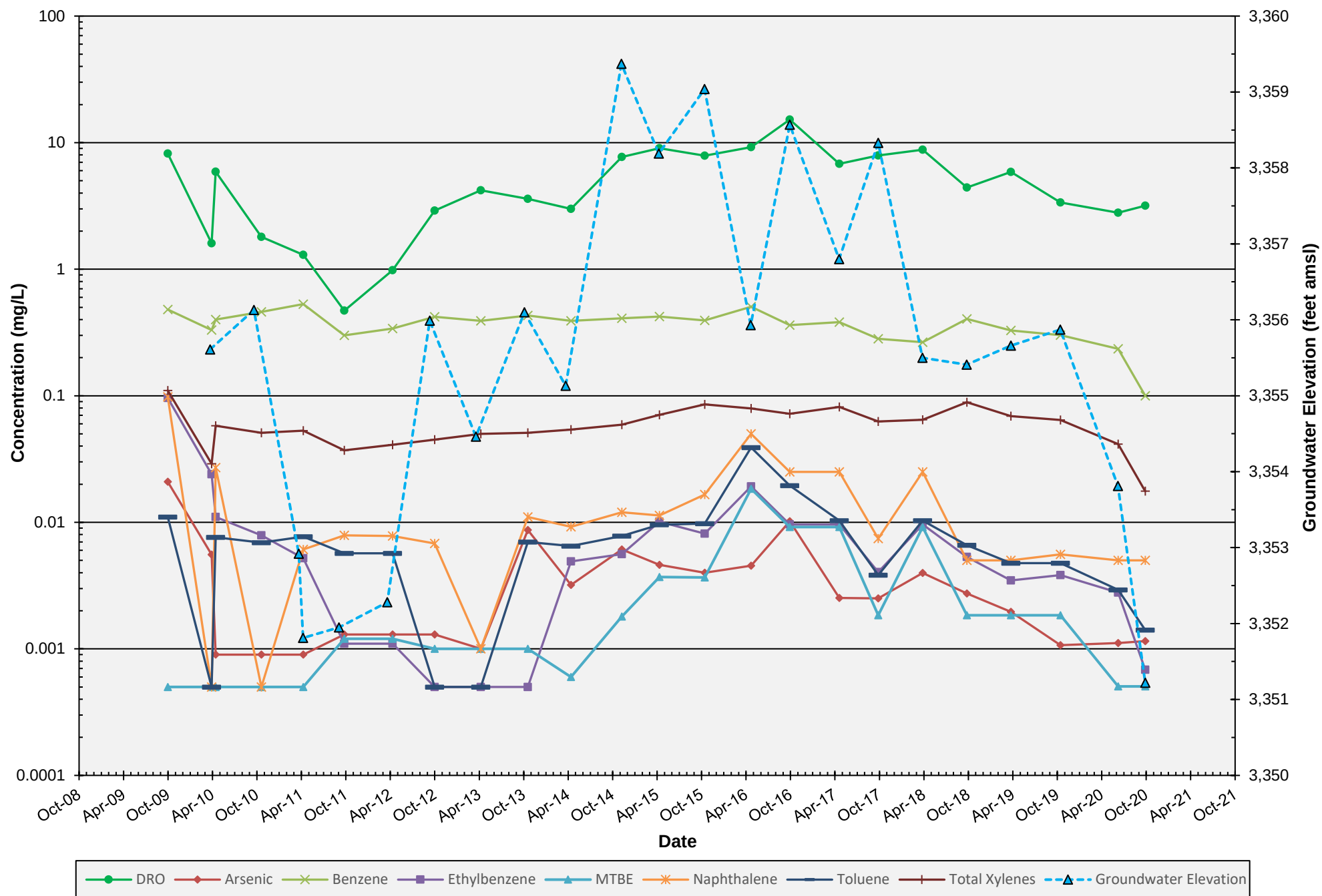
North Colony Landfarm



MW-108: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

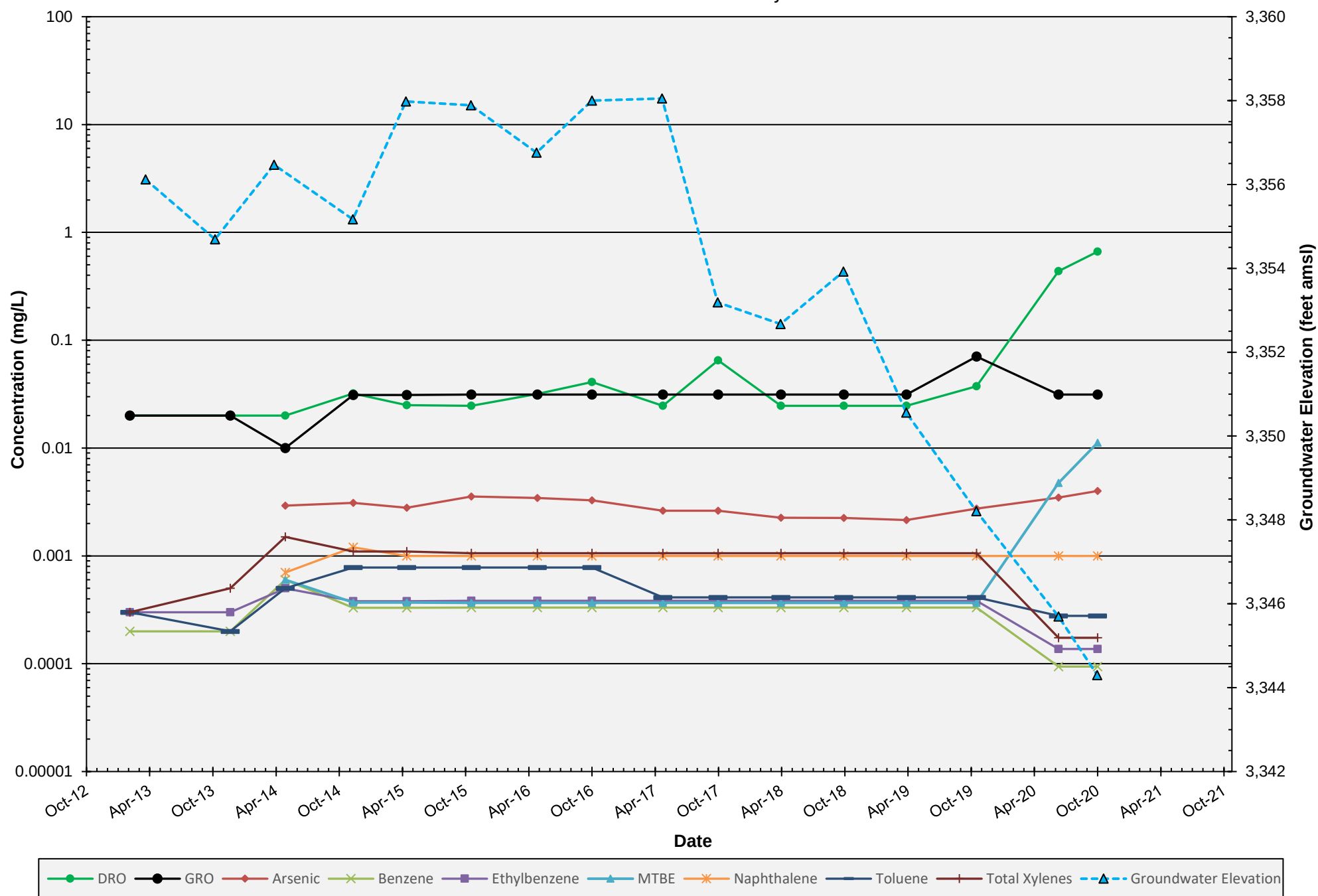
North Colony Landfarm



MW-114: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

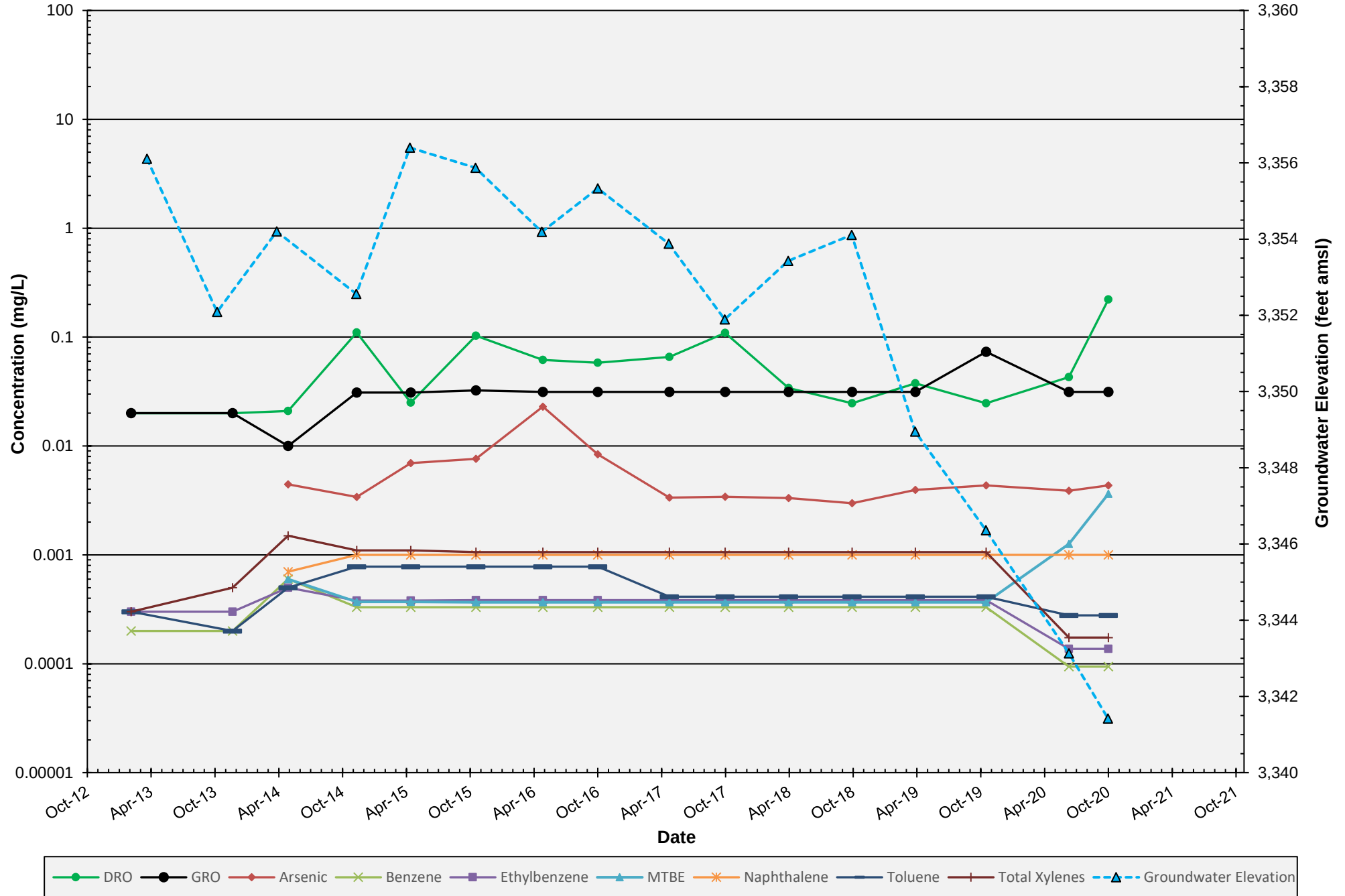
South Reverse Osmosis Reject Field



MW-115: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

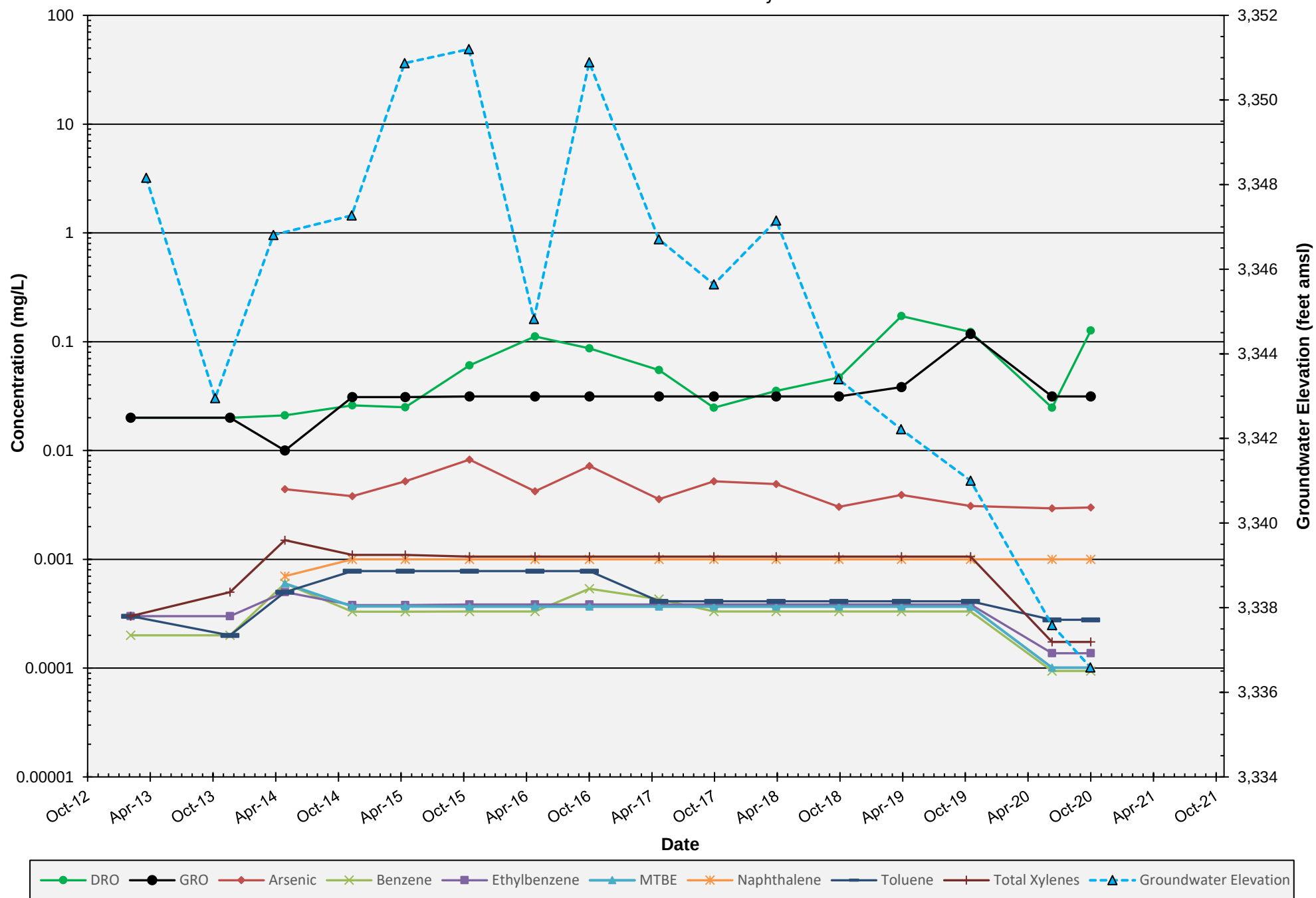
South Reverse Osmosis Reject Fields



MW-116: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

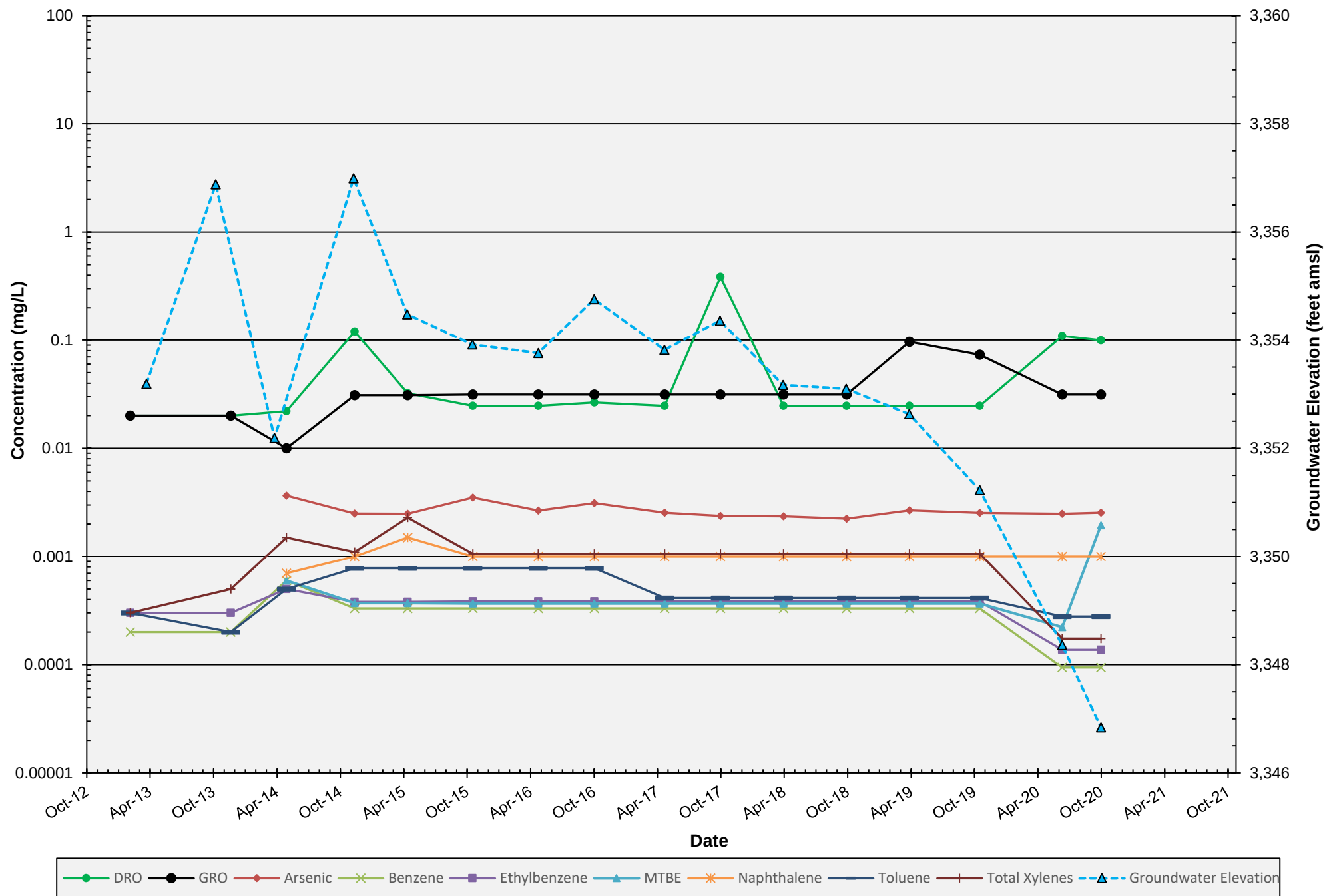
South Reverse Osmosis Reject Field



MW-117: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

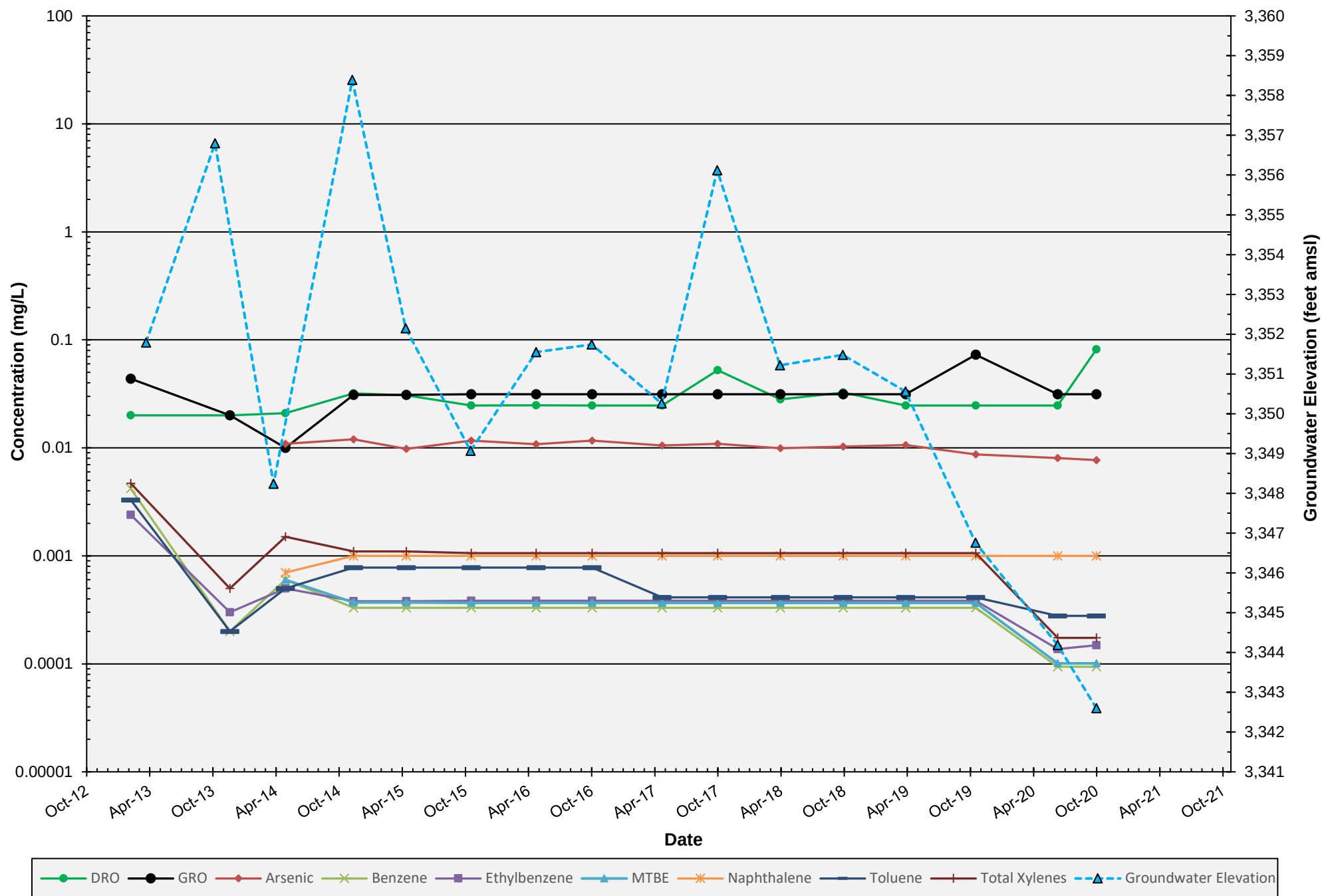
North Reverse Osmosis Reject Fields



MW-118: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

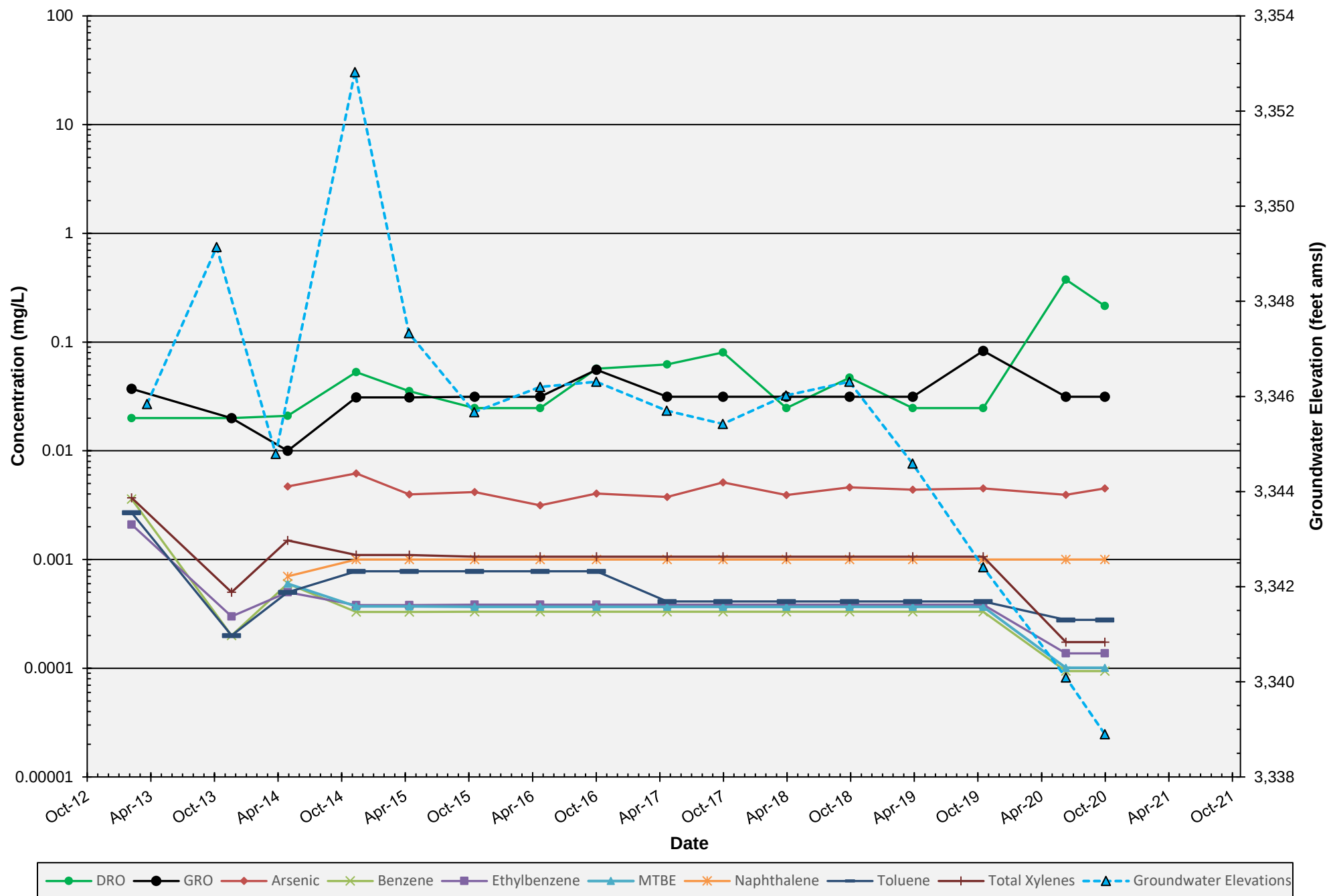
North Reverse Osmosis Reject Fields



MW-119: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

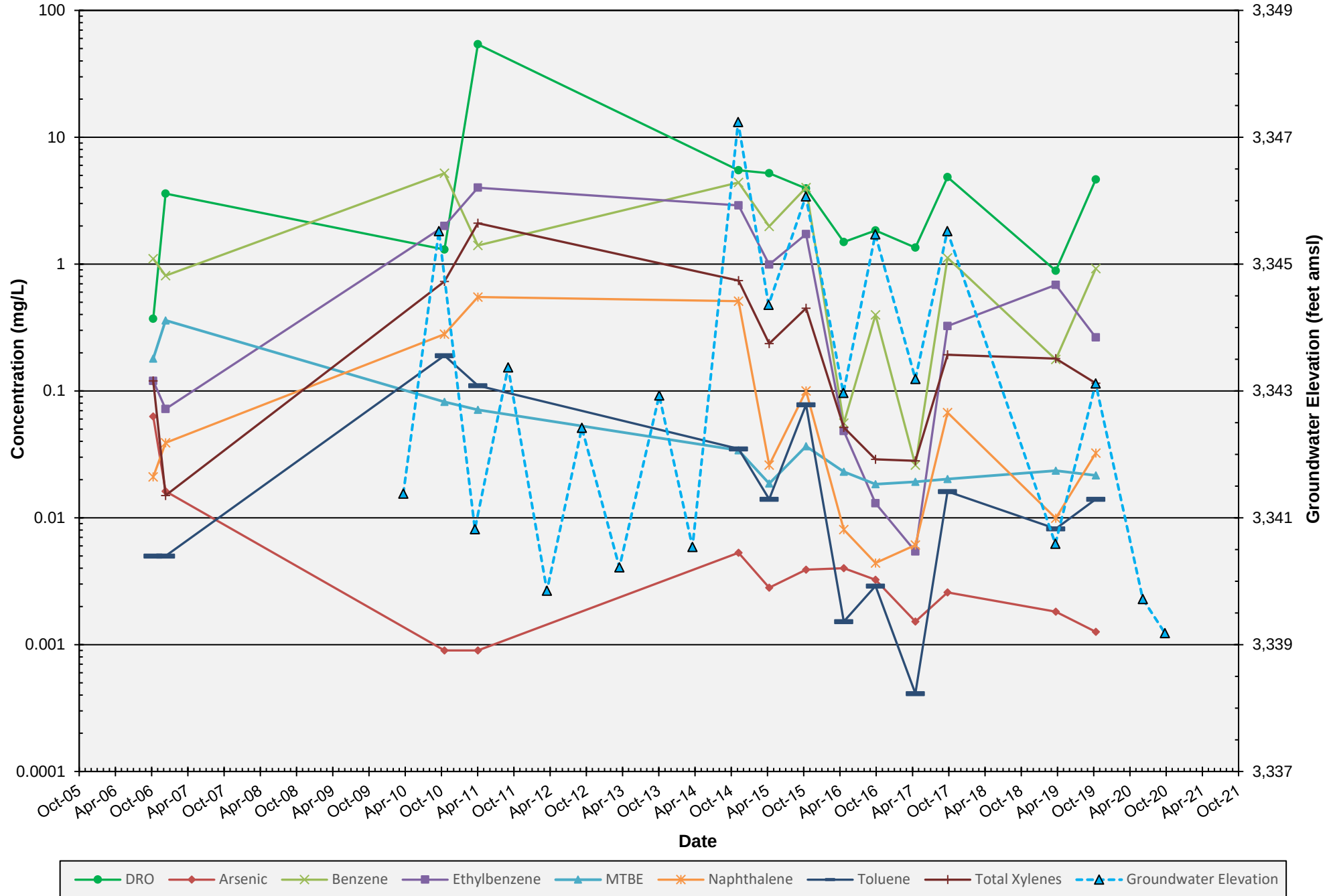
North Reverse Osmosis Reject Fields



KWB-2R: COC Concentrations and Groundwater Elevations

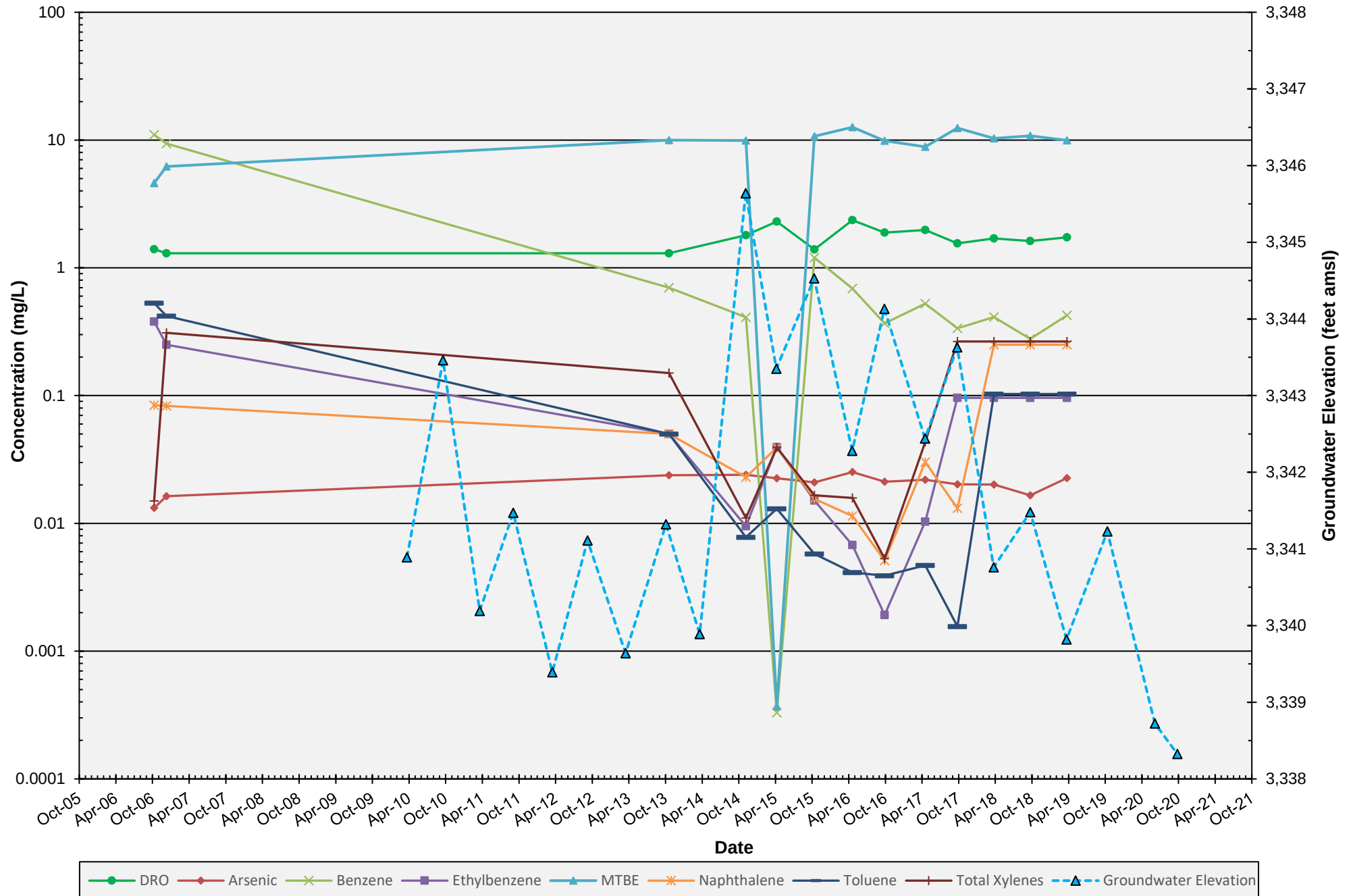
HollyFrontier Navajo Refining LLC - Artesia Refinery

South Refinery Area



KWB-5: COC Concentrations and Groundwater Elevations

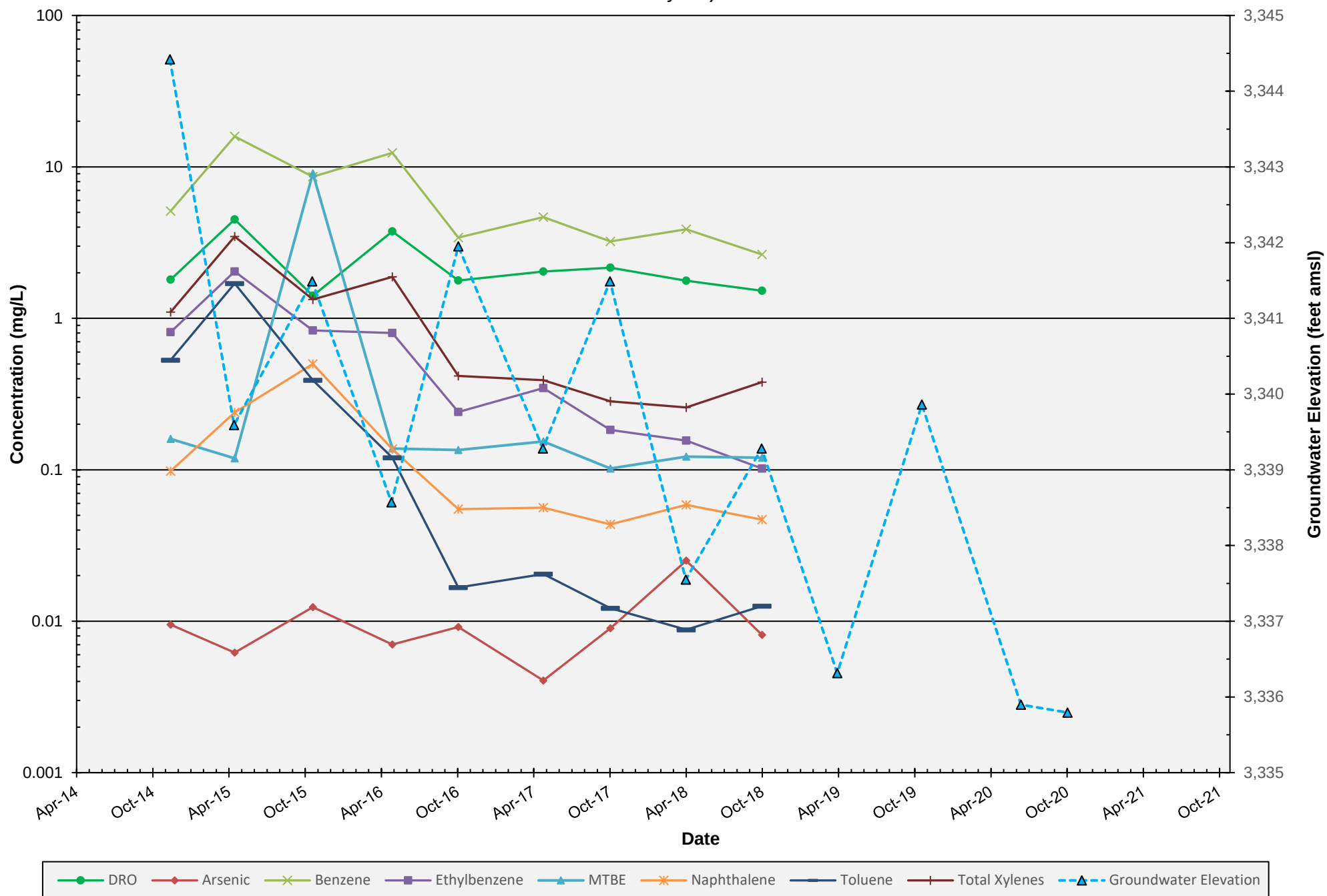
HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



KWB-6: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

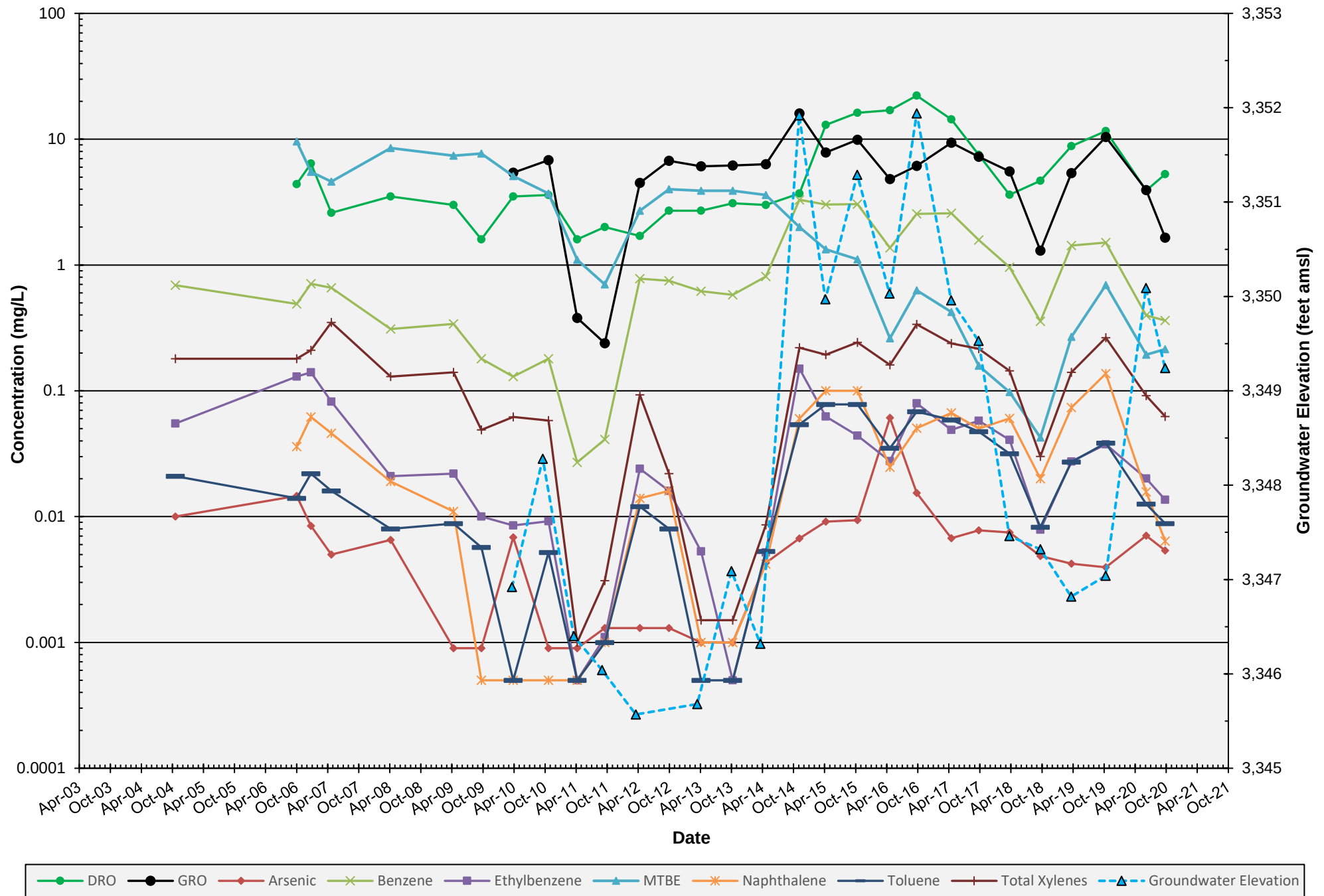
South Refinery Area



MW-28: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

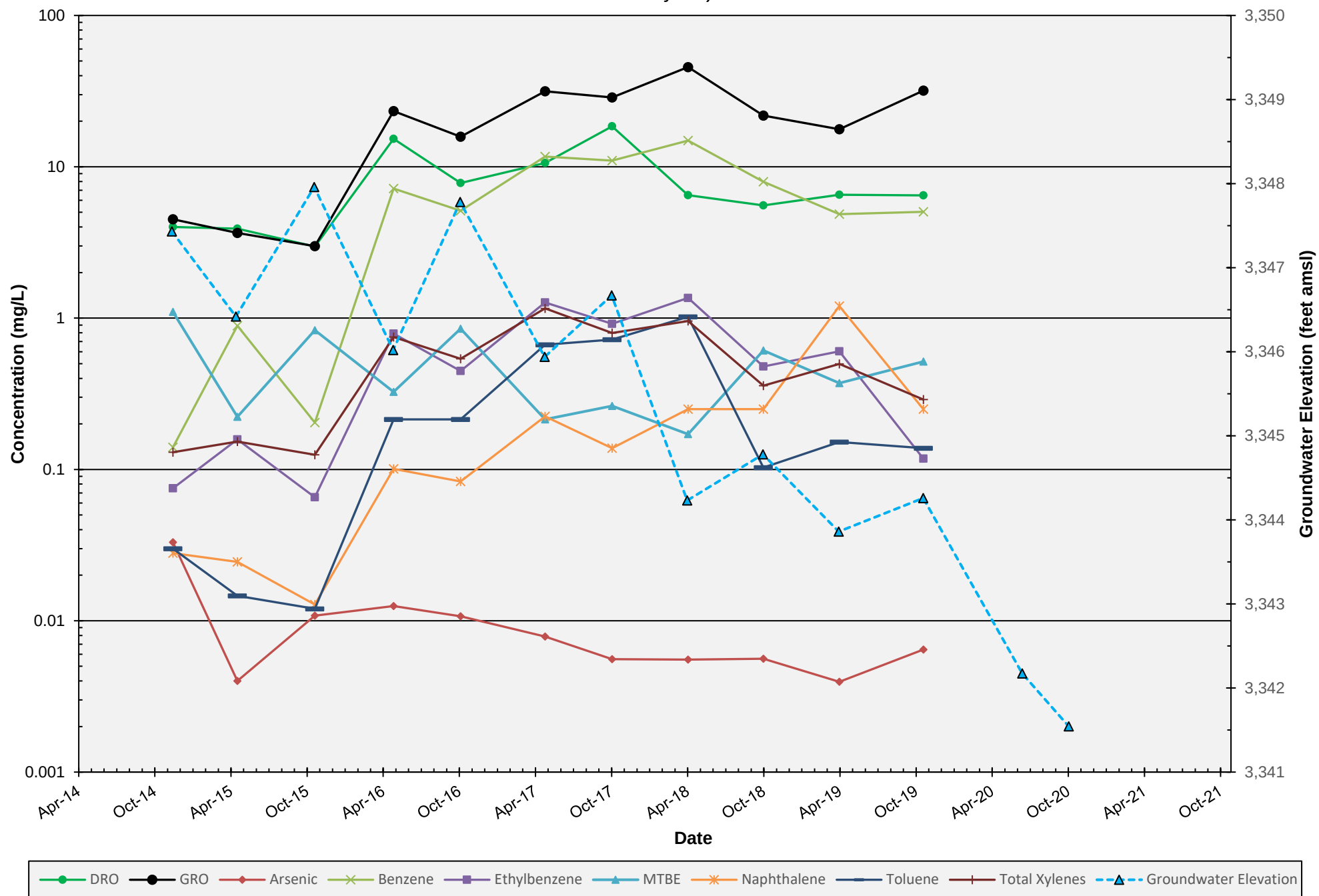
South Refinery Area



MW-48: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

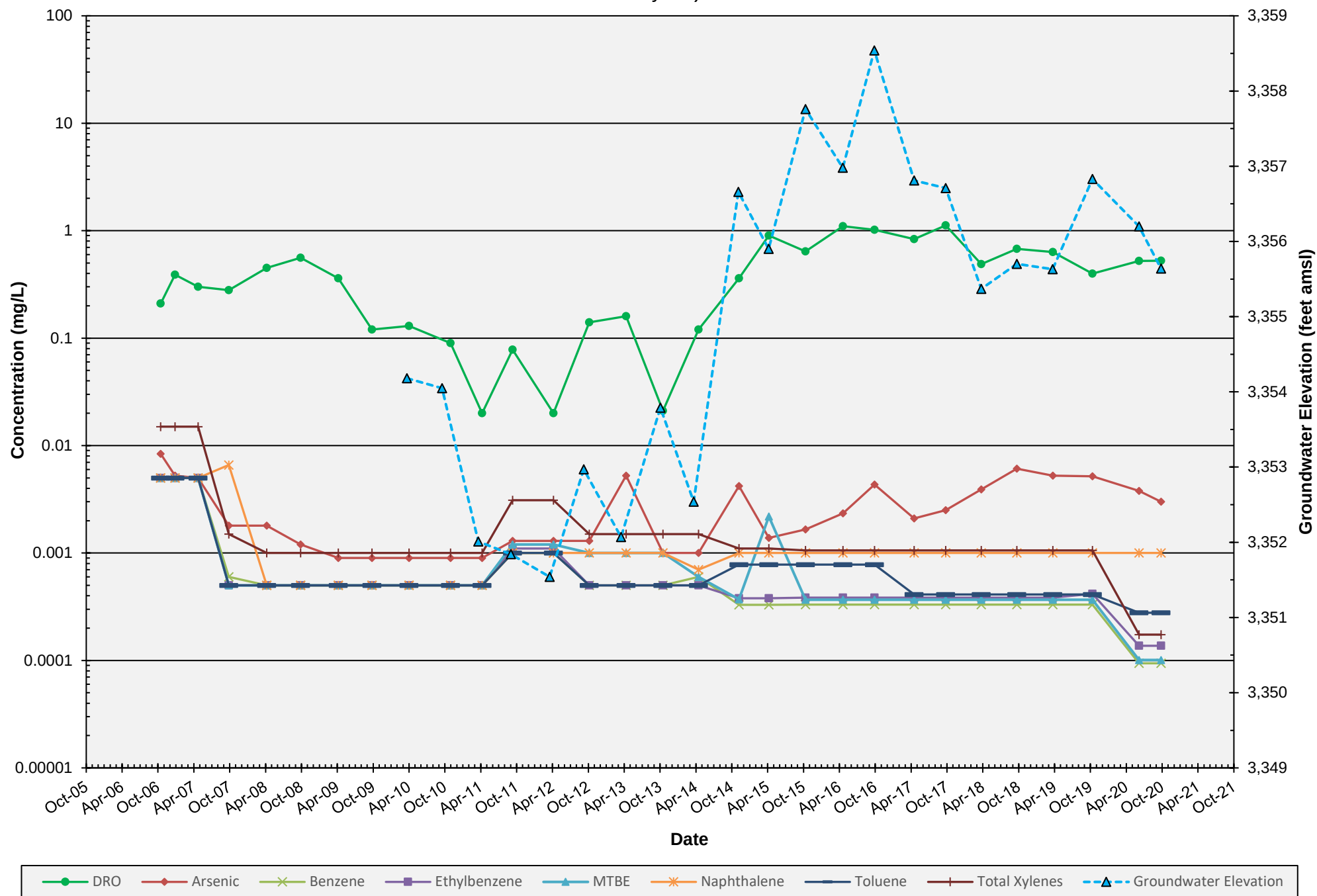
South Refinery Area



MW-50: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

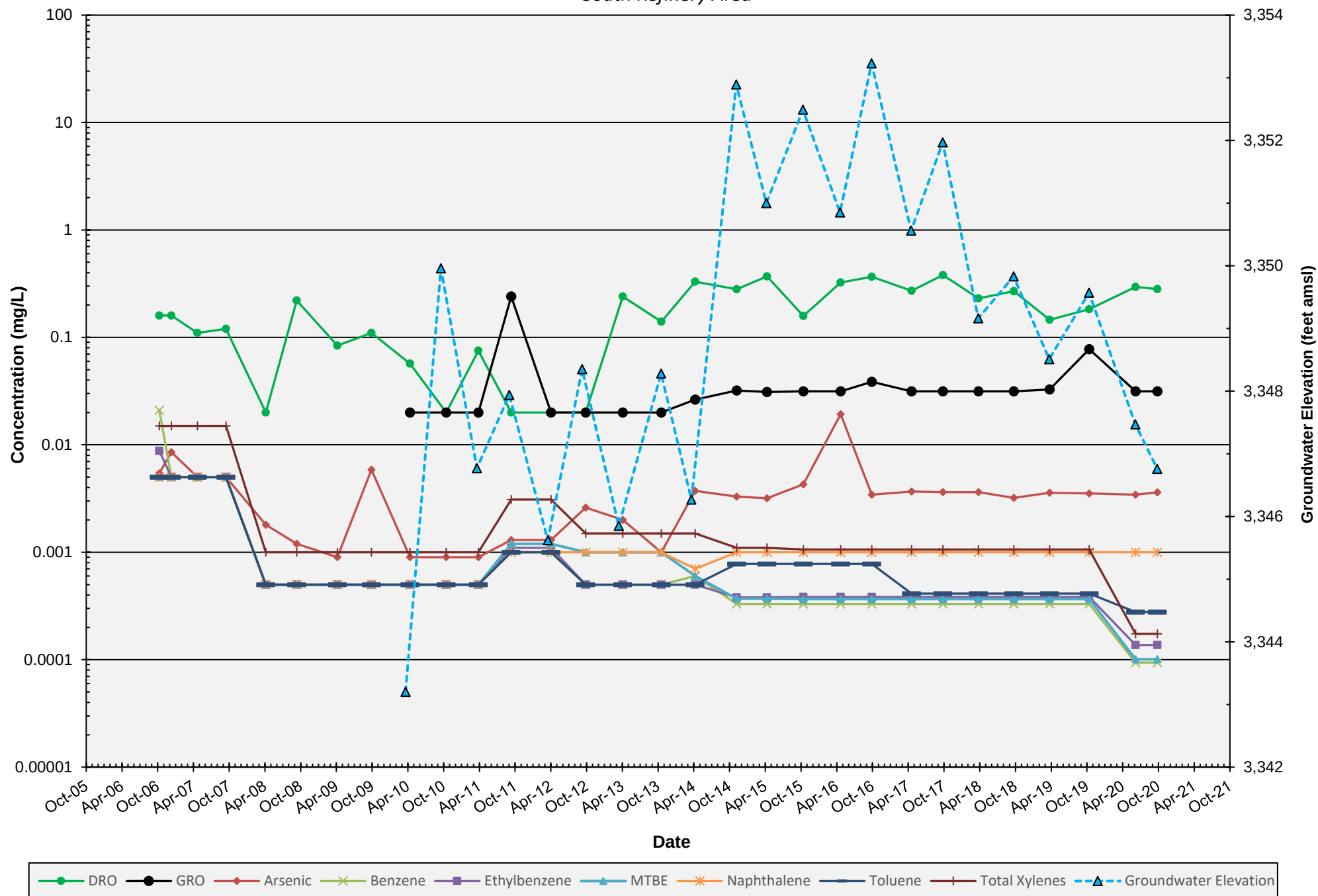
South Refinery Area



MW-52: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

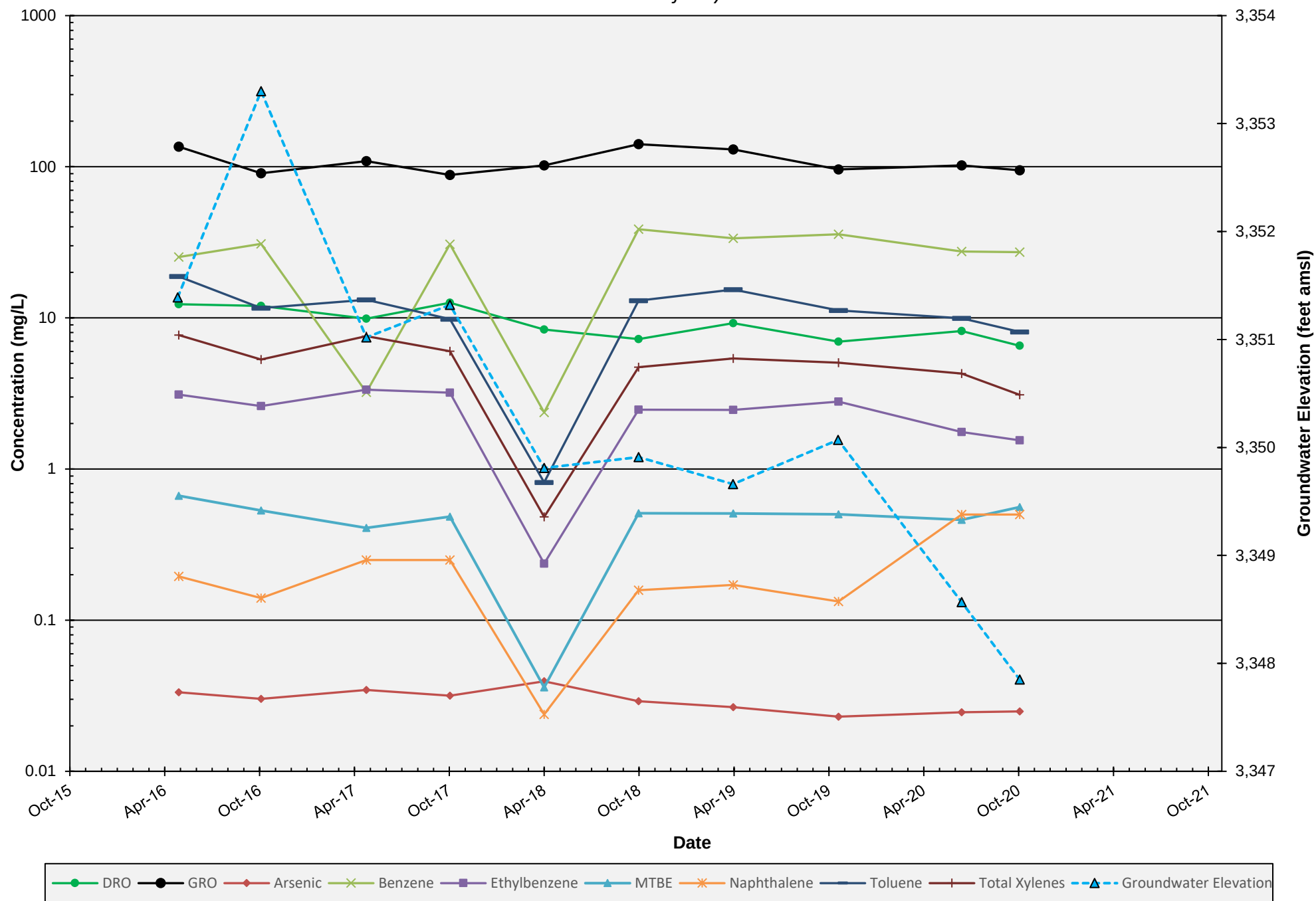
South Refinery Area



MW-64: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

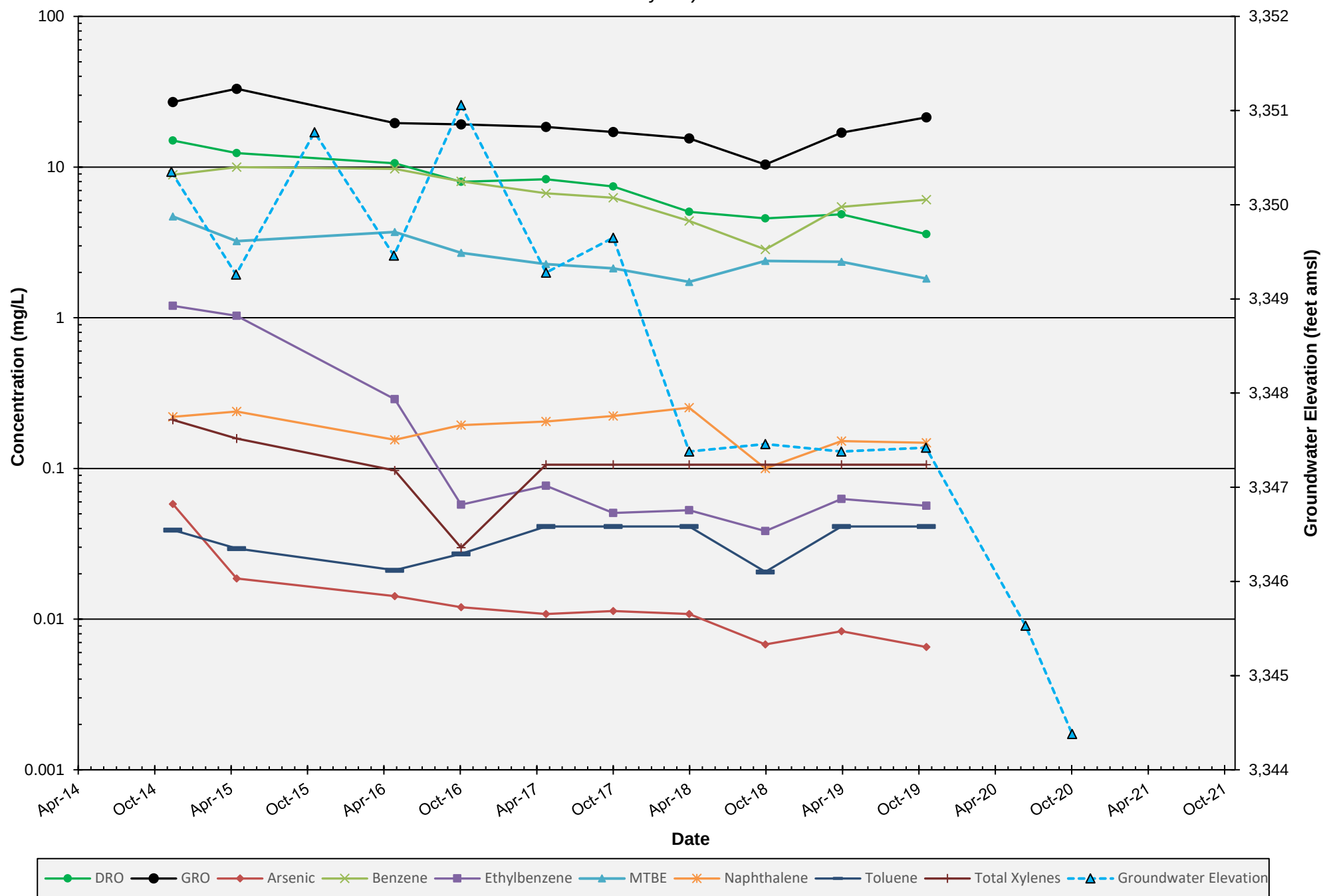
South Refinery Area



MW-65: COC Concentrations and Groundwater Elevations

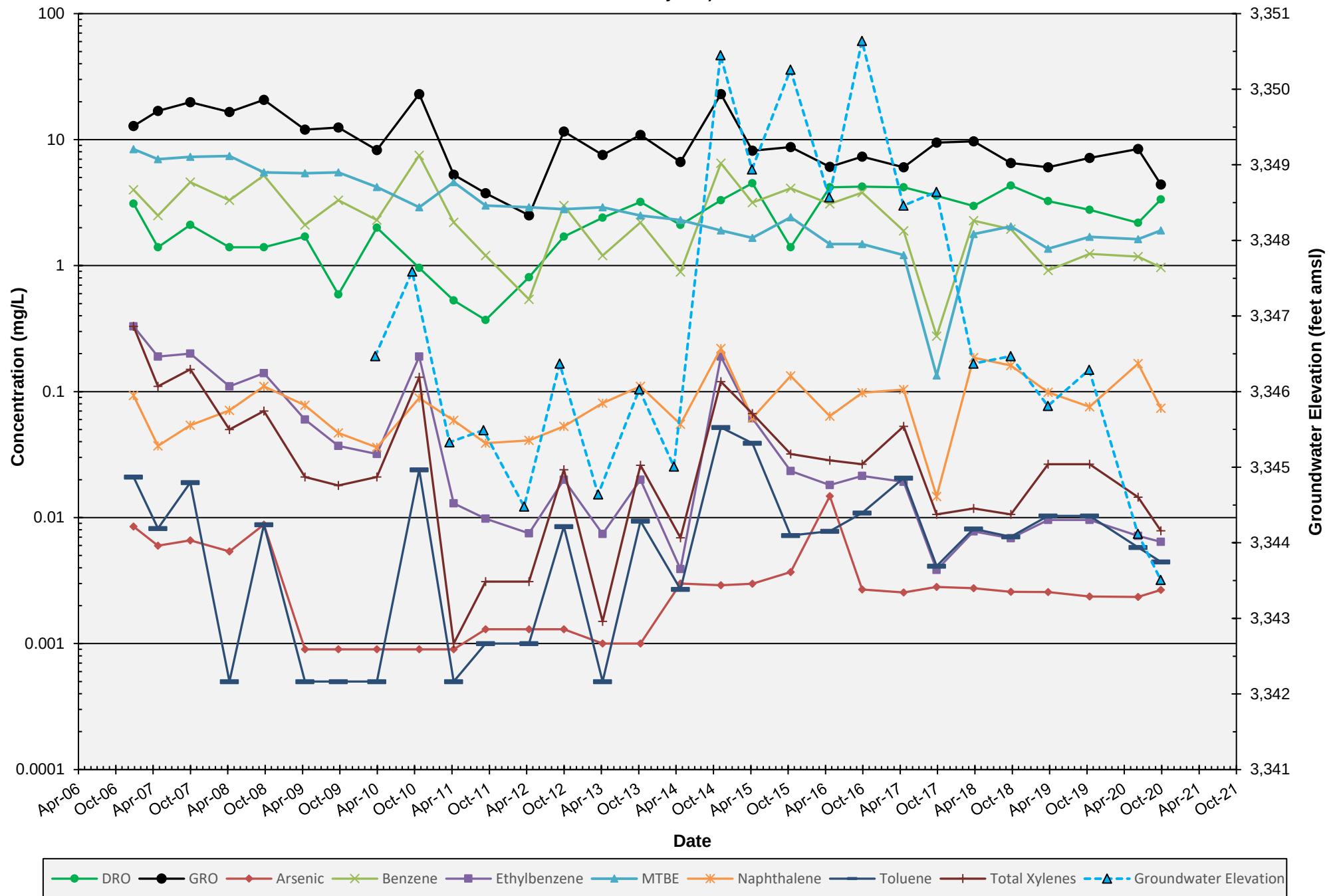
HollyFrontier Navajo Refining LLC - Artesia Refinery

South Refinery Area



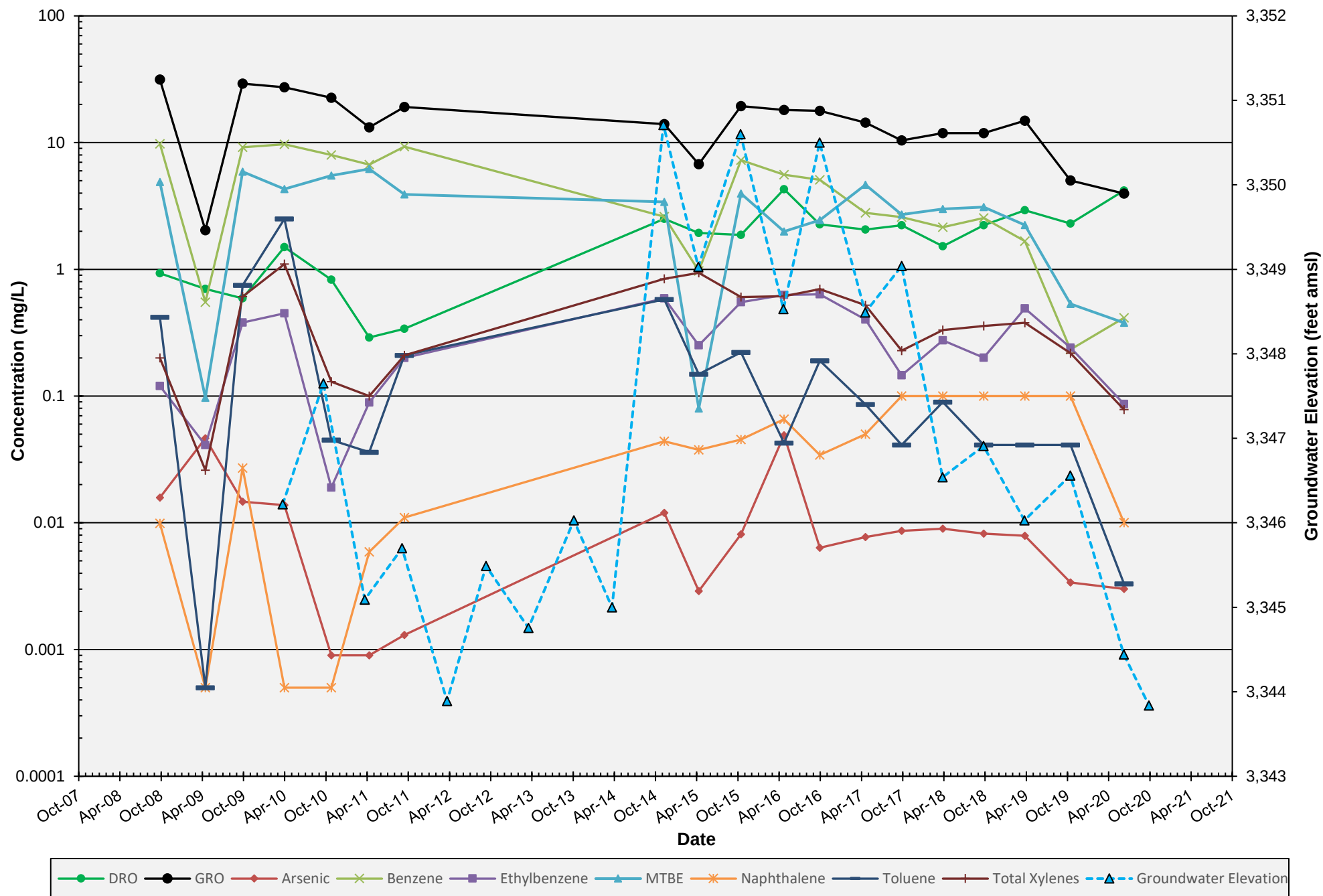
MW-66: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



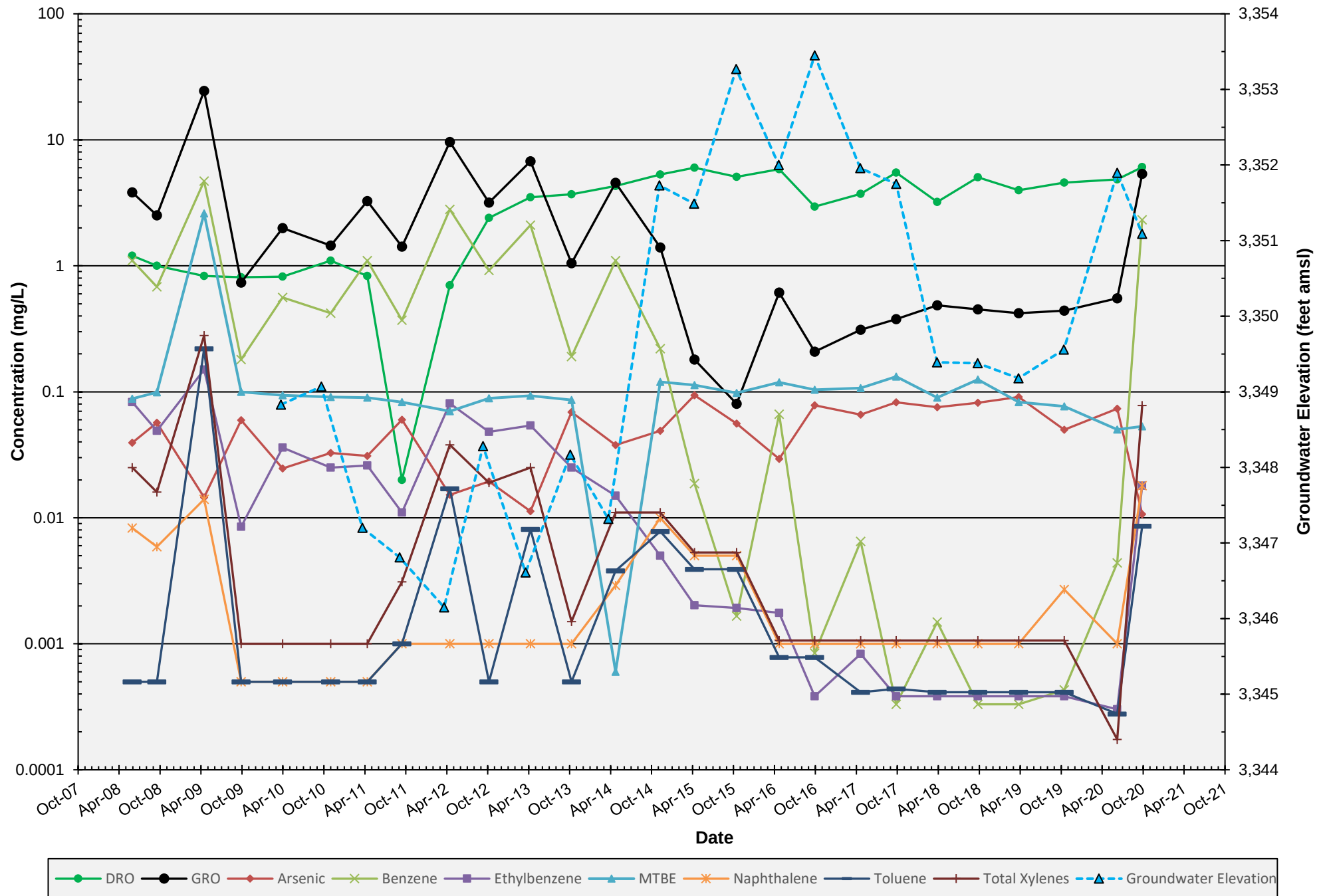
MW-99: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



MW-101: COC Concentrations and Groundwater Elevations

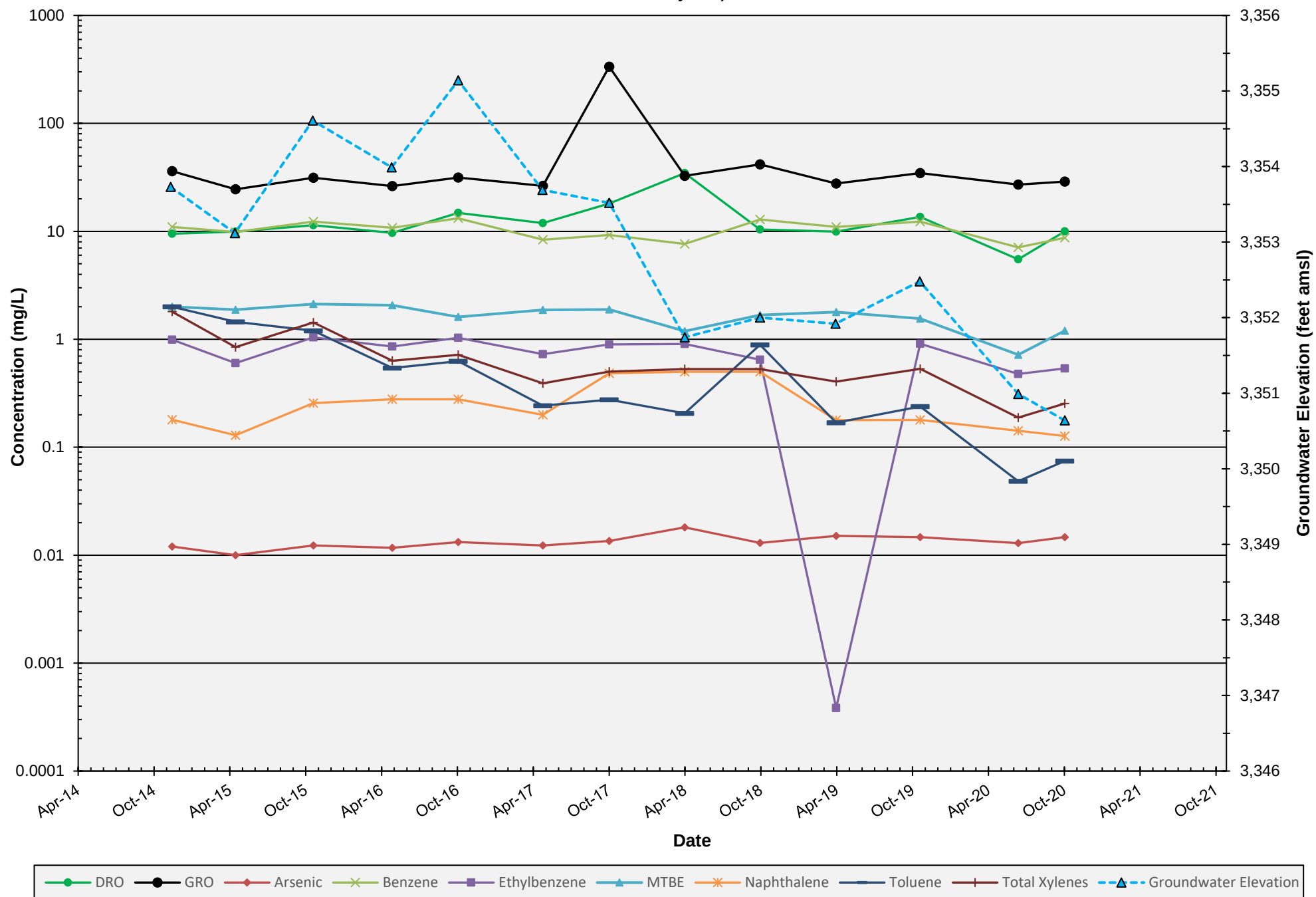
HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



MW-102: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

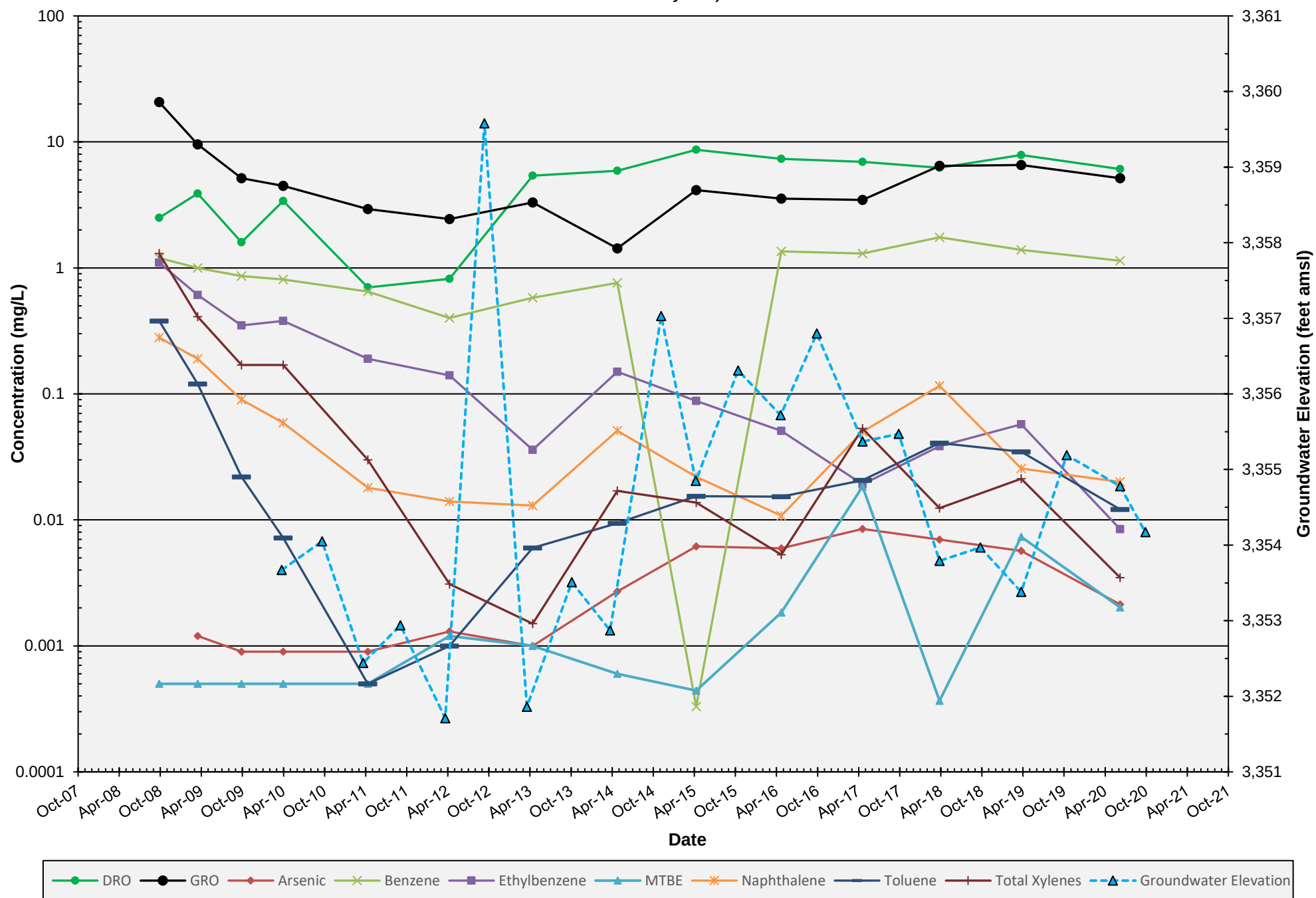
South Refinery Area



MW-103: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

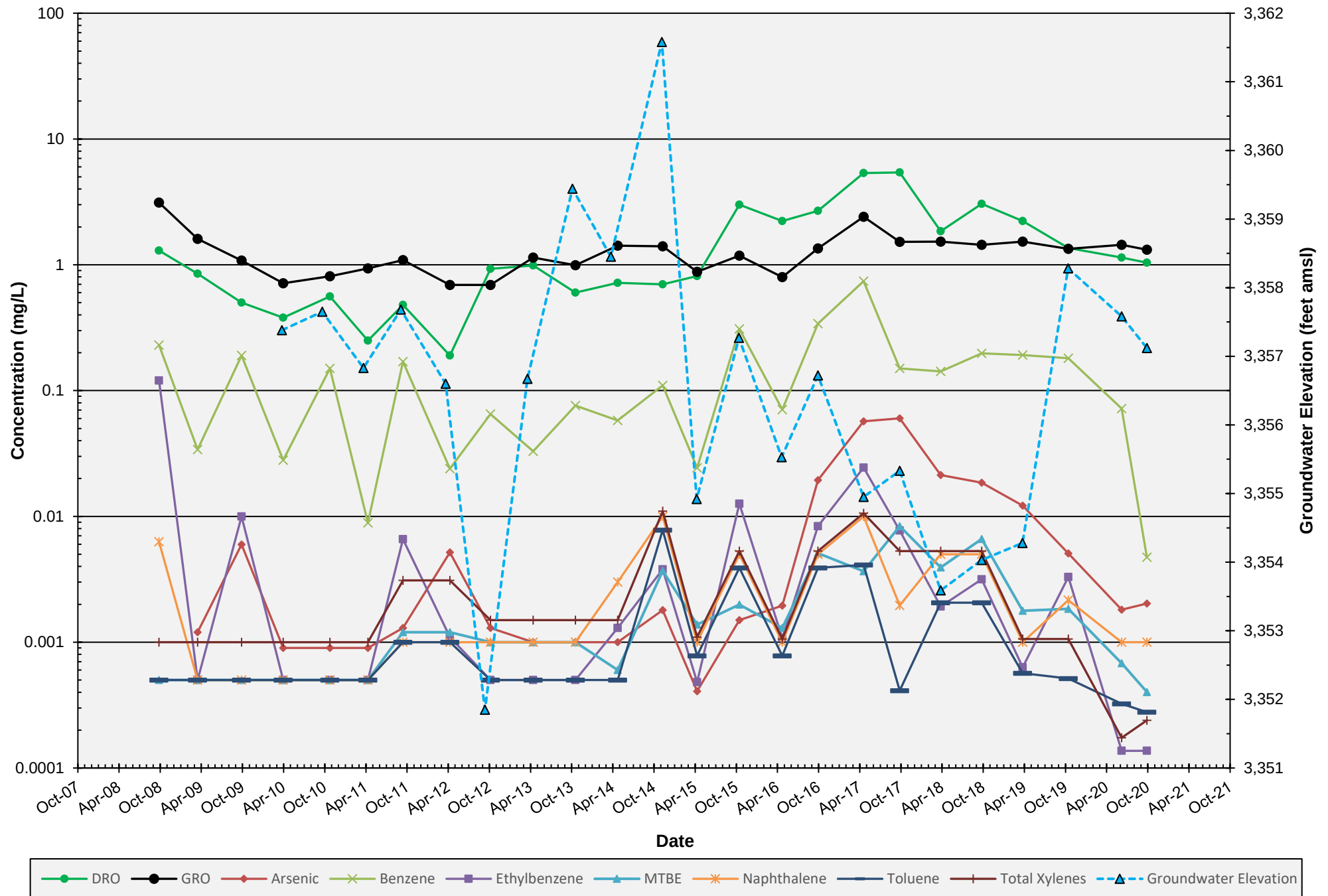
South Refinery Area



MW-104: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

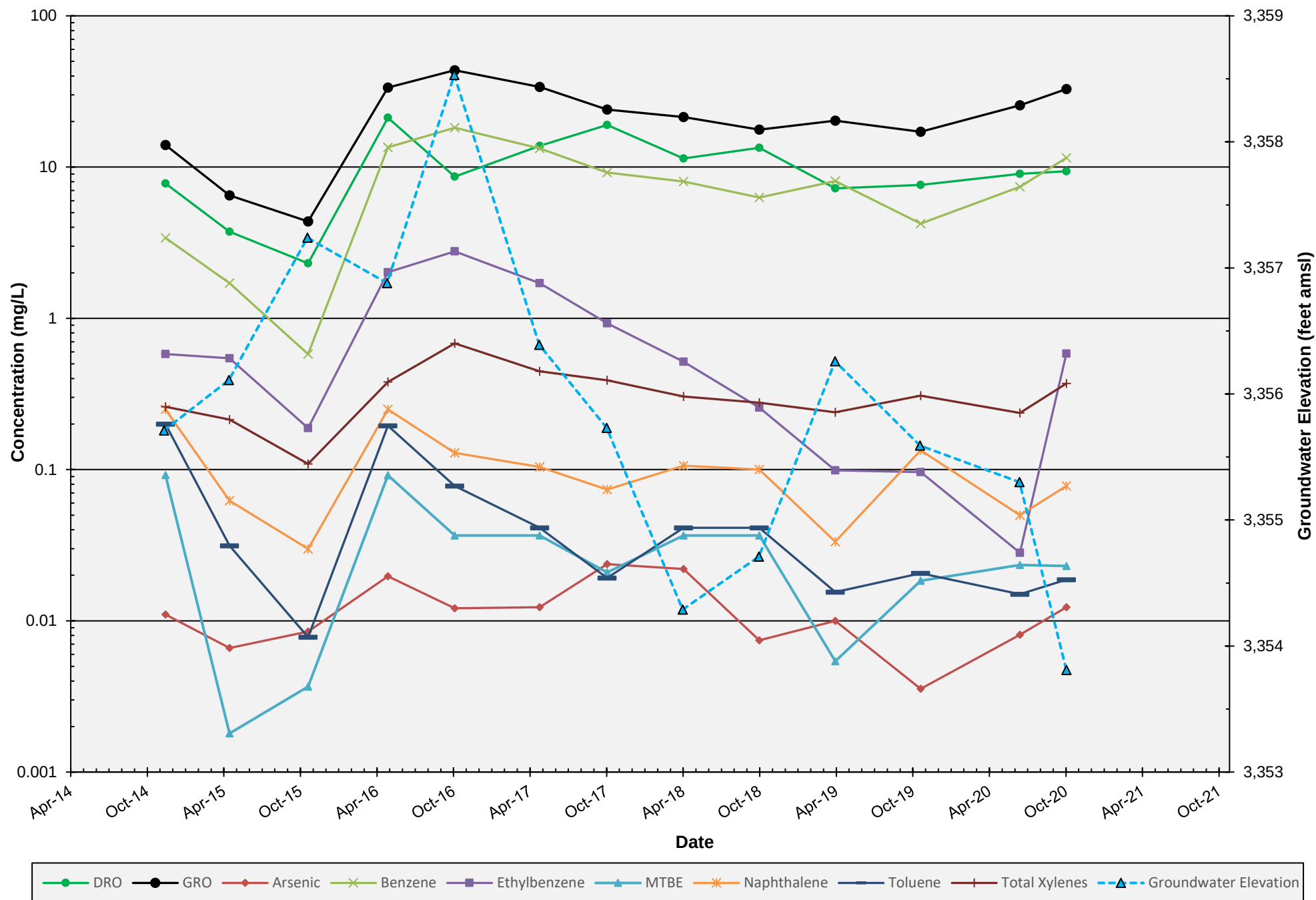
South Refinery Area



MW-105: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

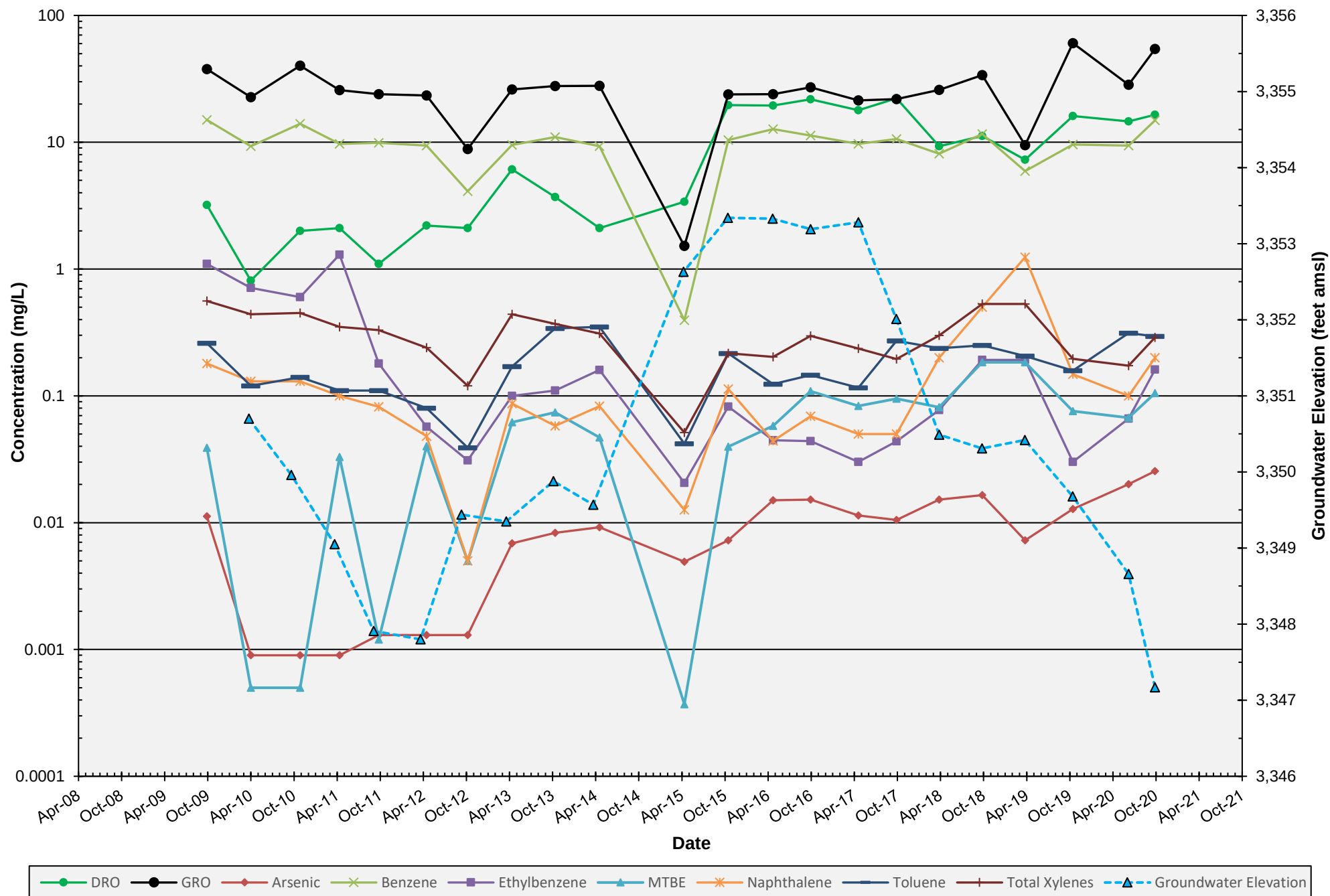
South Refinery Area



MW-106: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

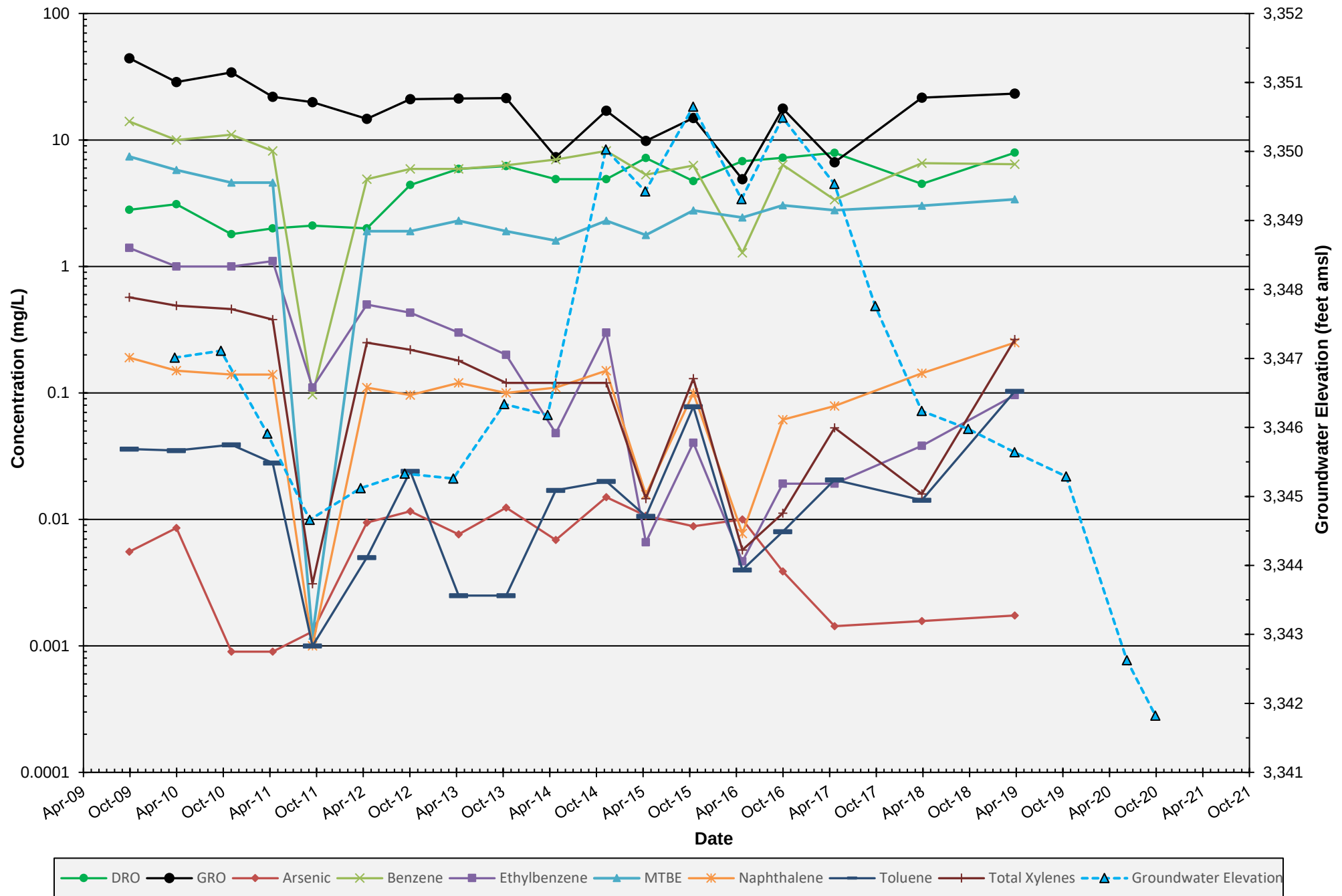
South Refinery Area



MW-107: COC Concentrations and Groundwater Elevations

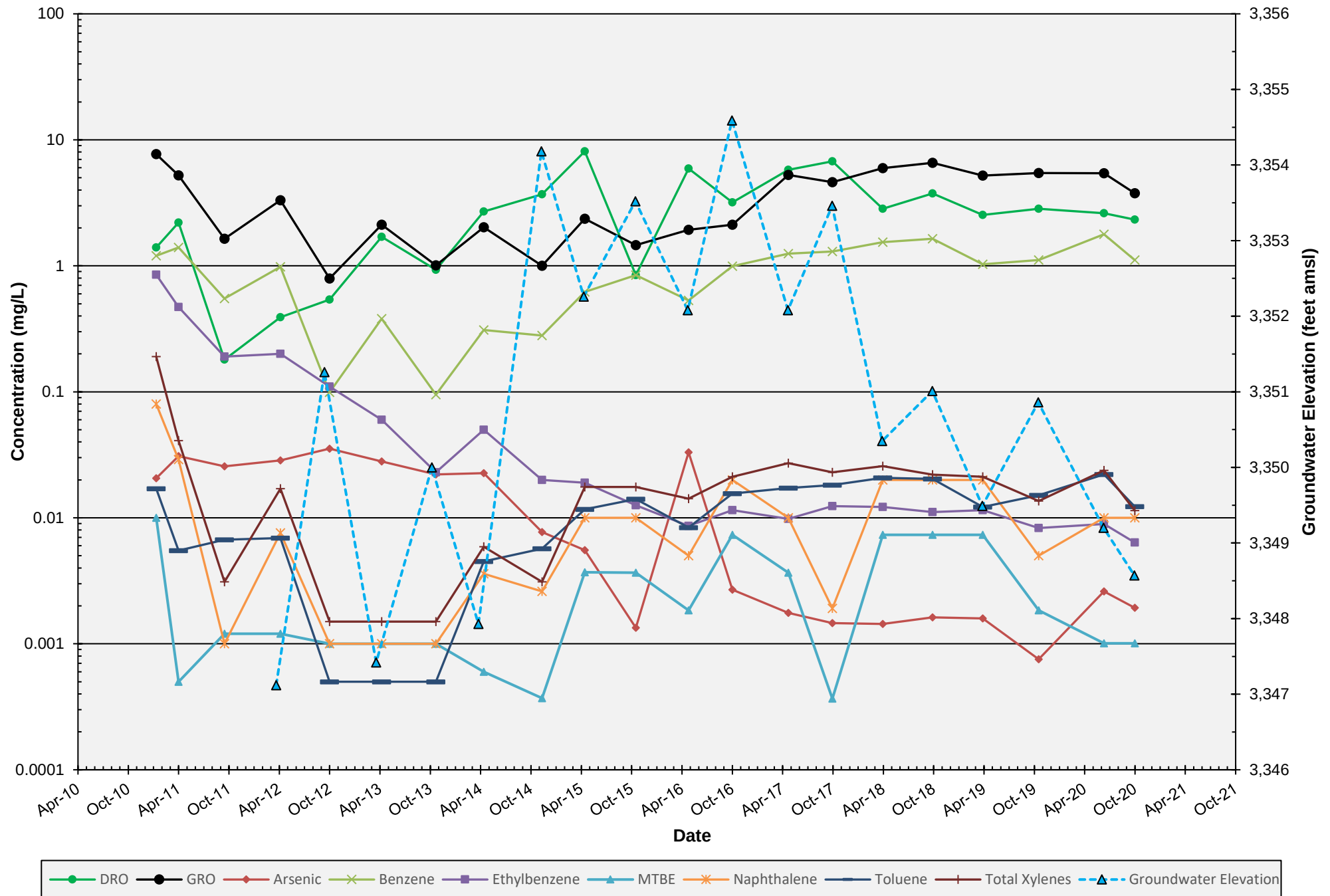
HollyFrontier Navajo Refining LLC - Artesia Refinery

South Refinery Area



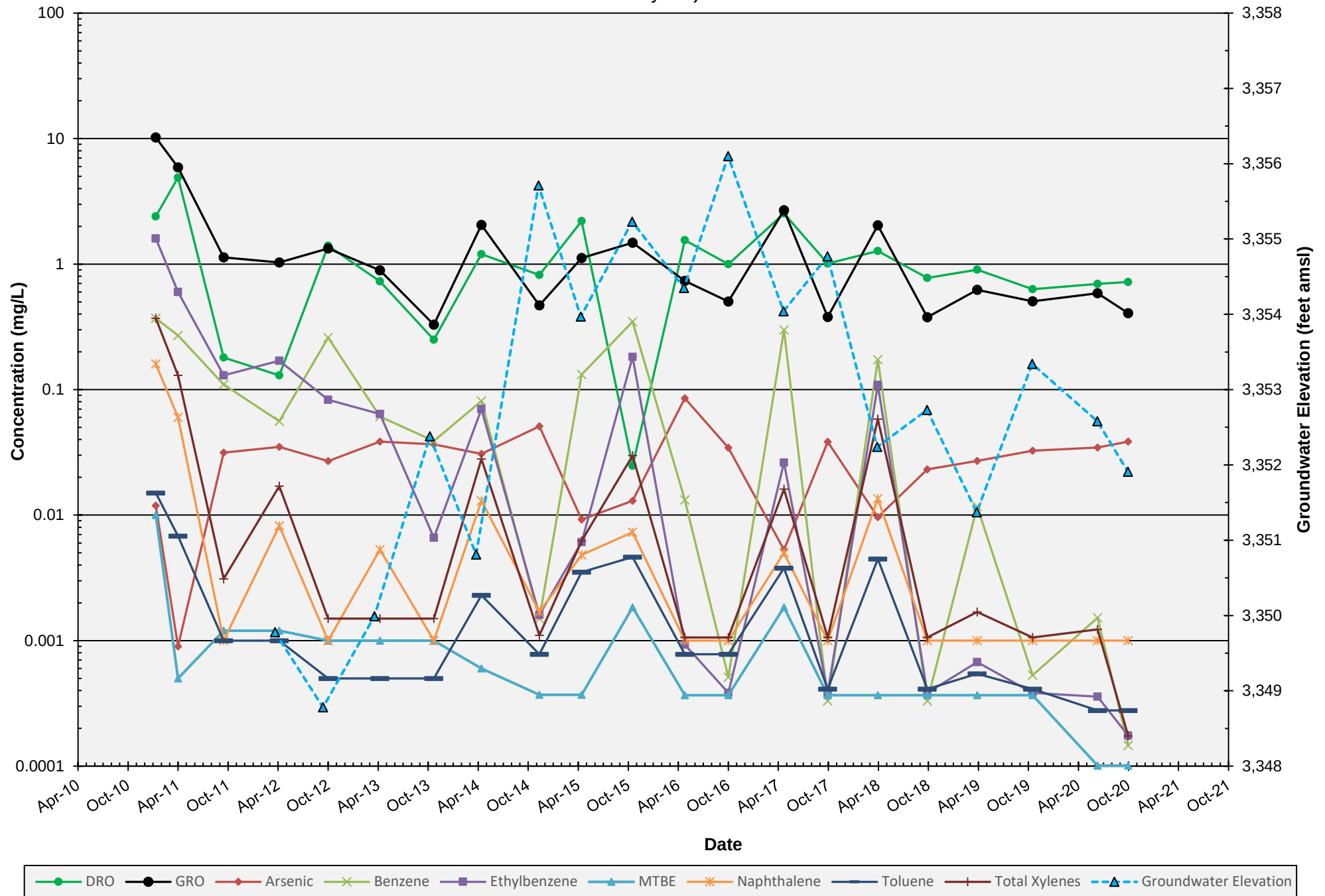
MW-109: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



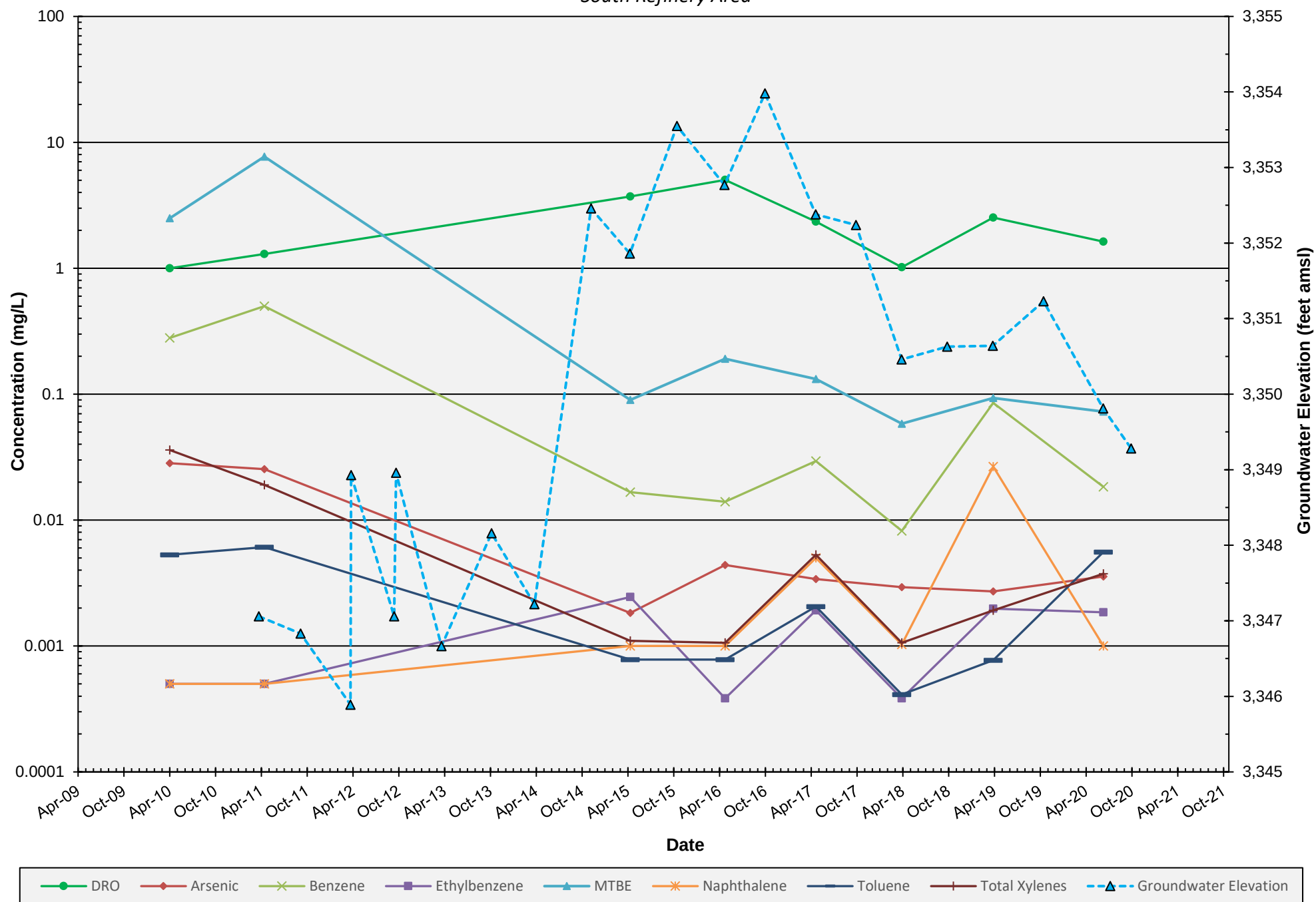
MW-110: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



RW-4: COC Concentrations and Groundwater Elevations

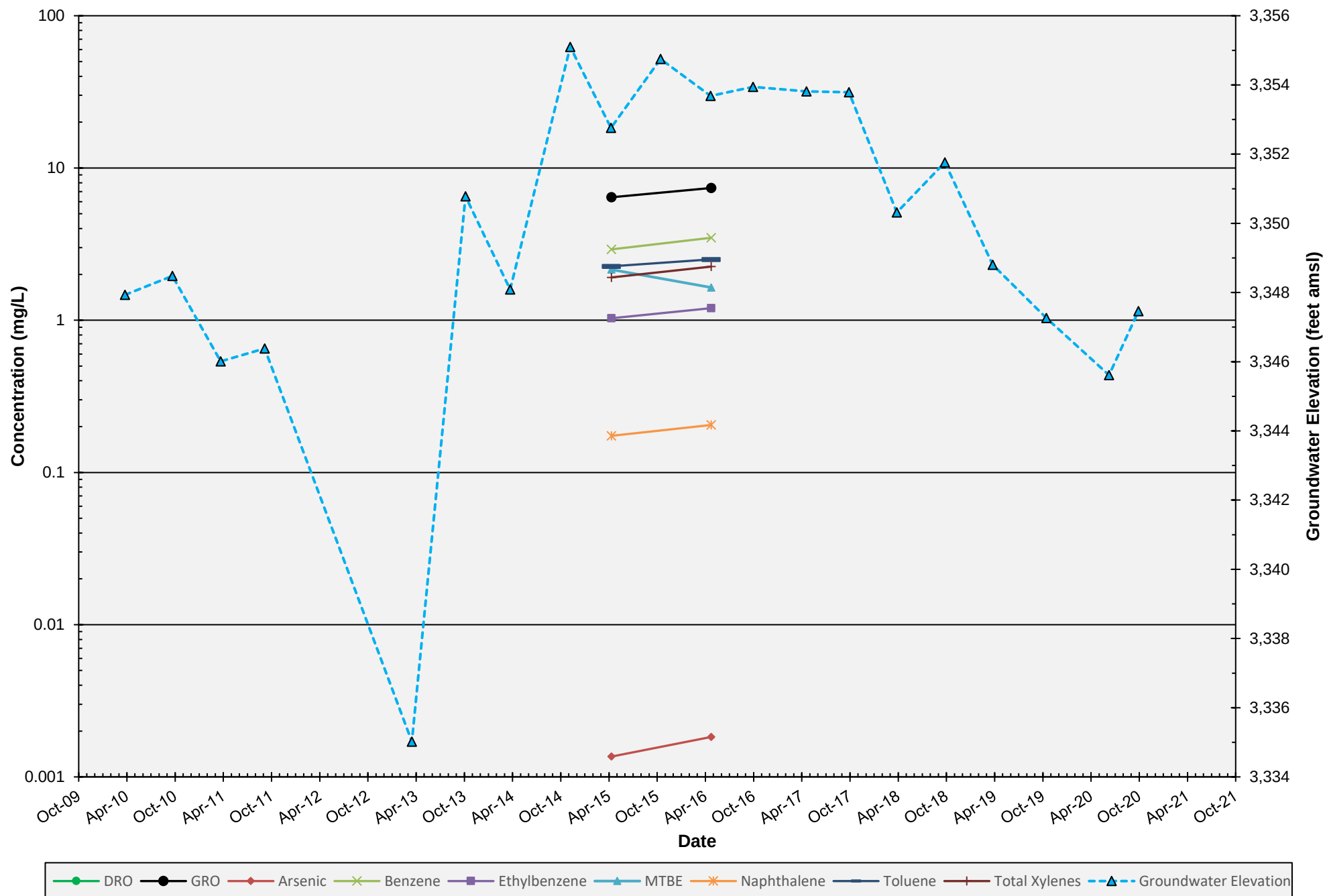
HollyFrontier Navajo Refining LLC - Artesia Refinery
South Refinery Area



RW-5 and RW-5R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

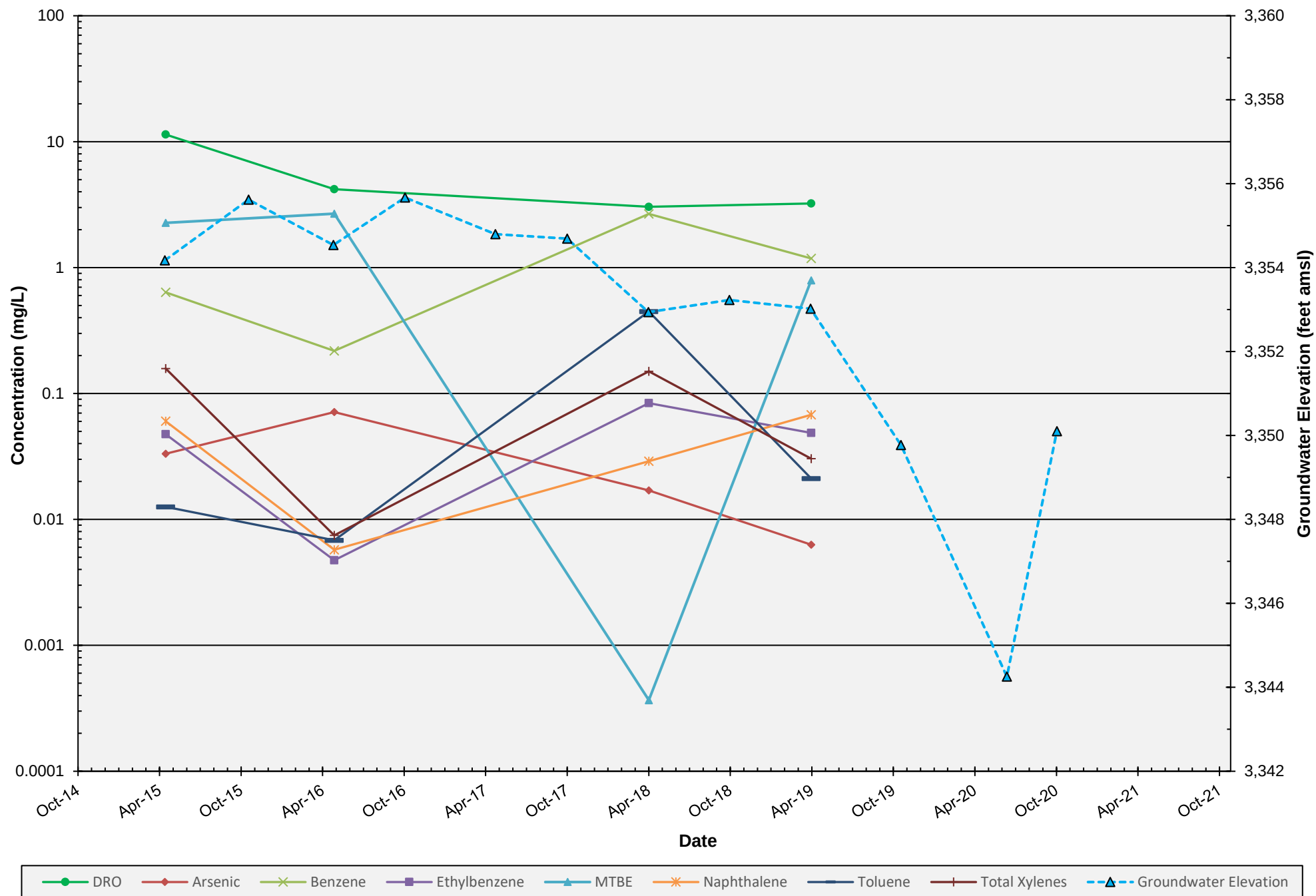
South Refinery Area



RW-6: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

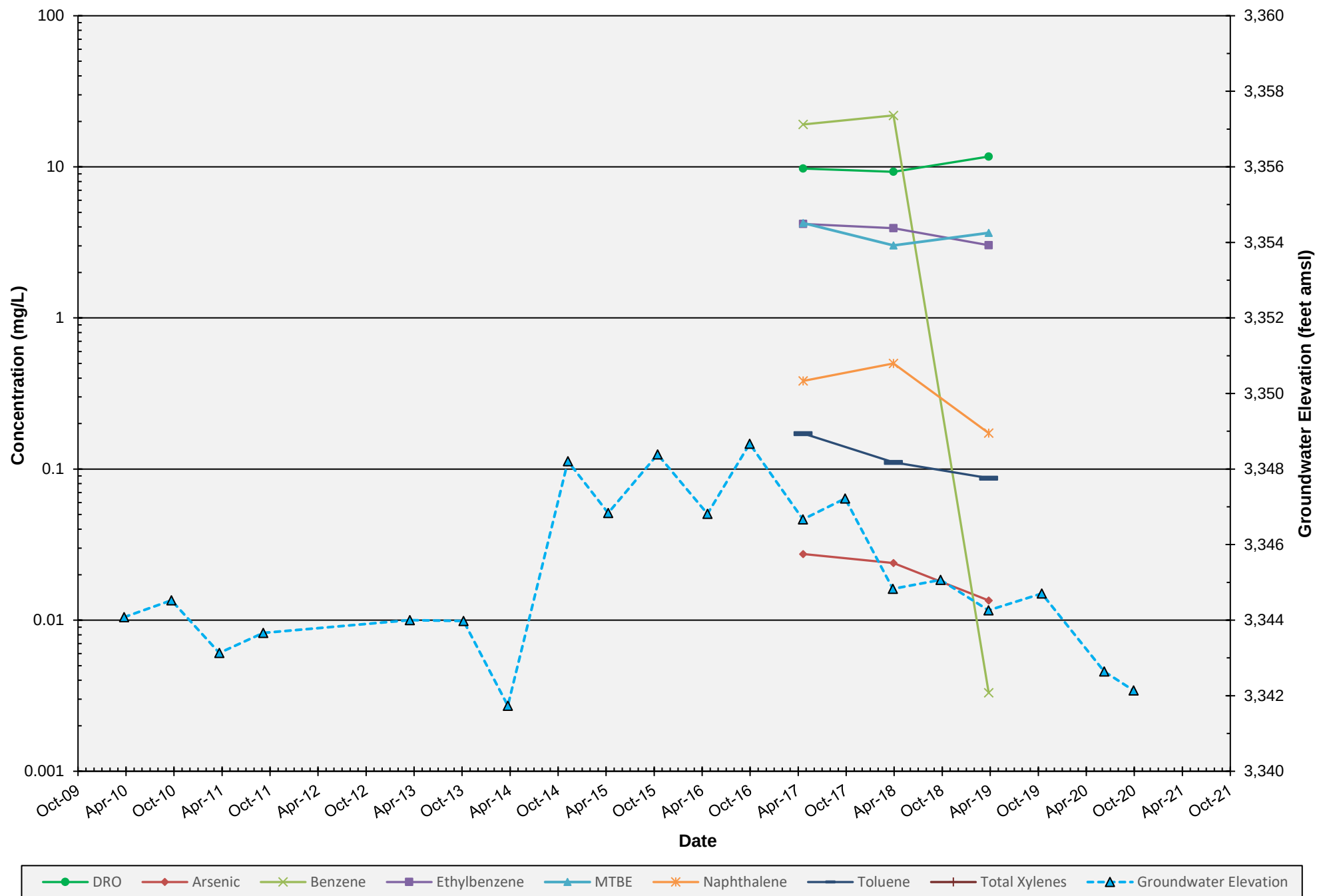
South Refinery Area



RW-15C: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

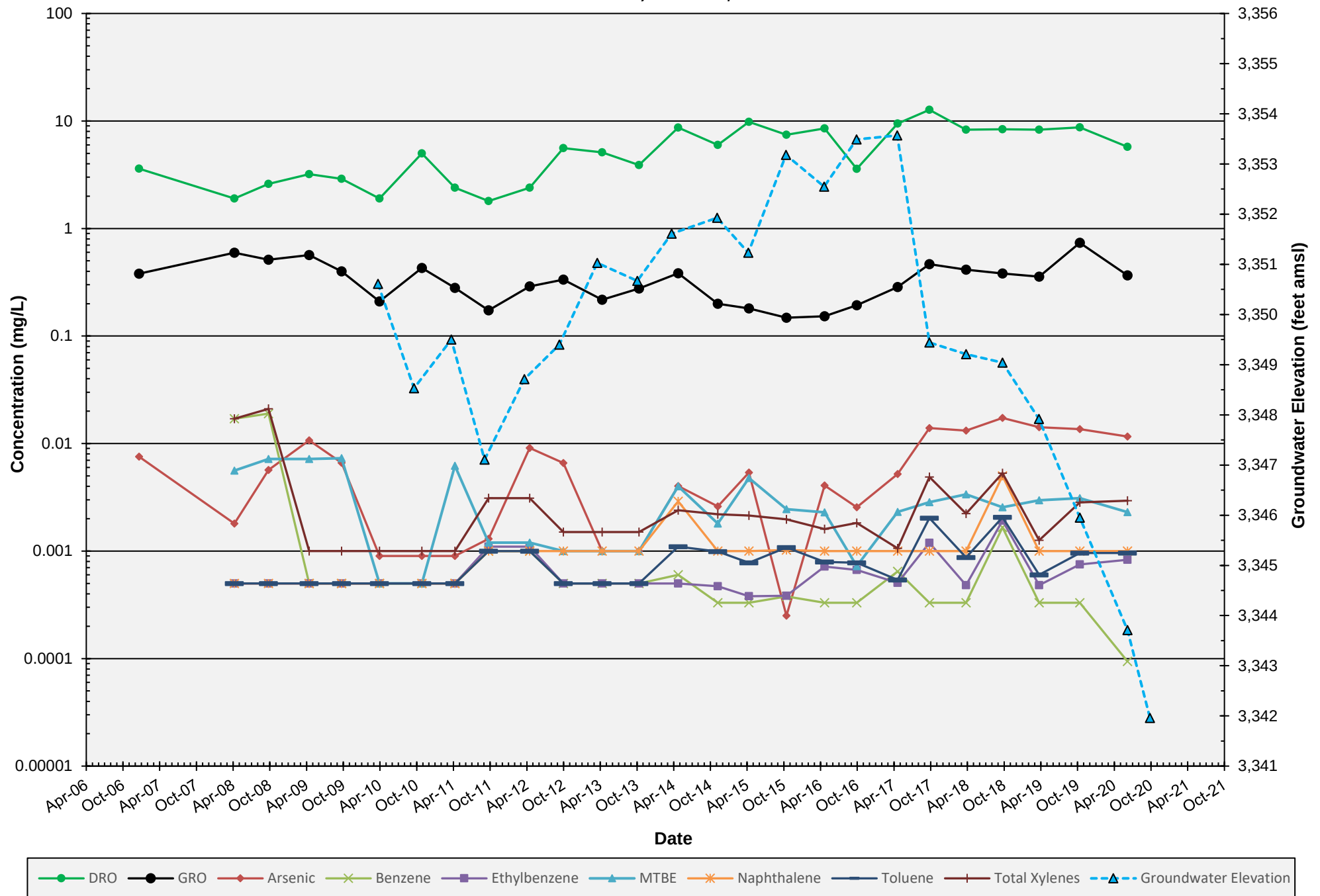
South Refinery Area



TEL-1: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

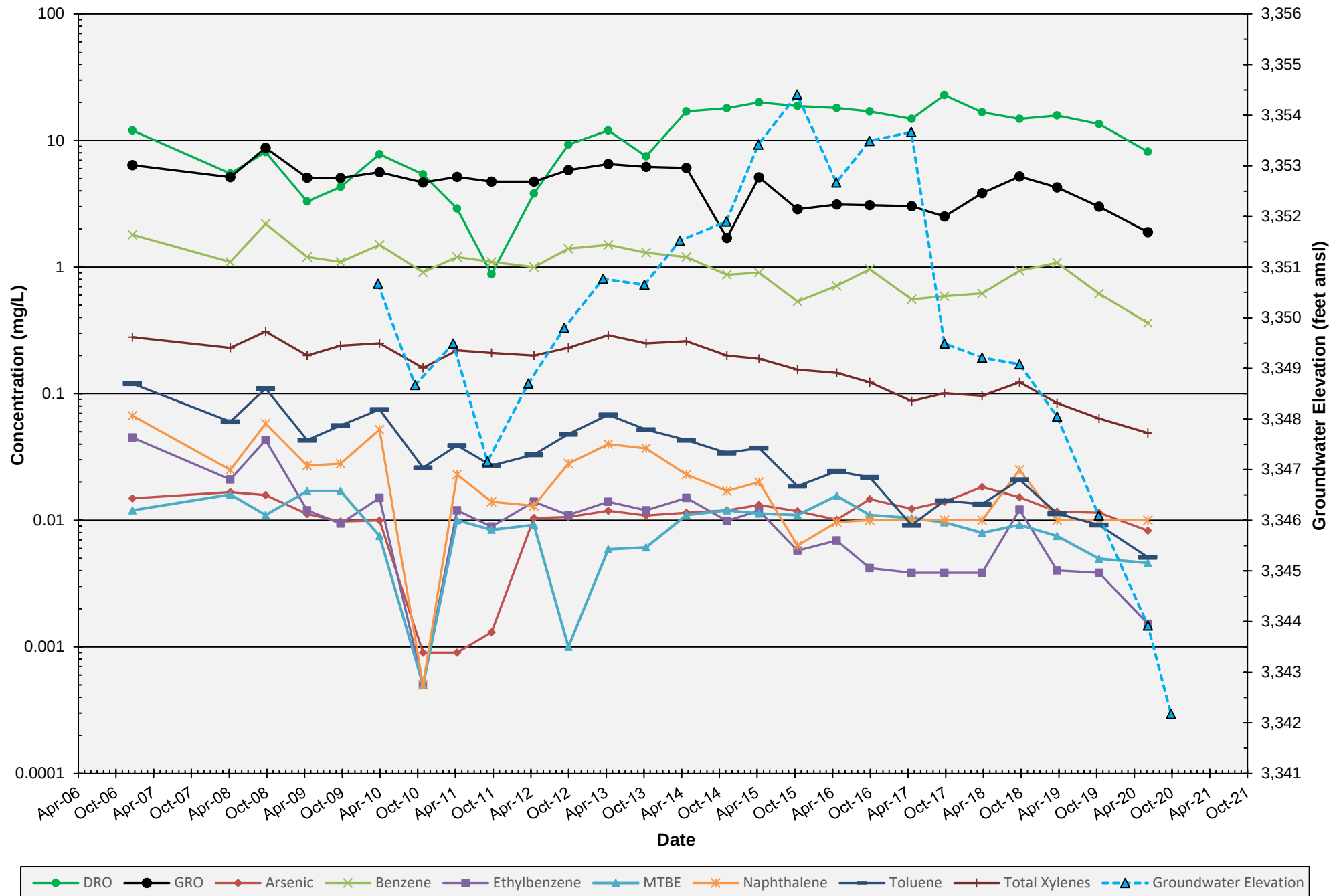
Tetra Ethyl Lead Impoundment



TEL-2: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

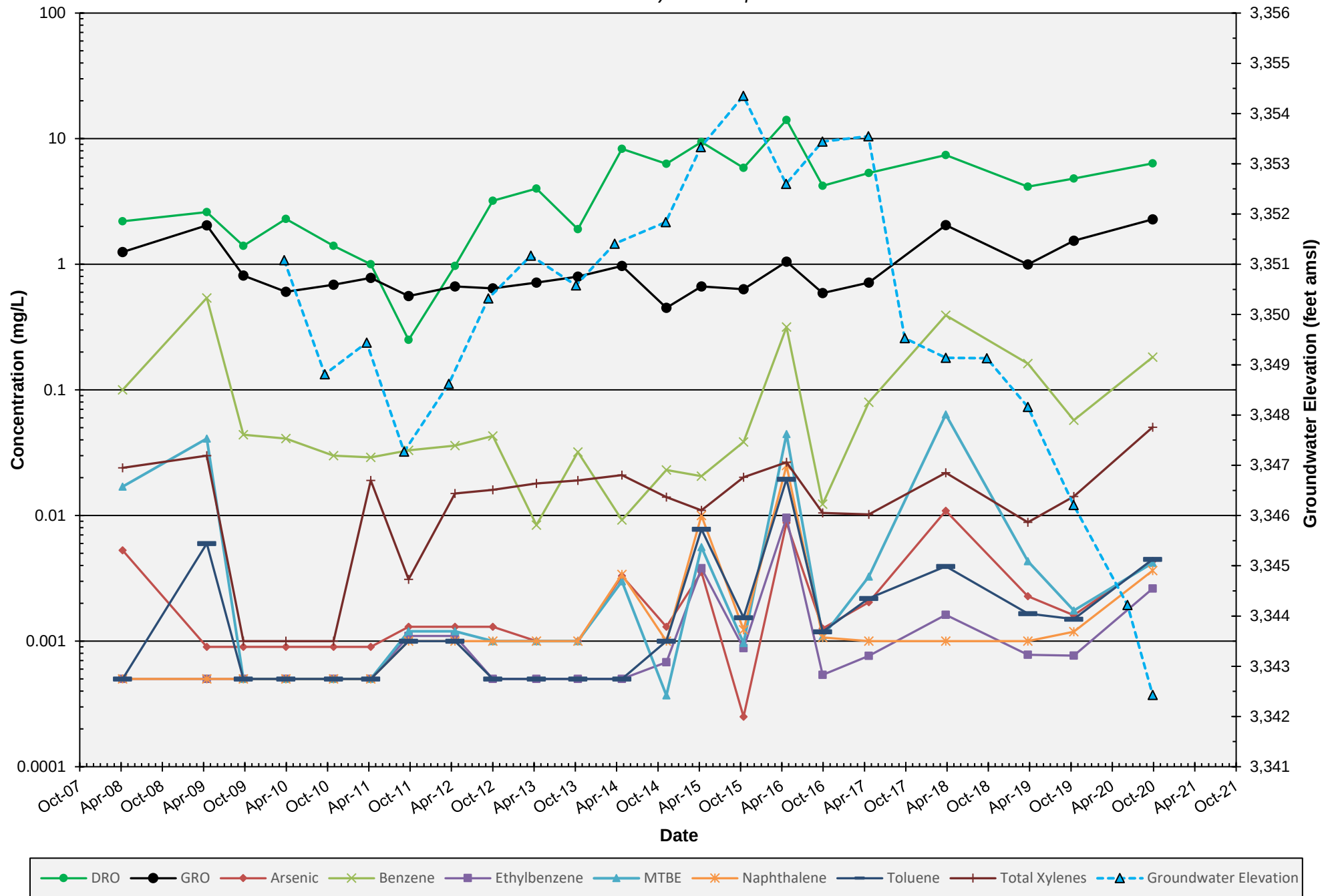
Tetra Ethyl Lead Impoundment



TEL-3: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

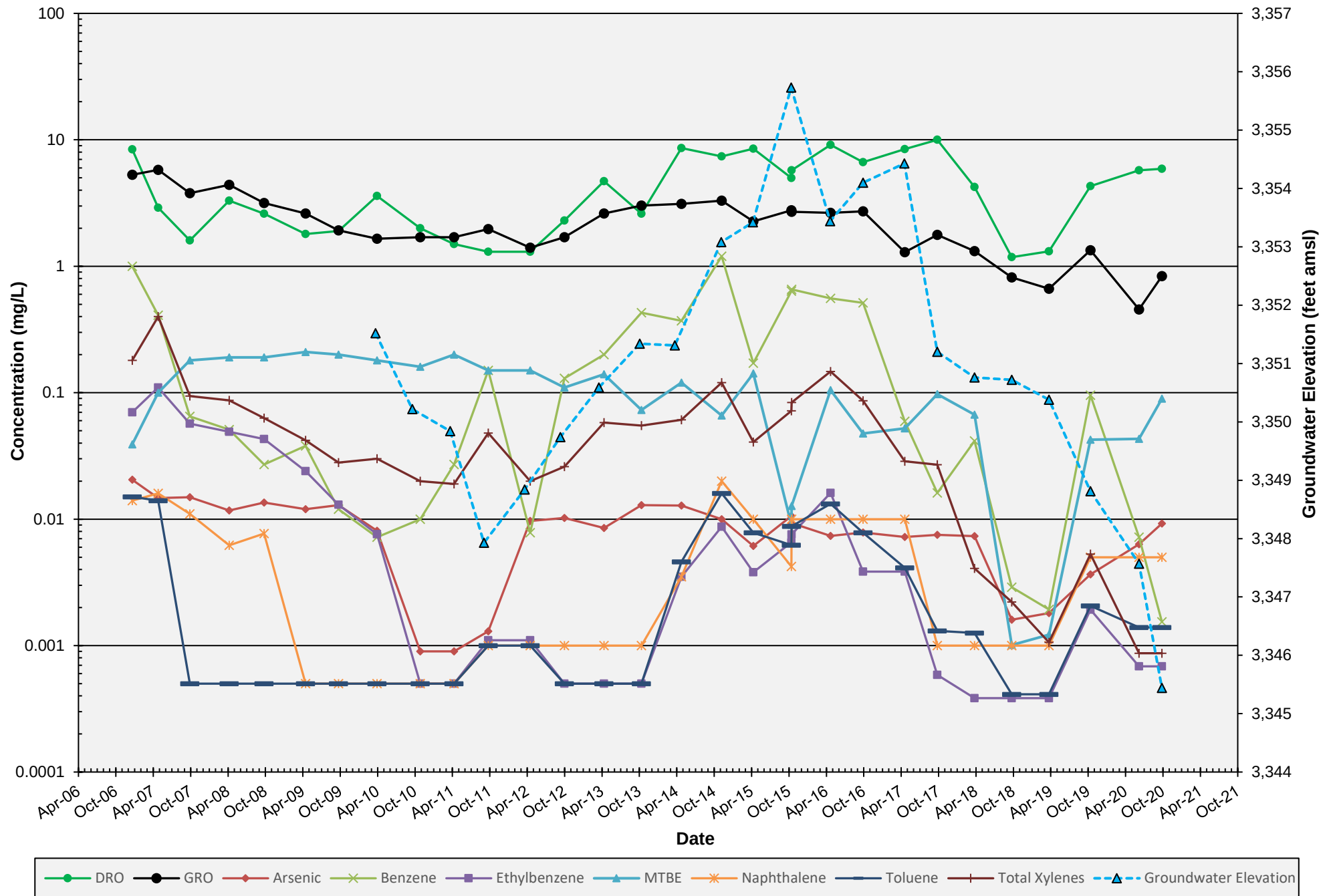
Tetra Ethyl Lead Impoundment



TEL-4: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

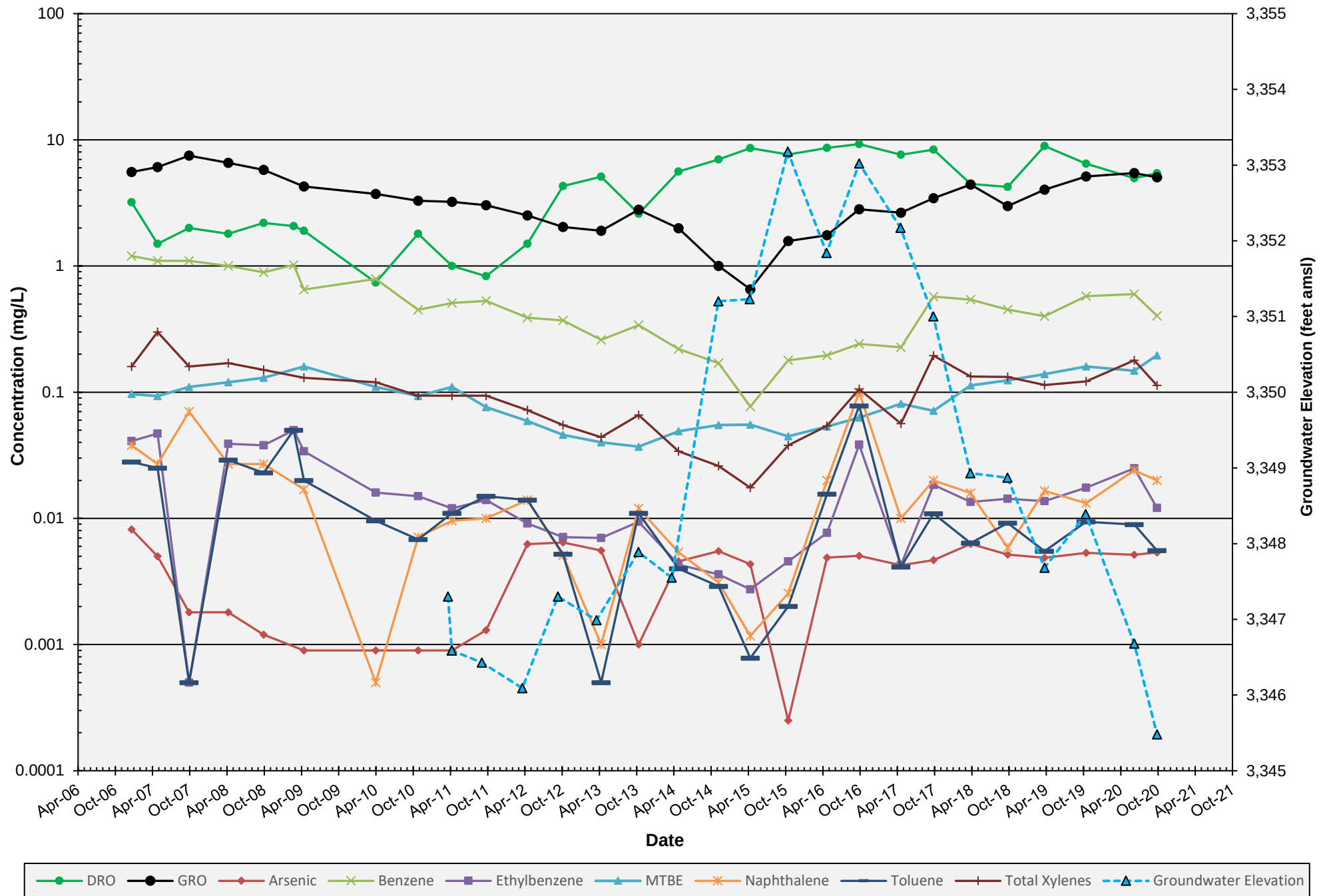
Tetra Ethyl Lead Impoundment



MW-49: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

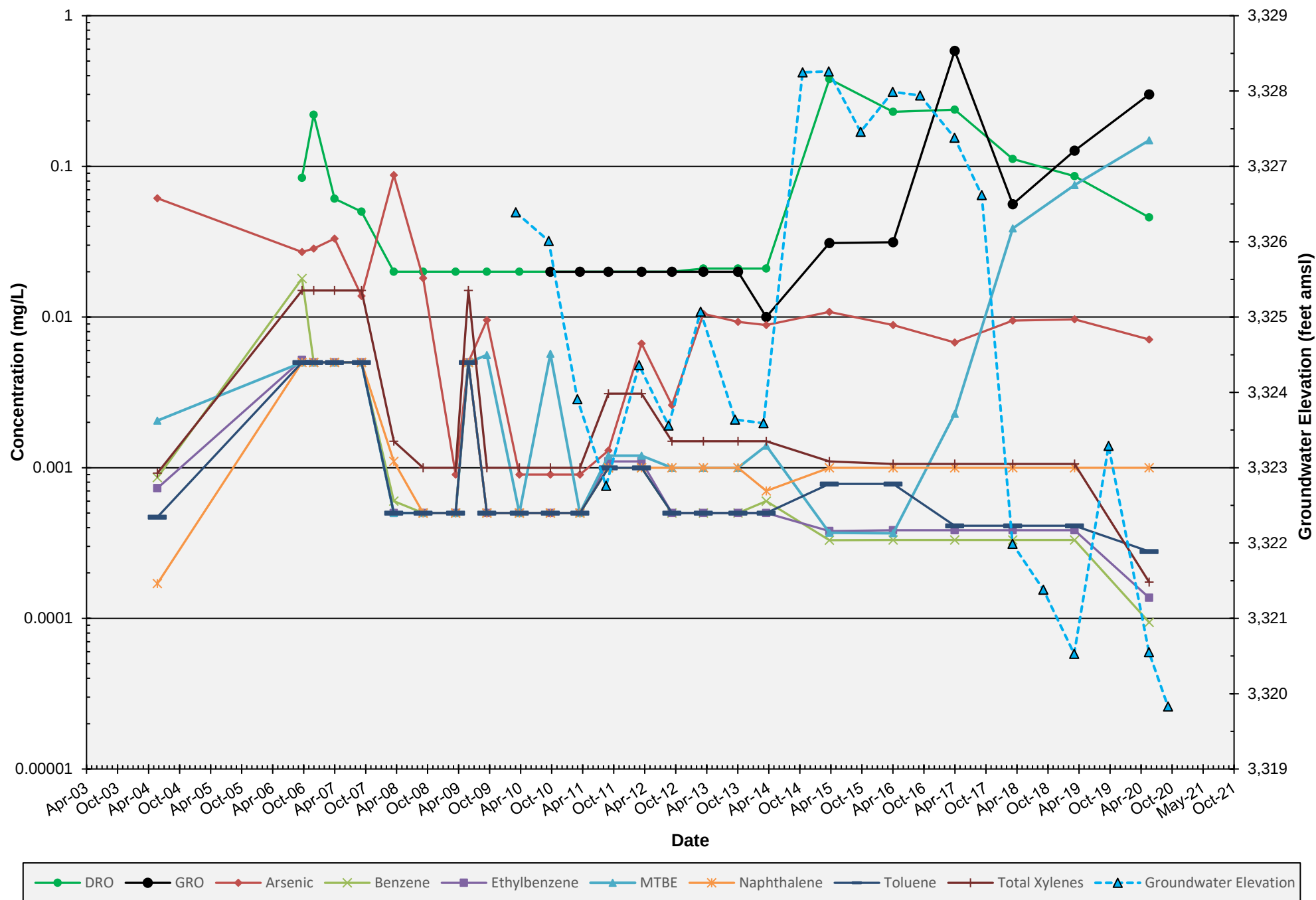
Tetra Ethyl Lead Impoundment



MW-8: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

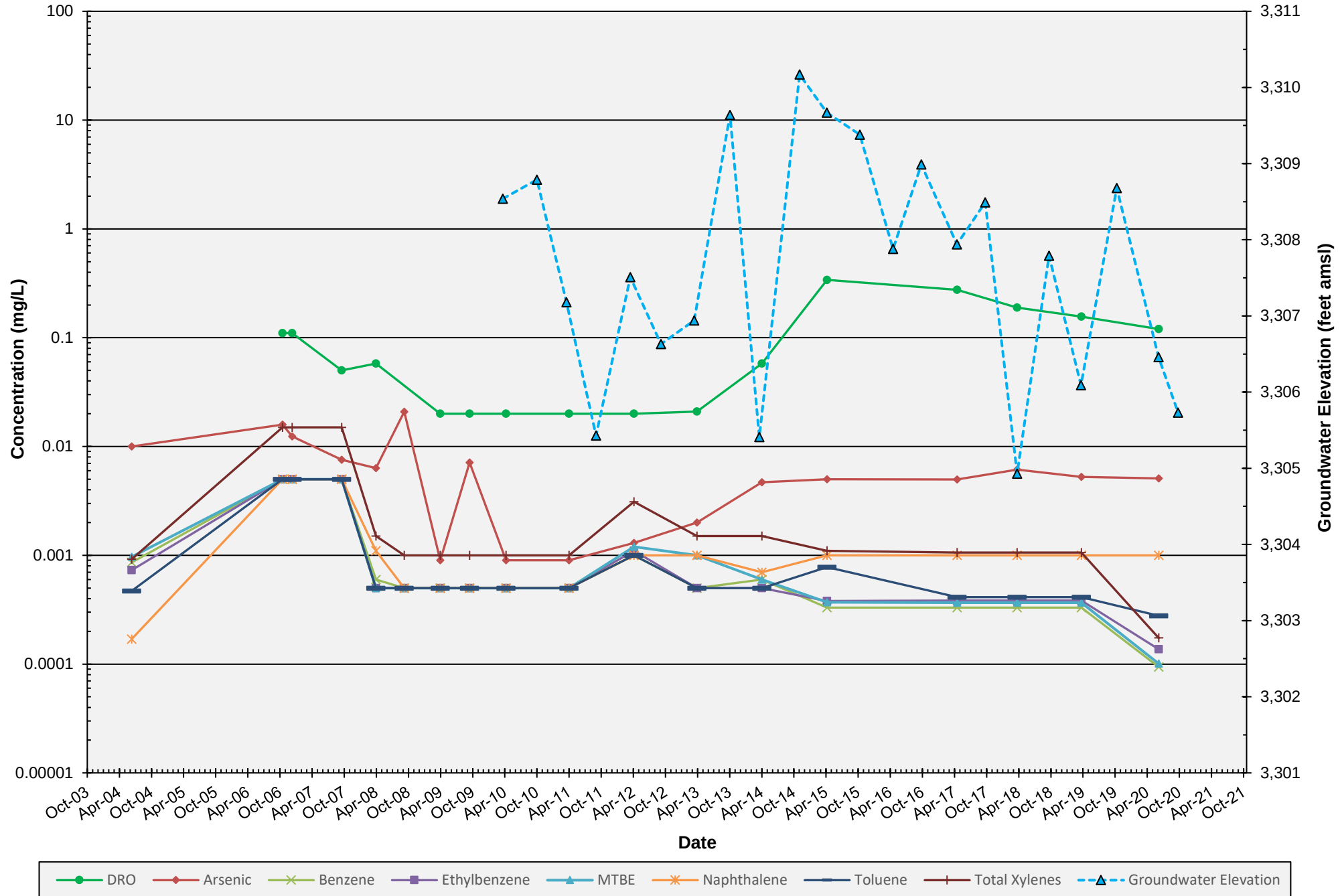
Three Mile Ditch



MW-16: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

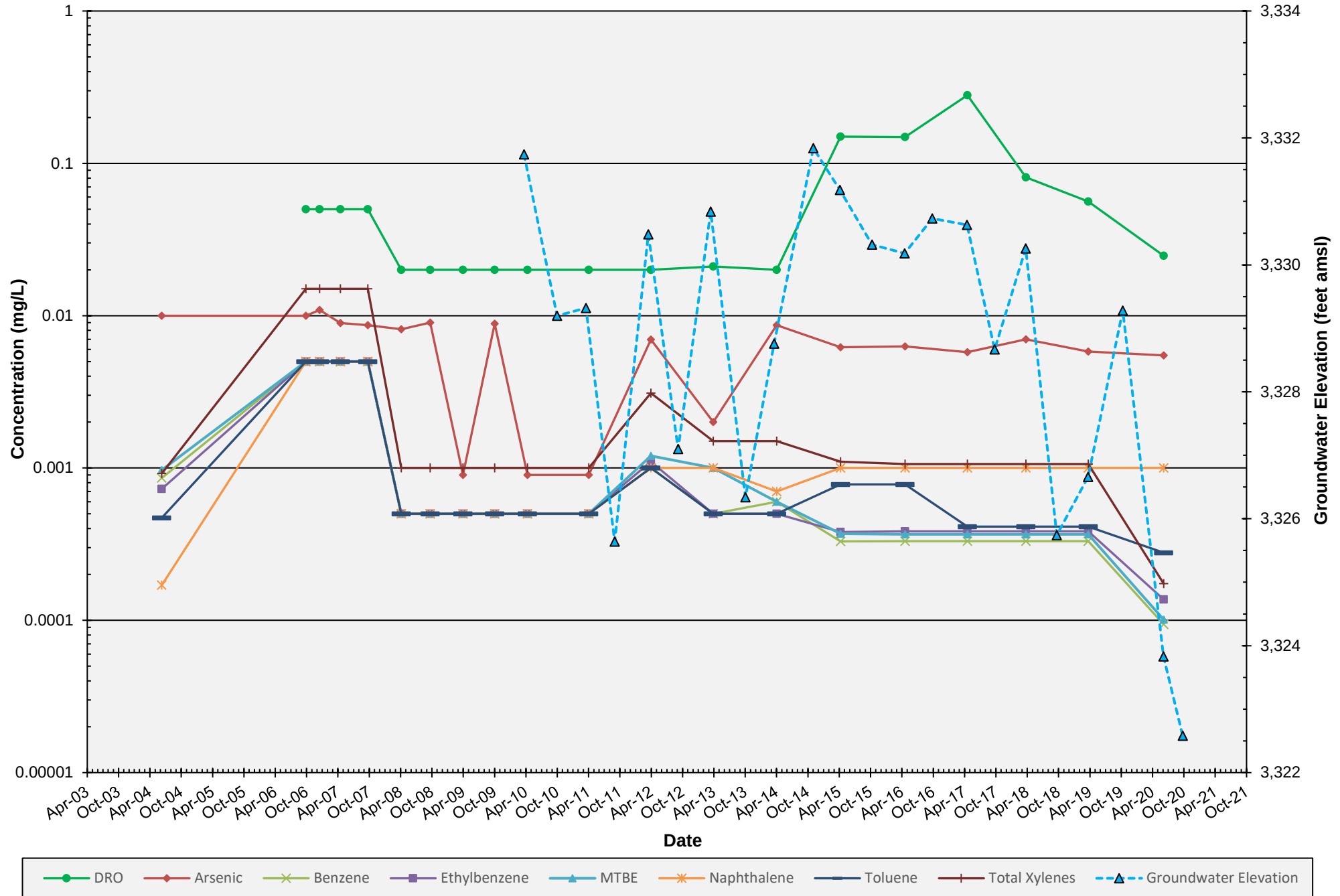
Three Mile Ditch



MW-20: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

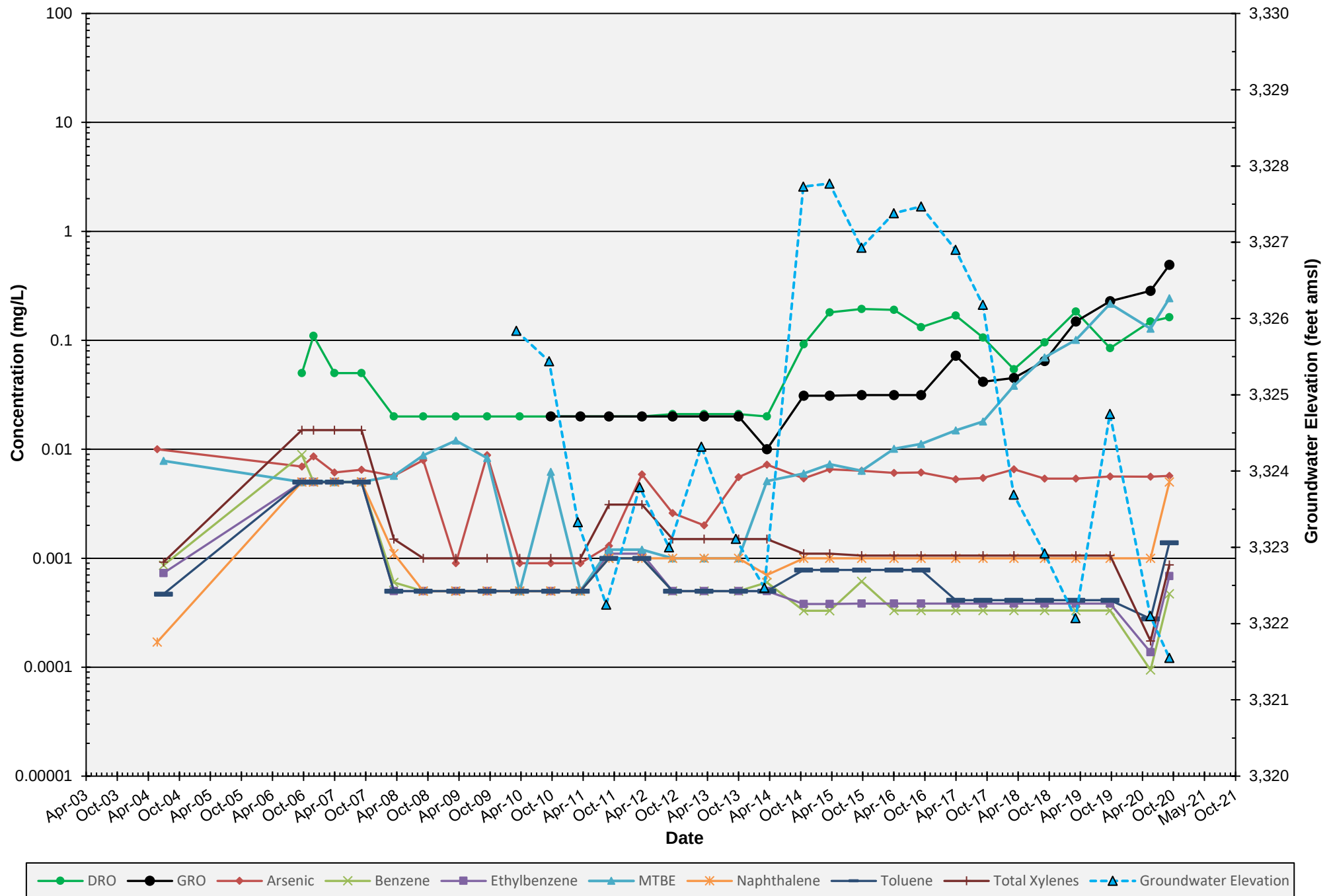
Three Mile Ditch



MW-21: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

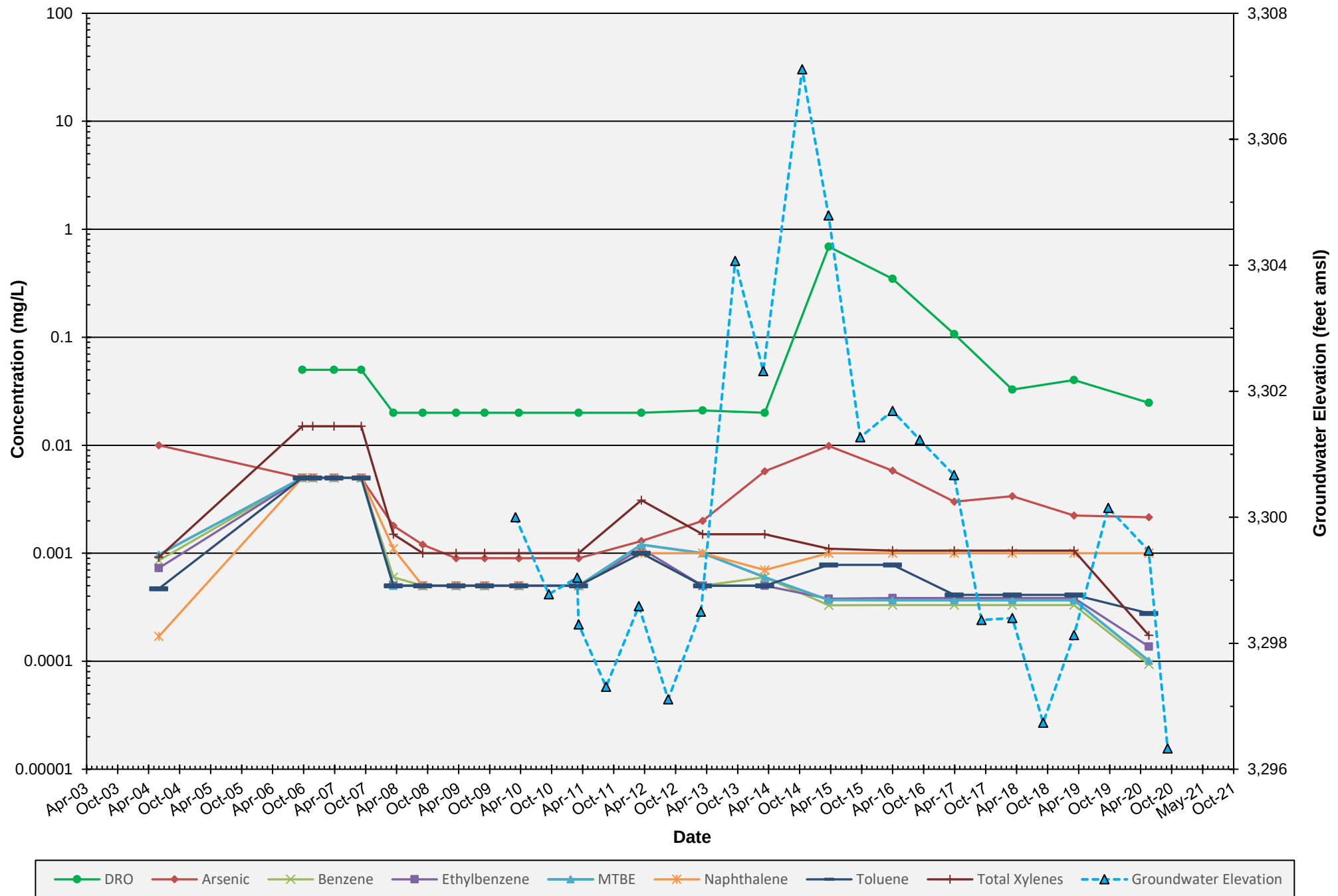
Three Mile Ditch



MW-25: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

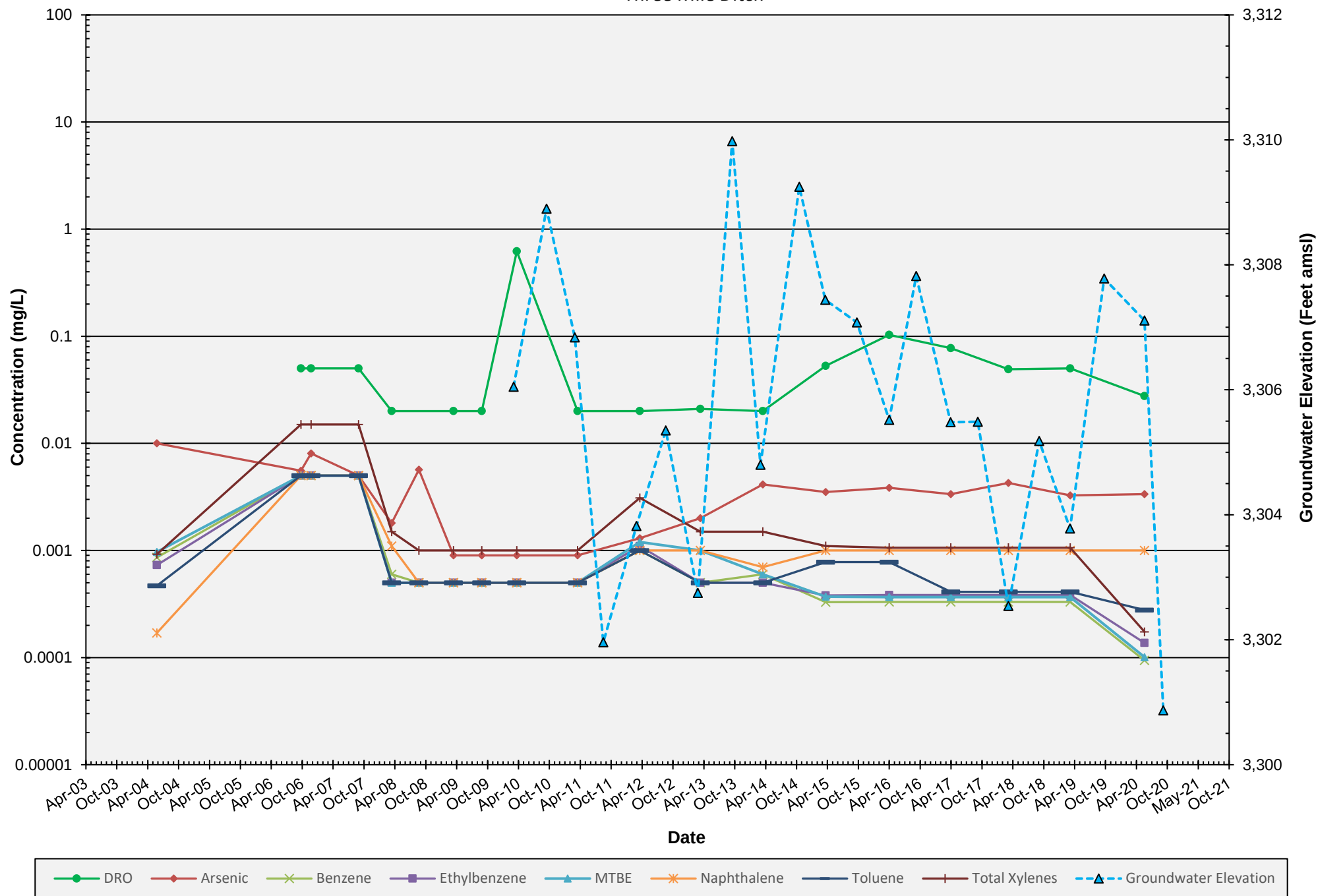
Three Mile Ditch



MW-26: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

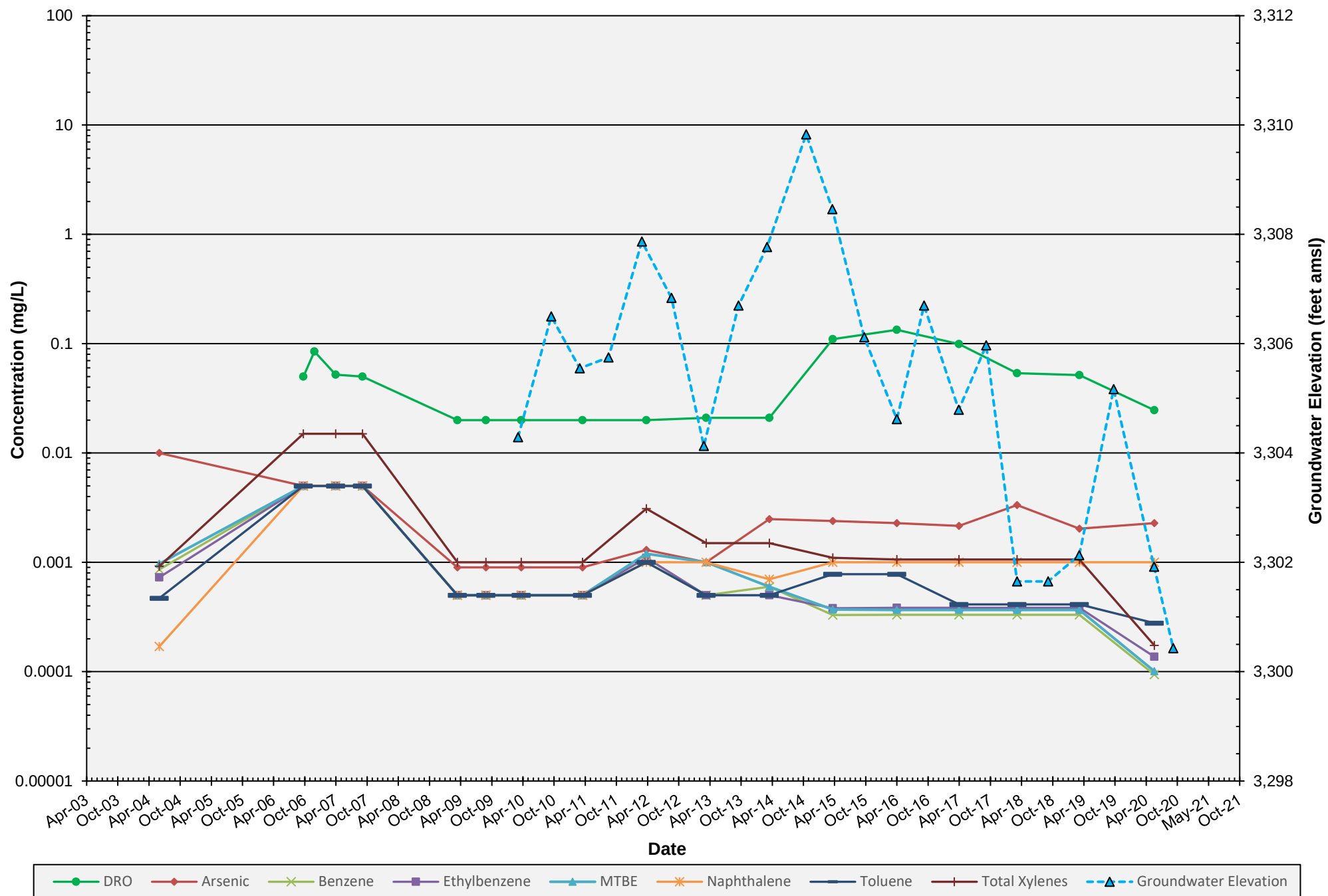
Three Mile Ditch



MW-27: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

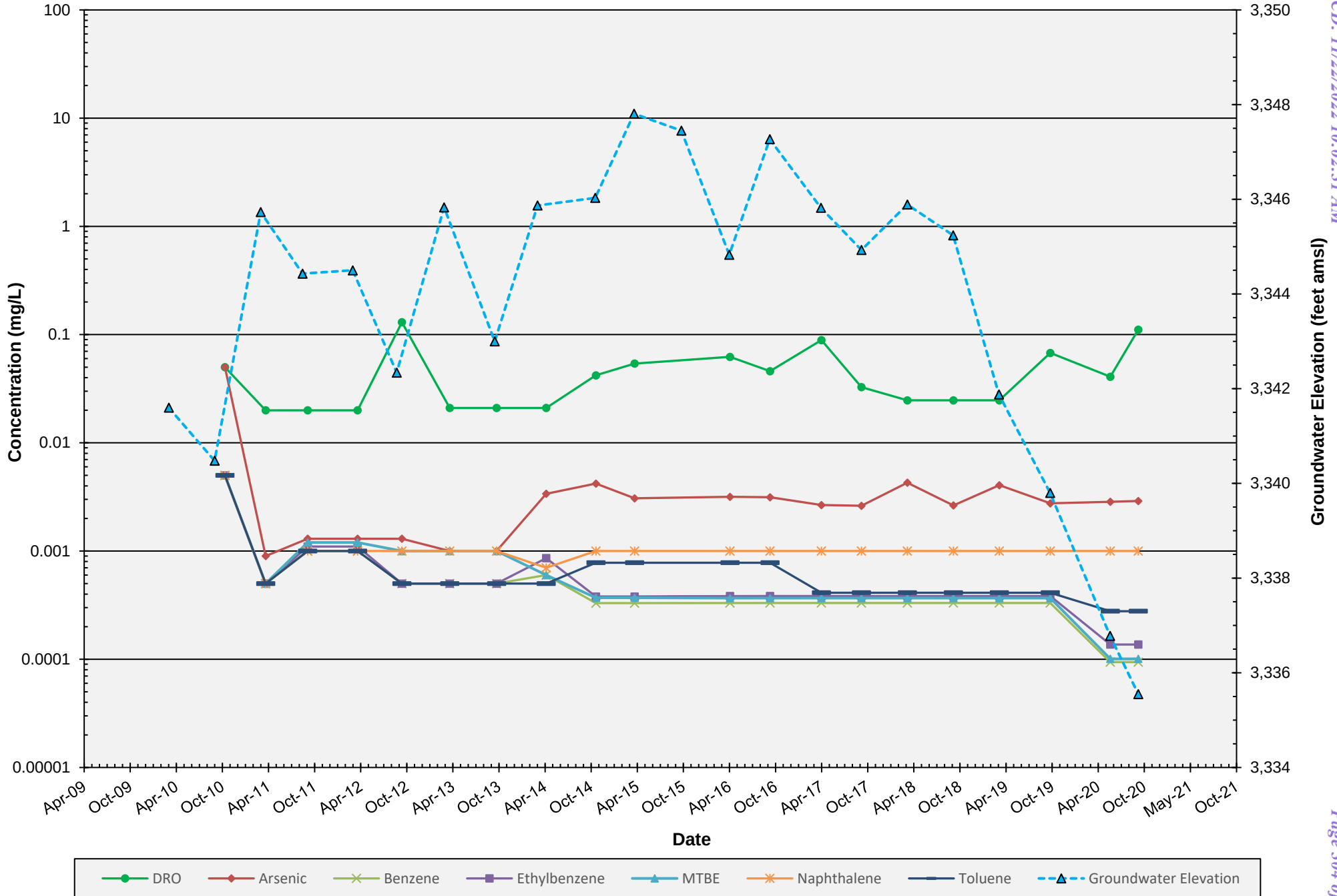
Three Mile Ditch



MW-46 & MW-46R: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

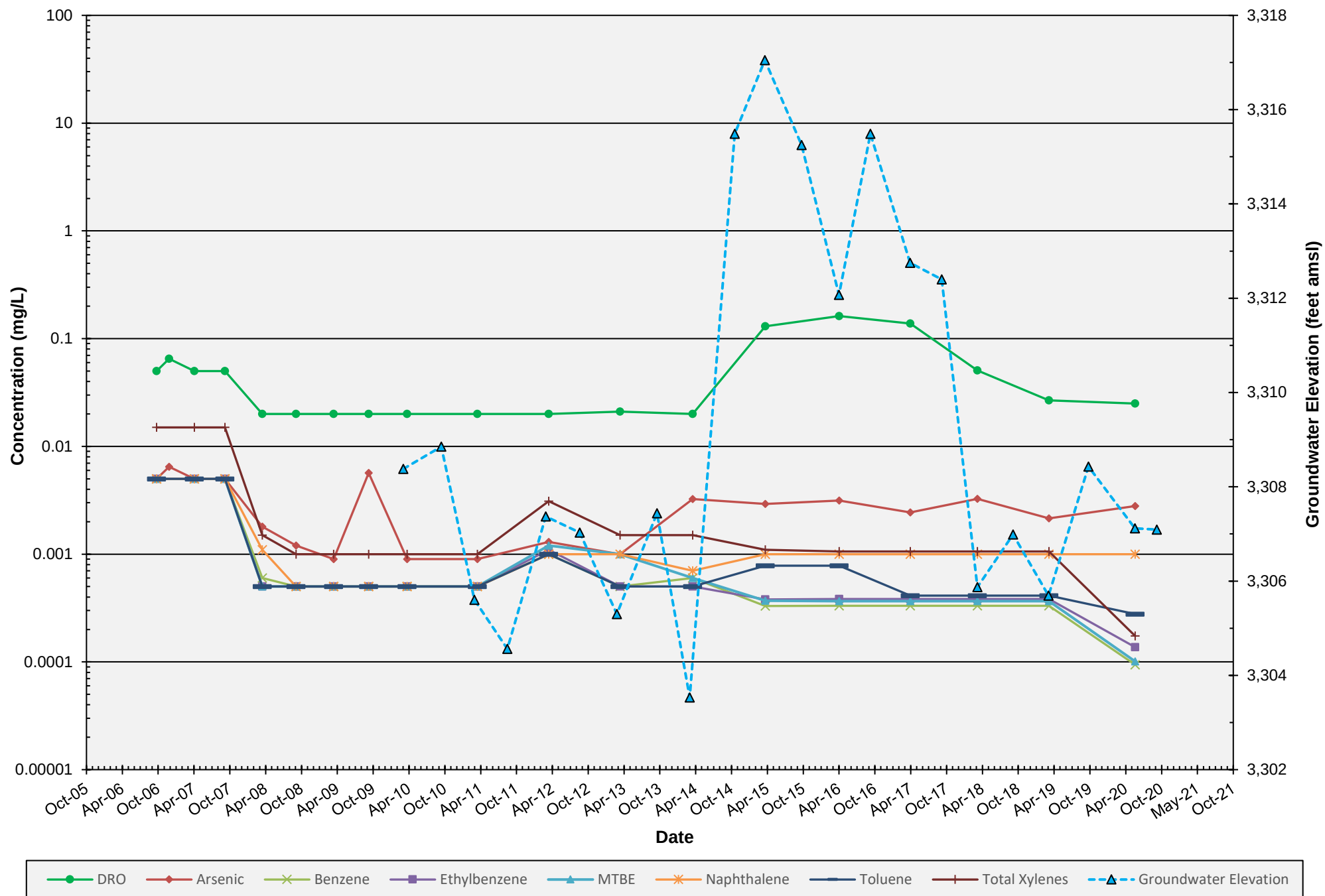
Three Mile Ditch



MW-68: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

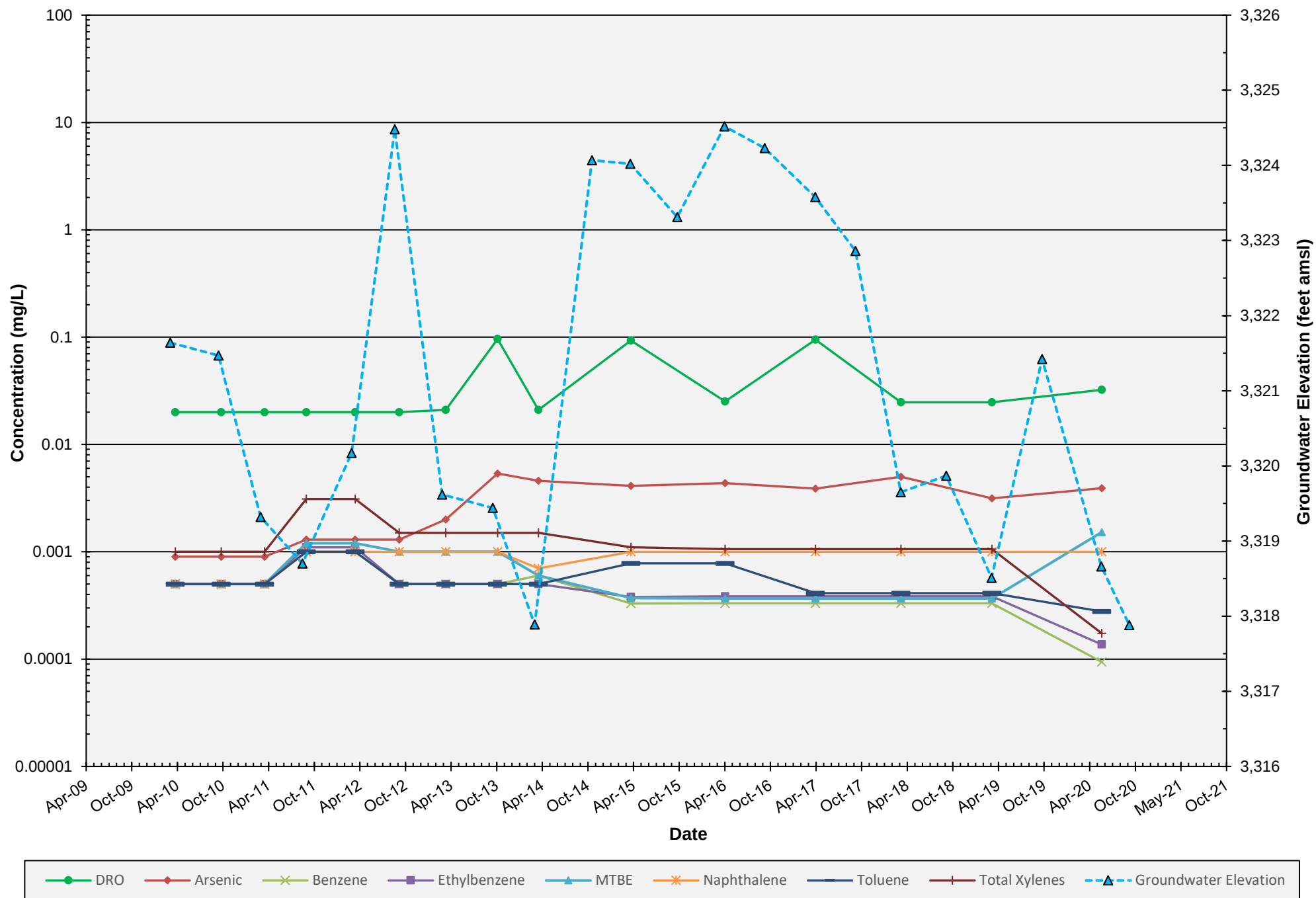
Three Mile Ditch



MW-71: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

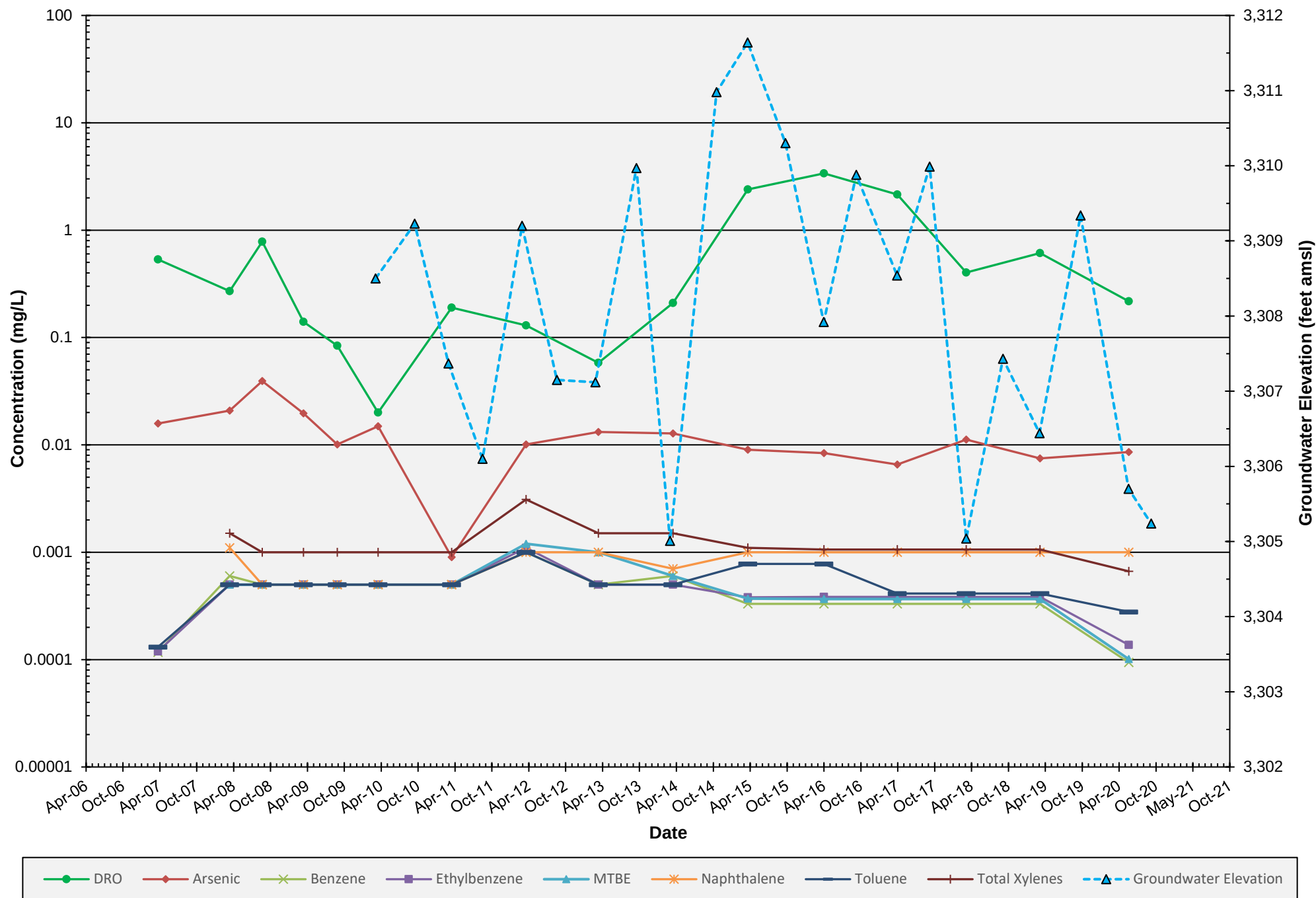
Three Mile Ditch



MW-89: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

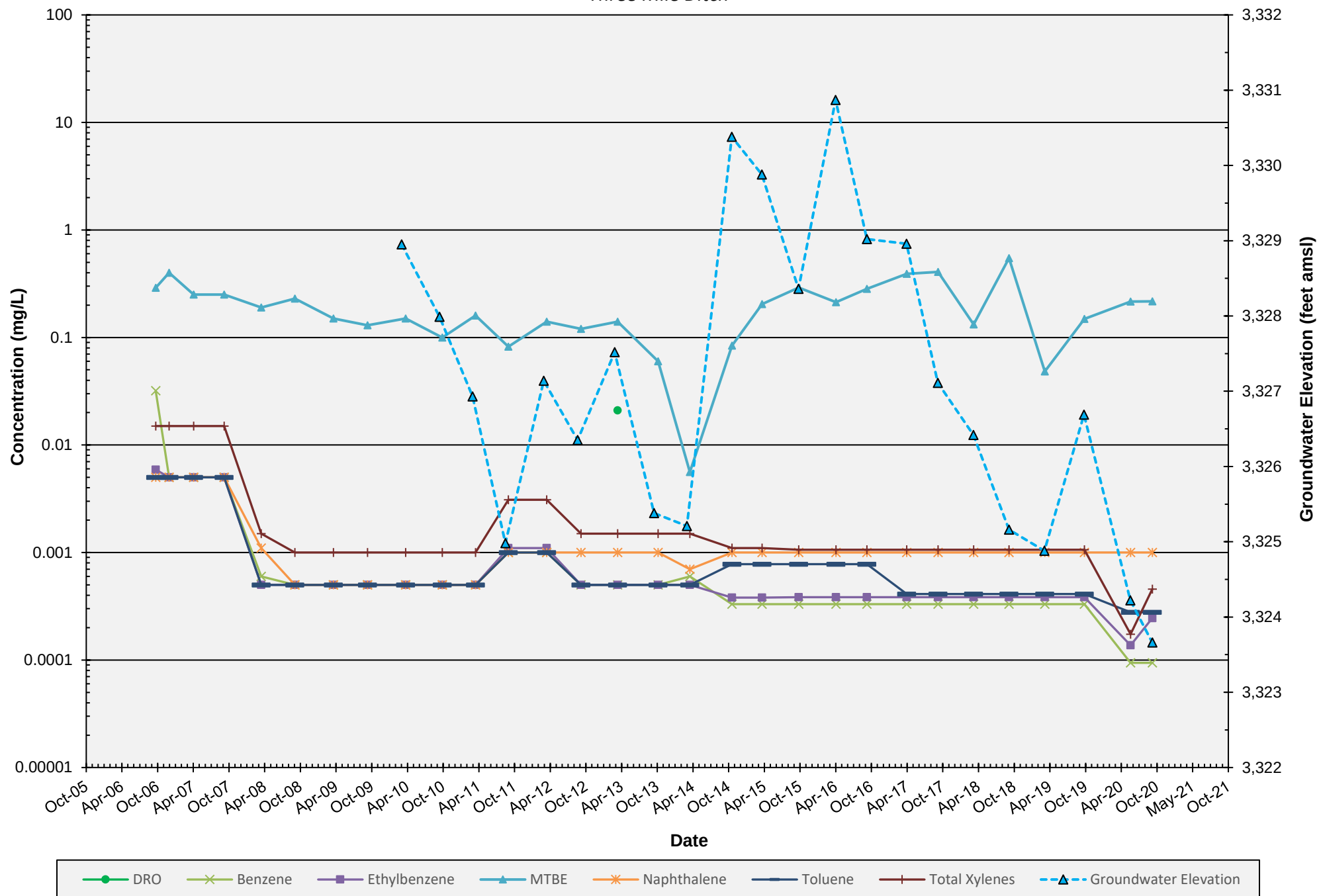
Three Mile Ditch



NP-1: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

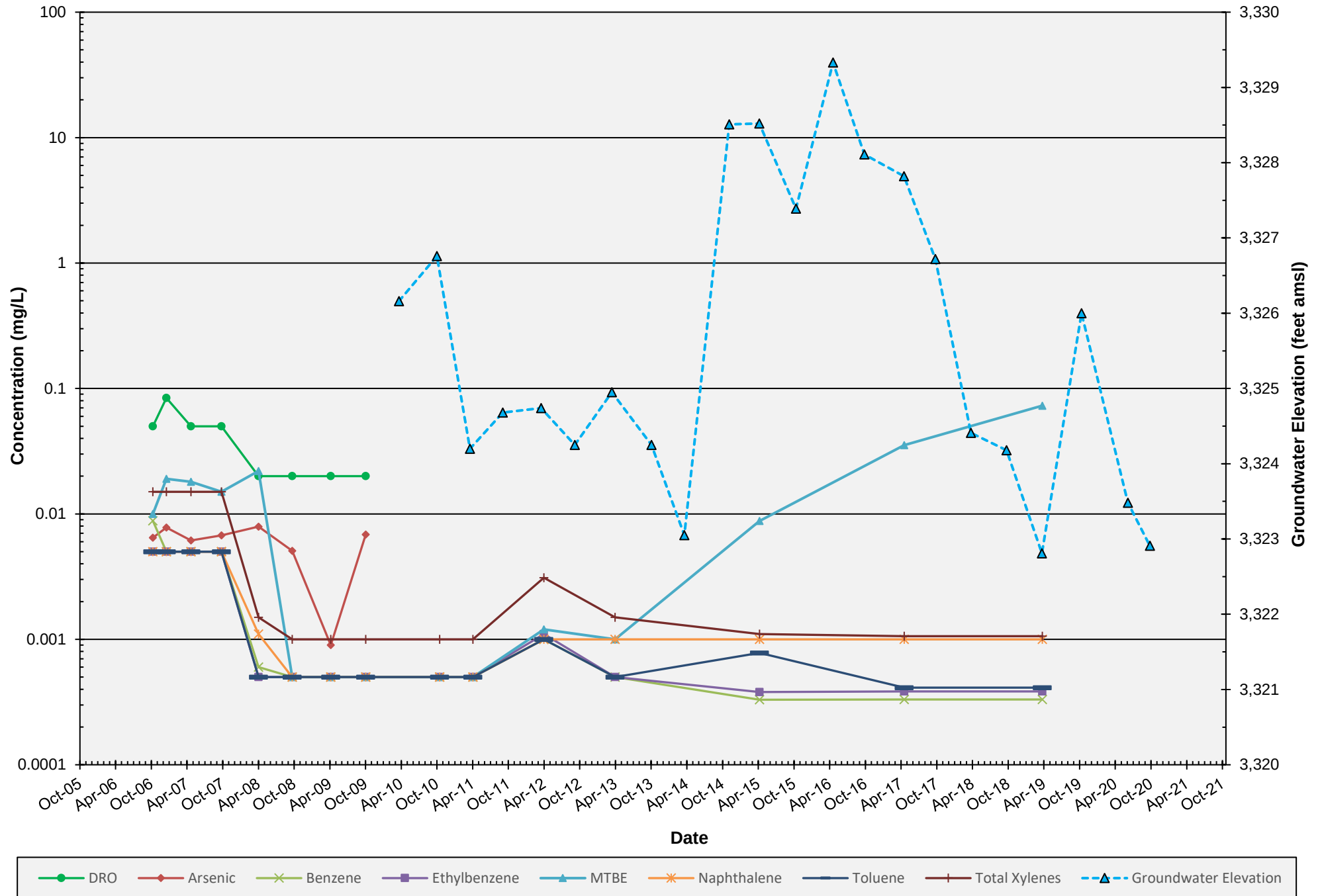
Three Mile Ditch



NP-6: COC Concentrations and Groundwater Elevations

HollyFrontier Navajo Refining LLC - Artesia Refinery

Three Mile Ditch



Appendix E

Appendix D: Data Validation

Data reported by Pace Analytical in Mount Juliet, Tennessee, for the groundwater samples collected in June 2020, and October and November 2020 were reviewed to ensure that reported analytical results met the data quality requirements contained in the United States Environmental Protection Agency (USEPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017), *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017), and the individual methods, as applicable. Quality control (QC) data indicate that measurement data are sufficient to meet method quality objectives, reported data are defensible, and QC mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

The following significant issue was identified. Due to a significant holding time exceedance (>2x the holding time), the nondetect results for benzene in samples RA-4798 and RA-4196 collected on 10/6/20 are not useable for project objectives. Due to this issue, these samples were re-collected on 11/6/20. The results for benzene in samples RA-4798 and RA-4196 collected on 11/6/20 should be used for project objectives.

The following sections discuss the QC issues identified during the data review for each of the data reports listed below.

June 2020 Data Packages	October 2020 Data Packages
L1230655	L1271283
L1230678	L1271284
L1230681	L1271297
L1230685	L1271298
L1231128	L1271301
L1231153	L1283074*
L1231155	
L1231207	*November 2020

Analytes that were detected in the both the associated blank and sample were evaluated as follows: Corresponding samples at concentrations within five times the maximum blank concentration for inorganic analytes and within 10 times the maximum blank concentrations for organic analytes may include measurement contributions from the laboratory (for method blanks) and/or field (for equipment and trip blanks).

The following criteria were used in evaluation of the field duplicates: When both results are $\geq$ five times the reporting limit (RL), relative percent differences (RPDs) must be $<30\%$. When one or both results are $<$ five times the RL, the absolute difference must be $<$ the RL.

The following criteria were used in evaluation of laboratory duplicates: When both results are $\geq$ five times the RL, RPDs must be $<20\%$.

Lab Report L1230655

Sample identifiers cross-referenced to laboratory identifications are presented below.

Sample ID	Lab ID
L1230655-01	MW-56
L1230655-02	MW-55
L1230655-03	MW-54A
L1230655-04	NCL-49
L1230655-05	DUP-NCL-01*
L1230655-06	TRIP BLANK-NCL-01

*Field duplicate of NCL-49

Data Review Checklist	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?	X		
Any detection in method blanks?		X	
Any detection in equipment blanks?			X
Any detection in trip blanks?		X	
Any LCS or LCS duplicates (LCSD) percent recoveries (%R) out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any matrix spike (MS) or MS duplicate (MSD) %R outside of laboratory defined limits?		X	
Any MS/MSD RPD above laboratory defined limits?			X
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids were 2.5-5 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentrations of dissolved solids. There is no impact on data usability since dissolved solids results were detected above the RLs in the affected samples.

Select samples were analyzed at dilutions for nitrate-nitrite, chloride, sulfate, and/or select VOCs but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted due to the presence of these target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability since these analytes were detected above the RLs in the diluted samples.

MS/MSDs

An MS analysis was performed on sample MW-55 for nitrate-nitrite. All criteria were met.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-54A: Nitrate-nitrite
- MW-55: Cyanide

All criteria were met.

Field Duplicates

The variability for total manganese in field duplicate pair, NCL-49/DUP-NCL-01, did not meet the acceptance limits as the absolute difference was greater than the RL. Therefore, the positive results for total manganese in samples NCL-49 and DUP-NCL-01 may be considered estimated.

Lab Report L1230678

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1230678-01	TEL-4
L1230678-02	TEL-2
L1230678-03	TEL-1
L1230678-04	MW-49
L1230678-05	DUP-TEL-01*
L1230678-06	EB-TEL-01
L1230678-07	TRIP BLANK-TEL-01

*Field duplicate of TEL-4

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?	X		
Any detection in method blanks?		X	
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blank were five times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentrations of dissolved solids. There is no impact on data usability since dissolved solids results were detected above the RLs in the affected samples.

The laboratory noted that the cyanide analysis of sample MW-49 was diluted 50-fold due to sulfide interference. Therefore, the RL for cyanide in this sample was elevated accordingly.

The laboratory noted that the VOC analysis of sample TEL-4 was diluted 5-fold due to foaming at the time of analysis. Therefore, the RLs for VOCs in this sample were elevated accordingly.

The laboratory noted that the TPH (GC/FID) low fraction analyses of samples TEL-1 and DUP-TEL-01 were diluted 10-fold due to foaming at the time of analysis. Therefore, the RLs for TPH (GC/FID) low fraction in these samples were elevated accordingly.

Several samples were analyzed at dilutions for nitrate-nitrite, chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, and/or VOCs but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, and select VOCs since these analytes were detected above the RLs in the diluted samples. The RLs for nitrate-nitrite and/or select VOCs in several samples were elevated accordingly.

Standard Conditions

The laboratory noted that sample TEL-1 did not have a collection date or time listed on the chain-of-custody. The laboratory logged this sample in according to the date and time on the sample containers.

Equipment Blanks

The following analytes were detected in the equipment blank sample, EB-TEL-01: TPH (GC/FID) high fraction, acetone, benzene, 2-butanone, and trichloroethene. The analyte listed below was detected in the corresponding samples at concentrations within 10 times the equipment blank concentrations for organic analytes. Therefore, these samples may include measurement contributions from the field.

- TPH (GC/FID) high fraction: TEL-2, TEL-1

MS/MSDs

MS/MSD analyses were performed on the following samples:

- DUP-TEL-01: Dissolved metals
- TEL-4: Total metals, TPH (GC/FID) low fraction

The %R of dissolved manganese in the MS performed on sample DUP-TEL-01 was outside of the laboratory-defined recovery limits (75-125%). However, the concentration of this analyte in the unspiked sample was greater than four times the spiked concentration; thus, the %R of dissolved manganese was not used to evaluate potential matrix effects.

The %Rs of total calcium in the MS/MSD, total manganese in the MSD, and total sodium in the MS performed on sample TEL-4 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the %Rs of total calcium, manganese, and sodium were not used to evaluate potential matrix effects.

The %Rs of total nickel in the MS and MSD performed on sample TEL-4 were outside of the laboratory-defined recovery limits (75-125%); although nickel was not reported in the parent sample, these results indicate a potential low bias for nickel in the other project samples from the

same batch, where reported. Therefore, the positive result for total nickel in sample MW-49 may be biased low.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- DUP-TEL-01: dissolved solids, Nitrate-Nitrite
- EB-TEL-01: Chloride, fluoride, sulfate

All criteria were met.

Field Duplicates

Samples TEL-4/ DUP-TEL-01 were submitted as the field duplicate pair. The variability for TPH (GC/FID) low fraction did not meet the acceptance limits as the absolute difference was greater than the RL. Therefore, the positive results for TPH (GC/FID) low fraction in samples TEL-4 and DUP-TEL-01 may be considered estimated.

Lab Report L1230681

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1230681-01	MW-6A
L1230681-02	MW-120
L1230681-03	MW-121
L1230681-04	MW-74
L1230681-05	MW-73
L1230681-06	MW-72
L1230681-07	OCD-6
L1230681-08	OCD-7AR
L1230681-09	MW-88
L1230681-10	MW-4A
L1230681-11	MW-5A
L1230681-12	MW-7A
L1230681-13	OCD-8A
L1230681-14	MW-87
L1230681-15	MW-18A
L1230681-16	MW-70
L1230681-17	MW-124
L1230681-18	DUP-EP-01*
L1230681-19	EB-EP-01
L1230681-20	EB-EP-02
L1230681-21	EB-EP-03
L1230681-22	TRIP BLANK-EP-02
L1230681-23	TRIP BLANK-EP-04

*Field duplicate of MW-7A

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?		X	
Any detection in method blanks?		X	
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?	X		
Any field duplicate data additionally flagged as estimated?		X	
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blanks were 5-20 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentrations of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the VOC analyses of samples MW-6A and MW-120 were diluted 5-fold due to foaming at the time of analysis. Therefore, the RLs for VOCs in these samples were elevated accordingly.

Several samples were analyzed at dilutions for nitrate-nitrite, select total metals, chloride, fluoride, sulfate, and/or TPH (GC/FID) high fraction but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for nitrate/nitrite, chloride, fluoride, sulfate, TPH (GC/FID) high fraction, and select metals since these analytes were detected above the RLs in the diluted samples. The RLs for select metals in several samples were elevated accordingly.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since the samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Equipment Blanks

The following analytes were detected in the equipment blank samples, EB-EP-01, EB-EP-02, and/or EB-EP-03: total sodium, chloroform, and TPH (GC/FID) low fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum equipment blank concentration for inorganic analytes and within 10 times the equipment blank concentrations for organic analytes. Therefore, these samples may include measurement contributions from the field.

- TPH (GC/FID) low fraction: MW-4A, MW-6A, MW-7A, MW-72, MW-73, MW-88, MW-120, OCD-6, OCD-8A, DUP-EP-01

MS/MSD

MS and/or MS/MSD analyses were performed on the following samples:

- OCD-7AR, MW-87: Nitrate-nitrite
- MW-120, EB-EP-02, EB-EP-03: Chloride, fluoride, sulfate
- EB-EP-01: Dissolved metals
- MW-18A: Total metals

The %Rs of chloride and sulfate in the MS and MSD performed on sample MW-120 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of these

analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the %Rs of chloride and sulfate were not used to evaluate potential matrix effects.

The %Rs of total calcium, manganese, and sodium in the MS and MSD performed on sample MW-18A were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentration; thus, the %Rs of total calcium, manganese, and sodium were not used to evaluate potential matrix effects.

The %Rs of total barium (129%/130%), and total uranium (143%/145%) in the MS/MSD performed on sample MW-18A were above the laboratory-defined recovery limits (75-125%); therefore, the positive results for total barium in all samples may be biased high. There is no impact on data usability for total uranium due to this issue since all total uranium results were nondetect.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-6A, MW-18A, MW-70: Dissolved solids
- DUP-EP-01: Nitrate-nitrite
- MW-6A, EB-EP-01: Chloride, fluoride, sulfate

The RPD (26.4%) for dissolved solids in the duplicate analysis performed on sample MW-70 exceeded the acceptance criteria used in this evaluation (20%); Therefore, the positive result for dissolved solids in sample MW-70 may be considered estimated.

Field Duplicates

Samples MW-7A and DUP-EP-01 were submitted as the field duplicate pair. All criteria were met.

Lab Report L1230685

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1230685-01	KWB-7
L1230685-02	KWB-11A
L1230685-03	KWB-11B
L1230685-04	MW-115
L1230685-05	MW-114
L1230685-06	MW-117
L1230685-07	MW-118
L1230685-08	MW-119
L1230685-09	MW-126A
L1230685-10	MW-126B
L1230685-11	MW-131
L1230685-12	MW-57
L1230685-13	KWB-12A
L1230685-14	KWB-12B
L1230685-15	KWB-13
L1230685-16	MW-103
L1230685-17	MW-104
L1230685-18	MW-64
L1230685-19	MW-102
L1230685-20	MW-125
L1230685-22	UG-3R
L1230685-23	UG-4
L1230685-24	UG-1
L1230685-25	UG-2
L1230685-26	MW-101
L1230685-27	MW-39
L1230685-28	MW-98
L1230685-29	RW-10
L1230685-30	MW-40
L1230685-31	MW-41
L1230685-32	RW-9
L1230685-33	MW-29
L1230685-34	RW-#16B
L1230685-35	MW-106
L1230685-36	MW-139
L1230685-37	MW-50
L1230685-38	MW-91
L1230685-39	MW-90
L1230685-40	MW-96
L1230685-41	MW-95
L1230685-42	DUP-REST-02*

Lab ID	Sample ID
L1230685-43	DUP-REST-05**
L1230685-44	EB-REST-02
L1230685-45	EB-REST-05
L1230685-46	TRIP BLANK-REST-02
L1230685-47	TRIP BLANK-REST-04
L1230685-48	RW-#18A
L1230685-49	MW-116
L1230685-50	TRIP BLANK-REST-03

*Field duplicate of MW-104

**Field duplicate of KWB-12B

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?	X		
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blanks were 2-20 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the nitrate-nitrite analyses of the following samples were diluted due to sulfide interference. Therefore, the RLs for nitrate-nitrite in these samples were elevated accordingly.

- MW-40, MW-103, and DUP-REST-02 (10-fold);
- MW-104 (5-fold);
- MW-64 (2-fold)
- MW-98 (100-fold);
- RW-9, MW-90, and MW-96 (50-fold); and

- MW-91, MW-106 (200-fold).

Several samples were analyzed at dilutions for nitrate-nitrite, sodium, chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, SVOCs, and/or VOCs but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for nitrate/nitrite, chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, select VOCs, select SVOCs, and sodium since these analytes were detected above the RLs in the diluted samples. The RLs for select VOCs and/or SVOCs in several samples were elevated accordingly.

The laboratory indicated that a constant weight could not be achieved due to matrix interference in the dissolved solids analyses of samples RW-#18A and MW-116. Therefore, the positive results for dissolved solids in these samples may be considered estimated.

The laboratory reported SVOCs for sample MW-95; this analysis was not requested on the chain-of-custody.

Standard Conditions

The laboratory noted that samples KWB-7, KWB-11A, and KWB-11B did not have a collection date or time listed on the chain-of-custody. The laboratory logged these samples in according to the dates and times on the sample containers.

Samples MW-116, RW-#18A, and TRIP BLANK-REST-03 were misplaced during shipment to the laboratory and were not received by the laboratory. These samples were re-collected but the new sampling dates and times were not recorded by the field sampler. The original collection dates and times listed on the chain-of-custody were logged in by the laboratory.

Holding Times

All samples submitted for dissolved solids analysis with the exception of sample MW-50 were prepared slightly outside of the 7-day holding time. However, since all samples except MW-50 were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability. Sample MW-50 was prepared four days outside of the 7-day holding time for dissolved solids. Therefore, the result for dissolved solids in sample MW-50 may be considered estimated.

Laboratory Method Blanks

The following analytes were detected in the method blanks: total arsenic, total nickel, naphthalene (SVOC), and TPH (GC/FID) low fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the method blank concentration for inorganic analytes and within 10 times the method blank concentration for organic analytes. Therefore, these samples may include measurement contributions from the laboratory.

- Total arsenic: MW-90, MW-95, MW-96, DUP-REST-02, and DUP-REST-05
- Total nickel: EB-REST-05

- TPH (GC/FID) low fraction: MW-29, MW-41, MW-95, MW-106, DUP-REST-05, and EB-REST-02
- Naphthalene (SVOC): MW-95

Dissolved solids was detected at an unusually high concentration in the method blank in QC batch WG1496357 associated with samples UG-1, UG-2, and UG-4. After communication with the laboratory during this review, the laboratory indicated that most likely due to laboratory error, the method blank was inadvertently spiked as if it were an LCS. The laboratory re-prepared these samples out of the 7-day holding time which resulted in lower but comparable results. The results that were prepared within holding time for dissolved solids were reported with a sample narrative indicating the confirmatory results from the re-preparation. There is likely no adverse impact on data usability due to this method blank issue.

Equipment Blanks

The following analytes were detected in the equipment blank samples, EB-REST-02 and/or EB-REST-05: dissolved solids, total nickel, chloroform, and TPH (GC/FID) low fraction. Note that the results for total nickel and TPH (GC/FID) low fraction in the equipment blanks were less than five times the concentration detected in the associated method blank for total nickel and less than 10 times the concentration in the associated method blank for TPH (GC/FID) low fraction; therefore, the results for total nickel and TPH (GC/FID) low fraction in the equipment blanks were likely the result of laboratory method blank contamination and did not affect any associated field samples. Results for dissolved solids and chloroform were either nondetect or detected at a concentration greater than five times the equipment blank concentration; therefore, there is no impact on data usability.

Trip Blanks

4-Methyl-2-pentanone was detected in the trip blank TRIP BLANK-REST-03. However, 4-methyl-2-pentanone was not detected in the associated samples so there is no impact on data usability due to this detection.

LCS/LCSD

The LCS %R for chlorobenzene (79.8%) was below the laboratory-defined limits (80-121%), in QC batch WG1496569. Therefore, the nondetect results for chlorobenzene in the samples from this QC batch, MW-39, MW-57, MW-64, MW-98, MW-101, MW-103, MW-104, MW-125, MW-126A, MW-126B, UG-1, UG-2, UG-3R, UG-4, KWB-12A, KWB-12B, KWB-13, and RW-10, are potentially biased low.

The LCS %Rs for cis-1,3-dichloropropene (127%) and trichloroethene (136%) were above the laboratory-defined limits (80-123% and 78-124%, respectively), in QC batch WG1496569. However since these compounds were not detected in the samples from this QC batch, MW-39, MW-57, MW-64, MW-98, MW-101, MW-103, MW-104, MW-125, MW-126A, MW-126B, UG-1, UG-2, UG-3R, UG-4, KWB-12A, KWB-12B, KWB-13, and RW-10, there is no impact on data usability.

The LCS/LCSD %Rs for chlorobenzene (124%/127%), and LCSD %Rs for tetrachloroethene (133%), 1,1,2-trichloroethane (121%), and trichloroethene (129%) were above the laboratory-defined limits (80-121%, 72-132%, 80-120%, and 78-124%, respectively), in QC batch WG1498555. However, since these compounds were not detected in the sample from this QC batch, DUP-REST-02, there is no impact on data usability.

The LCS %R benzaldehyde (208%) was above the laboratory-defined limits (10-160%), in QC batch WG1496709. However since this compound was not detected in the sample from this QC batch, MW-95, there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-101, MW-114, MW-125, MW-139: Nitrate-Nitrite
- KWB-11A, UG-2: Cyanide
- MW-64, MW-95, MW-131, UG-2: Chloride, fluoride, sulfate
- UG-3R: Dissolved boron
- MW-64, MW-116: Dissolved metals
- KWB-12B: Total metals
- MW-103: TPH (GC/FID) low fraction

The %Rs of chloride in the MS/MSD performed on sample MW-131, and in the MS performed on samples MW-64 and MW-95 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of this analyte in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of chloride were not used to evaluate potential matrix effects.

The %Rs of sulfate in the MS/MSD performed on sample UG-2 and in the MS performed on sample MW-95 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of this analyte in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of sulfate were not used to evaluate potential matrix effects.

The %Rs of dissolved barium in the MS/MSD performed on sample MW-64 were outside of the laboratory-defined recovery limits (75-125%). However, the concentration of this analyte in the unspiked sample was greater than four times the spiked concentration; thus, the recoveries of dissolved barium were not used to evaluate potential matrix effects.

The %R of dissolved selenium in the MS performed on sample MW-64 (127%) was above the laboratory-defined recovery limits (75-125%); therefore, the positive results for dissolved selenium in samples MW-29, MW-50, MW-57, MW-95, MW-96, MW-114, MW-115, MW-117, MW-116, MW-118, MW-119, MW-125, MW-126B, UG-1, UG-2, UG-3R, UG-4, RW-#16B, RW-#18A, KWB-11A, KWB-11B, KWB-12A, KWB-12B, KWB-13, DUP-REST-02, and DUP-REST-05 may be biased high.

The %Rs of nitrate-nitrite in the MS/MSD performed on sample MW-114 (112%/113%) and the MS performed on sample MW-125 (112%) were above the laboratory-defined recovery limits (90-110%); therefore, the positive results for nitrate-nitrite in samples MW-57, MW-114,

MW-115, MW-117, MW-118, MW-119, MW-125 MW-126B, KWB-11A, KWB-11B, KWB-12A, KWB-12B, and KWB-13 may be biased high.

The %Rs of total calcium in the MS/MSD performed on sample KWB-12B were outside of the laboratory-defined recovery limits (75-125%). However, the concentration of this analyte in the unspiked sample was greater than four times the spiked concentration; thus, the recoveries of total calcium were not used to evaluate potential matrix effects.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-98, MW-126B, KWB-7, RW-10, RW-#18A, DUP-REST-05: Dissolved solids
- MW-29, MW-57, KWB-7, UG-3R: Nitrate-Nitrite
- UG-1: Cyanide
- MW-39, MW-96, MW-104, KWB-7: Chloride, fluoride, sulfate

All criteria were met.

Field Duplicates

Samples MW-104/DUP-REST-02 and KWB-12B/DUP-REST-05 were submitted as the field duplicate pairs. All criteria were met in sample MW-104/DUP-REST-02.

The variability for total nickel in field duplicate pair KWB-12B and DUP-REST-05 did not meet the acceptance limits as the absolute difference was greater than the RL (total nickel was not detected in sample KWB-12B and was detected greater than five times the RL in the field duplicate sample). In addition, the RPD for nitrate-nitrite (32.7%) was above the acceptance criteria (30%) in field duplicate pair KWB-12B/DUP-REST-05. Therefore, the positive and nondetect results for total nickel and nitrate-nitrite in samples KWB-12B and DUP-REST-05 may be considered estimated.

Lab Report L1231128

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1231128-01	MW-130
L1231128-02	MW-52
L1231128-03	MW-109
L1231128-04	MW-110
L1231128-05	RW-12R
L1231128-06	MW-113
L1231128-07	MW-134
L1231128-08	RA-4798
L1231128-09	RA-4196
L1231128-10	RA-3156
L1231128-11	RA-313
L1231128-12	MW-135
L1231128-13	MW-136
L1231128-14	KWB-1A
L1231128-15	MW-111
L1231128-16	RW-4
L1231128-17	MW-99
L1231128-18	MW-66
L1231128-19	MW-28
L1231128-20	MW-59
L1231128-21	MW-60
L1231128-22	MW-105
L1231128-23	MW-61
L1231128-24	MW-62
L1231128-25	MW-93
L1231128-26	MW-43
L1231128-27	MW-23
L1231128-28	MW-42
L1231128-29	RW-7
L1231128-30	RW-#17A
L1231128-31	DUP-REST-01*
L1231128-32	DUP-REST-03**
L1231128-33	DUP-REST-04***
L1231128-34	EB-REST-01
L1231128-35	EB-REST-03
L1231128-36	EB-REST-04
L1231128-37	TRIP BLANK-REST-01

*Field duplicate of MW-113

** Field duplicate of MW-134

*** Field duplicate of MW-60

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?	X		
Any laboratory duplicate RPD above laboratory defined limits?	X		
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blanks were 1.33-20 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the nitrate-nitrite analyses of the following samples were diluted due to sulfide interference. Therefore, the RLs for nitrate-nitrite in these samples were elevated accordingly.

- MW-42, MW-62, MW-93, and RW-7 (50-fold);
- MW-43 (5-fold); and
- MW-23 and DUP-REST-04 (10-fold).

The laboratory noted that the cyanide analyses of samples MW-28, MW-43, MW-60, and DUP-REST-04 were diluted 20-fold due to sulfide interference. Therefore, the RLs for cyanide in these samples were elevated accordingly.

The laboratory noted that the TPH (GC/FID) low fraction analyses of samples MW-42 and RW-7 were diluted 20-fold and 5-fold, respectively, due to foaming at the time of analysis. There is no impact on data usability since TPH (GC/FID) low fraction was detected above the RLs in the diluted samples.

The laboratory noted that the VOC analysis of sample MW-113 was diluted 5-fold due elevated concentrations of non-target analytes and/or matrix interference. Therefore, the RLs for VOCs in this sample were elevated accordingly.

The laboratory noted that the VOC analysis of sample MW-42 was diluted 5-fold due to due to foaming at the time of analysis. Therefore, the RLs for VOCs in this sample were elevated accordingly.

The laboratory noted that the SVOC analysis of sample MW-93 was diluted 5-fold due to matrix interference. Therefore, the RLs for SVOCs in this sample were elevated accordingly.

Several samples were analyzed at dilutions for nitrate-nitrite, chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, and/or VOCs but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for chloride, fluoride, sulfate, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, and select VOCs since these analytes were detected above the RLs in the diluted samples. The RLs for nitrate-nitrite and select VOCs in several samples were elevated accordingly.

Standard Conditions

The laboratory noted that the TPH (GC/FID) low fraction analyses of samples MW-113, MW-109, and MW-23 were performed using a vial with a pH outside of the method requirement (≤ 2). This pH issue shortens the holding time to seven days and these samples were analyzed for TPH (GC/FID) low fraction after seven days of collection. Therefore, the positive results for TPH (GC/FID) low fraction in samples MW-113, MW-109, and MW-23 may be biased low.

A discrepancy was noted with select laboratory sample IDs that were handwritten on the chain-of-custody versus the actual laboratory sample IDs that were logged in by the laboratory for samples DUP-REST-03, DUP-REST-04, EB-REST-01, EB-REST-03, EB-REST-04, and TRIP BLANK-REST-01. The samples were analyzed for the requested analyses so there is no impact on data usability due to this issue.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: TPH (GC/FID) low fraction, carbon disulfide. The analytes listed below were detected in the corresponding samples at concentrations within 10 times the method blank concentration. Therefore, these samples may include measurement contributions from the laboratory.

- TPH (GC/FID) low fraction: MW-59, MW-61, MW-134, RW-7, EB-REST-04
- Carbon disulfide: MW-52, MW-109, MW-110, MW-111, MW-113, MW-130, MW-134, MW-135, MW-136, KWB-1A, RA-3156, RA-4196, RA-4798, RA-313, RW-4, RW-12R

Equipment Blanks

The following analytes were detected in the equipment blank samples, EB-REST-01, EB-REST-03, and/or EB-REST-04*: total manganese and TPH (GC/FID) low fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the equipment blank concentration for inorganic analytes and within 10 times the maximum equipment blank concentrations for organic analytes. Therefore, these samples may include measurement contributions from the field.

- Total manganese: MW-62, MW-134, DUP-REST-03
- TPH (GC/FID) low fraction: MW-42, MW-43, MW-59*, MW-61*, MW-134*, MW-135, MW-136, RW-7*, RW-#17A, DUP-REST-03, DUP-REST-04

*The results for TPH (GC/FID) low fraction in these samples were also less than 10 times the associated method blank concentration as noted above.

LCS/LCSDs

The LCS %R for n-butylbenzene (72.8%) was below the laboratory-defined limits (73-125%), in QC batch WG1497261. Therefore, the positive and nondetect results for n-butylbenzene in the samples from this QC batch, MW-23, MW-42, MW-59, MW-60, MW-61, MW-62, MW-66, MW-105, MW-93, RW-7, RW-#17A, DUP-REST-03, DUP-REST-04, EB-REST-01, EB-REST-03, EB-REST-04, and TRIP BLANK-REST-01, may be biased low.

The %Rs for chlorobenzene in the LCS (122%) and tetrachloroethene in the LCS/LCSD (133%/142%) were above the laboratory-defined limits (80-121% and 72-132%, respectively), in QC batch WG1499394. Therefore, the positive result for tetrachloroethene in sample DUP-REST-01 from this QC batch may be biased high.

The LCS %R for benzaldehyde (248%) was above the laboratory-defined limits (10-160%), in QC batch WG1496728. However, benzaldehyde was not detected in the sample from this QC batch so there is no impact on data usability.

MS/MSDs

MS and or MS/MSD analyses were performed on the following sample:

- MW-99, MW-134, RW-#17A: Nitrate-nitrite
- MW-110, RW-4, EB-REST-01: Chloride, fluoride, sulfate
- MW-28: Total mercury
- MW-60: Dissolved mercury
- MW-59: Dissolved metals
- MW-23, MW-134: Total metals

The %R (112%) of nitrate-nitrite in the MSD analysis performed on sample MW-134 was above the laboratory-defined recovery limits (90-110%); therefore, the positive results for nitrate-nitrite in samples MW-134, MW-130, MW-52, RA-4798, RA-313, MW-135, MW-136, KWB-1A, and MW-66 may be biased high.

The %Rs of total mercury in the MSD performed on sample MW-28 (72%) and dissolved mercury in the MS/MSD performed on sample MW-60 (68.3%/68.6%) were below the laboratory-defined recovery limits (75-125%); therefore, the nondetect results for total and dissolved mercury in samples MW-28, MW-43, MW-52, MW-60, MW-66, MW-136, KWB-1A, and DUP-REST-04 may be biased low.

The %Rs of chloride and/or sulfate in the MS and/or MSD performed on samples MW-110 and RW-4 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of chloride and sulfate were not used to evaluate potential matrix effects.

The %Rs of calcium and sodium in the MS and MSD performed on sample MW-134 and barium, calcium, and sodium in the MS and/or MSD performed on sample MW-23 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of barium, calcium, and sodium were not used to evaluate potential matrix effects.

Surrogate/Internal Standard Recoveries

The surrogate recovered above the laboratory control limits in the TPH (GC/FID) low fraction analysis of sample MW-136. In addition, the laboratory noted that the internal standards recovered below the laboratory control limits in samples MW-28, MW-136, and DUP-REST-01 which was likely due to matrix interference. Therefore, the positive results for TPH (GC/FID) low fraction in these samples may be biased high.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-66, MW-105, RA-3156: Dissolved solids
- MW-23, MW-110, MW-111, EB-REST-03: Nitrate-nitrite
- MW-66, MW-110, EB-REST-01, EB-REST-04: Chloride, fluoride, sulfate

The RPDs for chloride and sulfate in the duplicate analyses performed on sample EB-REST-01 exceeded the laboratory-defined control limit (5%). However, the results in the parent and duplicate samples were less than 5x the RL so laboratory duplicate RPDs were not applicable.

Field Duplicates

Samples MW-113/DUP-REST-01, MW-134/DUP-REST-03, and MW-60/DUP-REST-04 were submitted as the field duplicate pairs.

The RPD for TPH (GC/FID) low fraction (47.9%) was above the acceptance criteria (30%) in field duplicate pair MW-113 and DUP-REST-01. Therefore, the positive results for TPH (GC/FID) low fraction in samples MW-133 and DUP-REST-01 may be considered estimated.

The variability for nitrate-nitrite in field duplicate pair MW-134 and DUP-REST-03 did not meet the acceptance limits as the absolute difference was greater than the RL (nitrate-nitrite was detected greater than five times the RL in sample MW-134 and not detected in the field duplicate sample). Therefore, the positive and nondetect results for nitrate-nitrite in samples MW-134 and DUP-REST-03 may be considered estimated.

The RPD for fluoride (41.1%) was above the acceptance criteria (30%) in field duplicate pair MW-60 and DUP-REST-04. In addition, the variability for benzene and TPH (GC/FID) low fraction in field duplicate pair MW-60 and DUP-REST-04 did not meet the acceptance limits as the absolute differences were greater than the RL. Therefore, the positive results for fluoride, benzene, and TPH (GC/FID) low fraction in samples MW-60 and DUP-REST-04 may be considered estimated.

Lab Report L1231153

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1231153-01	MW-45
L1231153-02	NCL-34A
L1231153-03	NCL-33
L1231153-04	NCL-44
L1231153-05	NCL-32
L1231153-06	MW-108
L1231153-07	NCL-31
L1231153-08	MW-18
L1231153-09	EB-NCL-01

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?		X	
Any detection in trip blanks?			X
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?			X
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blank were 2-10 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the nitrate-nitrite analyses of samples NCL-34A and MW-108 were diluted 100-fold due to sulfide interference. Therefore, the RLs for nitrate-nitrite in these samples were elevated accordingly.

The laboratory noted that the VOC analysis of sample NCL-34A was diluted 20-fold due to elevated concentrations of target and non-target compounds that would have exceeded the

calibration range if not diluted. Therefore, the RLs for VOCs in this sample were elevated accordingly.

The laboratory noted that the VOC analysis of sample MW-108 was diluted 5-fold due to foaming at the time of analysis. Therefore, the RLs for VOCs in this sample were elevated accordingly.

Several samples were analyzed at dilutions for nitrate-nitrite, chloride, fluoride, and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for nitrate/nitrite, chloride, fluoride, and sulfate since these analytes were detected above the RLs in the diluted samples. The RLs for select VOCs in sample MW-49 were elevated accordingly.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the VOC method blank: carbon disulfide, 2-butanone, and naphthalene. Carbon disulfide was detected in sample MW-108 at a concentration less than 10 times the associated method blank concentration. Therefore, this result may include measurement contributions from laboratory sources.

LCS

The LCS %R for naphthalene (137%) was above the laboratory-defined limits (54-135%), in QC batch WG1497262. However, this compound was not detected in the associated samples so there is no impact on data usability.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following sample:

- NCL-44, MW-108: Dissolved solids
- EB-NCL-01: Nitrate-nitrite, chloride, fluoride, sulfate

All criteria were met.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following sample:

- MW-45: Nitrate-nitrite
- MW-18: Fluoride
- NCL-44: Dissolved metals

The %Rs for dissolved manganese in the MS and MSD performed on sample NCL-44 were below the laboratory-defined recovery limits (75-125%). However, the concentration of this analyte in the unspiked sample was greater than four times the spiked concentration; thus, the recoveries of dissolved manganese were not used to evaluate potential matrix effects.

Lab Report L1231155

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1231155-01	MW-25
L1231155-02	MW-20
L1231155-03	NP-1
L1231155-04	MW-8
L1231155-05	MW-21
L1231155-06	MW-71
L1231155-07	MW-68
L1231155-08	MW-27
L1231155-09	MW-89
L1231155-10	MW-16
L1231155-11	MW-26
L1231155-12	MW-46R
L1231155-13	TRIP BLANK-TMD-01

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?			X
Any detection in trip blanks?	X		
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?			X
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?			X
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blank were 2.5-10 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

Several samples were analyzed at dilutions for methyl tert-butyl ether, nitrate-nitrite, chloride, and/or sulfate but the laboratory did not include a sample narrative explaining the

dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for methyl tert-butyl ether, nitrate/nitrite, chloride, and sulfate since these analytes were detected above the RLs in the diluted samples.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: total chromium, carbon disulfide, 2-butanone, and naphthalene. Total chromium in sample MW-8 was detected at a concentration within five times the method blank concentration. Therefore, this result may include measurement contributions from laboratory sources.

Trip Blanks

Carbon disulfide was detected in the trip blank TRIP BLANK-TMD-01. Carbon disulfide was detected in sample MW-46R less than 10 times the concentration in the associated trip blank. Therefore, this sample may include measurement contributions from transport from the field to the laboratory.

LCS

The LCS %R for naphthalene (137%) was above the laboratory-defined limits (54-135%), in QC batch WG1497262. However, this compound was not detected in the associated samples so there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-27, MW-46R: Nitrate-Nitrite
- MW-20: Chloride, fluoride, sulfate

The %Rs of chloride and sulfate in the MS/MSD performed on sample MW-20 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of chloride and sulfate were not used to evaluate potential matrix effects.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-25: Chloride, fluoride, sulfate

All criteria were met.

Lab Report L1231207

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1231207-01	MW-86
L1231207-02	MW-84
L1231207-03	MW-122
L1231207-04	MW-81
L1231207-05	MW-80
L1231207-06	MW-79
L1231207-07	MW-82
L1231207-08	MW-2A
L1231207-09	MW-76
L1231207-10	MW-77
L1231207-11	MW-78
L1231207-12	MW-75
L1231207-13	MW-83
L1231207-14	MW-3
L1231207-15	MW-22A
L1231207-16	MW-10
L1231207-17	MW-123
L1231207-18	MW-1R
L1231207-19	MW-15
L1231207-20	OCD-1R
L1231207-21	OCD-2A
L1231207-22	OCD-3
L1231207-23	OCD-4
L1231207-24	MW-11A
L1231207-25	OCD-5
L1231207-26	DUP-EP-02*
L1231207-27	DUP-EP-03**
L1231207-28	EB-EP-04
L1231207-29	TRIP BLANK-EP-03

*Field duplicate of MW-22A

**Field duplicate of MW-3

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?	X		
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?	X		
Any laboratory duplicate RPD above laboratory defined limits?	X		
Any field duplicate data additionally flagged as estimated?		X	
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except the equipment blank were 5-40 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the cyanide and nitrate-nitrite analyses of sample MW-86 were diluted 50-fold and 20-fold, respectively, due to sulfide interference. Therefore, the RLs for cyanide and nitrate-nitrite in this sample were elevated accordingly.

The laboratory noted that the following sample analyses were diluted due to due to foaming at the time of analysis. . Therefore, the RLs for analytes listed below in the corresponding sample were elevated accordingly.

- MW-86: TPH (GC/FID) low fraction (50-fold)
- MW-86: VOCs (20-fold)
- MW-84: VOCs (5-fold)
- MW-3, MW-75, MW-78, MW-122: TPH (GC/FID) low fraction (50-fold)
- MW-3, MW-75, MW-77: VOCs (25-fold)

Several samples were analyzed at dilutions for calcium, sodium, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, chloride, fluoride. and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for calcium, sodium, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, chloride, fluoride, and sulfate since these analytes were detected above the RLs in the diluted samples.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: nitrate-nitrite, tetrachloroethene, and total sodium. The analytes listed below were detected in the corresponding samples at concentrations within five times the method blank concentration for inorganic analytes and within 10 times the method blank concentration for organic analytes. Therefore, these results may include measurement contributions from laboratory sources.

- Nitrate-nitrite: MW-3, MW-22A, OCD-1R, OCD-3
- Total sodium: EB-EP-04
- Tetrachloroethene: OCD-3

Equipment Blanks

Total sodium was detected in the equipment blank sample. However, the result for total sodium in the equipment blank was less than five times the concentration detected in the associated method blank; therefore, the result for total sodium in the equipment blank was probably the result of laboratory method blank contamination and did not affect any associated field samples.

LCS

The LCS %R for dissolved solids (79.8%) was below the laboratory-defined limits (85-115%) in QC batch WG1498158. Therefore, the positive and nondetect results for dissolved solids in samples MW-11A, OCD-5, DUP-EP-02, DUP-EP-03, and EB-EP-04 may be biased low.

The LCS %Rs for chlorobenzene (128%) and tetrachloroethene (135%) were above the laboratory-defined limits (80-121% and 72-132%, respectively) in QC batch WG1497524. However, since these compounds were not detected in the samples from this QC batch, there is no impact on data usability.

The LCS %Rs for n-butylbenzene (68%), sec-butylbenzene (74.6%), and 1,3,5-trimethylbenzene (75.2%) were below the laboratory-defined limits (73-125%, 75-125%, and 76-122%, respectively) in QC batch WG1497747. Therefore, the nondetect results for n-butylbenzene, sec-butylbenzene, and 1,3,5-trimethylbenzene in samples from this QC batch, MW-1R, MW-2A, MW-10, MW-11A, MW-15, MW-76, MW-78, MW-82, MW-83, MW-123, OCD-1R, OCD-2A, OCD-3, OCD-4, OCD-5, and DUP-EP-02, may be biased low.

The LCS %R for tetrachloroethene (158%) was above the laboratory-defined limits (72-132%) in QC batch WG1497747. Therefore, the positive result for tetrachloroethene in sample OCD-3 may be biased high.

The LCS/LCSD RPD for bromomethane (29.5%) was above the laboratory-defined limit (25%) in QC batch WG1498067. However, since this compound was not detected in the sample in this QC batch, no data interpretation issues were noted.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-3, OCD-2A: Nitrate-Nitrite
- MW-22A, MW-80, DUP-EP-03: Chloride, fluoride, sulfate
- OCD-2A: Dissolved metals
- MW-10, MW-122: Total metals

The %Rs of chloride and sulfate in the MS and/or MSD performed on samples MW-80, MW-22A, and DUP-EP-03 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of these analytes in the unspiked sample were greater than four times the spiked concentrations; thus, the recoveries of chloride and sulfate were not used to evaluate potential matrix effects.

The %Rs of total manganese in the MS and MSD performed on sample OCD-2A were outside of the laboratory-defined recovery limits (75-125%). However, the concentration of this analyte in the unspiked sample was greater than four times the spiked concentration; thus, the recoveries of total manganese were not used to evaluate potential matrix effects.

The %Rs of total calcium, manganese, and sodium in the MS and/or MSD performed on samples MW-10 and MW-122 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of these analytes in the unspiked samples were greater than four times the spiked concentrations; thus, the recoveries of total calcium, manganese, and sodium were not used to evaluate potential matrix effects.

Surrogate Recoveries

The surrogates recovered below the laboratory control limits in the 20-fold diluted TPH (GC/FID) high fraction analyses of samples MW-76, MW-77, MW-78, MW-84, and MW-86. However, there is no impact on data usability due to this issue since the samples were diluted ≥ 10 -fold.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-11A, MW-81, MW-122, OCD-2A: Dissolved solids
- MW-79, MW-80, OCD-5, DUP-EP-02: Nitrate-Nitrite
- MW-78, MW-82, EB-EP-04: Chloride, fluoride, sulfate

The RPD (45.2%) for dissolved solids in the duplicate analysis performed on sample MW-11A exceeded the acceptance criteria used in this evaluation (20%). Therefore, the positive result for dissolved solids in sample MW-11A may be considered estimated.

Field Duplicates

Samples MW-22A/DUP-EP-02 and MW-3/DUP-EP-03 were submitted as the field duplicate pairs. All criteria were met.

Lab Report L1271283

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271283-01	TEL-4
L1271283-02	TEL-3
L1271283-03	MW-49
L1271283-04	DUP-TEL-01*
L1271283-05	EB-TEL-01
L1271283-06	TRIP BLANK-TEL-01

*Field duplicate of TEL-4

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?		X	
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?	X		
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in all samples except sample TEL-3 were 1.33-2 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were detected above the RLs in the affected samples.

Several samples were analyzed at dilutions for VOCs, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, chloride, and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for select VOCs, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, chloride, and sulfate since these analytes were detected above the RLs in the diluted samples.

The laboratory noted that the TPH (GC/FID) low fraction analysis of sample TEL-4 was diluted 10-fold due to foaming at the time of analysis. Therefore, the RL for TPH (GC/FID) low fraction in this sample was elevated accordingly.

The laboratory noted that the VOC analysis of sample TEL-4 was diluted 5-fold due to matrix interference. Therefore, the RLs for VOCs in this sample were elevated accordingly.

The laboratory noted that the cyanide analysis of sample MW-49 was diluted 5-fold due to sulfide interference. Therefore, the RL for cyanide in this sample was elevated accordingly.

Standard Conditions

The laboratory indicated that the pH was outside of the requirement (≤ 2) for samples TEL-4, MW-49, and DUP-TEL-4 for TPH (GC/FID) high fraction. However, since these samples were prepared for TPH (GC/FID) high fraction less than seven days after collection, there is no adverse impact on the data usability.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Equipment Blanks

Dissolved solids was detected in the equipment blank, EB-TEL-01. Dissolved solids was detected in the associated samples at concentrations greater than five times the equipment blank concentration; therefore, there is no impact on data usability.

LCS/LCSD

The %Rs for bromomethane (164%) and trichloroethene (125%) in the LCS were above the laboratory-defined limits (10-160% and 78-124%, respectively) in QC batch WG1560650. These compounds were not detected in the associated sample, TEL-3; therefore, there is no impact on data usability.

The RPDs for acetone (31.4%) and 2-butanone (20.1%) in the LCS/LCSD were above the laboratory-defined limits (27% and 20%, respectively) in QC batch WG1560663. These compounds were not detected in the associated samples, DUP-TEL-01, EB-TEL-01, and TRIP BLANK-TEL-01; therefore, there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- TEL-3: Nitrate-nitrite
- TEL-4: Total metals

The %R of nitrate-nitrite MS performed on sample TEL-3 (87.6%) was below the laboratory-defined recovery limits (90-110%); thus, the nondetect results for nitrate-nitrite in samples TEL-4, TEL-3, MW-49, and DUP-TEL-01 may be biased low.

The %Rs for total calcium, manganese, and sodium were outside of the acceptance limits (75-125%) in the MS and/or MSD performed on sample TEL-4. However, the concentrations of, total calcium, manganese, and sodium in the unspiked sample were greater than four times the concentrations spiked; thus, the recoveries of these analytes were not used to evaluate potential matrix effects.

The %R of total nickel in the MSD performed on sample TEL-4 (66.8%) was below the laboratory-defined recovery limits (75-125%). Although total nickel was not reported in the parent sample, this result is indicative of a potential low bias in other project samples. Thus, the positive result for total nickel in sample MW-49 may be biased low.

Laboratory Duplicates

Laboratory duplicate analysis was performed on sample EB-TEL-01 for chloride, fluoride, and sulfate. All criteria were met.

Field Duplicates

Samples TEL-4/DUP-TEL-01 were submitted as the field duplicate pair. The RPD (68%) for total chromium did not meet the acceptance limits (<30%). Therefore, the positive results for total chromium in samples TEL-4 and DUP-TEL-01 may be considered estimated.

Lab Report L1271284

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271284-01	MW-45
L1271284-02	NCL-33
L1271284-03	NCL-44
L1271284-04	NCL-32
L1271284-05	MW-108
L1271284-06	NCL-31
L1271284-07	MW-55
L1271284-08	MW-54A
L1271284-09	NCL-49
L1271284-10	DUP-NCL-01*
L1271284-11	EB-NCL-01
L1271284-12	TRIP BLANK-NCL-01
L1271284-13	MW-53R

*Field duplicate of NCL-49

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?	X		
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?	X		
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?		X	
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in several samples were two times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume either due to elevated concentrations of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

Several samples were analyzed at dilutions for TPH (GC/FID) high fraction, VOCs, chloride, sulfate, fluoride, and/or nitrate-nitrite but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted due to the presence of the target

analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for select VOCs, TPH (GC/FID) high fraction, chloride, sulfate, and fluoride since these analytes were detected above the RLs in the diluted samples. The RLs for select VOCs in sample MW-108 were elevated accordingly.

The laboratory noted that the VOC analysis of sample MW-55 was diluted 10-fold due to foaming at the time of analysis. Therefore, the RLs for VOCs in this sample were elevated accordingly.

A discrepancy was noted with select laboratory sample IDs that were handwritten on the chain-of-custody versus the actual laboratory sample IDs that were logged in by the laboratory for all samples except MW-45. The samples were analyzed for the requested analyses so there is no impact on data usability due to this issue.

Standard Conditions

The laboratory indicated that VOC analysis for the trip blank, TRIP BLANK-NCL-01, was performed using a vial with headspace. Therefore, the nondetect results for all VOCs in this sample are potentially biased low.

Holding Times

All samples submitted for dissolved solids analysis were prepared slightly outside of the 7-day holding time. However, since all samples were prepared for dissolved solids on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: dissolved solids, chloride, total vanadium, and trichloroethene. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum method blank concentration for inorganic analytes; affected analytes were detected in the corresponding samples greater than 10 times the method blank concentrations for organic analytes. Therefore, these results may include measurement contributions from laboratory sources.

- Chloride: NCL-49, DUP-NCL-01, EB-NCL-01

Equipment Blanks

Dissolved solids, chloride*, and TPH (GC/FID) high fraction were detected in the equipment blank, EB-NCL-01. Dissolved solids was detected in the corresponding samples at concentrations greater than five times the equipment blank concentration so there is no impact on data usability. The analyte listed below was detected in the corresponding samples at concentrations within 10 times the method blank concentration for organic analytes. Therefore, these results may include measurement contributions from laboratory sources.

- TPH (GC/FID) high fraction: NCL-49, DUP-NCL-01, MW-53R

*Chloride was detected in the equipment blank sample at a concentration less than five times the associated method blank concentration; therefore, the equipment blank result for chloride was

probably the result of laboratory method blank contamination and did not affect any associated field samples.

LCS/LCSD

The LCS/LCSD RPDs for acetone (31.4%) and 2-butanone (20.1%) were above the laboratory-defined limits (27% and 20%, respectively), in QC batch WG1560663. However, since these compounds were not detected in the sample associated with this QC batch, there is no impact on data usability.

The LCS %R for trichloroethene (145%) was above the laboratory-defined limits (78-124%), in QC batch WG1560666. However, since this compound was not detected in the samples associated with this QC batch or since trichloroethene was reported in a different QC batch for the associated samples, there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-45, MW-54A: Nitrate-nitrite
- MW-108: Chloride, fluoride
- EB-NCL-01: Chloride, fluoride, sulfate

The %R of nitrate-nitrite in the MS performed on sample MW-54A (118%) was above the laboratory-defined recovery limits (90-110%). Thus, the positive results for nitrate-nitrite in samples NCL-32, NCL-49, and DUP-NCL-01 may be biased high.

Surrogate Recoveries

The surrogate recovered above the laboratory control limits in the 10-fold diluted TPH (GC/FID) high fraction analysis of sample NCL-33. However, there is no impact on data usability due to this issue since the sample was diluted ≥ 10 -fold.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- NCL-44: Nitrate-nitrite
- MW-55: Cyanide
- MW-108, EB-NCL-01: Chloride, fluoride, sulfate

All criteria were met.

Field Duplicates

Samples NCL-49 and DUP-NCL-01 were submitted as field duplicate pair. All criteria were met.

Lab Report L1271297

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271297-01	MW-21
L1271297-02	MW-46R
L1271297-03	TRIP BLANK-TMD-01
L1271297-04	NP-1

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?			X
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?			X
Any MS/MSD RPD above laboratory defined limits?			X
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?			X
Any field duplicate data additionally flagged as estimated?			X
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

RLs for dissolved solids in samples MW-21 and MW-46R were 2-5 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentrations of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

Samples MW-21 and MW-46R were analyzed at dilutions for VOCs, nitrate-nitrite, chloride, and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for select VOCs, nitrate-nitrite, chloride, and sulfate since these analytes were detected above the RLs in the diluted samples. The RLs for select VOCs in sample MW-21 were elevated accordingly.

Standard Conditions

The laboratory indicated that VOC analysis for the trip blank, TRIP BLANK-TMD-01, was performed using a vial with headspace. Therefore, the nondetect results for all VOCs in this sample are potentially biased low.

A discrepancy was noted with the nonconformance (NCF) circled on the chain-of-custody (COC). The laboratory indicated during this review that the NCF was due to missing sample containers for sample NP-1. Sample NP-1 was received by the laboratory one day after the remaining samples; since this sample arrived in good condition, the NCF notation was later removed from the COC by the laboratory.

Holding Times

Samples MW-21 and MW-46R were prepared slightly outside of the 7-day holding time for dissolved solids analysis. However, since all samples were prepared for dissolved solids analysis on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

Chloride was detected in the method blank. Chloride was detected in sample MW-46R at a concentration within five times the method blank concentration. Therefore, this result may include measurement contributions from laboratory sources.

Lab Report L1271298

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271298-01	MW-86
L1271298-02	MW-120
L1271298-03	MW-121
L1271298-04	MW-84
L1271298-05	MW-122
L1271298-06	MW-79
L1271298-07	MW-74
L1271298-08	MW-2A
L1271298-09	OCD-6
L1271298-10	OCD-7AR
L1271298-11	MW-76
L1271298-12	MW-75
L1271298-13	MW-83
L1271298-14	MW-3
L1271298-15	MW-88
L1271298-16	MW-22A
L1271298-17	MW-10
L1271298-18	MW-123
L1271298-19	MW-4A
L1271298-20	MW-5A
L1271298-21	MW-7A
L1271298-22	OCD-8A
L1271298-23	OCD-1R
L1271298-24	OCD-2A
L1271298-25	OCD-3
L1271298-26	OCD-4
L1271298-27	MW-11A
L1271298-28	OCD-5
L1271298-29	MW-87
L1271298-30	MW-18A
L1271298-31	MW-70
L1271298-32	MW-124
L1271298-33	DUP-EP-01*
L1271298-34	DUP-EP-02**
L1271298-35	DUP-EP-03***
L1271298-36	EB-EP-01
L1271298-37	EB-EP-02
L1271298-38	EB-EP-03
L1271298-39	EB-EP-04
L1271298-40	TRIP BLANK-EP-01
L1271298-41	TRIP BLANK-EP-02

*Field duplicate of MW-7A
 **Field duplicate of MW-22A
 ***Field duplicate of MW-3

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?		X	
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?	X		
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

The laboratory noted that the VOC analysis of sample MW-75 was diluted 25-fold due to elevated concentrations of non-target analytes. Therefore, the RLs for VOCs in this sample were elevated accordingly.

RLs for dissolved solids in all samples except the equipment blanks were 4-50 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that the TPH (GC/FID) low fraction and/or VOC analyses of select samples were diluted due to foaming at the time of analysis. Therefore, the RLs for TPH (GC/FID) low fraction and/or VOCs in these samples were elevated accordingly.

- MW-86 (200-fold): TPH (GC/FID) low fraction
- MW-86 (20-fold): VOCs
- MW-120 (5-fold): VOCs
- MW-84 (10-fold): VOCs
- MW-3, MW-122 (50-fold): TPH (GC/FID) low fraction

Several samples were analyzed at dilutions for nitrate-nitrite, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, calcium, sodium, chloride, fluoride, and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for nitrate-

nitrite, TPH (GC/FID) high fraction, calcium, sodium, chloride, fluoride, and sulfate since these analytes were detected above the RLs in the diluted samples. The RLs for TPH (GC/FID) low fraction were elevated accordingly in select samples.

Standard Conditions

The laboratory indicated that the pH was outside of the requirement (<2) for sample MW-86 for TPH (GC/FID) high fraction. However, since this sample was prepared for TPH (GC/FID) high fraction analysis less than seven days after collection, there is no adverse impact on the data usability.

Holding Times

Samples MW-5A, MW-7A, MW-18A, MW-79, MW-120, MW-121, MW-124, OCD-5, OCD-8A, DUP-EP-01, DUP-EP-02, EB-EP-01, EB-EP-02, EB-EP-03, and EB-EP-04 were prepared slightly outside of the 7-day holding time. However, since these samples were prepared for dissolved solids analysis on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: total vanadium, total sodium, cis-1,2-dichloroethene, carbon disulfide, TPH (GC/FID) low fraction, and TPH (GC/FID) high fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum method blank concentration for inorganic analytes and within 10 times the method blank concentrations for organic analytes. Therefore, these results may include measurement contributions from laboratory sources.

- TPH (GC/FID) low fraction: MW-3, MW-7A, MW-87, MW-88, OCD-1R, OCD-2A, OCD-3, OCD-4
- cis-1,2-Dichloroethene: OCD-6
- Carbon disulfide: MW-70
- TPH (GC/FID) high fraction: MW-18A, MW-87, MW-124, EB-EP-01, EB-EP-02, EP-EB-03, EP-EB-04

Equipment Blanks

The following analytes were detected in the equipment blank samples, EB-EP-01, EB-EP-02, EP-EB-03, and EP-EB-04: Dissolved solids, nitrate-nitrite, chloride, sulfate, and/or TPH (GC/FID) high fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum equipment blank concentration for inorganic analytes. Therefore, these samples may include measurement contributions from the field.

- Nitrate-nitrite: MW-2A, MW-3, MW-22A, OCD-1R, DUP-EP-03
- Chloride: MW-2A, MW-3, MW-4A, MW-5A, MW-7A, MW-10, MW-22A, MW-74, MW-75, MW-76, MW-79, MW-83, MW-84, MW-86, MW-120, MW-121, MW-122, MW-123, MW-124, OCD-1R, OCD-7AR, DUP-EP-01, DUP-EP-02, DUP-EP-03

- Sulfate: MW-2A, MW-3, MW-4A, MW-7A, MW-10, MW-22A, MW-75, MW-76, MW-83, MW-121, MW-122, MW-123, OCD-1R, DUP-EP-01, DUP-EP-02, DUP-EP-03

*Note that the results for TPH (GC/FID) high fraction in the equipment blanks were less than 10 times the concentration detected in the associated method blank; therefore, the results for TPH (GC/FID) high fraction in the equipment blanks were probably the result of laboratory method blank contamination and did not affect any associated field samples.

LCS/LCSD

The LCS %Rs for carbon tetrachloride (128%) and 1,1,1-trichloroethane (126%) were above the laboratory-defined limits (68-126% and 73-124%, respectively) in QC batch WG1560682. However, since these compounds were not detected in the samples in this QC batch, there is no impact on data usability.

The LCS %R for trans-1,3-dichloropropene (77.2%) was below the laboratory-defined limits (78-124%) in QC batch WG1560699. This compound was not detected in the associated samples, MW-83, OCD-1R, OCD-2A, and DUP-EP-03 and may be biased low.

The LCS %Rs for bromomethane (185%) and trichloroethene (133%) were above the laboratory-defined limits (10-160% and 78-124%, respectively), in QC batch WG1560700. However, since these compounds were not detected in the samples in this QC batch, there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-75, MW-7A, DUP-EP-03: Nitrate-nitrite
- OCD-8A: Cyanide
- MW-121, MW-123, EB-EP-01: Chloride, fluoride, sulfate
- MW-18A: Total mercury
- MW-2A, OCD-6, MW-87: Total metals

The %Rs of nitrate-nitrite in the MS and MSD performed on sample MW-7A (89.2%/88.4%) and the MS performed on sample DUP-EP-03 (86.2%) were below the laboratory-defined recovery limits (90-110%); therefore, the positive and nondetect results for nitrate-nitrite in all groundwater samples in this laboratory report except MW-75 may be biased low.

The %Rs of sulfate and chloride in the MS and MSDs performed on samples MW-121 and MW-123 were outside of the laboratory-defined recovery limits (80-120%). However, the concentrations of these analytes in the unspiked samples were greater than four times the spiked concentrations; thus, the recoveries of sulfate and chloride were not used to evaluate potential matrix effects.

The %Rs of total manganese and total sodium in the MS and/or MSD performed on sample MW-2A were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of total manganese and total sodium in the unspiked sample were greater than four

times the concentration spiked; thus, the recoveries of total manganese and total sodium were not used to evaluate potential matrix effects.

The %Rs of total calcium, total manganese, and total sodium in the MS and MSDs performed on samples OCD-6 and MW-87 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of total calcium, total manganese, and total sodium in the unspiked samples were greater than four times the concentration spiked; thus, the recoveries of total calcium, total manganese, and total sodium were not used to evaluate potential matrix effects.

Surrogate Recoveries

The surrogate recovered outside of the laboratory control limits in the 20-fold diluted TPH (GC/FID) high fraction analyses of samples MW-84 and MW-86, and the 10-fold diluted TPH (GC/FID) high fraction analysis of sample MW-75. However, there is no impact on data usability due to this issue since the samples were diluted ≥ 10 -fold.

The surrogate recovered above the laboratory control limits in the TPH (GC/FID) low fraction analysis of sample MW-2A. However, there is no impact on data usability due to this issue since TPH (GC/FID) low fraction was not detected in sample MW-2A.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-5A, MW-7A: Dissolved solids
- MW-5A, MW-86, OCD-8A, EB-EP-01: Nitrate-nitrite
- MW-121, MW-123, EB-EP-01: Chloride, fluoride, sulfate

All criteria were met.

Field Duplicates

Samples MW-7A/DUP-EP-01, MW-22A/DUP-EP-02, and MW-3/DUP-EP-03 were submitted as the field duplicate pairs. All criteria were met in the field duplicate pair MW-22A/DUP-EP-02.

The RPDs for total arsenic (43.4%) and total iron (48.9%) in field duplicate pair MW-7A/DUP-EP-01 did not meet the acceptance limits ($<30\%$). Therefore, the positive results for total arsenic and total iron in samples MW-7A and DUP-EP-01 may be considered estimated.

The results for TPH (GC/FID) low fraction and sulfate were $<5x$ the RL in field duplicate pair, MW-3/DUP-EP-03. The absolute differences were greater than the RL. Therefore, the positive results for TPH (GC/FID) low fraction and sulfate in samples MW-3 and DUP-EP-03 may be considered estimated.

Lab Report L1271301

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271301-01	MW-130
L1271301-02	MW-52
L1271301-03	MW-109
L1271301-04	MW-110
L1271301-05	MW-134
L1271301-06	MW-115
L1271301-07	MW-114
L1271301-08	MW-117
L1271301-09	MW-118
L1271301-10	MW-119
L1271301-11	MW-136
L1271301-12	MW-126A
L1271301-13	MW-126B
L1271301-14	KWB-1A
L1271301-15	MW-57
L1271301-16	KWB-12A
L1271301-17	KWB-12B
L1271301-18	MW-104
L1271301-19	MW-64
L1271301-20	MW-102
L1271301-21	MW-66
L1271301-22	MW-28
L1271301-23	MW-60
L1271301-24	MW-125
L1271301-25	MW-116
L1271301-26	MW-101
L1271301-27	MW-105
L1271301-28	MW-61
L1271301-29	MW-62
L1271301-30	MW-23
L1271301-31	MW-39
L1271301-32	MW-98
L1271301-33	MW-106
L1271301-34	MW-50
L1271301-35	MW-90
L1271301-36	MW-96
L1271301-37	DUP-REST-02**
L1271301-38	DUP-REST-03***
L1271301-39	DUP-REST-04****
L1271301-40	DUP-REST-05*****
L1271301-41	EB-REST-02

Lab ID	Sample ID
L1271301-42	EB-REST-03
L1271301-43	EB-REST-04
L1271301-44	EB-REST-05
L1271301-45	TRIP BLANK-REST-01
L1271301-46	TRIP BLANK-REST-02
L1271301-47	TRIP BLANK-REST-03
L1271301-48	TRIP BLANK-REST-04
L1271301-49	MW-43
L1271301-50	MW-62R
L1271301-51	MW-139
L1271301-52	MW-113
L1271301-53	KWB-8
L1271301-54	RA-4798
L1271301-55	RA-4196
L1271301-56	KWB-7
L1271301-57	MW-135
L1271301-58	KWB-11A
L1271301-59	KWB-11B
L1271301-60	MW-29
L1271301-61	DUP-REST-01*
L1271301-62	EB-REST-01

*Field duplicate of MW-113

**Field duplicate of MW-104

***Field duplicate of MW-134

****Field duplicate of MW-60

*****Field duplicate of KWB-12B

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X	
All samples within holding times?		X	
Any detection in method blanks?	X		
Any detection in equipment blanks?	X		
Any detection in trip blanks?	X		
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS/MSD %R outside of laboratory defined limits?	X		
Any MS/MSD RPD above laboratory defined limits?	X		
Any surrogate %R outside of laboratory defined limits?	X		
Any laboratory duplicate RPD above laboratory defined limits?	X		
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

The laboratory noted that the VOC analyses of samples MW-23, MW-43, MW-61, MW-62, MW-96, MW-98, and MW-106 were diluted 10-fold, 50-fold, 50-fold, 20-fold, 250-fold, 50-fold, and 200-fold, respectively, due to elevated concentrations of target and non-target analytes. Therefore, the RLs for VOCs in these samples were elevated accordingly.

RLs for dissolved solids in several samples were 1.33-3.33 times higher than the associated method blank but the laboratory did not include a sample narrative explaining the elevated RLs. The samples were likely prepared at a reduced volume either due to the elevated concentration of dissolved solids. There is no impact on data usability since dissolved solids results were above the RLs in the affected samples.

The laboratory noted that sample KWB-8 was diluted 20-fold for nitrate-nitrite due to sulfide interference. Therefore, the RL for nitrate-nitrite in this sample was elevated accordingly.

Several samples were analyzed at dilutions for nitrate-nitrite, VOCs, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, cyanide, metals, chloride, fluoride, and/or sulfate but the laboratory did not include a sample narrative explaining the dilutions. The samples were likely diluted either due to matrix interference and/or the presence of target and/or non-target analytes which would have exceeded the calibration range if undiluted. There is no impact on data usability for nitrate-nitrite, TPH (GC/FID) low fraction, TPH (GC/FID) high fraction, chloride, fluoride, and sulfate since these analytes were detected above the RLs in the diluted samples. The RLs for cyanide and select metals were elevated accordingly in select samples.

Standard Conditions

The laboratory indicated that the pH was outside of the requirement (<2) for the following sample analyses. However, since these samples were prepared for the analyses listed below less than seven days after collection, there is no adverse impact on the data usability.

- TPH (GC/FID) low fraction: MW-43, MW-62R, MW-96, MW-106, MW-109
- TPH (GC/FID) high fraction: MW-23, MW-39, MW-43, MW-96, MW-102, MW-106, MW-109, KWB-8

The laboratory indicated that metals containers were not received for samples RA-4798 and RA-4196. Therefore, aliquots for metals analyses were prepared and preserved by the laboratory using volume from unpreserved containers provided for other analyses of these two samples. Since the samples were preserved for metals by the laboratory more than 24 hours after collection, the positive results for metals in samples RA-4798 and RA-4196 are potentially biased low.

Holding Times

Samples RA-4798 and RA-4196 were analyzed 17 days after the 14-day holding time for benzene due to carryover in the original analyses. **Due to this significant holding time exceedance ($>2\times$ the holding time), the nondetect results for benzene in samples RA-4798 and RA-4196 collected on 10/6/20 are not useable for project objectives.** Due to this issue, these samples were re-collected on 11/6/20 and submitted in report L1283074. The nondetect results for

benzene in samples RA-4798 and RA-4196 collected on 11/6/20 in report L1283074 should be used for project objectives.

Samples MW-23, MW-29, MW-39, MW-50, MW-57, MW-61, MW-62, MW-64, MW-90, MW-98, MW-101, MW-102, MW-104, MW-105, MW-106, MW-113, MW-118, MW-119, MW-126A, MW-126B, MW-134, MW-135, MW-136, MW-139, KWB-1A, KWB-7, KWB-8, KWB-11A, KWB-11B, KWB-12A, KWB-12B, RA-4196, RA-4798, DUP-REST-01, DUP-REST-02, DUP-REST-03, DUP-REST-05, EB-REST-01, EB-REST-02, EB-REST-03, and EB-REST-05 were prepared slightly outside of the 7-day holding time. However, since these samples were prepared for dissolved solids analysis on the 7th day after collection, there is no adverse impact on the data usability.

Laboratory Method Blanks

The following analytes were detected in the method blanks: dissolved solids, total sodium, total manganese, benzene, carbon disulfide, and TPH (GC/FID) high fraction. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum method blank concentration for inorganic analytes and within 10 times the method blank concentrations for organic analytes. Therefore, these results may include measurement contributions from laboratory sources.

- Dissolved solids: EB-REST-01
- Total manganese: MW-61, MW-62, MW-116, MW-119, MW-136, KWB-12A
- Benzene: DUP-REST-04, EB-REST-01, EB-REST-04, TRIP BLANK-REST-03
- Carbon disulfide: MW-29, MW-113, MW-135, KWB-7, KWB-8, KWB-11A, KWB-11B, RA-4196, RA-4798, DUP-REST-01, DUP-REST-04, EB-REST-01, EB-REST-04, TRIP BLANK-REST-03
- TPH (GC/FID) high fraction: MW-57, MW-115, MW-116, MW-117, MW-118, MW-119, MW-125, MW-126A, MW-126B, MW-134, MW-135, MW-136, KWB-1A, EB-REST-04

Equipment Blanks

The following analytes were detected in the equipment blank samples, EB-REST-01, EB-REST-02, EP-REST-03, EP-REST-04, and/or EP-REST-05: Dissolved solids**, chloride, sulfate, benzene**, carbon disulfide**, toluene, and/or TPH (GC/FID) high fraction**. The analytes listed below were detected in the corresponding samples at concentrations within five times the maximum equipment blank concentration for inorganic analytes and within 10 times the maximum equipment blank concentration for organic analytes. Therefore, these samples may include measurement contributions from the field.

- Chloride: MW-28, MW-29, MW-50, MW-52, MW-60, MW-61, MW-90, MW-98, MW-102, MW-106, MW-114, MW-115, MW-116, MW-117, MW-118, MW-119, MW-125, MW-126A, MW-126B, MW-130, MW-134, MW-135, MW-136, MW-139, KWB-1A, KWB-8, KWB-12A, KWB-12B, RA-4798, RA-4196, KWB-11A, KWB-11B, DUP-REST-05

- Sulfate: MW-23, MW-29, MW-43, MW-52, MW-60, MW-66, MW-90, MW-96, MW-98, MW-102, MW-105, MW-106, MW-114, MW-130, MW-139, KWB-11A, KWB-11B
- Toluene: MW-28, MW-39, MW-43, MW-62R, MW-66, MW-90, MW-102, MW-105, MW-106, MW-109, MW-113
- TPH (GC/FID) high fraction: MW-52, MW-57*, MW-115*, MW-116*, MW-117*, MW-118*, MW-119*, MW-125*, MW-126A*, MW-126B*, MW-134*, MW-135*, MW-136*, KWB-1A*, KWB-11A, KWB-11B, DUP-REST-03, DUP-REST-05

*This result was also less than 10 times the associated method blank concentration.

**Note that the results for benzene and carbon disulfide in equipment blank samples EB-REST-01 and EB-REST-04, dissolved solids in equipment blank sample EB-REST-01, and TPH (GC/FID) high fraction in equipment blank sample EB-REST-04 were less than 10 times the concentration detected in the associated method blank; therefore, the results for benzene, carbon disulfide, and/or TPH (GC/FID) high fraction in these equipment blanks were probably the result of laboratory method blank contamination and did not affect any associated field samples.

Trip Blanks

Benzene and carbon disulfide were detected in one of the trip blank samples, TRIP BLANK-REST-03. However, the results for benzene and carbon disulfide in the trip blank were less than 10 times the concentration detected in the associated method blank; therefore, the results for these analytes in the trip blank were probably the result of laboratory method blank contamination and did not affect any associated field samples.

LCS/LCSD

The LCS %R for trans-1,3-dichloropropene (77.2%) was below the laboratory-defined limits (78-124%), in QC batch WG1560699. This compound was not detected in the associated samples, MW-28, MW-52, MW-60, MW-64, MW-66, MW-102, MW-105, MW-109, MW-110, MW-114, MW-115, MW-116, MW-125, and MW-130, and may be biased low.

The LCS %Rs for bromomethane (185%) and trichloroethene (133%) were above the laboratory-defined limits (10-160% and 78-124%, respectively), in QC batch WG1560700. However, since these compounds were not detected in the samples in this QC batch, there is no impact on data usability.

The LCS %R for trichloroethene (126%) was above the laboratory-defined limits (78-124%), in QC batch WG1560784. However, since this compound was not detected in the samples associated with this QC batch, there is no impact on data usability.

The LCS %R for naphthalene (146%) was above the laboratory-defined limits (54-135%), in QC batch WG1560896. However, since this compound was not detected in the samples associated with this QC batch, there is no impact on data usability.

MS/MSDs

MS and/or MS/MSD analyses were performed on the following samples:

- MW-50, MW-52, MW-64, MW-139, KWB-12A, RA-4196: Nitrate-nitrite
- KWB-1A, KWB-7: Cyanide
- MW-52, MW-66, MW-96, MW-126A, EB-REST-05, RA-4798: Chloride, fluoride, sulfate
- MW-29, MW-119: Total metals
- KWB-12A: TPH (GC/FID) low fraction

The %Rs of nitrate-nitrite in the MSD performed on sample MW-52 and the MS performed on sample MW-50 were outside of the laboratory-defined recovery limits (90-110%). However, the concentrations of nitrate-nitrite in the unspiked samples were greater than four times the concentration spiked; thus, the recoveries of nitrate-nitrite were not used to evaluate potential matrix effects.

The %Rs of sulfate in the MS and/or MSDs performed on samples MW-52, MW-126A, and RA-4798 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of sulfate in the unspiked samples were greater than four times the concentration spiked; thus, the recoveries of sulfate were not used to evaluate potential matrix effects.

The %Rs of nitrate-nitrite in the MS and MSD performed on sample RA-4196 (89.9%/83.5%), the MSD performed on sample MW-64 (85.2%), and the MS performed on sample KWB-12A (87.6%), and the RPD in the MS/MSD performed on sample MW-64 (22.5%) were outside of the laboratory-defined limits (90-110% and 20%, respectively); therefore, the positive and nondetect results for nitrate-nitrite in all groundwater samples in this laboratory report except MW-50, MW-52, and MW-139 may be uncertain.

The %Rs of cyanide in the MS and MSD performed on sample KWB-7 (87.7%/84.9%) were outside of the laboratory-defined limits (90-110%); therefore, the positive and nondetect results for cyanide in samples MW-28, MW-43, MW-52, MW-60, MW-66, MW-136, DUP-REST-04, DUP-REST-05, KWB-7, KWB-8, KWB-11A, KWB-11B, KWB-12A, and KWB-12B may be biased low.

The %R of chloride in the MSD performed on sample MW-66 (79.9%) was outside of the laboratory-defined limits (80-120%); therefore, the positive results for chloride in all groundwater samples in this laboratory report except MW-52, MW-96, MW-126A, and RA-4798 may be biased low.

The %R of sulfate in the MS performed on sample MW-96 (66.2%) was outside of the laboratory-defined limits (80-120%); therefore, the positive results for sulfate in all groundwater samples in this laboratory report except MW-52, MW-66, MW-126A, and RA-4798 may be biased low.

The %Rs of total calcium and sodium in the MS and MSD performed on sample MW-119 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of total calcium and sodium in the unspiked sample were greater than four times the concentration spiked; thus, the recoveries of total calcium and sodium were not used to evaluate potential matrix effects.

The %Rs of total calcium, manganese, and sodium in the MS and/or MSD performed on sample MW-29 were outside of the laboratory-defined recovery limits (75-125%). However, the concentrations of total calcium, manganese, and sodium in the unspiked sample were greater than four times the concentration spiked; thus, the recoveries of total calcium, manganese, and sodium were not used to evaluate potential matrix effects.

Surrogate Recoveries

The surrogate recovered outside of the laboratory control limits in the 10-fold diluted TPH (GC/FID) high fraction analyses of samples MW-23, MW-62R, and MW-102. However, there is no impact on data usability due to this issue since the samples were diluted ≥ 10 -fold.

Laboratory Duplicates

Laboratory duplicate analysis was performed on the following samples:

- MW-50, MW-117, MW-125, MW-139, KWB-8, KWB-11A, KWB-11B, KWB-12A, DUP-REST-03: Dissolved solids
- MW-60, MW-61, MW-62R, MW-102, KWB-8: Nitrate-nitrite
- MW-64, MW-66, MW-96, MW-113, MW-130, EB-REST-05: Chloride, fluoride, sulfate

The RPD for dissolved solids in the duplicate analysis performed on sample MW-117 (5.53%) exceeded the laboratory-defined control limit (5%). However, this RPD was less than the acceptance criteria used in this evaluation (20%); thus precision was deemed acceptable and no data interpretation issues were noted.

The RPDs for chloride in the duplicate analysis performed on sample EB-REST-05 (200%) and sulfate in the duplicate analysis performed on sample MW-96 (25%) exceeded the laboratory-defined control limit (15%). However, since the results were $< 5x$ the RL in the parent and duplicate samples, no data interpretation issues were noted.

Field Duplicates

Samples MW-113/DUP-REST-01, MW-104/DUP-REST-02, MW-134/DUP-REST-03, MW-60/DUP-REST-04, and KWB-12B/DUP-REST-05 were submitted as the field duplicate pairs. All criteria were met in samples MW-134/DUP-REST-03.

The results for total iron were $< 5x$ the RL in sample MW-113 and nondetect in the field duplicate, DUP-REST-01; the absolute difference was greater than the RL. Therefore, the positive and nondetect results for total iron in samples MW-113 and DUP-REST-01 may be considered estimated.

The results for carbon disulfide were $< 5x$ the RL in the field duplicate pair MW-104 and DUP-REST-02; the absolute difference was greater than the RL. Therefore, the positive results for carbon disulfide in samples MW-104 and DUP-REST-02 may be considered estimated.

The results for nitrate-nitrite were $< 5x$ the RL in sample MW-60 and nondetect in the field duplicate, DUP-REST-04; the absolute difference was greater than the RL. Therefore, the positive

and nondetect results for nitrate-nitrite in samples MW-60 and DUP-REST-04 may be considered estimated.

The results for fluoride were $<5x$ the RL in sample MW-60 and $>5x$ the RL in the field duplicate, DUP-REST-04; the absolute difference was greater than the RL. Therefore, the positive results for fluoride in samples MW-60 and DUP-REST-04 may be considered estimated.

The results for cyanide were $<5x$ the RL in sample KWB-12B and $>5x$ the RL in the field duplicate, DUP-REST-05; the absolute difference was greater than the RL. Therefore, the positive results for cyanide in samples KWB-12B and DUP-REST-05 may be considered estimated.

Lab Report L1283074

Sample identifiers cross-referenced to laboratory identifications are presented below.

Sample ID	Lab ID
L1283074-01	RA-4196
L1283074-02	RA-4798
L1283074-03	EB-02
L1283074-04	DUP-02*
L1283074-05	TB-02

*Field duplicate of RA-4798

Data Review Checklist	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?	X		
Any detection in method blanks?	X		
Any detection in equipment blanks?		X	
Any detection in trip blanks?		X	
Any LCS or LCS LCSD %R out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any MS or MSD %R outside of laboratory defined limits?		X	
Any MS/MSD RPD above laboratory defined limits?	X		
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?			X
Any field duplicate data additionally flagged as estimated?	X		
Any analyte analyzed by a nonequivalent method than planned?		X	

Laboratory Method Blanks

Carbon disulfide was detected in the method blank. However, there is no impact on data usability since carbon disulfide was not detected in the associated samples.

MS/MSDs

MS/MSD analyses were performed on sample RA-4798 for VOCs. The RPDs for the majority of VOCs were above the laboratory-defined control limits. With the exception of 1,2-dichloroethane, the RPD issues do not have an impact on data usability since the affected compounds were not detected in sample RA-4798; therefore these RPD results are not summarized. The RPD for 1,2-dichloroethane (29%) was above the laboratory-defined control limit (27%). Therefore, the positive result for 1,2-dichloroethane in sample RA-4798 may be considered estimated.

Field Duplicates

Samples RA-4798/DUP-02 were submitted as the field duplicate pair. The results for methyl tert-butyl ether were <5x the RL in the field duplicate pair; the absolute difference was

greater than the RL. Therefore, the positive results for methyl tert-butyl ether in samples RA-4798 and DUP-02 may be considered estimated.

Appendix C: Data Validation

Data reported by Pace Analytical in Mount Juliet, Tennessee, for the soil samples collected in September 2020 and the groundwater samples collected in October 2020 were reviewed to ensure that reporting analytical results met the data quality requirements contained in the United States Environmental Protection Agency (USEPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017), *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017), and the individual methods, as applicable. Quality control (QC) data indicate that measurement data are sufficient to meet method quality objectives, reported data are defensible, and QC mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

The following sections discuss the QC issues identified during the data review for each of the data reports listed below.

September 2020 Data Packages	October 2020 Data Packages
L1267156	L1271213

Analytes that were detected in the both the associated blank and sample were evaluated as follows: Corresponding samples at concentrations within five times the maximum blank concentration for inorganic analytes and within 10 times the maximum blank concentrations for organic analytes may include measurement contributions from the laboratory (for method blanks) and/or field (for equipment and trip blanks).

The following criteria were used in evaluation of the field duplicates: When both results are $\geq$ five times the reporting limit (RL), relative percent differences (RPDs) must be $<30\%$. When one or both results are $<$ five times the RL, the absolute difference must be $<$ the RL.

The following criteria were used in evaluation of laboratory duplicates: When both results are $\geq$ five times the RL, RPDs must be $<20\%$.

Lab Report L1267156

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1267156-01	MW-145 (17)
L1267156-02	MW-146 (18)
L1267156-03	DUP#1
L1267156-04	MW-147 (20)
L1267156-05	MW-148 (28)

Data Review Checklist	Yes	No	Not applicable

Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?	X		
Any detection in method blanks?	X		
Any detection in equipment blanks?			X
Any detection in trip blanks?			X
Any LCS or LCS duplicates (LCSD) percent recoveries (%R) out of laboratory defined limits?		X	
Any LCS/LCSD RPD above laboratory defined limits?		X	
Any matrix spike (MS) or MS duplicate (MSD) %R outside of laboratory defined limits?		X	
Any MS/MSD RPD above laboratory defined limits?		X	
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?		X	
Any field duplicate data additionally flagged as estimated?		X	
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

The laboratory noted that the TPH (GC/FID) low fraction data for all soil samples were reported at a 25-fold dilution. The laboratory did not include a sample narrative explaining the dilutions or if the dilutions were due to sample preparation. The results for TPH (GC/FID) low fraction were nondetect in all soil samples.

Laboratory Method Blanks

The following analyte was detected in the method blank: TPH (GC/FID) low fraction. This compound was nondetect in all soil samples, therefore, there was no effect on the reported sample data.

MS/MSDs

MS/MSD analyses were performed on the following samples:

- MW-145 (17): TPH (GC/FID) low fraction, C₁₀-C₂₈ diesel range
- MW-147 (20): TPH (GC/FID) low fraction

All criteria were met.

Laboratory Duplicates

Laboratory duplicate analyses were performed on the following samples:

- MW-145 (17): Total solids

All criteria were met.

Field Duplicates

The calculated relative percent differences (RPDs) between positive detections in field duplicate pair MW-146 (18)/DUP#1 met the acceptance limits.

Lab Report L1271213

Sample identifiers cross-referenced to laboratory identifications are presented below.

Lab ID	Sample ID
L1271213-01	MW-145
L1271213-02	MW-146
L1271213-03	MW-147
L1271213-04	MW-148
L1271213-05	Dup-01
L1271213-06	EB-01

Items	Yes	No	Not applicable
Did all samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X		
All samples within holding times?	X		
Any detection in method blanks?		X	
Any detection in equipment blanks?	X		
Any detection in trip blanks?			X
Any LCS/LCSD %R out of laboratory defined limits?	X		
Any LCS/LCSD RPD above laboratory defined limits?	X		
Any MS/MSD %R outside of laboratory defined limits?			X
Any MS/MSD RPD above laboratory defined limits?			X
Any surrogate %R outside of laboratory defined limits?		X	
Any laboratory duplicate RPD above laboratory defined limits?			X
Any field duplicate data additionally flagged as estimated?		X	
Any analyte analyzed by a nonequivalent method than planned?		X	

Other

Select results were reported below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) by the laboratory.

Equipment Blanks

The following compound was detected in the equipment blank sample, EB-01: benzene. However, since benzene was not detected in the groundwater samples, no data interpretation issues were noted.

LCS

The LCS %R for acetone (210%) was above the laboratory-defined limits (19-160%), in QC batch WG1559818. However, since acetone was not detected in the samples in this QC batch, no data interpretation issues were noted.

The LCSD %R for tetrachloroethene (136%) was above the laboratory-defined limits (72-132%), in QC batch WG1560531. However, since tetrachloroethene was not detected in the sample in this QC batch, no data interpretation issues were noted.

The LCS/LCSD RPD for acetone (31.6%) was above the laboratory-defined limit (27%) in QC batch WG1560531. However, since acetone was not detected in the sample in this QC batch, no data interpretation issues were noted.

Field Duplicates

The calculated RPD between positive detections in field duplicate pair MW-145/Dup-01 met the acceptance limits.

Appendix F

Appendix F1 - Summary of Production from Recovery Trenches and Wells

2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico

Recovery Well	Recovery Method	Volume of Water Recovered ⁽¹⁾ (gallons)					Volume of PSH Recovered ⁽¹⁾ (gallons)				
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total 2020	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total 2020
RW-1R	Automated Pump	3,739	39,369	18,302	0	61,410	0	0	33	13,475	13,508
RW-2R	Automated Pump	0	106,804	75,191	2	181,997	0	0	7	0	7
RW-4R	Automated Pump	0	0	0	0	0	0	0	0	0	0
RW-5R	Automated Pump	112,972	104,092	12,467	32,201	261,732	997	3,653	7,536	95	12,281
RW-6R	Automated Pump	726,371	658,319	234,015	303,041	1,921,746	456	1	3,213	8,882	12,552
RW-7R	Automated Pump	0	4	101,842	573,056	674,902	0	0	84	17,606	17,690
RW-8R	Automated Pump	0	3,531	30,870	203,313	237,714	0	0	1,979	11,921	13,900
RW-12R	Automated Pump	0	0	0	0	0	0	0	0	0	0
RW-13R	Automated Pump	0	96,257	73,699	203,553	373,509	0	1,759	417	2,846	5,022
RW-14R	Automated Pump	85,978	326,424	79,757	109,335	601,494	25,583	30,953	1,689	57,614	115,839
RW-15	Automated Pump	0	0	0	0	0	0	0	0	0	0
RW-19	Automated Pump	28,386	1	2	1	28,390	0	0	0	0	0
RW-20	Automated Pump	7,645	1,690	19,333	3,979	32,647	0	0	0	0	0
RW-22	Automated Pump	2	3	7	3	15	9,425	6,732	4,058	13,084	33,299
TOTAL VOLUME RECOVERED:		965,093	1,336,494	645,485	1,428,484	4,375,556	36,461	43,098	19,016	125,523	224,098

⁽¹⁾ Volumes of recovered water and PSH are based on automated system readings, rounded to the nearest gallon

Automated Fluid Readings - Skid Area T-9012

Date	Total Fluids Readings				PSH Readings				Tank Reading T-9012
	RW-1R	RW-2R	RW-7R	RW-8R	RW-1R	RW-2R	RW-7R	RW-8R	
12/31/2019	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,090
1/7/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,090
1/14/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,090
1/21/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,091
1/28/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,464
2/4/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,465
2/11/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,468
2/18/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,656
2/25/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	128,843
3/3/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	129,037
3/10/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	129,753
3/17/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	130,372
3/24/2020	441,376	1,158,842	214,326	3,368,900	3	21,076	1	74,715	130,663
3/31/2020	445,115	1,158,842	214,326	3,368,900	3	21,076	1	74,715	130,670
1Q Totals:	3,739	-	-	-	-	-	-	-	2,580
4/7/2020	445,532	1,158,842	214,326	3,368,900	3	21,076	1	74,715	130,790
4/14/2020	445,532	1,158,842	214,326	3,368,900	3	21,076	1	74,715	130,797
4/21/2020	445,632	1,177,629	214,326	3,368,900	3	21,076	1	74,715	130,799
4/28/2020	445,632	1,199,068	214,326	3,368,900	3	21,076	1	74,715	130,802
5/5/2020	445,651	1,218,106	214,326	3,368,900	3	21,076	1	74,715	130,803
5/12/2020	445,651	1,234,789	214,326	3,368,900	3	21,076	1	74,715	130,805
5/19/2020	445,658	1,250,230	214,330	3,369,005	3	21,076	1	74,715	130,806
5/26/2020	455,310	1,262,061	214,330	3,372,431	3	21,076	1	74,715	130,807
6/2/2020	460,121	1,263,856	214,330	3,372,431	3	21,076	1	74,715	130,807
6/9/2020	466,571	1,264,529	214,330	3,372,431	3	21,076	1	74,715	130,807
6/16/2020	466,571	1,264,529	214,330	3,372,431	3	21,076	1	74,715	130,807
6/23/2020	478,251	1,264,851	214,330	3,372,431	3	21,076	1	74,715	130,808
6/30/2020	484,484	1,265,646	214,330	3,372,431	3	21,076	1	74,715	130,808
2Q Totals:	39,369	106,804	4	3,531	-	-	-	-	138
7/7/2020	486,273	1,266,003	214,330	3,372,431	3	21,076	1	74,715	130,808
7/14/2020	486,273	1,266,098	214,330	3,372,431	3	21,076	1	74,715	130,811
7/21/2020	486,273	1,273,472	214,330	3,372,431	3	21,076	1	74,715	130,811
7/28/2020	486,273	1,291,515	214,330	3,372,431	3	21,076	1	74,715	130,811
8/4/2020	486,273	1,307,385	214,330	3,372,431	3	21,076	1	74,716	130,811
8/11/2020	486,273	1,307,385	214,330	3,372,431	4	21,076	1	74,716	130,811
8/18/2020	486,273	1,307,385	214,330	3,372,431	4	21,076	1	74,716	130,811
8/25/2020	486,273	1,307,385	214,330	3,372,431	4	21,076	1	74,716	130,816
8/31/2020	486,273	1,307,385	214,330	3,372,431	4	21,076	1	74,716	130,816
9/7/2020	500,252	1,322,423	214,330	3,372,431	9	21,076	1	74,716	130,816
9/14/2020	502,786	1,335,104	214,330	3,391,148	15	21,076	1	75,692	130,816
9/21/2020	502,786	1,340,837	263,604	3,403,301	29	21,077	3	76,171	131,538
9/28/2020	502,786	1,340,837	316,172	3,403,301	36	21,083	85	76,694	132,422
3Q Totals:	18,302	75,191	101,842	30,870	33	7	84	1,979	1,614
10/5/2020	502,786	1,340,837	367,511	3,403,301	36	21,083	85	76,694	132,422
10/12/2020	502,786	1,340,837	470,526	3,422,054	1,061	21,083	1,844	78,063	138,443
10/19/2020	502,786	1,340,837	519,269	3,448,685	1,723	21,083	2,628	78,643	141,194
10/26/2020	502,786	1,340,837	522,530	3,472,573	3,667	21,083	4,853	80,112	155,421
11/2/2020	502,786	1,340,838	573,778	3,497,719	3,818	21,083	5,039	80,232	156,500
11/9/2020	502,786	1,340,838	624,333	3,520,353	5,064	21,083	6,305	81,328	163,618
11/16/2020	502,786	1,340,838	673,660	3,539,847	7,632	21,083	9,372	83,403	173,299
11/23/2020	502,786	1,340,838	722,909	3,558,999	9,967	21,083	12,224	85,377	189,648
11/30/2020	502,786	1,340,838	771,747	3,577,616	10,292	21,083	15,118	87,259	202,144
12/7/2020	502,786	1,340,838	822,113	3,591,273	11,270	21,083	16,555	88,174	206,069
12/14/2020	502,786	1,340,839	889,228	3,606,614	13,511	21,083	17,691	88,615	209,618
12/16/2020	502,786	1,340,839	889,228	3,606,614	13,511	21,083	17,691	88,615	209,618
4Q Totals:	0	2	573,056	203,313	13,475	0	17,606	11,921	77,196

Automated Fluid Readings - Skid Area T-9003

Date	Total Fluids Readings		PSH Readings		Tank Reading T-9003
	RW-4R	RW-6R	RW-4R	RW-6R	
12/31/2019	17,256	776,176	1	9,639	16,858
1/7/2020	17,256	814,943	1	9,639	16,879
1/14/2020	17,256	860,399	1	9,767	17,101
1/21/2020	17,256	909,672	1	9,955	17,280
1/28/2020	17,256	972,320	1	10,041	17,479
2/4/2020	17,256	1,023,844	1	10,041	17,484
2/11/2020	17,256	1,088,846	1	10,044	17,492
2/18/2020	17,256	1,153,545	1	10,095	17,525
2/25/2020	17,256	1,218,479	1	10,095	17,525
3/3/2020	17,256	1,254,651	1	10,095	17,531
3/10/2020	17,256	1,317,658	1	10,095	17,531
3/17/2020	17,256	1,384,688	1	10,095	17,531
3/24/2020	17,256	1,435,671	1	10,095	17,531
3/31/2020	17,256	1,502,547	1	10,095	17,531
1Q Totals:	-	726,371	-	456	673
4/7/2020	17,256	1,553,927	1	10,095	17,531
4/14/2020	17,256	1,612,685	1	10,095	17,531
4/21/2020	17,256	1,671,708	1	10,095	17,531
4/28/2020	17,256	1,729,843	1	10,095	17,531
5/5/2020	17,256	1,787,355	1	10,095	17,531
5/12/2020	17,256	1,843,711	1	10,095	17,531
5/19/2020	17,256	1,898,974	1	10,095	17,531
5/26/2020	17,256	1,968,930	1	10,096	17,531
6/2/2020	17,256	2,005,618	1	10,096	17,531
6/9/2020	17,256	2,055,616	1	10,096	17,531
6/16/2020	17,256	2,055,616	1	10,096	17,531
6/23/2020	17,256	2,152,727	1	10,096	17,531
6/30/2020	17,256	2,160,866	1	10,096	17,531
2Q Totals:	-	658,319	-	1	-
7/7/2020	17,256	2,167,387	1	10,096	17,531
7/14/2020	17,256	2,180,866	1	10,096	17,531
7/21/2020	17,256	2,180,866	1	10,096	17,531
7/28/2020	17,256	2,180,866	1	10,096	17,531
8/4/2020	17,256	2,180,866	1	10,096	17,531
8/11/2020	17,256	2,180,866	1	10,096	17,531
8/18/2020	17,256	2,180,866	1	10,096	17,531
8/25/2020	17,256	2,180,866	1	10,096	17,531
8/31/2020	17,256	2,208,009	1	10,096	17,531
9/7/2020	17,256	2,264,988	1	10,096	17,531
9/14/2020	17,256	2,306,667	1	10,096	17,531
9/21/2020	17,256	2,354,539	1	11,005	18,611
9/28/2020	17,256	2,394,881	1	13,309	20,977
3Q Totals:	-	234,015	-	3,213	3,446
10/5/2020	17,256	2,417,240	1	16,127	24,134
10/12/2020	17,256	2,423,424	1	17,247	25,247
10/19/2020	17,256	2,423,424	1	17,247	25,247
10/26/2020	17,256	2,458,734	1	17,452	25,315
11/2/2020	17,256	2,502,360	1	17,425	25,315
11/9/2020	17,256	2,537,084	1	18,563	26,634
11/16/2020	17,256	2,557,459	1	18,951	27,008
11/23/2020	17,256	2,589,987	1	19,789	28,018
11/30/2020	17,256	2,628,151	1	20,538	28,820
12/7/2020	17,256	2,660,039	1	21,225	29,481
12/14/2020	17,256	2,697,922	1	22,191	30,400
12/16/2020	17,256	2,697,922	1	22,191	30,400
4Q Totals:	-	303,041	-	8,882	9,423

Automated Fluid Readings - Skid Area T-9021

Date	Total Fluids Readings			PSH Readings			Tank Reading T-9021
	RW-5R	RW-15	RW-19	RW-5R	RW-15	RW-19	
12/31/2019	350,213	2,559	362,644	16,497	13,070	10,505	403,794
1/7/2020	350,213	2,559	362,644	16,498	13,070	10,505	403,797
1/14/2020	357,536	2,559	362,644	16,502	13,070	10,505	403,857
1/21/2020	367,186	2,559	362,644	16,505	13,070	10,505	404,170
1/28/2020	376,673	2,559	362,644	16,508	13,070	10,505	405,108
2/4/2020	386,046	2,559	362,644	16,511	13,070	10,505	405,300
2/11/2020	394,822	2,559	362,644	16,517	13,070	10,505	405,301
2/18/2020	403,653	2,559	362,644	16,521	13,070	10,505	406,140
2/25/2020	412,988	2,559	371,832	16,524	13,070	10,505	406,331
3/3/2020	421,888	2,559	376,279	17,019	13,070	10,505	408,169
3/10/2020	430,916	2,559	384,762	17,491	13,070	10,505	410,040
3/17/2020	442,712	2,559	391,030	17,494	13,070	10,505	414,739
3/24/2020	451,606	2,559	391,030	17,494	13,070	10,505	418,499
3/31/2020	463,185	2,559	391,030	17,494	13,070	10,505	422,785
1Q Totals:	112,972	-	28,386	997	-	-	18,991
4/7/2020	470,128	2,559	391,030	19,104	13,070	10,505	425,810
4/14/2020	479,701	2,559	391,030	19,107	13,070	10,505	427,887
4/21/2020	489,010	2,559	391,031	19,107	13,070	10,505	430,361
4/28/2020	497,164	2,559	391,031	20,005	13,070	10,505	432,522
5/5/2020	505,721	2,559	391,031	20,232	13,070	10,505	435,741
5/12/2020	514,218	2,559	391,031	20,232	13,070	10,505	438,287
5/19/2020	521,780	2,559	391,031	21,093	13,070	10,505	439,364
5/26/2020	532,320	2,559	391,031	21,098	13,070	10,505	439,945
6/2/2020	537,799	2,559	391,031	21,145	13,070	10,505	440,317
6/9/2020	545,419	2,559	391,031	21,147	13,070	10,505	442,189
6/16/2020	545,419	2,559	391,031	21,147	13,070	10,505	442,189
6/23/2020	560,148	2,559	391,031	21,147	13,070	10,505	444,179
6/30/2020	567,277	2,559	391,031	21,147	13,070	10,505	446,362
2Q Totals:	104,092	-	1	3,653	-	-	23,577
7/7/2020	571,247	2,559	391,031	22,816	13,070	10,505	448,383
7/14/2020	571,247	2,559	391,031	25,290	13,070	10,505	450,889
7/21/2020	571,247	2,559	391,031	26,151	13,070	10,505	451,955
7/28/2020	571,247	2,559	391,031	26,151	13,070	10,505	451,955
8/4/2020	571,247	2,559	391,031	26,151	13,070	10,505	451,955
8/11/2020	571,247	2,559	391,031	26,151	13,070	10,505	451,956
8/18/2020	571,247	2,559	391,031	28,656	13,070	10,505	454,336
8/25/2020	571,247	2,559	391,031	28,659	13,070	10,505	454,336
8/31/2020	571,247	2,559	391,031	28,659	13,070	10,505	454,336
9/7/2020	571,322	2,559	391,031	28,659	13,070	10,505	456,018
9/14/2020	575,717	2,559	391,031	28,659	13,070	10,505	457,178
9/21/2020	579,744	2,559	391,033	28,673	13,070	10,505	458,703
9/28/2020	579,744	2,559	391,033	28,683	13,070	10,505	461,387
3Q Totals:	12,467	-	2	7,536	-	-	15,025
10/5/2020	579,744	2,559	391,033	28,692	13,070	10,505	463,071
10/12/2020	579,744	2,559	391,033	28,696	13,070	10,505	482,162
10/19/2020	579,744	2,559	391,033	28,708	13,070	10,505	488,107
10/26/2020	583,056	2,559	391,033	28,718	13,070	10,505	502,366
11/2/2020	587,345	2,559	391,034	28,719	13,070	10,505	503,743
11/9/2020	591,662	2,559	391,034	28,731	13,070	10,505	510,170
11/16/2020	595,918	2,559	391,034	28,742	13,070	10,505	520,447
11/23/2020	600,524	2,559	391,304	28,749	13,070	10,505	527,111
11/30/2020	605,309	2,559	391,034	28,753	13,070	10,505	531,953
12/7/2020	608,805	2,559	391,034	28,769	13,070	10,505	534,584
12/14/2020	611,945	2,559	391,034	28,778	13,070	10,505	545,594
12/16/2020	611,945	2,559	391,034	28,778	13,070	10,505	545,594
4Q Totals:	32,201	-	1	95	-	-	84,207

Automated Fluid Readings - Skid Area T-9020

Date	Total Fluids Readings					PSH Readings					Tank Reading T-9020
	RW-12R	RW-13R	RW-14R	RW-20	RW-22	RW-12R	RW-13R	RW-14R	RW-20	RW-22	
12/31/2019	234	1,485,834	2,337,301	1,734,659	2,413,241	4,755	43,358	167,320	48,816	50,503	230,973
1/7/2020	234	1,485,834	2,337,301	1,742,033	2,413,241	4,755	43,358	167,547	48,816	50,503	230,997
1/14/2020	234	1,485,834	2,337,354	1,742,035	2,413,241	4,755	43,358	167,547	48,816	50,518	231,004
1/21/2020	234	1,485,834	2,337,354	1,742,035	2,413,241	4,755	43,358	167,547	48,816	50,587	231,143
1/28/2020	234	1,485,834	2,337,397	1,742,035	2,413,241	4,755	43,356	167,547	48,816	51,129	231,681
2/4/2020	234	1,485,834	2,337,397	1,742,035	2,413,242	4,755	43,358	167,547	48,816	51,220	231,881
2/11/2020	234	1,485,834	2,337,397	1,742,035	2,413,242	4,755	43,358	167,547	48,816	51,335	231,885
2/18/2020	234	1,485,834	2,337,403	1,742,035	2,413,243	4,755	43,358	169,292	48,816	51,462	232,535
2/25/2020	234	1,485,834	2,337,403	1,742,035	2,413,243	4,755	43,358	169,616	48,816	51,654	232,677
3/3/2020	234	1,485,834	2,338,383	1,742,035	2,413,243	4,755	43,358	173,042	48,816	51,868	234,105
3/10/2020	234	1,485,834	2,348,193	1,742,035	2,413,243	4,755	43,358	175,707	48,816	52,201	235,063
3/17/2020	234	1,485,834	2,373,835	1,742,035	2,413,243	4,755	43,358	183,241	48,816	54,449	239,762
3/24/2020	234	1,485,834	2,394,361	1,742,035	2,413,243	4,755	43,358	187,049	48,816	56,964	242,834
3/31/2020	234	1,485,834	2,423,279	1,742,304	2,413,243	4,755	43,358	192,903	48,816	59,928	248,803
1Q Totals:	-	-	85,978	7,645	2	-	-	25,583	-	9,425	17,830
4/7/2020	234	1,485,834	2,446,318	1,743,974	2,413,243	4,755	43,358	197,736	48,816	59,942	250,450
4/14/2020	234	1,485,834	2,470,744	1,743,994	2,413,245	4,755	43,358	200,843	48,816	60,601	252,788
4/21/2020	234	1,485,834	2,490,251	1,743,994	2,413,245	4,755	43,358	205,317	48,816	61,624	255,086
4/28/2020	234	1,485,834	2,504,318	1,743,994	2,413,245	4,755	43,358	206,032	48,816	62,778	256,196
5/5/2020	234	1,485,834	2,528,066	1,743,994	2,413,245	4,755	43,358	209,994	48,816	63,967	258,989
5/12/2020	234	1,485,834	2,582,331	1,743,994	2,413,245	4,755	43,358	213,634	48,816	64,523	261,862
5/19/2020	234	1,498,335	2,656,286	1,743,994	2,413,246	4,755	43,488	213,917	48,816	64,524	262,095
5/26/2020	234	1,499,596	2,749,703	1,743,994	2,413,246	4,755	43,488	215,058	48,816	64,569	262,699
6/2/2020	234	1,513,873	2,749,703	1,743,994	2,413,246	4,755	43,488	215,798	48,816	64,572	262,992
6/9/2020	234	1,534,793	2,749,703	1,743,994	2,413,246	4,755	43,860	217,712	48,816	65,429	265,070
6/16/2020	234	1,534,793	2,749,703	1,743,994	2,413,246	4,755	43,860	217,712	48,816	65,429	265,070
6/23/2020	234	1,574,307	2,749,703	1,743,994	2,413,246	4,755	43,860	221,359	48,816	65,530	275,281
6/30/2020	234	1,582,091	2,749,703	1,743,994	2,413,246	4,755	45,117	223,856	48,816	66,660	280,811
2Q Totals:	-	96,257	326,424	1,690	3	-	1,759	30,953	-	6,732	32,008
7/7/2020	234	1,607,757	2,749,703	1,743,994	2,413,246	4,755	45,501	223,856	48,816	66,660	280,942
7/14/2020	234	1,608,073	2,749,704	1,745,358	2,413,246	4,755	45,534	223,856	48,816	66,660	280,942
7/21/2020	234	1,608,560	2,749,704	1,755,590	2,413,246	4,755	45,534	223,856	48,816	66,660	280,942
7/28/2020	234	1,608,560	2,749,704	1,760,768	2,413,246	4,755	45,534	223,856	48,816	66,660	280,942
8/4/2020	234	1,608,560	2,749,704	1,760,768	2,413,246	4,755	45,534	223,856	48,816	66,660	280,942
8/11/2020	234	1,608,560	2,749,704	1,760,768	2,413,247	4,755	45,534	223,856	48,816	66,600	280,942
8/18/2020	234	1,608,560	2,749,704	1,760,768	2,413,247	4,755	45,534	223,856	48,816	66,600	280,942
8/25/2020	234	1,608,560	2,749,704	1,760,768	2,413,247	4,755	45,534	223,856	48,816	66,660	280,942
8/31/2020	234	1,620,405	2,749,704	1,760,768	2,413,247	4,755	45,534	223,856	48,816	66,660	281,009
9/7/2020	234	1,620,405	2,760,845	1,760,768	2,413,250	4,755	45,534	224,334	48,816	68,414	282,840
9/14/2020	234	1,620,406	2,764,485	1,760,851	2,413,250	4,755	45,534	224,343	48,816	69,593	283,964
9/21/2020	234	1,621,365	2,804,404	1,763,327	2,413,253	4,755	45,534	224,350	48,816	70,308	284,651
9/28/2020	234	1,655,790	2,829,460	1,763,327	2,413,253	4,755	45,534	225,545	48,816	70,718	286,466
3Q Totals:	-	73,699	79,757	19,333	7	-	417	1,689	-	4,058	5,655
10/5/2020	234	1,731,750	2,829,460	1,763,327	2,413,253	4,755	45,534	227,634	48,816	70,825	288,323
10/12/2020	234	1,742,072	2,867,045	1,763,327	2,413,255	4,755	45,534	248,782	48,816	72,508	325,148
10/19/2020	234	1,742,072	2,907,416	1,763,327	2,413,255	4,755	45,536	256,602	48,816	74,039	339,657
10/26/2020	234	1,786,530	2,936,700	1,763,327	2,413,255	4,755	45,830	273,165	48,816	75,717	371,142
11/2/2020	234	1,822,595	2,938,975	1,763,327	2,413,255	4,755	45,839	273,743	48,816	76,232	372,831
11/9/2020	234	1,845,713	2,938,975	1,763,327	2,413,255	4,755	46,133	277,957	48,816	76,955	376,099
11/16/2020	234	1,852,403	2,938,975	1,763,327	2,413,255	4,755	47,556	282,636	48,816	78,108	380,941
11/23/2020	234	1,853,337	2,938,975	1,767,306	2,413,256	4,755	48,210	283,100	48,816	80,032	382,794
11/30/2020	234	1,853,337	2,938,975	1,767,306	2,413,256	4,755	48,210	283,157	48,816	82,319	384,216
12/7/2020	234	1,853,337	2,938,975	1,767,306	2,413,256	4,755	48,210	283,159	48,816	83,577	384,742
12/14/2020	234	1,859,343	2,938,975	1,767,306	2,413,256	4,755	48,380	283,159	48,816	83,802	384,963
12/16/2020	234	1,859,343	2,938,795	1,767,306	2,413,256	4,755	48,380	283,159	48,816	83,802	384,963
4Q Totals:	-	203,553	109,335	3,979	3	-	2,846	57,614	-	13,084	98,497

Appendix F.2 - Recovery System Gauging Data
 2020 Annual Groundwater Monitoring Report
 HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, NM

Well Date	RW-1R							RW-2R							RW-4R						
	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)
12/31/19	0	10.70	Out	0.00	3377.03	--	3366.33	0.00	12.33	Out	0.00	3378.17	--	3365.84	0	14.32	Out	0.00	3374.86	--	3360.54
1/6/20	0	10.90	Out	0.00	3377.03	--	3366.13	0.00	12.33	Out	0.00	3378.17	--	3365.84	0	14.30	Out	0.00	3374.86	--	3360.56
1/13/20	0	10.95	Out	0.00	3377.03	--	3366.08	0.00	12.35	Out	0.00	3378.17	--	3365.82	0	14.38	Out	0.00	3374.86	--	3360.48
1/20/20	0	11.20	Out	0.00	3377.03	--	3365.83	0.00	12.57	Out	0.00	3378.17	--	3365.60	0	15.52	Out	0.00	3374.86	--	3359.34
1/27/20	0	10.90	Out	0.00	3377.03	--	3366.13	0.00	12.40	Out	0.00	3378.17	--	3365.77	0	14.49	Out	0.00	3374.86	--	3360.37
2/3/20	0	10.90	Out	0.00	3377.03	--	3366.13	0.00	12.28	Out	0.00	3378.17	--	3365.89	0	14.52	Out	0.00	3374.86	--	3360.34
2/10/20	0	11.15	Out	0.00	3377.03	--	3365.88	0.00	12.53	Out	0.00	3378.17	--	3365.64	0	14.75	Out	0.00	3374.86	--	3360.11
2/17/20	0	11.05	Out	0.00	3377.03	--	3365.98	0.00	12.45	Out	0.00	3378.17	--	3365.72	0	14.76	Out	0.00	3374.86	--	3360.10
2/24/20	0	11.14	Out	0.00	3377.03	--	3365.89	0.00	12.50	Out	0.00	3378.17	--	3365.67	0	14.80	Out	0.00	3374.86	--	3360.06
3/2/20	0	11.15	Out	0.00	3377.03	--	3365.88	0.00	12.55	Out	0.00	3378.17	--	3365.62	0	14.50	Out	0.00	3374.86	--	3360.36
3/9/20	0	10.10	Out	0.00	3377.03	--	3366.93	0.00	11.74	Out	0.00	3378.17	--	3366.43	0	14.55	Out	0.00	3374.86	--	3360.31
3/17/20	10.05	10.45	Out	0.40	3377.03	3366.98	3366.58	0.00	11.55	Out	0.00	3378.17	--	3366.62	0	14.35	Out	0.00	3374.86	--	3360.51
3/23/20	9.90	10.25	Out	0.35	3377.03	3367.13	3366.78	0.00	11.38	Out	0.00	3378.17	--	3366.79	0	14.30	Out	0.00	3374.86	--	3360.56
3/31/20	10.20	10.55	Out	0.35	3377.03	3366.83	3366.48	0.00	11.65	Out	0.00	3378.17	--	3366.52	0	14.40	Out	0.00	3374.86	--	3360.46
4/6/20	10.30	10.60	Out	0.30	3377.03	3366.73	3366.43	0.00	11.70	Out	0.00	3378.17	--	3366.47	0	14.40	Out	0.00	3374.86	--	3360.46
4/13/20	10.55	10.95	Out	0.40	3377.03	3366.48	3366.08	0.00	11.90	Out	0.00	3378.17	--	3366.27	0	14.60	Out	0.00	3374.86	--	3360.26
4/20/20	11.00	11.60	Out	0.60	3377.03	3366.03	3365.43	0.00	14.99	Out	0.00	3378.17	--	3363.18	0	14.60	Out	0.00	3374.86	--	3360.26
4/27/20	11.25	11.90	Out	0.65	3377.03	3365.78	3365.13	0.00	15.00	Out	0.00	3378.17	--	3363.17	0	14.69	Out	0.00	3374.86	--	3360.17
5/4/20	11.40	12.10	Out	0.70	3377.03	3365.63	3364.93	0.00	15.05	Out	0.00	3378.17	--	3363.12	0	14.75	Out	0.00	3374.86	--	3360.11
5/11/20	11.55	12.25	Out	0.70	3377.03	3365.48	3364.78	0.00	15.10	Out	0.00	3378.17	--	3363.07	0	14.85	Out	0.00	3374.86	--	3360.01
5/18/20	11.75	12.35	Out	0.60	3377.03	3365.28	3364.68	15.05	15.20	Out	0.15	3378.17	3363.12	3362.97	0	14.90	Out	0.00	3374.86	--	3359.96
5/27/20	14.50	15.10	Out	0.60	3377.03	3362.53	3361.93	15.05	15.50	Out	0.45	3378.17	3363.12	3362.67	0	14.95	Out	0.00	3374.86	--	3359.91
6/1/20	14.55	15.20	Out	0.65	3377.03	3362.48	3361.83	15.05	15.29	Out	0.24	3378.17	3363.12	3362.88	0	15.05	Out	0.00	3374.86	--	3359.81
6/8/20	14.40	15.30	Out	0.90	3377.03	3362.63	3361.73	15.05	15.35	Out	0.30	3378.17	3363.12	3362.82	0	15.05	Out	0.00	3374.86	--	3359.81
6/22/20	14.40	15.10	Out	0.70	3377.03	3362.63	3361.93	15.00	15.25	Out	0.25	3378.17	3363.17	3362.92	0	15.20	Out	0.00	3374.86	--	3359.66
6/29/20	14.50	15.35	Out	0.85	3377.03	3362.53	3361.68	15.00	16.45	Out	1.45	3378.17	3363.17	3361.72	0	15.25	Out	0.00	3374.86	--	3359.61
7/7/20	14.60	15.70	Out	1.10	3377.03	3362.43	3361.33	14.80	16.80	Out	2.00	3378.17	3363.37	3361.37	0	15.30	Out	0.00	3374.86	--	3359.56
7/13/20	16.70	17.00	Out	0.30	3377.03	3360.33	3360.03	14.70	17.30	Out	2.60	3378.17	3363.47	3360.87	0	14.90	Out	0.00	3374.86	--	3359.96
7/20/20	14.6	15.80	Out	1.20	3378.03	3363.43	3362.23	15.00	17.00	Out	2.00	3379.17	3364.17	3362.17	0	14.85	Out	0.00	3375.86	--	3361.01
7/27/20	14.5	17.20	Out	2.70	3379.03	3364.53	3361.83	15.65	21.90	Out	6.25	3380.17	3364.52	3358.27	0	15.00	Out	0.00	3376.86	--	3361.86
8/3/20	14.63	15.60	14	0.97	3379.03	3364.40	3363.43	15.50	22.50	Out	7.00	3380.17	3364.67	3357.67	0	14.90	Out	0.00	3376.86	--	3361.96
8/10/20	14.55	15.35	14	0.80	3379.03	3364.48	3363.68	14.25	14.55	Out	0.30	3380.17	3365.92	3365.62	0	14.90	Out	0.00	3376.86	--	3361.96
8/18/20	14.65	15.30	14	0.65	3380.03	3365.38	3364.73	14.26	14.55	Out	0.29	3381.17	3366.91	3366.62	0	14.85	Out	0.00	3377.86	--	3363.01
8/24/20	14.65	15.35	14	0.70	3381.03	3366.38	3365.68	14.32	14.60	Out	0.28	3382.17	3367.85	3367.57	0	14.80	Out	0.00	3378.86	--	3364.06
8/31/20	14.7	15.20	14	0.50	3381.03	3366.33	3365.83	14.50	14.90	Out	0.40	3382.17	3367.67	3367.27	0	15.00	Out	0.00	3378.86	--	3363.86
9/8/20	17.65	18.55	14	0.90	3381.03	3363.38	3362.48	18.70	25.40	Out	6.70	3382.17	3363.47	3356.77	0	14.99	Out	0.00	3378.86	--	3363.87
9/14/20	17.65	18.35	14	0.70	3381.03	3363.38	3362.68	16.15	27.25	Out	11.10	3382.17	3366.02	3354.92	0	15.35	Out	0.00	3378.86	--	3363.51
9/21/20	17.7	18.65	17	0.95	3382.03	3364.33	3363.38	15.50	16.40	20	0.90	3383.17	3367.67	3366.77	0	15.40	Out	0.00	3379.86	--	3364.46
9/28/20	17.65	18.45	17	0.80	3382.03	3364.38	3363.58	15.60	17.75	20	2.15	3383.17	3367.57	3365.42	0	15.60	Out	0.00	3379.86	--	3364.26
10/5/20	17.48	20.75	17	3.27	3383.03	3365.55	3362.28	15.70	16.87	20	1.17	3384.17	3368.47	3367.30	0	15.55	Out	0.00	3380.86	--	3365.31
10/12/20	17.60	18.05	17	0.45	3384.03	3366.43	3365.98	15.80	17.75	20	1.95	3385.17	3369.37	3367.42	0	15.60	Out	0.00	3381.86	--	3366.26
10/19/20	17.90	18.25	17	0.35	3384.03	3366.13	3365.78	15.85	17.50	20	1.65	3385.17	3369.32	3367.67	0	15.60	Out	0.00	3381.86	--	3366.26
10/26/20	18.00	18.50	17	0.50	3384.03	3366.03	3365.53	16.05	17.90	20	1.85	3385.17	3369.12	3367.27	0	15.60	Out	0.00	3381.86	--	3366.26
11/2/20	17.50	21.00	17	3.50	3384.03	3366.53	3363.03	16.05	17.90	20	1.85	3385.17	3369.12	3367.27	0	15.90	Out	0.00	3381.86	--	3365.96
11/9/20	18.00	18.80	17	0.80	3384.03	3366.03	3365.23	16.00	17.70	20	1.70	3385.17	3369.17	3367.47	0	16.00	Out	0.00	3381.86	--	3365.86
11/16/20	18.00	18.30	17	0.30	3384.03	3366.03	3365.73	16.15	18.30	20	2.15	3385.17	3369.02	3366.87	0	16.10	Out	0.00	3381.86	--	3365.76
11/23/20	17.90	18.10	17	0.20	3384.03	3366.13	3365.93	16.25	18.25	20	2.00	3385.17	3368.92	3366.92	0	16.00	Out	0.00	3381.86	--	3365.86
11/30/20	16.05	22.20	17	6.15	3384.03	3367.98	3361.83	16.10	19.40	20	3.30	3385.17	3369.07	3365.77	0	16.05	Out	0.00	3381.86	--	3365.81
12/7/20	16.10	17.15	17	1.05	3384.03	3367.93	3366.88	15.80	18.70	20	2.90	3385.17	3369.37	3366.47	0	16.00	Out	0.00	3381.86	--	3365.86
12/16/20	17.85	19.10	17	1.25	3384.03	3366.18	3364.93	16.05	19.14	20	3.09	3385.17	3369.12	3366.03	0	16.00	Out	0.00	3381.86	--	

Appendix F.2 - Recovery System Gauging Data
 2020 Annual Groundwater Monitoring Report
 HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, NM

Well	RW-5R							RW-6R							RW-7R						
	Date	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)
12/31/19	22.05	22.56	21.05	0.51	3378.56	3356.51	3356.00	25.55	28.15	16.25	2.60	3378.36	3352.81	3350.21	0.00	13.28	Out	0.00	3377.09	--	3363.81
1/6/20	20.90	21.53	21.05	0.63	3378.56	3357.66	3357.03	21.60	27.87	16.25	6.27	3378.36	3356.76	3350.49	0.00	13.40	Out	0.00	3377.09	--	3363.69
1/13/20	21.39	21.89	21.05	0.50	3378.56	3357.17	3356.67	21.30	27.35	16.25	6.05	3378.36	3357.06	3351.01	0.00	13.35	Out	0.00	3377.09	--	3363.74
1/20/20	21.30	21.60	21.05	0.30	3378.56	3357.26	3356.96	21.34	27.10	16.25	5.76	3378.36	3357.02	3351.26	0.00	13.50	Out	0.00	3377.09	--	3363.59
1/27/20	22.30	22.92	21.05	0.62	3378.56	3356.26	3355.64	0.00	28.15	22.5	0.00	3378.36	--	3350.21	0.00	13.45	Out	0.00	3377.09	--	3363.64
2/3/20	22.40	22.99	21.05	0.59	3378.56	3356.16	3355.57	28.00	28.10	22.5	0.10	3378.36	3350.36	3350.26	0.00	13.45	Out	0.00	3377.09	--	3363.64
2/10/20	22.10	22.80	21.05	0.70	3378.56	3356.46	3355.76	28.03	28.05	22.5	0.02	3378.36	3350.33	3350.31	0.00	13.60	Out	0.00	3377.09	--	3363.49
2/17/20	21.29	21.87	21.05	0.58	3378.56	3357.27	3356.69	0.00	27.30	22.5	0.00	3378.36	--	3351.06	0.00	13.35	Out	0.00	3377.09	--	3363.74
2/24/20	22.14	22.82	21.5	0.68	3378.56	3356.42	3355.74	0.00	27.40	22.5	0.00	3378.36	--	3350.96	0.00	13.43	Out	0.00	3377.09	--	3363.66
3/2/20	0.00	22.73	21.5	0.00	3378.56	--	3355.83	0.00	27.10	22.5	0.00	3378.36	--	3351.26	0.00	13.55	Out	0.00	3377.09	--	3363.54
3/9/20	22.34	22.35	21.5	0.01	3378.56	3356.22	3356.21	0.00	26.80	22.5	0.00	3378.36	--	3351.56	0.00	12.30	Out	0.00	3377.09	--	3364.79
3/17/20	22.00	23.03	21.5	1.03	3378.56	3356.56	3355.53	0.00	21.73	22.5	0.00	3378.36	--	3356.63	0.00	12.15	Out	0.00	3377.09	--	3364.94
3/23/20	22.50	23.23	21.5	0.73	3378.56	3356.06	3355.33	0.00	27.23	22.5	0.00	3378.36	--	3351.13	0.00	12.03	Out	0.00	3377.09	--	3365.06
3/31/20	22.85	24.00	21.5	1.15	3378.56	3355.71	3354.56	0.00	27.00	22.5	0.00	3378.36	--	3351.36	0.00	12.25	Out	0.00	3377.09	--	3364.84
4/6/20	0.00	22.52	22.5	0.00	3378.56	--	3356.04	0.00	27.05	22.5	0.00	3378.36	--	3351.31	0.00	12.30	Out	0.00	3377.09	--	3364.79
4/13/20	22.89	23.24	22.5	0.35	3378.56	3355.67	3355.32	0.00	27.20	22.5	0.00	3378.36	--	3351.16	0.00	12.59	Out	0.00	3377.09	--	3364.50
4/20/20	22.32	23.20	22.5	0.88	3378.56	3356.24	3355.36	0.00	27.00	22.5	0.00	3378.36	--	3351.36	0.00	12.65	Out	0.00	3377.09	--	3364.44
4/27/20	22.30	22.49	22.5	0.19	3378.56	3356.26	3356.07	0.00	26.85	22.5	0.00	3378.36	--	3351.51	0.00	12.80	Out	0.00	3377.09	--	3364.29
5/4/20	22.90	23.60	22.5	0.70	3378.56	3355.66	3354.96	0.00	26.65	22.5	0.00	3378.36	--	3351.71	0.00	13.00	Out	0.00	3377.09	--	3364.09
5/11/20	22.70	24.25	22.5	1.55	3378.56	3355.86	3354.31	0.00	26.10	22.5	0.00	3378.36	--	3352.26	0.00	13.15	Out	0.00	3377.09	--	3363.94
5/18/20	0.00	23.10	22.5	0.00	3378.56	--	3355.46	25.45	27.05	22.5	1.60	3378.36	3352.91	3351.31	0.00	13.35	Out	0.00	3377.09	--	3363.74
5/27/20	22.55	23.74	22.5	1.19	3378.56	3356.01	3354.82	25.00	26.75	22.5	1.75	3378.36	3353.36	3351.61	0.00	13.55	Out	0.00	3377.09	--	3363.54
6/1/20	22.85	22.86	22	0.01	3378.56	3355.71	3355.70	24.55	26.65	22.5	2.10	3378.36	3353.81	3351.71	0.00	13.80	Out	0.00	3377.09	--	3363.29
6/8/20	22.59	23.89	22	1.30	3378.56	3355.97	3354.67	24.05	26.55	22.5	2.50	3378.36	3354.31	3351.81	13.90	14.05	Out	0.15	3377.09	3363.19	3363.04
6/22/20	23.58	24.82	22	1.24	3378.56	3354.98	3353.74	23.55	27.00	22.5	3.45	3378.36	3354.81	3351.36	0.00	14.10	Out	0.00	3377.09	--	3362.99
6/29/20	22.50	25.50	22.5	3.00	3378.56	3356.06	3353.06	15.85	15.90	22.5	0.05	3378.36	3362.51	3362.46	0.00	14.50	Out	0.00	3377.09	--	3362.59
7/7/20	20.15	20.55	22.5	0.40	3378.56	3358.41	3358.01	15.68	15.70	22.5	0.02	3378.36	3362.68	3362.66	14.35	14.85	Out	0.50	3377.09	3362.74	3362.24
7/13/20	20.00	21.10	22.5	1.10	3378.56	3358.56	3357.46	15.60	15.75	22.5	0.15	3378.36	3362.76	3362.61	14.50	14.60	Out	0.10	3377.09	3362.59	3362.49
7/20/20	19.00	20.20	22.5	1.20	3379.56	3360.56	3359.36	15.60	15.80	22.5	0.20	3379.36	3363.76	3363.56	14.50	14.60	Out	0.10	3378.09	3363.59	3363.49
7/27/20	19.00	20.30	22.5	1.30	3380.56	3361.56	3360.26	14.40	16.60	22.5	2.20	3380.36	3365.96	3363.76	14.60	14.65	Out	0.05	3379.09	3364.49	3364.44
8/3/20	19.00	20.28	22.5	1.28	3380.56	3361.56	3360.28	15.65	15.70	22.5	0.05	3380.36	3364.71	3364.66	14.65	16.10	Out	1.45	3379.09	3364.44	3362.99
8/10/20	18.95	20.29	22.5	1.34	3380.56	3361.61	3360.27	15.55	15.62	22.5	0.07	3380.36	3364.81	3364.74	14.50	14.55	Out	0.05	3379.09	3364.59	3364.54
8/18/20	20.00	20.02	22.5	0.02	3381.56	3361.56	3361.54	15.55	15.65	22.5	0.10	3381.36	3365.81	3365.71	14.85	14.90	Out	0.05	3380.09	3365.24	3365.19
8/24/20	19.20	19.35	22.5	0.15	3382.56	3363.36	3363.21	0.00	15.75	22.5	0.00	3382.36	--	3366.61	14.90	15.00	Out	0.10	3381.09	3366.19	3366.09
8/31/20	19.22	19.45	22.5	0.23	3382.56	3363.34	3363.11	23.55	23.90	22.5	0.35	3382.36	3358.81	3358.46	0.00	15.00	Out	0.00	3381.09	--	3366.09
9/8/20	20.87	21.85	22.5	0.98	3382.56	3361.69	3360.71	23.85	25.80	22.5	1.95	3382.36	3358.51	3356.56	18.35	20.43	Out	2.08	3381.09	3362.74	3360.66
9/14/20	22.05	23.25	22.5	1.20	3382.56	3360.51	3359.31	23.35	26.25	22.5	2.90	3382.36	3359.01	3356.11	18.10	20.50	Out	2.40	3381.09	3362.99	3360.59
9/21/20	23.30	23.42	22.5	0.12	3383.56	3360.26	3360.14	23.50	25.50	22.5	2.00	3383.36	3359.86	3357.86	18.25	24.40	18	6.15	3382.09	3363.84	3357.69
9/28/20	22.73	23.05	22.5	0.32	3383.56	3360.83	3360.51	20.55	25.30	23.5	4.75	3383.36	3362.81	3358.06	18.25	25.20	18	6.95	3382.09	3363.84	3356.89
10/5/20	21.00	21.35	22.5	0.35	3384.56	3363.56	3363.21	17.80	22.15	23.5	4.35	3384.36	3366.56	3362.21	18.45	24.14	18	5.69	3383.09	3364.64	3358.95
10/12/20	21.70	22.68	22.5	0.98	3385.56	3363.86	3362.88	16.40	16.90	23.5	0.50	3385.36	3368.96	3368.46	19.10	21.33	19	2.23	3384.09	3364.99	3362.76
10/19/20	21.50	22.52	22.5	1.02	3385.56	3364.06	3363.04	16.15	16.70	23.5	0.55	3385.36	3369.21	3368.66	19.40	21.15	19	1.75	3384.09	3364.69	3362.94
10/26/20	22.43	22.75	22.5	0.32	3385.56	3363.13	3362.81	21.55	25.60	23.5	4.05	3385.36	3363.81	3359.76	19.65	21.60	19	1.95	3384.09	3364.44	3362.49
11/2/20	22.20	23.15	22.5	0.95	3385.56	3363.36	3362.41	21.30	25.90	23.											

Appendix F.2 - Recovery System Gauging Data
 2020 Annual Groundwater Monitoring Report
 HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, NM

Well	RW-8R							RW-12R							RW-13R						
	Date	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet bloc)	Depth to Water (feet bloc)	Product Pump (feet bloc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)
12/31/19	12.85	14.85	14.22	2.00	3378.10	3365.25	3363.25	0	24.28	Out	0.00	3361.54	--	3337.26	22.00	22.17	22.25	0.17	3361.54	3339.54	3339.37
1/6/20	12.83	14.90	14.22	2.07	3378.10	3365.27	3363.20	0	24.49	Out	0.00	3361.54	--	3337.05	22.15	22.17	22.25	0.02	3361.54	3339.39	3339.37
1/13/20	12.78	14.55	14.22	1.77	3378.10	3365.32	3363.55	0	24.63	Out	0.00	3361.54	--	3336.91	22.32	22.35	22.25	0.03	3361.54	3339.22	3339.19
1/20/20	13.00	15.15	14.22	2.15	3378.10	3365.10	3362.95	0	24.77	Out	0.00	3361.54	--	3336.77	22.52	22.56	22.25	0.04	3361.54	3339.02	3338.98
1/27/20	12.90	15.00	14.22	2.10	3378.10	3365.20	3363.10	0	24.85	Out	0.00	3361.54	--	3336.69	22.70	22.73	22.25	0.03	3361.54	3338.84	3338.81
2/3/20	12.90	14.90	14.22	2.00	3378.10	3365.20	3363.20	0	24.93	Out	0.00	3361.54	--	3336.61	22.82	22.84	22.25	0.02	3361.54	3338.72	3338.70
2/10/20	13.05	15.15	14.22	2.10	3378.10	3365.05	3362.95	0	25.05	Out	0.00	3361.54	--	3336.49	23.07	23.15	22.25	0.08	3361.54	3338.47	3338.39
2/17/20	12.85	14.70	14.22	1.85	3378.10	3365.25	3363.40	0	25.13	Out	0.00	3361.54	--	3336.41	23.12	23.18	22.25	0.06	3361.54	3338.42	3338.36
2/24/20	12.90	14.90	14.22	2.00	3378.10	3365.20	3363.20	0	25.23	Out	0.00	3361.54	--	3336.31	23.33	23.34	22.25	0.01	3361.54	3338.21	3338.20
3/2/20	13.00	15.80	14.22	2.80	3378.10	3365.10	3362.30	0	25.33	Out	0.00	3361.54	--	3336.21	26.32	26.33	22.25	0.01	3361.54	3335.22	3335.21
3/9/20	12.05	13.65	14.22	1.60	3378.10	3366.05	3364.45	0	25.36	Out	0.00	3361.54	--	3336.18	25.94	25.98	22.25	0.04	3361.54	3335.60	3335.56
3/17/20	11.75	13.40	14.22	1.65	3378.10	3366.35	3364.70	0	25.40	Out	0.00	3361.54	--	3336.14	24.39	29.99	22.25	5.60	3361.54	3337.15	3331.55
3/23/20	11.60	13.29	14.22	1.69	3378.10	3366.50	3364.81	0	25.40	Out	0.00	3361.54	--	3336.14	23.69	23.80	22.25	0.11	3361.54	3337.85	3337.74
3/31/20	11.85	13.40	14.22	1.55	3378.10	3366.25	3364.70	0	25.55	Out	0.00	3361.54	--	3335.99	23.75	24.00	22.25	0.25	3361.54	3337.79	3337.54
4/6/20	12.05	13.60	14.22	1.55	3378.10	3366.05	3364.50	0	25.69	Out	0.00	3361.54	--	3335.85	23.80	24.15	22.25	0.35	3361.54	3337.74	3337.39
4/13/20	12.23	13.90	14.22	1.67	3378.10	3365.87	3364.20	0	25.74	Out	0.00	3361.54	--	3335.80	23.92	24.30	22.25	0.38	3361.54	3337.62	3337.24
4/20/20	12.40	14.00	14.22	1.60	3378.10	3365.70	3364.10	0	25.85	Out	0.00	3361.54	--	3335.69	24.00	24.30	22.25	0.30	3361.54	3337.54	3337.24
4/27/20	12.58	14.20	14.22	1.62	3378.10	3365.52	3363.90	0	25.85	Out	0.00	3361.54	--	3335.69	24.00	24.35	22.25	0.35	3361.54	3337.54	3337.19
5/4/20	12.70	14.70	14.22	2.00	3378.10	3365.40	3363.40	0	25.80	Out	0.00	3361.54	--	3335.74	23.80	24.10	22.25	0.30	3361.54	3337.74	3337.44
5/11/20	12.95	13.25	14.22	0.30	3378.10	3365.15	3364.85	0	23.90	Out	0.00	3361.54	--	3337.64	21.65	21.95	22.25	0.30	3361.54	3339.89	3339.59
5/18/20	13.10	15.00	14.22	1.90	3378.10	3365.00	3363.10	0	23.63	Out	0.00	3361.54	--	3337.91	21.55	21.62	22.25	0.07	3361.54	3339.99	3339.92
5/27/20	13.45	15.35	14.22	1.90	3378.10	3364.65	3362.75	0	24.35	Out	0.00	3361.54	--	3337.19	21.75	22.15	22.25	0.40	3361.54	3339.79	3339.39
6/1/20	13.55	15.90	14.22	2.35	3378.10	3364.55	3362.20	0	24.68	Out	0.00	3361.54	--	3336.86	25.50	30.30	25.75	4.80	3361.54	3336.04	3331.24
6/8/20	13.80	15.70	14.22	1.90	3378.10	3364.30	3362.40	0	22.67	Out	0.00	3361.54	--	3338.87	21.27	23.40	25.75	2.13	3361.54	3340.27	3338.14
6/22/20	13.85	16.25	14.22	2.40	3378.10	3364.25	3361.85	0	23.77	Out	0.00	3361.54	--	3337.77	23.64	30.15	25.75	6.51	3361.54	3337.90	3331.39
6/29/20	13.90	16.35	14.22	2.45	3378.10	3364.20	3361.75	0	22.55	Out	0.00	3361.54	--	3338.99	20.65	21.10	25.75	0.45	3361.54	3340.89	3340.44
7/7/20	14.03	17.20	14.22	3.17	3378.10	3364.07	3360.90	0	21.27	Out	0.00	3361.54	--	3340.27	19.35	19.90	25.75	0.55	3361.54	3342.19	3341.64
7/13/20	14.10	17.10	14.22	3.00	3378.10	3364.00	3361.00	0	21.65	Out	0.00	3361.54	--	3339.89	19.80	20.08	25.75	0.28	3361.54	3341.74	3341.46
7/20/20	14.25	16.75	14.22	2.50	3379.10	3364.85	3362.35	0	21.67	Out	0.00	3362.54	--	3340.87	20.20	20.40	25.75	0.20	3362.54	3342.34	3342.14
7/27/20	14.40	16.60	14.22	2.20	3380.10	3365.70	3363.50	0	21.65	Out	0.00	3363.54	--	3341.89	20.15	20.40	25.75	0.25	3363.54	3343.39	3343.14
8/3/20	14.40	16.55	14.22	2.15	3380.10	3365.70	3363.55	0	21.65	Out	0.00	3363.54	--	3341.89	19.10	19.40	25.75	0.30	3363.54	3344.44	3344.14
8/10/20	14.40	16.80	14.22	2.40	3380.10	3365.70	3363.30	0	21.44	Out	0.00	3363.54	--	3342.10	19.68	19.98	25.75	0.30	3363.54	3343.86	3343.56
8/18/20	14.55	16.70	14.22	2.15	3381.10	3366.55	3364.40	0	21.50	Out	0.00	3364.54	--	3343.04	19.20	19.43	25.75	0.23	3364.54	3345.34	3345.11
8/24/20	14.50	16.80	14.22	2.30	3382.10	3367.60	3365.30	0	21.50	Out	0.00	3365.54	--	3344.04	19.82	19.99	25.75	0.17	3365.54	3345.72	3345.55
8/31/20	15.00	16.90	14.22	1.90	3382.10	3367.10	3365.20	0	21.55	Out	0.00	3365.54	--	3343.99	19.79	19.99	25.75	0.20	3365.54	3345.75	3345.55
9/8/20	17.25	23.55	14.22	6.30	3382.10	3364.85	3358.55	0	21.98	Out	0.00	3365.54	--	3343.56	20.25	20.83	25.75	0.58	3365.54	3345.29	3344.71
9/14/20	18.05	22.85	14.22	4.80	3382.10	3364.05	3359.25	0	22.53	Out	0.00	3365.54	--	3343.01	20.80	20.90	25.75	0.10	3365.54	3344.74	3344.64
9/21/20	18.50	22.20	18	3.70	3383.10	3364.60	3360.90	0	22.20	Out	0.00	3366.54	--	3344.34	19.68	19.89	25.75	0.21	3366.54	3346.86	3346.65
9/28/20	17.85	23.15	18.5	5.30	3383.10	3365.25	3359.95	0	22.70	Out	0.00	3366.54	--	3343.84	0.00	32.75	25.75	0.00	3366.54	--	3333.79
10/5/20	18.02	22.48	18.5	4.46	3384.10	3366.08	3361.62	0	21.60	Out	0.00	3367.54	--	3345.94	22.90	30.90	25.75	8.00	3367.54	3344.64	3336.64
10/12/20	19.15	22.34	18.5	3.19	3385.10	3365.95	3362.76	0	21.60	Out	0.00	3368.54	--	3346.94	21.05	21.28	25.75	0.23	3368.54	3347.49	3347.26
10/19/20	18.60	21.15	18.5	2.55	3385.10	3366.50	3363.95	0	22.15	Out	0.00	3368.54	--	3346.39	20.30	20.60	25.75	0.30	3368.54	3348.24	3347.94
10/26/20	18.70	20.85	18.5	2.15	3385.10	3366.40	3364.25	0	22.00	Out	0.00	3368.54	--	3346.54	30.35	32.30	25.75	1.95	3368.54	3338.19	3336.24
11/2/20	18.90	22.15	18.5	3.25	3385.10	3366.20	3362.95	0	24.30	Out											

Appendix F.2 - Recovery System Gauging Data
 2020 Annual Groundwater Monitoring Report
 HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, NM

Well	RW-14R							RW-15							RW-19						
	Date	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)
12/31/19	20.35	20.40	19.83	0.05	3359.37	3339.02	3338.97	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.47	25.60	27.5	0.13	3379.11	3353.64	3353.51
1/6/20	20.27	20.64	19.83	0.37	3359.37	3339.10	3338.73	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.59	25.70	27.5	0.11	3379.11	3353.52	3353.41
1/13/20	20.38	20.92	19.83	0.54	3359.37	3338.99	3338.45	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.61	25.79	27.5	0.18	3379.11	3353.50	3353.32
1/20/20	20.70	21.32	19.83	0.62	3359.37	3338.67	3338.05	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.79	25.94	27.5	0.15	3379.11	3353.32	3353.17
1/27/20	20.63	21.69	19.83	1.06	3359.37	3338.74	3337.68	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.80	25.95	27.5	0.15	3379.11	3353.31	3353.16
2/3/20	20.65	22.10	19.83	1.45	3359.37	3338.72	3337.27	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	25.82	25.95	27.5	0.13	3379.11	3353.29	3353.14
2/10/20	20.75	22.60	19.83	1.85	3359.37	3338.62	3336.77	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.11	26.26	27.5	0.15	3379.11	3353.00	3352.85
2/17/20	20.89	22.65	20.33	1.76	3359.37	3338.48	3336.72	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	34.37	34.65	27.5	0.28	3379.11	3344.74	3344.46
2/24/20	20.89	23.28	21.00	2.39	3359.37	3338.48	3336.09	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.35	26.50	27.5	0.15	3379.11	3352.76	3352.61
3/2/20	20.85	27.97	21.00	7.12	3359.37	3338.52	3331.40	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	32.49	32.74	27.5	0.25	3379.11	3346.62	3346.37
3/9/20	20.90	26.51	21.00	5.61	3359.37	3338.47	3332.86	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.60	26.74	32	0.14	3379.11	3352.51	3352.37
3/17/20	22.15	23.89	22.00	1.74	3359.37	3337.22	3335.48	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.41	26.48	32	0.07	3379.11	3352.70	3352.63
3/23/20	22.35	27.00	22.00	4.65	3359.37	3337.02	3332.37	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.43	26.47	32	0.04	3379.11	3352.68	3352.64
3/31/20	22.85	27.05	22.00	4.20	3359.37	3336.52	3332.32	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.55	26.59	32	0.04	3379.11	3352.56	3352.52
4/6/20	21.76	26.43	22.00	4.67	3359.37	3337.61	3332.94	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.65	26.73	32	0.08	3379.11	3352.46	3352.38
4/13/20	22.70	25.40	22.00	2.70	3359.37	3336.67	3333.97	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.82	26.83	32	0.01	3379.11	3352.29	3352.28
4/20/20	22.40	24.65	22.00	2.25	3359.37	3336.97	3334.72	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.79	26.85	32	0.06	3379.11	3352.32	3352.26
4/27/20	21.45	30.34	22.50	8.89	3359.37	3337.92	3329.03	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.82	26.90	32	0.08	3379.11	3352.29	3352.21
5/4/20	22.55	25.39	22.50	2.84	3359.37	3336.82	3333.98	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	26.89	26.95	32	0.06	3379.11	3352.22	3352.16
5/11/20	21.75	21.90	22.50	0.15	3359.37	3337.62	3337.47	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.00	27.22	32	0.22	3379.11	3352.11	3351.89
5/18/20	20.65	31.45	22.50	10.80	3359.37	3338.72	3327.92	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.00	27.10	32	0.10	3379.11	3352.11	3352.01
5/27/20	22.00	31.15	22.50	9.15	3359.37	3337.37	3328.22	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.10	27.15	32	0.05	3379.11	3352.01	3351.96
6/1/20	22.05	31.55	23.50	9.50	3359.37	3337.32	3327.82	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.19	27.35	32	0.16	3379.11	3351.92	3351.76
6/8/20	21.20	22.10	23.50	0.90	3359.37	3338.17	3337.27	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.15	27.30	32	0.15	3379.11	3351.96	3351.81
6/22/20	22.10	23.78	23.50	1.68	3359.37	3337.27	3335.59	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.32	27.38	32	0.06	3379.11	3351.79	3351.73
6/29/20	18.85	18.95	21.50	0.10	3359.37	3340.52	3340.42	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.35	27.45	32	0.10	3379.11	3351.76	3351.66
7/7/20	18.00	18.15	21.50	0.15	3359.37	3341.37	3341.22	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.45	27.75	32	0.30	3379.11	3351.66	3351.36
7/13/20	18.15	18.30	21.50	0.15	3359.37	3341.22	3341.07	16.80	16.81	Out	0.01	3375.30	3358.50	3358.49	27.50	27.82	32	0.32	3379.11	3351.61	3351.29
7/20/20	18.55	18.68	21.50	0.13	3360.37	3341.82	3341.69	16.80	16.81	Out	0.01	3376.30	3359.50	3359.49	27.50	27.60	32	0.10	3380.11	3352.61	3352.51
7/27/20	18.39	18.55	21.50	0.16	3361.37	3342.98	3342.82	16.80	16.81	Out	0.01	3377.30	3360.50	3360.49	27.55	27.60	32	0.05	3381.11	3353.56	3353.51
8/3/20	18.40	18.59	21.50	0.19	3361.37	3342.97	3342.78	16.80	16.81	Out	0.01	3377.30	3360.50	3360.49	27.59	27.67	32	0.08	3381.11	3353.52	3353.44
8/10/20	18.15	18.43	21.50	0.28	3361.37	3343.22	3342.94	16.80	16.81	Out	0.01	3377.30	3360.50	3360.49	27.60	27.69	32	0.09	3381.11	3353.51	3353.42
8/18/20	18.35	18.49	21.50	0.14	3362.37	3344.02	3343.88	16.80	16.81	Out	0.01	3378.30	3361.50	3361.49	27.60	27.68	32	0.08	3382.11	3354.51	3354.43
8/24/20	18.45	18.62	21.50	0.17	3363.37	3344.92	3344.75	16.80	16.81	Out	0.01	3379.30	3362.50	3362.49	27.65	27.75	32	0.10	3383.11	3355.46	3355.36
8/31/20	18.55	19.09	21.50	0.54	3363.37	3344.82	3344.28	16.80	16.81	Out	0.01	3379.30	3362.50	3362.49	27.63	27.76	32	0.13	3383.11	3355.48	3355.35
9/8/20	19.00	19.01	21.50	0.01	3363.37	3344.37	3344.36	16.80	16.81	Out	0.01	3379.30	3362.50	3362.49	27.62	27.70	32	0.08	3383.11	3355.49	3355.41
9/14/20	18.99	19.15	21.50	0.16	3363.37	3344.38	3344.22	16.80	16.81	Out	0.01	3379.30	3362.50	3362.49	27.75	27.89	32	0.14	3383.11	3355.36	3355.22
9/21/20	19.00	31.75	21.50	12.75	3364.37	3345.37	3332.62	16.80	16.81	Out	0.01	3380.30	3363.50	3363.49	27.78	27.87	32	0.09	3384.11	3356.33	3356.24
9/28/20	19.59	21.95	21.50	2.36	3364.37	3344.78	3342.42	16.80	16.81	Out	0.01	3380.30	3363.50	3363.49	27.43	27.44	32	0.01	3384.11	3356.68	3356.67
10/5/20	18.62	19.40	21.50	0.78	3365.37	3346.75	3345.97	16.80	16.81	Out	0.01	3381.30	3364.50	3364.49	22.80	22.95	32	0.15	3385.11	3362.31	3362.16
10/12/20	20.17	22.25	20.50	2.08	3366.37	3346.20	3344.12	16.80	16.81	Out	0.01	3382.30	3365.50	3365.49	27.95	28.05	32	0.10	3386.11	3358.16	3358.06

Appendix F.2 - Recovery System Gauging Data
2020 Annual Groundwater Monitoring Report
HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, NM

Well	RW-20							RW-22						
Date	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)	Depth to PSH (feet btoc)	Depth to Water (feet btoc)	Product Pump (feet btoc)	PSH Thickness (feet)	TOC Elevation (feet)	PSH Elevation (feet)	Water Elevation (feet)
12/31/19	20.55	20.60	16.00	0.05	3358.44	3337.89	3337.84	24.25	24.86	27.00	0.61	3359.21	3334.96	3334.35
1/6/20	20.55	20.60	16.00	0.05	3358.44	3337.89	3337.84	25.63	26.87	27.00	1.24	3359.21	3333.58	3332.34
1/13/20	20.55	20.60	16.00	0.05	3358.44	3337.89	3337.84	26.39	28.34	27.00	1.95	3359.21	3332.82	3330.87
1/20/20	20.60	20.65	16.00	0.05	3358.44	3337.84	3337.79	27.00	28.80	27.00	1.80	3359.21	3332.21	3330.41
1/27/20	20.85	21.00	16.00	0.15	3358.44	3337.59	3337.44	26.40	28.55	27.00	2.15	3359.21	3332.81	3330.66
2/3/20	20.90	21.00	16.00	0.10	3358.44	3337.54	3337.44	25.90	31.30	27.00	5.40	3359.21	3333.31	3327.91
2/10/20	20.90	20.95	16.00	0.05	3358.44	3337.54	3337.49	25.80	28.75	27.00	2.95	3359.21	3333.41	3330.46
2/17/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.59	31.95	27.00	6.36	3359.21	3333.62	3327.26
2/24/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.43	33.42	27.00	7.99	3359.21	3333.78	3325.79
3/2/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	24.80	32.65	27.00	7.85	3359.21	3334.41	3326.56
3/9/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.62	29.40	27.00	3.78	3359.21	3333.59	3329.81
3/17/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.62	25.90	27.00	0.28	3359.21	3333.59	3333.31
3/23/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.30	25.61	27.00	0.31	3359.21	3333.91	3333.60
3/31/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	25.80	25.90	27.00	0.10	3359.21	3333.41	3333.31
4/6/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	24.90	28.07	27.00	3.17	3359.21	3334.31	3331.14
4/13/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	27.70	30.15	27.00	2.45	3359.21	3331.51	3329.06
4/20/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	27.59	29.62	27.00	2.03	3359.21	3331.62	3329.59
4/27/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	27.29	29.48	27.50	2.19	3359.21	3331.92	3329.73
5/4/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	27.25	29.19	27.50	1.94	3359.21	3331.96	3330.02
5/11/20	0.00	0.00	16.00	0.00	3358.44	--	3358.44	27.34	27.75	27.50	0.41	3359.21	3331.87	3331.46
5/18/20	17.79	17.90	16.00	0.11	3358.44	3340.65	3340.54	27.48	27.88	27.50	0.40	3359.21	3331.73	3331.33
5/27/20	18.65	18.75	16.00	0.10	3358.44	3339.79	3339.69	27.30	27.56	27.50	0.26	3359.21	3331.91	3331.65
6/1/20	19.10	19.30	16.00	0.20	3358.44	3339.34	3339.14	26.08	26.18	27.50	0.10	3359.21	3333.13	3333.03
6/8/20	17.80	18.00	16.00	0.20	3358.44	3340.64	3340.44	23.03	23.25	27.50	0.22	3359.21	3336.18	3335.96
6/22/20	18.25	18.00	16.00	-0.25	3358.44	3340.19	3340.44	23.79	32.00	27.50	8.21	3359.21	3335.42	3327.21
6/29/20	16.90	17.40	16.00	0.50	3358.44	3341.54	3341.04	18.90	20.02	27.50	1.12	3359.21	3340.31	3339.19
7/7/20	15.30	16.30	16.00	1.00	3358.44	3343.14	3342.14	16.15	18.15	27.50	2.00	3359.21	3343.06	3341.06
7/13/20	16.10	16.15	16.00	0.05	3358.44	3342.34	3342.29	18.05	19.59	27.50	1.54	3359.21	3341.16	3339.62
7/20/20	20.40	20.50	16.00	0.10	3359.44	3339.04	3338.94	18.05	19.59	27.50	1.54	3360.21	3342.16	3340.62
7/27/20	0.00	20.80	16.00	0.00	3360.44	--	3339.64	18.50	19.70	27.50	1.20	3361.21	3342.71	3341.51
8/3/20	0.00	19.85	16.00	0.00	3360.44	--	3340.59	18.50	19.70	27.50	1.20	3361.21	3342.71	3341.51
8/10/20	0.00	19.60	16.00	0.00	3360.44	--	3340.84	18.00	19.79	27.50	1.79	3361.21	3343.21	3341.42
8/18/20	20.80	20.85	16.00	0.05	3361.44	3340.64	3340.59	16.62	17.55	27.50	0.93	3362.21	3345.59	3344.66
8/24/20	19.50	19.65	16.00	0.15	3362.44	3342.94	3342.79	18.25	19.40	27.50	1.15	3363.21	3344.96	3343.81
8/31/20	20.55	20.60	16.00	0.05	3362.44	3341.89	3341.84	17.15	18.25	27.50	1.10	3363.21	3346.06	3344.96
9/8/20	16.55	17.45	16.00	0.90	3362.44	3345.89	3344.99	18.79	19.75	27.50	0.96	3363.21	3344.42	3343.46
9/14/20	20.45	20.60	16.00	0.15	3362.44	3341.99	3341.84	18.79	19.75	27.50	0.96	3363.21	3344.42	3343.46
9/21/20	0.00	21.00	16.00	0.00	3363.44	--	3342.44	23.55	24.73	23.50	1.18	3364.21	3340.66	3339.48
9/28/20	20.73	20.90	16.00	0.17	3363.44	3342.71	3342.54	23.45	24.53	23.50	1.08	3364.21	3340.76	3339.68
10/5/20	20.40	20.70	16.00	0.30	3364.44	3344.04	3343.74	21.30	22.40	23.50	1.10	3365.21	3343.91	3342.81
10/12/20	20.60	20.70	16.00	0.10	3365.44	3344.84	3344.74	23.35	23.95	23.50	0.60	3366.21	3342.86	3342.26
10/19/20	19.90	19.95	16.00	0.05	3365.44	3345.54	3345.49	23.64	24.02	23.50	0.38	3366.21	3342.57	3342.19
10/26/20	19.90	20.00	16.00	0.10	3365.44	3345.54	3345.44	23.45	24.08	23.50	0.63	3366.21	3342.76	3342.13
11/2/20	20.65	20.70	16.00	0.05	3365.44	3344.79	3344.74	23.59	24.03	23.50	0.44	3366.21	3342.62	3342.18
11/9/20	20.65	20.69	16.00	0.04	3365.44	3344.79	3344.75	23.70	24.20	23.50	0.50	3366.21	3342.51	3342.01
11/16/20	20.70	21.20	16.00	0.50	3365.44	3344.74	3344.24	23.53	23.73	23.50	0.20	3366.21	3342.68	3342.48
11/23/20	20.71	20.80	16.00	0.09	3365.44	3344.73	3344.64	23.85	24.25	23.50	0.40	3366.21	3342.36	3341.96
11/30/20	20.70	20.79	16.00	0.09	3365.44	3344.74	3344.65	24.13	24.25	23.50	0.12	3366.21	3342.08	3341.96
12/7/20	20.71	20.85	16.00	0.14	3365.44	3344.73	3344.59	25.83	27.70	25.50	1.87	3366.21	3340.38	3338.51
12/16/20	0.00	20.30	16.00	0.00	3365.44	--	3345.14	26.10	27.10	25.50	1.00	3366.21	3340.11	3339.11

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 160794

CONDITIONS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 160794
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
scwells	Accepted for Record Retention Purposes-Only	11/22/2022