

EXHIBIT 12-A



Memorandum

To: Water Year 2024 ASR Operations File
cc: Dave Stoldt, MPWMD General Manager;
From: Jonathan Lear, Water Resources Division Manager
Date: March 12, 2024

Subject: Residual Plugging of ASR 1 and ASR 2 from High SDI Water and Loss of Specific Capacity

This memo is to document the loss of specific capacity that occurred March 6, 2024 in ASR 1 and ASR 2 resulting from injecting water out of Silt Density Index (SDI) specifications.

On March 7, 2024, during a routine morning check of the ASR system, Jon Lear of MPWMD noticed that ASR 1 and 2 were both experiencing very high drawup, with ASR 2 having drawn up to just 37 feet below ground surface. The normal maximum allowed drawup for ASR 2 is approximately 220 feet below ground surface. ASR 2 was shut off and ASR 1 was shut off soon after also due to high draw up. No abnormal operation was noted in the 3/6/2024 afternoon ASR site visit, which occurred at approximately 4:30 pm.

A review of the pressure transducer logs from ASR 1 and 2 revealed that starting at about 8pm on 3/6/2024, ASR 1 and 2 began to draw up dramatically before reaching their maximum draw up at about 11pm that night. The maximum level of draw up at ASR 1 and 2 was approximately 191 and 37 feet below ground surface at ASR 1 and 2, respectively. In response, the ASR wells were shut down by MPWMD staff and the lube lines at ASR 1 and 2 were turned on so that an additional backflush operation could occur on 3/8/2024, to attempt to recover the specific capacity lost during the draw up event. A regularly scheduled backflush had previously occurred on 3/5/2024. No abnormal operation was observed during that regularly scheduled backflush.

On 3/8/2024, ASR 1 and 2 were backflushed. During the first backflush at ASR 1, the pump began cavitating and dewatering at the standard backflush rate of 3000 gallons per minute (gpm), indicating that significant specific capacity had been lost. The well also produced very high turbidity water during this initial backflush apparently a result of injecting off-specification water. The first backflush was cut short to prevent damaging the well and the variable frequency drive (VFD) was adjusted to allow the well to backflush without dewatering the well. ASR 1 normally backflushes at approximately 3000 gpm, however the maximum extraction rate that could be maintained without dewatering the well had been reduced to 2100 gpm. Water produced from the

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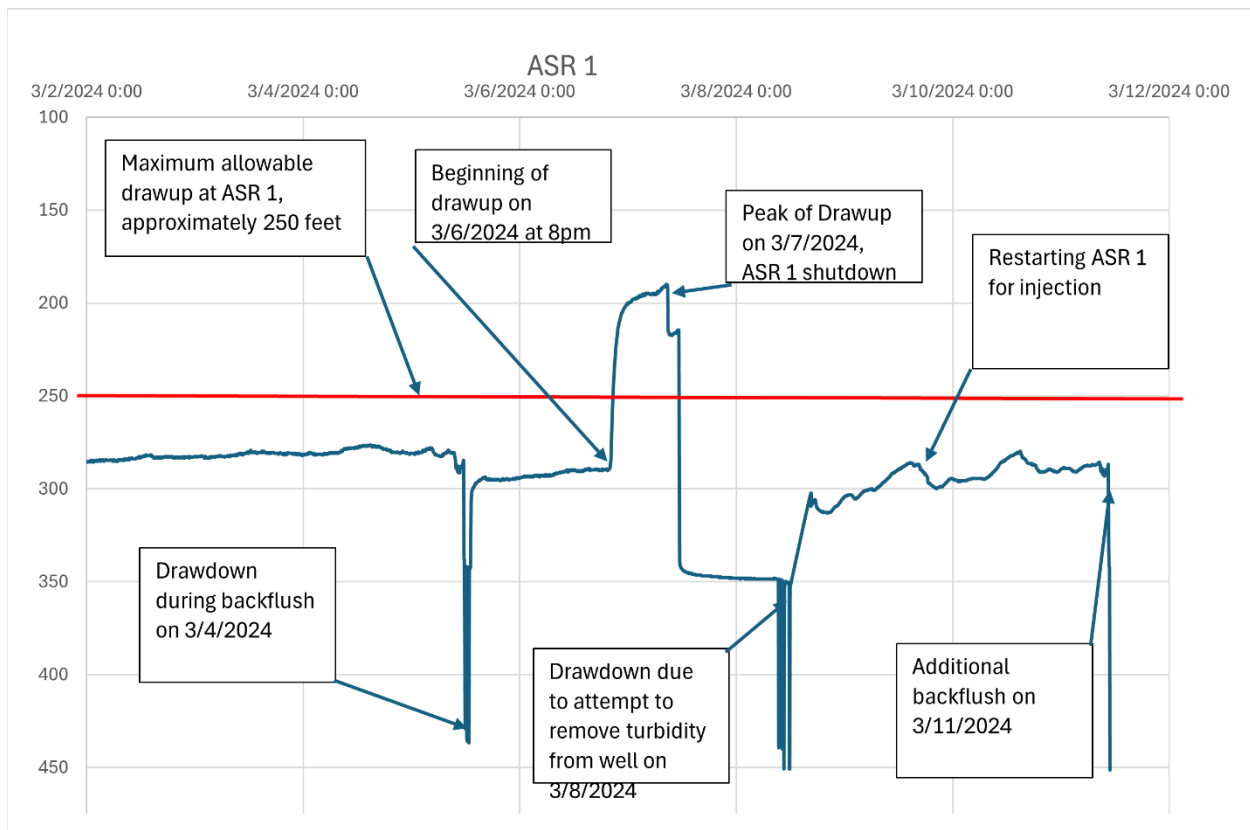
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well was turbid. ASR 2 was similarly affected, only being able to sustain a 2100 gpm backflush rate, compared to its standard 3000 gpm. Its VFD setting was also reduced to allow backflushing to occur without cavitating its pump.

On 3/8/2024, Jon Lear spoke with CalAm operations and inquired if any changes in system operations were made during 3/6/2024 that could have caused reversal of flows in the system that could have caused high SDI water to be introduced into the system. A reversal of flow event had caused high SDI water to be injected into ASR 4 in a previous operational year. Mr. Lear was informed that high SDI water had been produced from the Begonia Iron Removal Plant and introduced into the Cal-Am distribution system. The turbidity event occurred in the late morning on 3/6/2024 and had caused Cal-Am to receive a number of dirty water calls from the Carmel Valley service area of the main system. The off-specification water was then pumped into the Crest tanks, which supply the ASR wells and was injected, starting at approximately 8 pm on 3/6/2023.

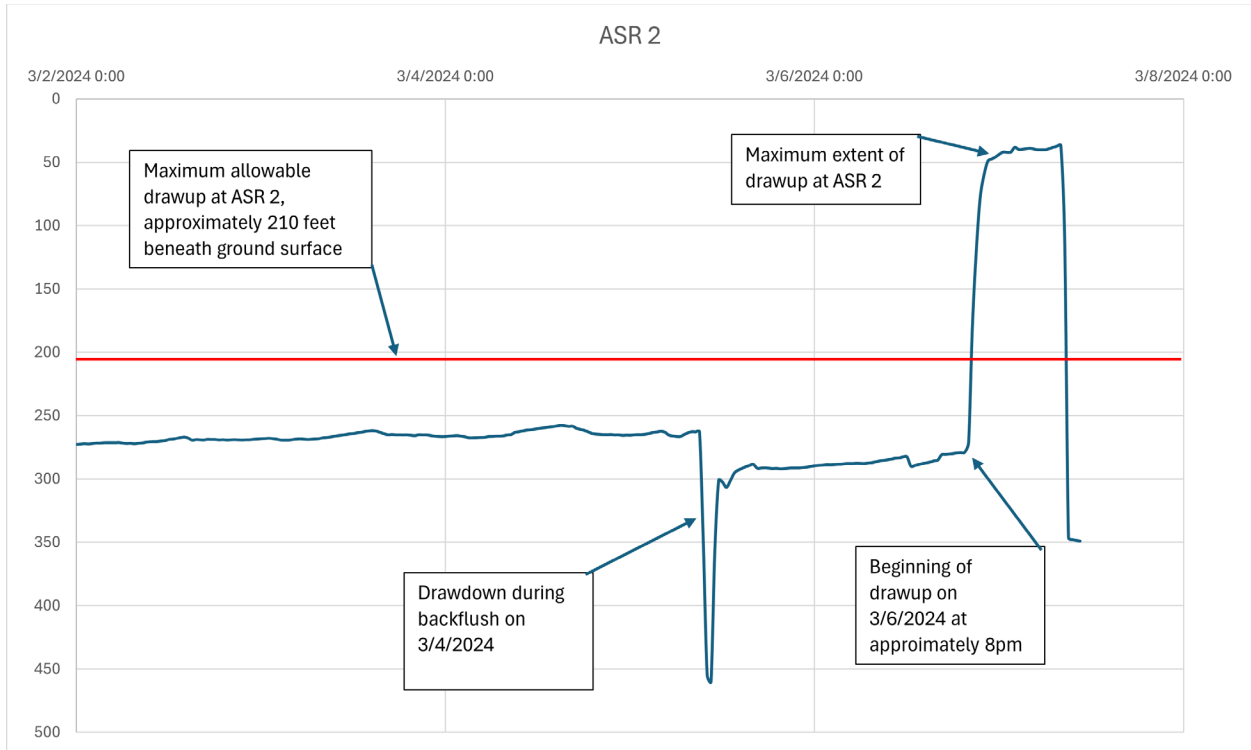
Despite numerous backflushes of ASR 1 and 2, specific capacity of both wells has been impacted by the event. ASR 1 and 2 are currently now only to operate at approximately 70 percent of capacity and it is unclear if any additional capacity can be recovered by additional backflushing efforts. Another backflush was conducted on 3/11/2024 at both ASR 1 and 2 but capacity remains reduced. Below are figures and tables that illustrate the timeline of events and subsequent losses in specific capacity at both wells.



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Below is a picture of the water during the backflush of ASR 1 on 3/8/2024, which was the first backflush following the injection of the high SDI water.





The above picture are the cells used to measure the turbidity in the water produced from the wells during backflushing. These data are used to determine if additional backflushes are required. The well was turned off during its 10-minute backflush after the two-minute sample was collected as the decreased specific capacity caused ASR 1 to dewater and begin cavitating the pump. The turbidity of cell number #2 was 160, approximately 10 times higher than the same cell from the 3/5/2024 scheduled backflush prior to the off-specification water being injected into the well. Below is a table that shows the turbidity of additional backflushes that occurred at ASR 1 and 2, compared to the results of regularly scheduled backflushes.

Date	Well	T0 (NTU)	T1 (NTU)	T2 (NTU)	T5 (NTU)	T10 (NTU)	Calc Specific Capacity
2/6/2024	ASR1	0.65	210	54.9	8.1	3.94	30.30
2/12/2024	ASR1	0.33	52.9	26.3	9.32	2.39	36.47
2/20/2024	ASR1	0.12	0.78	17.2	6.95	2.43	33.33
3/5/2024	ASR 1	0.09	0.36	16.9	6.2	2.22	33.33
3/8/2024	ASR 1	116	152	48.1	5.81	1.71	15.38
3/8/2024	ASR 1	4.39	1.48	7.6	9.26	4.6	17.09
3/11/2024	ASR 1	0.19	0.74	14.8	17.2	3.49	18.80
3/11/2024	ASR 1	3.26	3.09	6.16	3.26	1.74	22.22

Pumping water levels in ASR 1 are difficult to use to calculate the specific capacity, as the pressure transducer is set at 453 feet below ground level and was dewatered during. This specific capacity calculation assumes that drawdown only goes to 460 feet and is therefore conservative for estimation of the total loss of specific capacity in ASR 1.

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Date	Well	T0 (NTU)	T1 (NTU)	T2 (NTU)	T5 (NTU)	T10 (NTU)	Calc Specific Capacity
2/6/2024	ASR2	0.22	252	47.6	33.8	5.24	25.93
2/12/2024	ASR2	0.22	11.3	41.1	25.8	5.13	26.52
2/20/2024	ASR2	0.13	117	15	20.6	3.54	28.04
3/5/2024	ASR2	0.26	85.1	22.3	17.6	3.32	28.88
3/8/2024	ASR2	1.34	5.78	15.2	105	48.7	11.66
3/8/2024	ASR2	33	24.3	3	13.6	17.6	14.06
3/11/2024	ASR 2	0.13	0.65	8.62	61	8.93	13.86
3/11/2024	ASR 2	7.96	7.34	6.34	10.5	5.13	14.49

The pressure transducer is set lower in ASR 2 and was not dewatered during backflushing. Therefore, this calculation is more accurate and may be more representative of the total loss of specific capacity sustained at ASR 1 and 2.

This emergency situation results in a permanent decrease of injection capacity until both ASR wells have well rehabilitations performed to return the wells to their performance levels prior to injection of off-specification water. As a result of this event, MPWMD staff is planning to install continuous SDI monitoring equipment at each well head and build an automatic safety shut down mechanism to the well head valves should high SDI water be detected by the sensors. MPWMD staff will also work with Cal-Am operations to develop a notification protocol should another event like this one occur in the future while ASR is injecting. Had the District been notified, and should another event like this occur in the future and the District is notified, District staff would open the line flush at the Santa Margarita Site and flush the off-specification water to the backflush pit while monitoring the water quality. Once the off-specification water has been flushed, the ASR wells could be put back into injection service without sustaining damage.

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