BRANNAN
Companies

13 February 2024

Nikie Gagnon
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

by email to nikie.gagnon@state.co.us

Re: Resolution of Groundwater Comments, M-1980-183

Ms. Gagnon:

With this letter, Pit 29 Operator Brannan Sand and Gravel Company, LLC, seeks to resolve groundwater data format and hydrologic balance questions that have emerged since, in an October 26, 2023, letter, the Division initially requested assessment of a groundwater mounding situation it believes to exist on the east side permit boundary at Pit 29.

The simplest path to resolution is a timely reconsideration of the relevant data, especially in light of format changes implemented by Brannan's environmental professionals. Reformatted groundwater monitoring data for MW-1, MW-2 and MW-4 are included in the enclosed February 8 submittal of Q4 monitoring results. Brannan appreciates this opportunity to clarify that there is no disturbance to the hydrologic balance due to the M-1980-183 permit.

Stated concisely, data from MW-1 since the slurry wall repair in 2019, at the cited east side permit boundary, illustrates a rebounding effect from artificially depressed groundwater levels. For further explanation, enclosed is a supplementary engineering/hydrogeology letter from Civil Resources, LLC.

A restabilized and historically consistent hydrologic balance is exhibited by the data, but it is also noteworthy that fluctuations in hydrologic balance are not prohibited by Construction Materials Rule 3.1.6(1). As acknowledged by the Division, the mandate of the Rule is that operators minimize disturbances. Addressing Rule 3.1.6.(1) directly, with respect to Pit 29:

- Pit 29 complies with Colorado water law and, in relevant portion, is in fact reclaimed as a water resource. No injury to water rights is alleged.
- The site complies with all laws concerning water quality.
- The site complies with all laws concerning dredge and fill.
- No drainageways were obstructed for the operation.

The Division alleges an "average" rise of approximately 5.5 feet in groundwater levels at MW-1 as the basis for its citation of Rule 3.1.6(1). It is unclear how this is measured as a disturbance, or as a failure to minimize disturbance, under Rule 3.1.6(1). Any attempt at quantification should account for climatic and seasonal

variation, agricultural pumping practices, and other external factors, including historically high water table levels reported throughout the South Platte basin (including Adams County) in recent years.

Finally, Brannan acknowledges that the adjacent Sandy Acres/Henderson Development site, owned by E-470 PHA, is presently communicating with the Division regarding water levels within their permit boundary. There is a long technical history in the M-1980-110 permit file, and, similar to Pit 29, a complex array of factors influencing well data. Notably, the Division's September 2023 inspection of Sandy Acres recorded that a new french drain and channel is still being adjusted to achieve functional drainage on Sandy Acres, and that algae clogging infiltration pipes and low-permeability fill material in the Sandy Acres pit may contribute to drainage issues. Note also, referring to that operator's recent submittal of its own well data, that little to no variation occurs in Brannan's MW-1 since M-1980-110 monitoring wells were installed in 2020, indicating that the recent rise in Sandy Acres well levels correlates with some other source or influence. We encourage the Division to be clear if it is adopting data or importing conclusions from Sandy Acres for use at Pit 29.

Until diagnostic conclusions can be fairly agreed upon where mounding "may be occurring" along Pit 29's east permit boundary, and the application of Rule 3.1.6(1) to this situation firmly established, it is premature to assume that operational plans must be changed. Accordingly, Brannan requests that the March 17 deadline to submit a Technical Revision be withdrawn or held in abeyance pending further review of this issue. Moreover, we urge the Division to consider that, given the totality of information gathered to date, continued close examination of quarterly well monitoring results is appropriate, but no other action is warranted at this time.

With any questions or further discussion, please do not hesitate to contact me at aschatz@brannan1.com or 303-853-5161. Your time and consideration is appreciated.

Respectfully,

BRANNAN SAND AND GRAVEL COMPANY, LLC

Alex Schatz

encl: Brannan (Scott Legg) letter, February 8, 2024, Quarterly Groundwater Monitoring Results
Civil Resources (Brad Hagen) letter, February 13, 2024, Groundwater Mounding East of Pit 29

cc: Fred Marvel
Brad Hagen
Scott Legg
Emily Schallenkamp
Steve Kelton

February 8, 2024

Colorado Division of Reclamation, Mining and Safety
ATTN: Nikie Gagnon
1313 Sherman St. Suite 215
Denver, CO 80203

Re: M-1980-183 Quarterly Groundwater Monitoring Results Submission

Ms. Gagnon,

Please find attached quarterly groundwater level monitoring data for Brannan Sand and Gravel Company's Pit 29 facility for the 4th Quarter 2023:

- Attachment A
  - Table 1: Well Information
  - Table 2: Groundwater Elevation Measurements
- Attachment B
  - Graph of Groundwater Elevations
- Attachment C
  - Well Locations Map

The hydrologic balance is being kept in check by the French drain, as verified by the readings from MW-4. There have not been any offsite impacts associated with hydrologic balance issues observed since the French drain was installed. MW-2 groundwater levels appear to be similar to previous years and are currently exhibiting seasonal fluctuations. MW-1 groundwater levels are exhibiting seasonal fluctuations. The groundwater levels in MW-1 have remained within a steady range since early 2019.

Please let me know if you have any questions.

Sincerely,

Scott Legg
Environmental Manager
Brannan Sand and Gravel Company, L.L.C.
303-472-1736
slegg@brannan1.com

Attachments

Attachment A

Well Information & Water Elevation Measurements

Brannan Sand Gravel Company, LLC
Pit 29: M-1980-183 Quarterly Groundwater Monitoring
Attachment A

Table 1: Well Information			
Well Information	**MW-1 OUT**	**MW-2 OUT**	**MW-4 OUT**
Location	39.92871, -104.85185	39.92290, -104.85384	39.929074 -104.858989
Land Surface Elevation (ft)	5031.8	5039.2	5014.2
Top of Casing Elevation (ft)	5032.7	5042.0	5016.5
Total Depth (ft)	46	35	30
Screened Interval (ft)	No data	10-25	10-30
Completion Date	No data	4/19/1960	9/7/2010

Table 2: Water Level Measurements			
Date	**MW-1 OUT**	**MW-2 OUT**	**MW-4 OUT**
9/1/2010	5011.83	5020.30	4992.82
12/1/2010	5010.93	5016.04	4987.97
3/1/2011	5011.27	5019.80	4989.56
6/1/2011	5012.43	5023.46	4992.42
9/1/2011	5012.89	5020.57	4993.14
12/1/2011	5011.63	5018.10	4993.07
3/1/2012	5010.88	5028.90	4996.47
6/1/2012	5010.94	5020.73	5000.13
9/12/2012	5010.86	5019.99	5008.58
11/12/2012	-	-	5009.38
12/12/2012	5010.04	5018.66	5008.55
4/13/2013	5008.99	5021.04	5008.61
4/22/2013	5009.28	5019.50	5008.92
6/13/2013	5009.36	5020.42	5008.62
9/1/2013	5010.17	5020.05	5009.70
12/13/2013	5008.64	5018.60	5008.62
3/14/2014	5007.68	5022.45	5008.13
6/14/2014	5008.52	5021.45	5009.04
9/14/2014	5008.92	5020.40	5009.58
11/14/2014	5008.23	5019.58	5008.99
12/1/2014	5006.98	5018.72	5008.20
3/31/2015	5004.96	5021.71	5007.44
6/15/2015	5010.04	5022.51	5009.43
9/15/2015	5011.89	5021.45	5008.95
12/15/2015	5010.41	5020.05	5007.68
4/6/2016	5008.72	5019.14	5005.07
7/13/2016	5011.17	5020.56	5007.89
8/30/2016	5011.22	5019.34	5005.21
9/27/2016	5011.05	5018.83	5005.45
10/31/2016	5011.30	5018.29	5005.13
11/21/2016	5011.25	5018.15	5005.17
12/28/2016	5010.22	5017.27	5005.07

Brannan Sand Gravel Company, LLC
Pit 29: M-1980-183 Quarterly Groundwater Monitoring
Attachment A

1/26/2017	5009.34	5016.89	5005.02
2/27/2017	5008.39	5016.60	5005.02
3/28/2017	5008.48	5019.42	5005.03
5/22/2017	5010.71	5019.95	5005.32
6/14/2017	5011.07	5020.32	5005.31
7/17/2017	5012.15	5020.60	5005.28
8/11/2017	5012.02	5019.70	5006.11
9/11/2017	5011.86	5019.60	5005.26
10/16/2017	5011.41	5018.90	5005.23
11/21/2017	5009.35	5017.62	5005.10
12/19/2017	5009.44	5017.06	5005.16
1/19/2018	5008.51	5016.62	5005.00
2/16/2018	5007.93	5016.39	5004.95
3/12/2018	5007.35	5016.20	5004.84
4/30/2018	5009.03	5019.01	5005.00
5/21/2018	5009.88	5019.45	5005.04
6/22/2018	5011.03	5020.12	5005.17
7/12/2018	5011.33	5019.96	5005.16
8/15/2018	5011.23	5019.37	5005.21
9/5/2018	5010.08	5019.09	5005.17
10/18/2018	5013.88	5018.39	5005.17
11/19/2018	5014.79	5017.72	5005.07
12/14/2018	5014.49	5017.33	5005.02
2/28/2019	5013.62	5016.71	5004.92
3/28/2019	5013.39	5016.59	5004.91
4/30/2019	5013.31	5019.60	5004.99
5/31/2019	5015.65	5020.08	5005.10
6/20/2019	5016.27	5020.63	5005.17
7/18/2019	5016.64	5021.34	5005.22
9/27/2019	5016.54	5019.91	5005.21
10/21/2019	5016.43	5019.51	5005.21
11/25/2019	5015.87	5018.25	5005.18
1/3/2020	5015.39	5017.80	5005.03
1/27/2020	5015.10	5017.58	5005.03
2/19/2020	5014.78	5017.43	5005.00
3/10/2020	5014.58	5017.31	5004.99
4/15/2020	5015.30	5020.01	5005.09
5/12/2020	5016.10	5020.67	5005.14
6/15/2020	5016.51	5021.19	5005.22
7/14/2020	5016.76	5021.07	5005.24
8/14/2020	5016.43	5020.10	5005.23
9/14/2020	5016.28	5019.59	5005.22
10/12/2020	5016.13	5019.34	5005.20
11/12/2020	5015.82	5018.25	5005.16
12/21/2020	5015.18	5017.67	5005.06
1/13/2021	5014.83	5017.47	5004.99
2/16/2021	5014.29	5017.15	5004.99

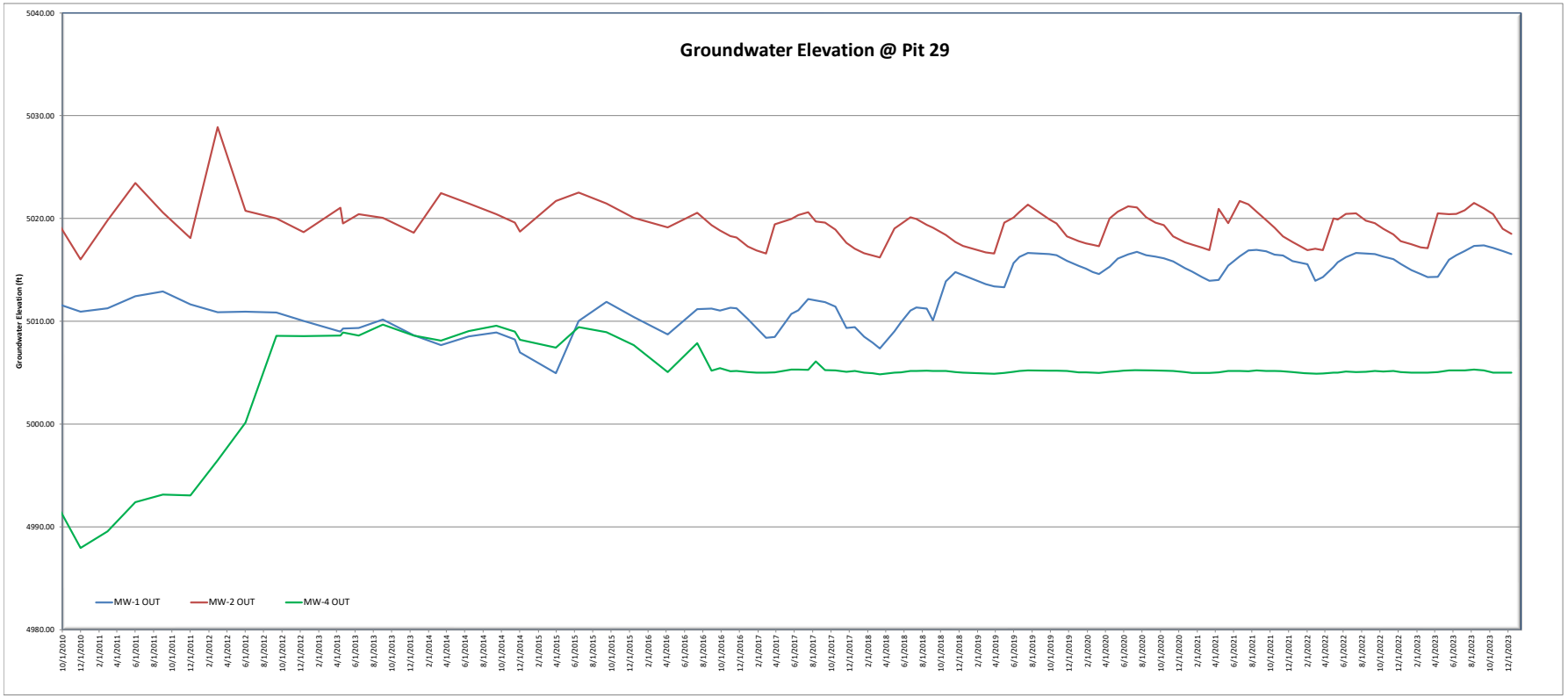
Brannan Sand Gravel Company, LLC
Pit 29: M-1980-183 Quarterly Groundwater Monitoring
Attachment A

3/12/2021	5013.94	5016.92	5004.97
4/12/2021	5014.01	5020.92	5005.04
5/14/2021	5015.40	5019.55	5005.17
6/21/2021	5016.32	5021.69	5005.17
7/20/2021	5016.90	5021.37	5005.14
8/16/2021	5016.93	5020.67	5005.22
9/17/2021	5016.80	5019.85	5005.17
10/15/2021	5016.48	5019.09	5005.17
11/12/2021	5016.39	5018.25	5005.14
12/14/2021	5015.84	5017.71	5005.05
2/1/2022	5015.54	5016.91	5004.92
2/28/2022	5013.93	5017.06	5004.92
3/25/2022	5014.28	5016.91	5004.92
4/29/2022	5015.28	5020.00	5005.02
5/13/2022	5015.73	5019.90	5005.02
6/9/2022	5016.23	5020.45	5005.12
7/13/2022	5016.63	5020.50	5005.07
8/15/2022	5016.59	5019.79	5005.10
9/14/2022	5016.53	5019.55	5005.17
10/12/2022	5016.28	5019.00	5005.12
11/14/2022	5016.03	5018.45	5005.17
12/9/2022	5015.58	5017.80	5005.07
1/13/2023	5014.98	5017.50	5005.02
2/13/2023	5014.58	5017.20	5005.02
3/8/2023	5014.28	5017.10	5005.02
4/11/2023	5014.33	5020.50	5005.07
5/18/2023	5015.98	5020.40	5005.22
6/12/2023	5016.43	5020.45	5005.22
7/10/2023	5016.83	5020.80	5005.22
8/10/2023	5017.33	5021.50	5005.32
9/11/2023	5017.38	5021.00	5005.22
10/12/2023	5017.13	5020.40	5005.02
11/13/2023	5016.83	5019.00	5005.02
12/12/2023	5016.53	5018.50	5005.02

Attachment B

Graph of Groundwater Elevations

Brannan Sand Gravel Company, LLC
Pit 29: M-1980-183 Quarterly Groundwater Monitoring
Attachment B



*Missing data from 11/12/2012 for MW-1 & MW-2 has been interpolated to provide graphical continuity.

Attachment C

Well Locations Map


Pit 29
M-1980-183
Well Location Map
South Platte River
Pit 29
MW-4 OUT
MW-1 OUT
South Platte River
MW-2 OUT
Google Earth
Image © 2024 Airbus
2000 ft
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CIVIL RESOURCES, LLC
ENGINEERS & PLANNERS

February 13, 2024

Colorado Division of Reclamation, Mining & Safety
Ms. Nikie Gagnon
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Groundwater Mounding East of Pit 29 (Permit M-1980-183), Adams County, Colorado

Dear Ms. Gagnon:

The DRMS has made claim that a "hydrologic imbalance" exists based on potential mounding of groundwater on the east side of Brannan's Pit 29 property due to Brannan repairing the slurry wall originally constructed in 2005. This conclusion is neither supported by the existing record of reliable groundwater data nor the analysis of local groundwater flow conditions and influences. Please consider the following information in addition to the previously rationale presented in prior correspondence regarding the same:

1. *Historic Groundwater Imbalance.* The local groundwater system was put out of balance upon the initiation of mining at Sandy Acres and Brannan's Pit 29 (subject property).

    a. Sandy Acres exposed groundwater in an unlined excavation and thereby depleted groundwater by evaporation which directly creates an imbalance in the local groundwater system.

    b. Brannan Pit 29 pumped groundwater out of the active mining area for years ranging from roughly 2005 to 2019 when the slurry wall was repaired and pumping was no longer required. This created an unnatural drawdown of the groundwater east of Pit 29 where the leaking slurry wall was repaired and observed inflow was estimated to exceed 500 gpm.

2. *Current Groundwater Imbalance.* The remaining imbalance is due to Sandy Acres.

    a. Sandy Acres is still creating an imbalance in the groundwater system by continued evaporative losses and/or by obstructing the natural groundwater flow as a result of backfilling the Sandy Acres parcel to the east of Pit 29.

    b. Alluvial groundwater flow direction in the South Platte River (SPR) alluvial generally flows sub-parallel to the river. The SPR flows northeast at the south end of Pit 29 and turns due north at the north side of Pit 29 which indicates that the groundwater flow would be predominantly north-south at the Site. The DRMS previously required Brannan to install an underdrain along the south side of the North Pit which has effectively alleviated mounding in the local groundwater which further supports this conclusion.

    c. Brannan's impact on the local groundwater balance became negligible when the water levels recovered following repair of the slurry wall and ceasing pumping of the groundwater in 2019. The documented groundwater levels recovered following the slurry wall repair and have been stable over the last several years with water levels fluctuating seasonally within natural variability. Refer to Brannan's letter latest Quarterly monitoring results.

In conclusion, the DRMS has neither provided local reliable data in support of their conclusion that the local groundwater level has risen higher than historic levels, nor has the DRMS provided any technical basis for concluding that Pit 29 would cause this rise. It appears that the recent activities at Sandy Acres are being ignored. Further, the DRMS has historically not required mitigation actions until a rise that statistically exceeds the natural variability of the groundwater fluctuations is observed and is demonstrably caused by the subject project resulting in a claim of damage to neighboring property rights or a significant identifiable risk to public safety. CR does not believe this threshold has been reached, as a rise in groundwater does not appear to present a risk of damage to adjacent structures or property. This statement would still be the case even if the groundwater were to significantly exceed the historically observed high groundwater condition.

We appreciate your review. Should you have any questions, please contact us.

Sincerely,
CIVIL RESOURCES, LLC.

Cc:
Fred Marvel
Alex Schatz
Emily Schallenkamp

Attachments:

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