J&T Consulting, Inc.

November 17, 2023

Ms. Hunter Ridley
Environmental Protection Specialist
State of Colorado
Division of Reclamation, Mining, and Safety
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RE: Adequacy Review #2; Technical Revision (TR9); NCCI Pit #1 – File No. M-2001-107

Dear Ms. Ridley,

Northern Colorado Constructors, Inc. (NCCI) has received the Division's Adequacy Review #2 letter dated October 31, 2023. Below are the comments and the corresponding responses that we have provided to address the comments to Mr. Patrick Lennberg's comment memo with help from Dennis McGrane or McGrane Water Engineering, LLC.

1. Observations and inferences, item 1 indicates the water table east of the NCCI pit is influenced by the Lupton Bottom Ditch (LBD) and Little Dry Creek (LDC). However the Division believes the water table in this area is more influenced by the South Platter River (SPR) and another un-named ditch that runs between the pit and the SPR, please comment.

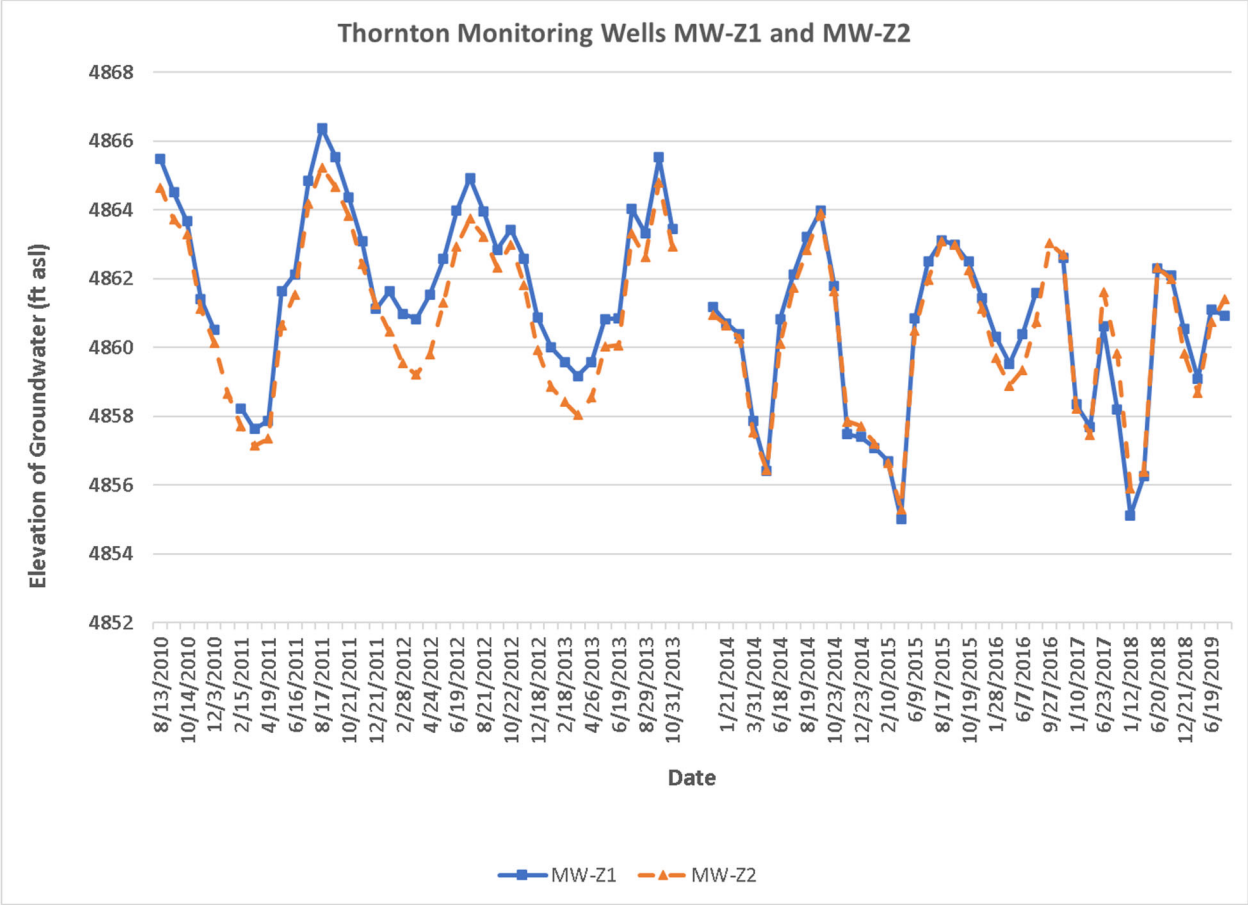
   Response: This was a typo in the report. We agree with the Division and suggest we revise observation and inference item 1 to include the red highlighted text below:

   "1. Based on aerial photographs taken prior to NCCI pit development, the water table east of the NCCI pit was likely shallow and fluctuated close to the ground surface due to seasonal recharge from the SPR, LDC and LBD and other un-named irrigation ditches."

2. Observations and inferences, item 3, it is stated that the LBD is responsible for the seasonal recharge in wells MW-Z1 and MW-Z2 as large as 8 feet, what observations is this based off of? A review of the discharge records for the LBD it indicates peak discharge typically occurs in June yet peak groundwater levels, in Z1 and Z2, typically occur in September. Additionally, the groundwater elevation data submitted to the Division show other site monitoring wells (MW-Z3, - Z4, and -Z5) also have documented large seasonal fluctuations of groundwater levels in them that cannot be solely attributed to the LBD.

   Response: The figure below shows seasonal fluctuations. An 8 ft fluctuation in MW-Z1 and MW-Z2 was observed in 2011 between 4857 and 4866 ft (~8 ft). That said, nearly 9 ft annual

declines were observed between 2013 and 2015.



Since the elevation of the Z wells, (especially MW-Z1 and MW-Z2), are much higher than the SPR and the fluctuation is much higher than occurs in the river, the fluctuations must be caused in part by the leakage from LBD and LDC and not just the river. Also, note that in areas where irrigation ditch leakage recharges the aquifer, the peak aquifer level may occur at the end of the ditch-run season and not necessarily at the peak rate run through the ditch. The peak ditch rate often occurs in the early season, but the ditch continues to leak as long as it is running. It is when the ditch is shut off at the end of the season that we expect to see groundwater levels stop rising and decline. This has been our observation at other locations influenced by irrigation-season ditch leakage, where groundwater levels rise all summer and decline only in September or October. The exact timing varies by location, but generally corresponds to when the local ditch is shut down for the season.

3. The report states, in item 4, that site dewatering pumping rates increased in the summer months due to leakage from LBD and LDC. The report goes on to state, in item 6, that the LDC has no connection to groundwater due to the type of vegetation present in the ditch. Finally, in item 10, it is stated that the LDC has no connection to groundwater as suggested by the model. Please clarify the discrepancy between items 4 and 6 and provide an

explanation how the model reflects there is no connection when it appears the model was run on the assumption there was connection between the LDC and groundwater.

Response: We apologize for the confusion. We believe that pit dewatering rates increased in the summer as a result of LBD recharge. Item 6 states that the increase in phreatophytes (regardless of type) over the past decades has been a function of the increased presence of recharging surface water due to the widening LDC channel due to sedimentation, while at the same time the water table is dropping due to dewatering. Item 10 states that "there is a vertical gradient (no hydraulic connection) between LDC and the groundwater table." The model simulates this hydraulic separation by using a low conductance value that causes the ground water surface to drop below the LDC channel bottom. "Connection" here refers to whether the water table is close enough to the channel bottom to interact with the channel's leakage rate, such that a higher water table reduced channel leakage and a lower water table increases channel leakage But once the water table is a certain distance below the channel bottom, the channel's leakage rate is constant and independent of water table fluctuations, i.e., no more feedback to the channel from the water table position. So, a channel can still leak and drive up groundwater levels—which increases pit dewatering rates---without being hydraulically "connected" (i.e., no feedback) with the water table and water table changes.

4. Observations and inferences, item 6, a review of historic aerial imagery indicates that LDC had no areas of ponding near the NCCI permit boundary. Beginning in 2005, around the time when dewatering activities began at the pit, ponding areas appear immediately adjacent to and within the permit boundary. Until recently the Operator had been directing their pit dewatering discharge to the LDC. These ponding areas have developed over time and persist to what is currently seen at the site. The Division believes that dewatering at the site has caused these ponding areas due to the Operator's discharge into a low gradient surface water flow regime unaccustomed to the increased flows. Additionally, in Figure 7 the modeled increase in groundwater adjacent to the permit boundary in this area of ponding is approximately 4 feet. The Division believes there is a possibility that the ponding water may actually be groundwater exposed at the surface along with surface water. Please comment.

   Response: Figure 7 does show that the pit likely caused an increase in water levels of approximately 4 feet on the southwest side of the pit. However, that increase has been essentially negated by the shadowing effects of the LGE pits shown by the red contours in Figure 6. Figure 8 shows the combined effect of all the pits which on average causes a < 1 ft net water level increase on the west side of the pit. We need to remember this average increase is less than typical seasonal recharge effects caused by the LBD.

   We disagree with the Division's assumption that the "LDC had no areas of ponding near the NCCI permit boundary" prior to pit development. The June 1993 aerial photograph below shows ponding water with significant phreatophyte growth in the center of section 24 prior to pit development. The geomorphology suggests that a berm was placed north of the meandering LDC to preventing the cutback from cutting into the property west of the NCCI Pit #1. This caused the gradient of LDC to flatten and fill with sediment (allowing more phreatophytes).

If there is also shallow groundwater, that too is caused by the LDC. The basis for this opinion is that, at that time, dewatering discharge to LDC by the mine occurred north of the NCCI north pit where the stream channel gradient is steep and ponding is not a problem. Therefore, the ponding in this area and increase in phreatophytes is a surface water drainage issue. In our opinion, this was a pre-existing condition.

5. Observations and inferences, item 8, states the LGE lined pits to the south have caused approximately 3 to 4 feet of groundwater decline on the east side of the NCCI south pit. A review of the water levels associated with MW-4Z, -5Z and -6Z all show an increase in overall levels since 2020. Please comment on the increase in levels seen within these wells.

   Response: We agree that water levels in MW-Z4, -Z5 and -Z6 increased since 2020, but we do not believe that they are necessarily higher than predevelopment conditions. In the following figures we compare pre-development water levels in NCCI pit wells that are no longer present (yellow wells in the inset of the next figure) to water levels in the post-pit "Z" monitoring wells. Previously these data were on separate plots but here they are combined for comparison.

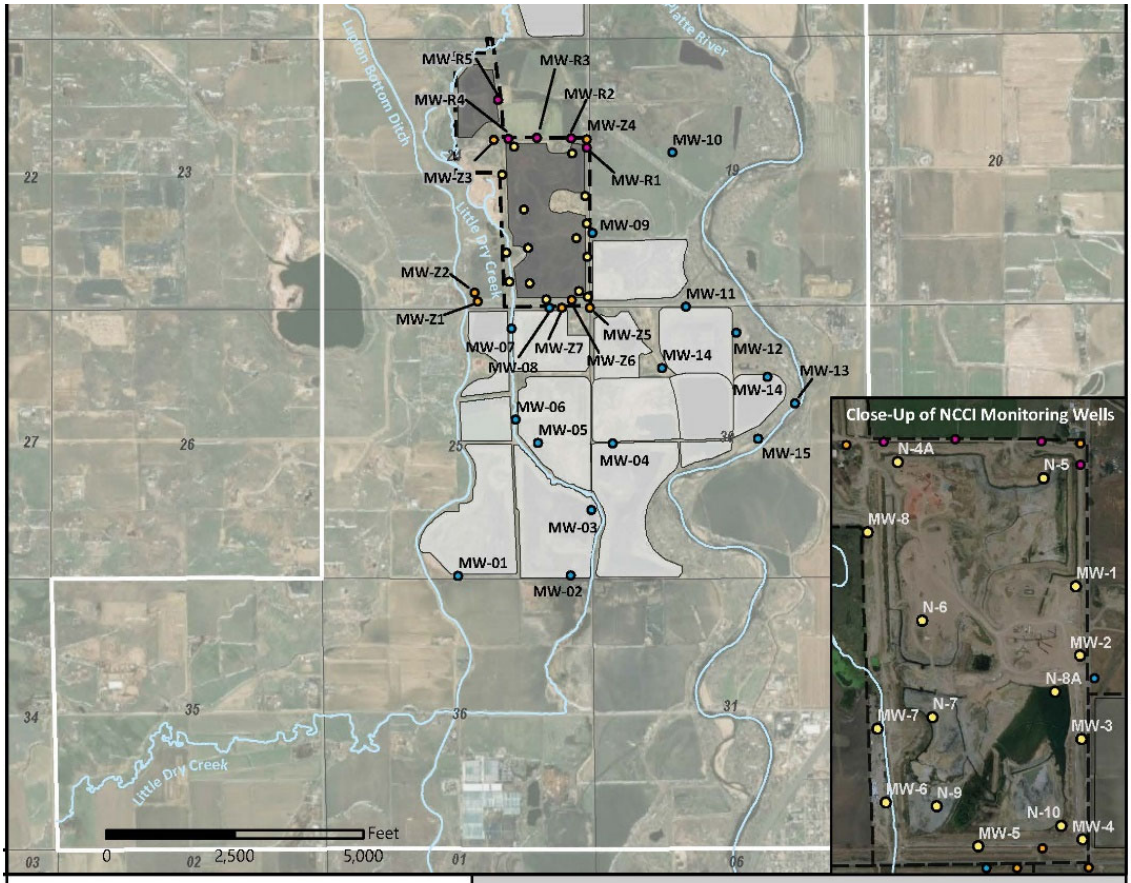


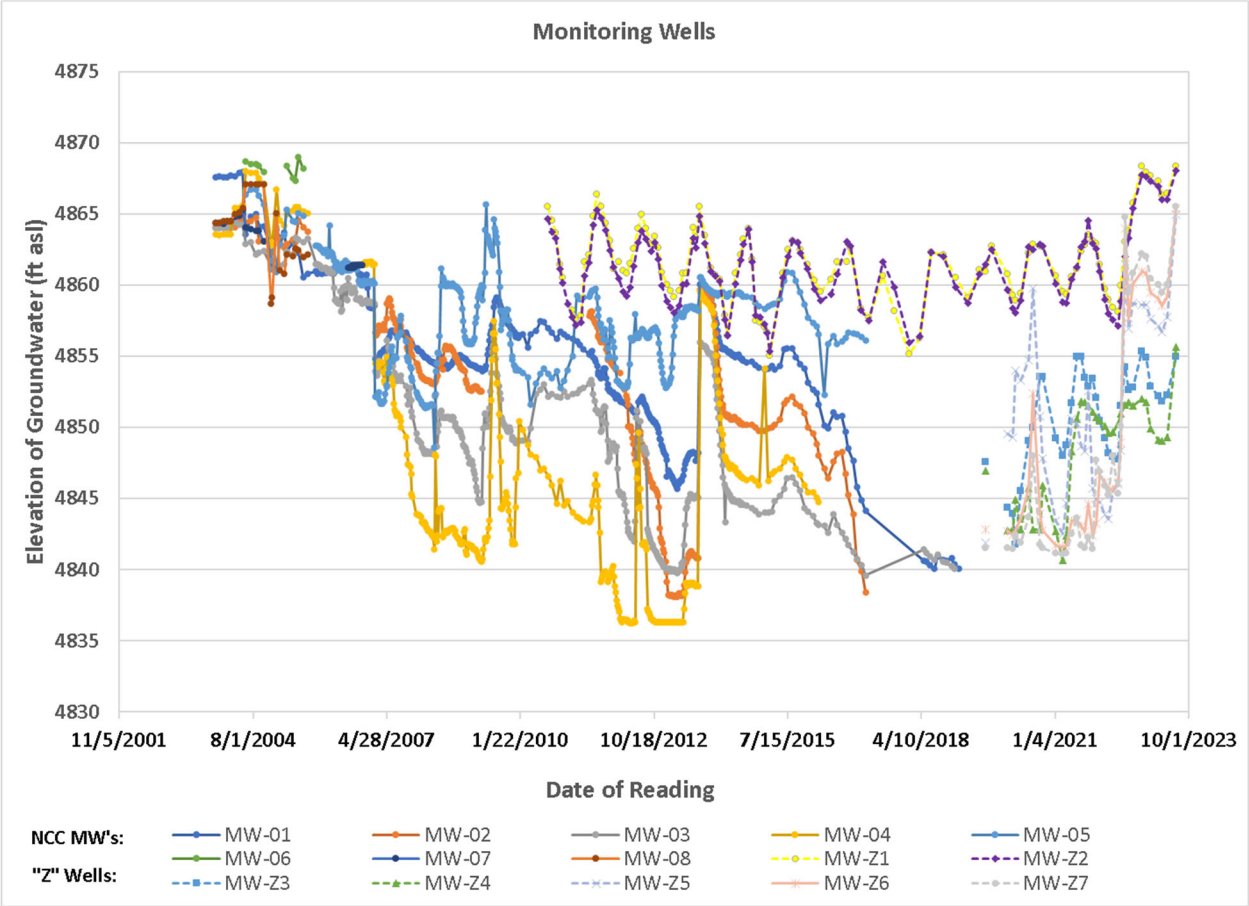
Figure 3
Monitoring Wells

NCCI Pit
Weld County, Colorado

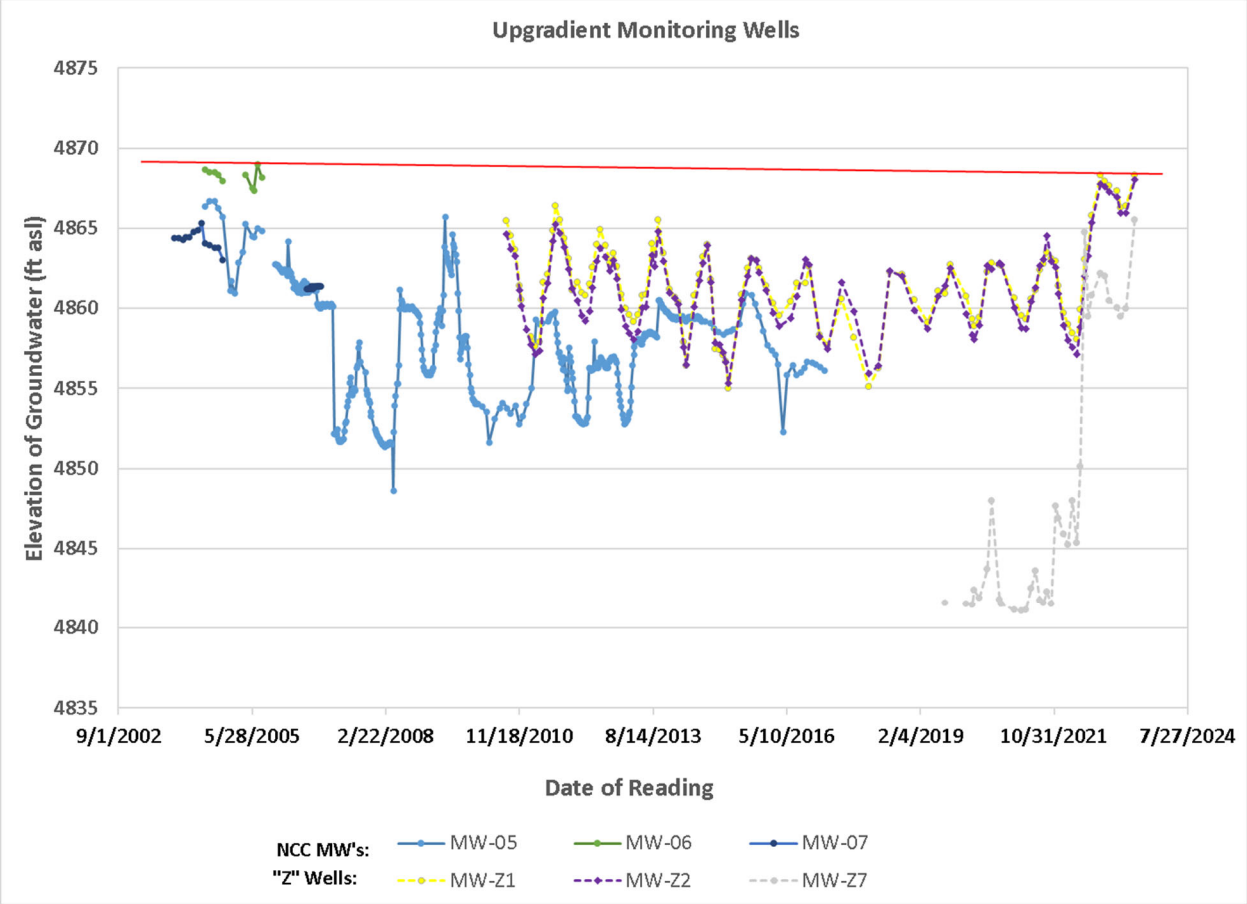
Map Legend

- Property Boundary
- NCCI Pit Study Area
- NCCI Pit
- Adjacent Pit
- L.G. Everist Monitoring Well
- City of Thornton Monitoring Well (Z Wells)
- Rankin Monitoring Well
- NCCI Monitoring Well

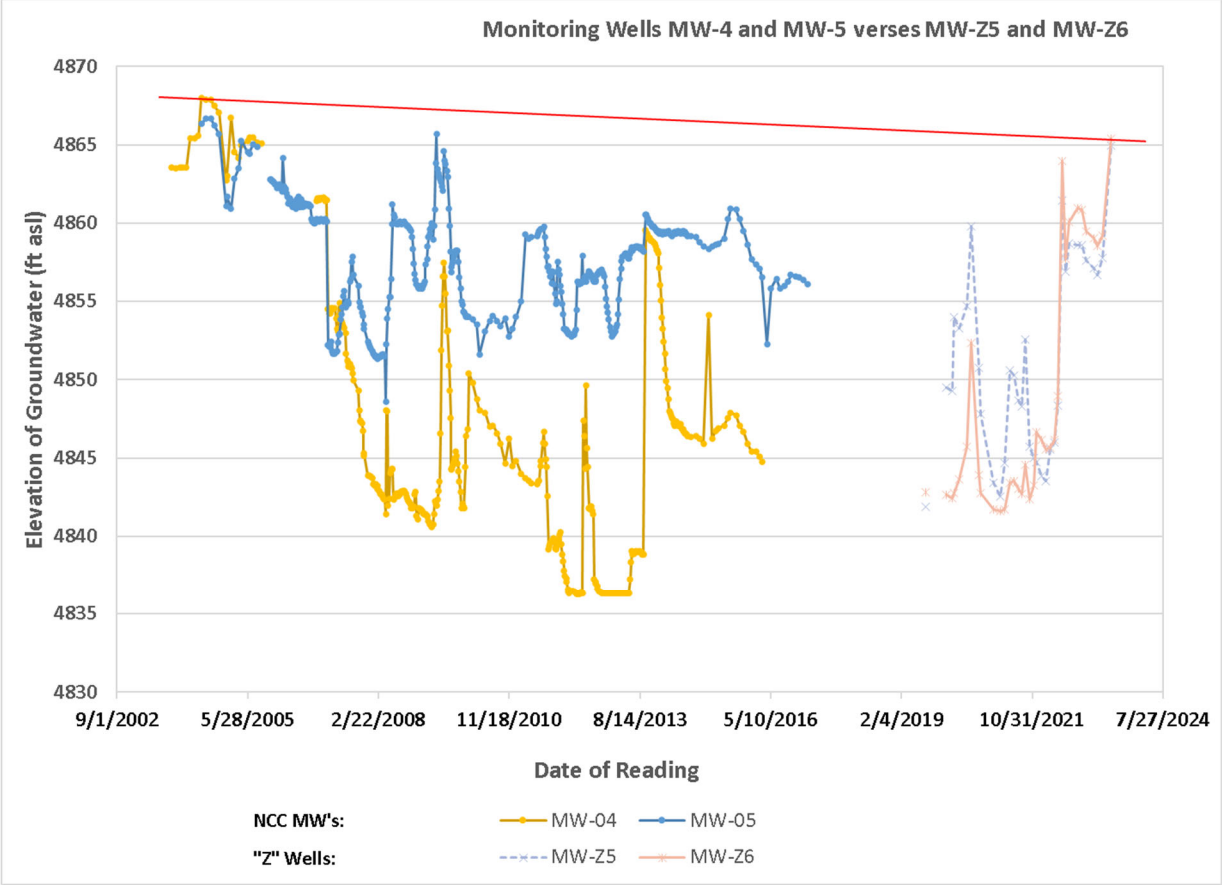
The NCCI monitoring wells first measured in 2003, prior to pre-development, with some extending monitoring measurements as late as December 2018. The Z well data begins in August 2010 for MW-Z1 and MW-Z2, and August 2019 for the remaining MW-Z3 through MW-Z7 wells. In 2023, MW-Z1 rose to approximately 4868 ft which is slightly below the peak at nearby MW-6 in 2004. Since MW-Z1 and MW-Z2 are located upgradient from MW-6 (due to a west to east gradient locally), we would have expected MW-Z1 and MW-Z2 to be similar or slightly higher than what was measured in 2003-2004. Based on this comparison, the most recent Fall 2023 water levels in MW-Z1 and MW-Z2 are near predevelopment conditions.



If we focus on just upgradient wells, then comparisons are easier. The figure below shows that the upgradient Z wells (MW-Z1, MW-Z2 and MW-Z7) have similar water levels as predevelopment measurements made nearby in the former MW-5, MW-6, and MW-7. (Again, note the location of former NCCI wells on Figure 3 above as yellow well symbols, not the blue LGE wells to the south.)



Concerning the Division's comment on MW-Z5 and MW-Z6 located south of the south pit, the plot below shows that although the 2023 rise was large, the water level there is still below the predevelopment measurements in NCCI MW-4 and MW-5 which are located very close, within a few hundred feet.



6. Observations and inferences, item 9, states the NCCI south pit liner will only create a one foot rise in groundwater levels on the west side of the pit. However, in Figure 7 there is a 3 to 4 foot modeled increase in groundwater levels, please clarify this discrepancy.

   Response: The model is used to determine the additive effects of three pit areas (northern pits, NCCI pits, and the LGE pits). Figure 7 shows the theoretical effect of just the NCCI pit (+3-4 ft on upgradient side), whereas Figure 8 shows the net predicted effect of all the pits which is only +1 ft on the west side.

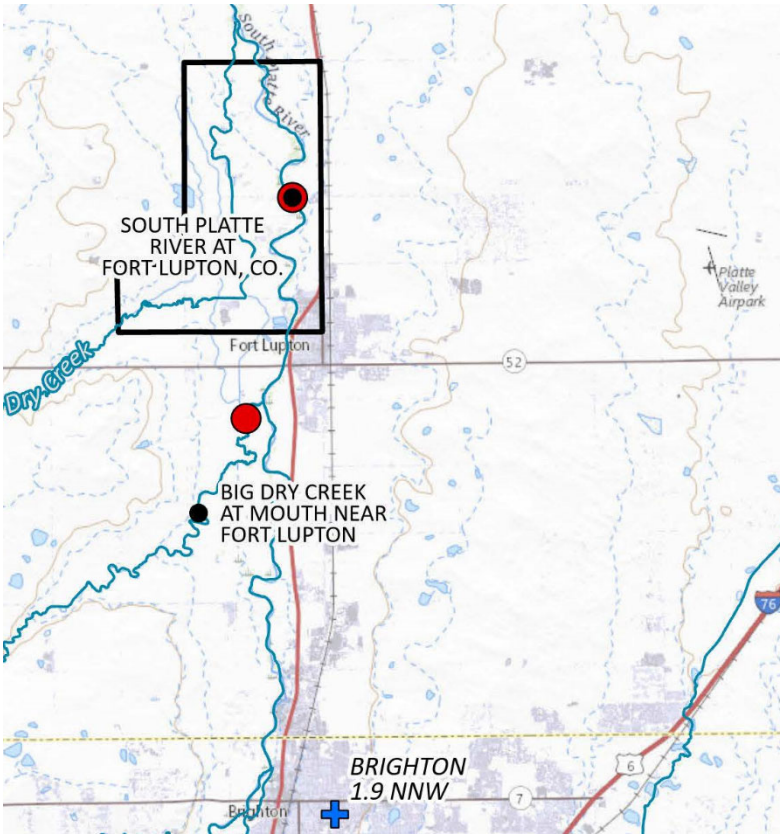
7. Discussions, on page 5 of 35, last sentence of the first paragraph states installing the underdrain could be perceived as a greater problem. Why?

   Response: Installing an underdrain could be perceived as a greater problem because: 1) The farm located east of the pit has been enjoying the benefits of a lower water table due to dewatering for over a decade and now it is the shadow of the NCCI and LGE pits. An increase in water levels on the east side via a drain could raise the water table there and perhaps raise an issue. 2) Because the estimated uncertainty error in the model is +/- 2 feet, and the predicted rise in water levels on the west side is less than 1 ft, it may be perceived

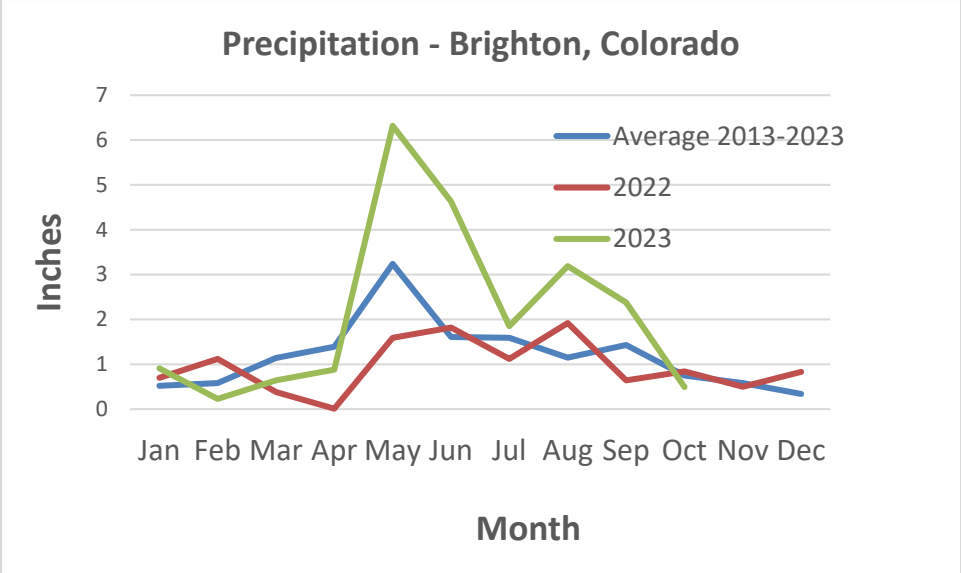
that installing a drain is going to provide a minimal benefit. We feel that it would be better to observe water levels for at least another year to justify the need. There have been other circumstances for this particular year with increased precipitation and surface water runoff that are not typical of an average year.

8. Recommendations, on page 5 of 35, the Division believes these recommendations are not accurate given current site observations and need to be revised. Please revise the recommendations.

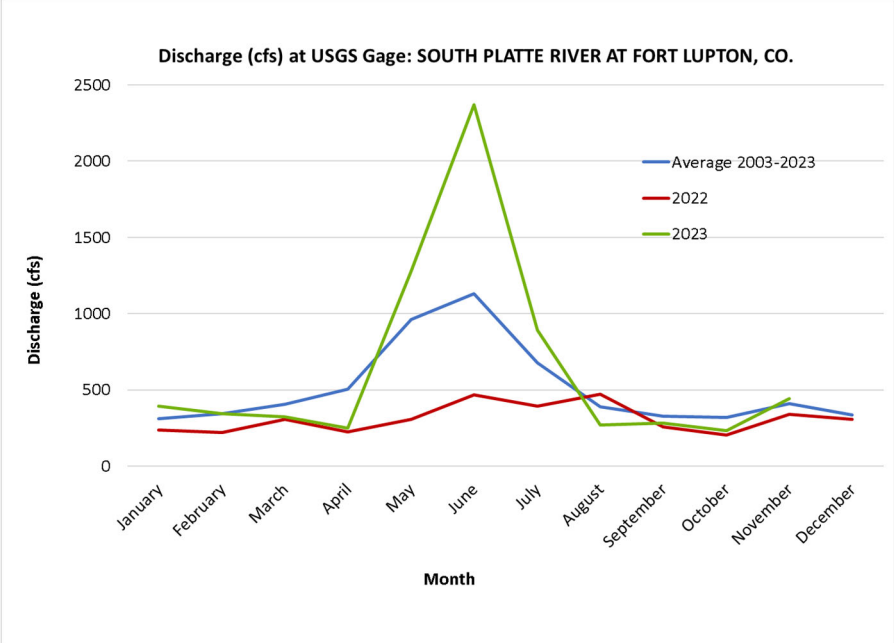
Response: We do not believe the modeling results are inaccurate. We believe that observed 2023 water levels are the result of groundwater recovery associated with the cessation of pit dewatering in 2022 plus unusually high recharge due to above average surface water flows and recharge from LDC this year (2023). The figure below shows the location of a nearby precipitation gage in Brighton and two stream gages near Ft. Lupton, one at the mouth of Big Dry Creek (WDID 0201751) and the other on the SPR (WDID 1755) east of the NCCI site.



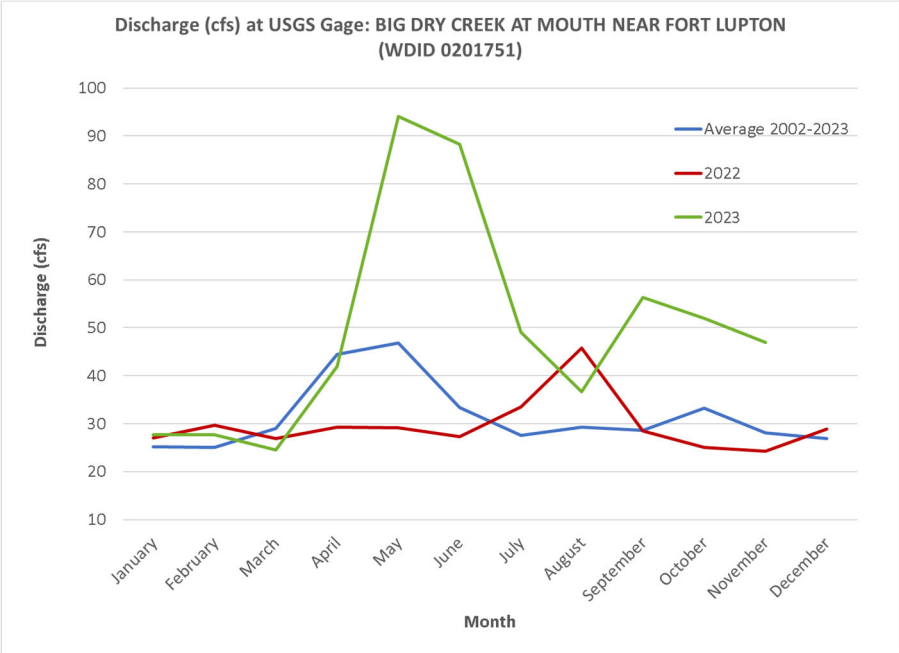
The precipitation plot shows that 2022 precipitation tracks closely to the 2003 - October, 2023 10-yr average, but precipitation in May 2023 was over 100% the May average and remained above average from June through September.



SPR flow measured just east of the site was also over 100% of the June average.



Big Dry Creek flow at the SPR near Ft. was also over 100 percent of the average in May and June, 2023.



Clearly, the dramatic increase in available surface water had a significant effect on recharge along LDC which increased groundwater levels around the pit. This does not mean that the model is inaccurate. We would need an "average" year to evaluate whether the hydrologic balance has changed. Below are the depths to water surface in 2023 on a weekly basis at the culvert crossing on LDC at CR 18 where it enters the NCCI Pit #1 property. See how the fluctuation in the depth occurs which is largely due to the Bratner Ditch flows where it dumps into LDC at CR 19 and Hwy 52.

Culvert Water Surface Measurements				
	Upstream (South) End of Culvert		Downstream (North) End of Culvert	
Date	Measured Water Surface (in.) (Measured from Top of Pipe)	Water Surface Elev. (ft)	Measured Water Surface (in.) (Measured from Top of Pipe)	Water Surface Elev. (ft)
4-Jan-2023	31.75	4,865.95	32.50	4,865.99
11-Jan-2023	30.75	4,866.04	31.50	4,866.08
18-Jan-2023	30.50	4,866.06	31.25	4,866.10
25-Jan-2023	31.00	4,866.02	31.75	4,866.05
1-Feb-2023	30.75	4,866.04	31.50	4,866.08
8-Feb-2023	31.00	4,866.02	31.75	4,866.05
16-Feb-2023	31.75	4,865.95	32.75	4,865.97
9-Mar-2023	33.50	4,865.81	34.25	4,865.85
15-Mar-2023	37.50	4,865.48	38.25	4,865.51
12-Apr-2023	33.50	4,865.81	34.50	4,865.83
19-Apr-2023	33.75	4,865.79	34.50	4,865.83

27-Apr-2023	34.00	4,865.77	34.75	4,865.80
3-May-2023	35.75	4,865.62	37.00	4,865.62
10-May-2023	33.50	4,865.81	34.25	4,865.85
17-May-2023	31.25	4,866.00	32.00	4,866.03
24-May-2023	24.25	4,866.58	25.25	4,866.60
31-May-2023	26.50	4,866.39	27.50	4,866.41
7-Jun-2023	30.50	4,866.06	31.50	4,866.08
14-Jun-2023	27.25	4,866.33	28.25	4,866.35
21-Jun-2023	26.50	4,866.39	27.25	4,866.43
28-Jun-2023	22.00	4,866.77	22.50	4,866.83
5-Jul-2023	15.50	4,867.31	16.50	4,867.33
12-Jul-2023	19.00	4,867.02	19.75	4,867.05
19-Jul-2023	27.00	4,866.35	27.50	4,866.41
26-Jul-2023	26.50	4,866.39	27.00	4,866.45
23-Aug-2023	28.25	4,866.25	29.25	4,866.26
30-Aug-2023	17.75	4,867.12	18.50	4,867.16
6-Sep-2023	24.50	4,866.56	25.50	4,866.58
13-Sep-2023	11.75	4,867.62	12.00	4,867.70
20-Sep-2023	19.50	4,866.98	20.25	4,867.01
27-Sep-2023	21.25	4,866.83	22.25	4,866.85
4-Oct-2023	20.25	4,866.91	21.00	4,866.95
11-Oct-2023	22.25	4,866.75	23.00	4,866.78
18-Oct-2023	23.00	4,866.68	23.75	4,866.72
25-Oct-2023	20.50	4,866.89	21.25	4,866.93
1-Nov-2023	26.25	4,866.41	27.25	4,866.43
8-Nov-2023	37.25	4,865.50	38.25	4,865.51
15-Nov-2023	37.50	4,865.48	38.50	4,865.49

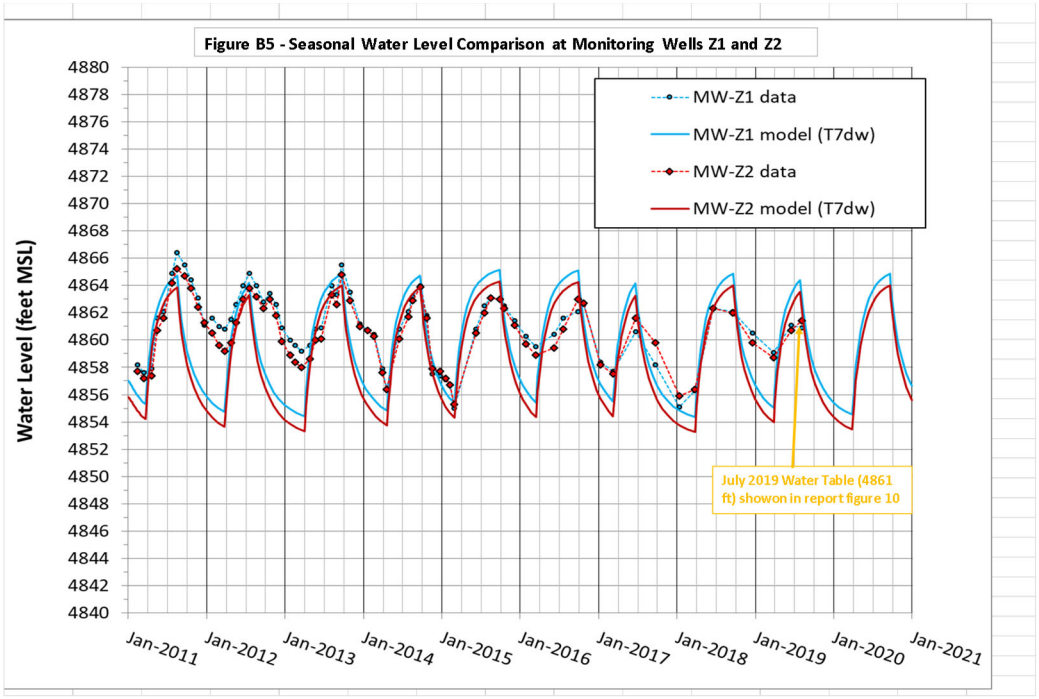
9. Impact Summary, page 9 of 35, the Division does not believe the mounding being caused by the NCCI South Pit is being cancelled out by the shadowing effects of the LGE pits. Did the model take into account any potential mounding and shadowing mitigation measures being implemented at the LGE pits?

   Response: The modeling takes into account mounding and shadowing caused by LGE pits by using the concept of superposition. In this case, the change caused by the Northern pits plus the change caused by the NCCI pits plus the change caused by LGE pits will be the net change caused by all pits. The Division is correct that the modeling does not take into account "any potential mounding and shadowing mitigation measures implemented at the LGE pits." If known, we could likely incorporate existing mitigation measures into the model.

10. Summer Water Table Baseline Run, page 10 of 35, the model was calibrated using groundwater elevations collected from MW-Z1 and MW-Z2 in July 2019 and that level is 4861 feet. A review of the groundwater level data provided, looking at measurements from the months June, July, and August between 2010 and 2019 indicates the average

groundwater elevations to be approximately 4862.4 feet which is 1.4 feet higher than what the model was calibrated to. Additionally, the groundwater data provided to the Division indicates that there were no groundwater level data was collected in July 2019. Please provide a detailed explanation of what the impacts would be to the model using a more representative higher groundwater elevation for calibration. Of the data collected during the three months above (June, July, and Aug) between 2010 and 2019 the average groundwater elevation was 4862.44 feet, minimum elevation was 4859.35 feet and the maximum was 4866.38 feet. All this collected data has been obtained while the pit(s) were actively being dewatering therefore the data is believed to biased low. Why is it appropriate to calibrate a model using potentially depressed groundwater elevations due to pit dewatering?

***Response:** The model was calibrated to the 2011 to 2019 data as shown in Figure B5 (Appendix B) below. The model was higher than observed in 2018 and 2019, and close to the highest levels at these two wells observed in 2011. We chose 2019 as the basis to make future predictions not knowing what the 2023 weather would be. The observed 2023 water levels in Z1 and Z2 were observed to be at 4768 ft which is over 7 feet higher than was observed in 2019, and about 2 ft higher than observed in 2011. This does not mean the model is inaccurate, it just says that it was calibrated during a drier time than 2023. If we used the 2023 water table to predict future drain flows, we would simply get higher flows which would create higher water levels on the downgradient side of the pit resulting from drain exfiltration.*



We wanted the model to be able to predict the observed seasonal rise, and we had seasonal data from this period. The seasonal driver is thought to be there with and without pit dewatering, so it is reasonable to calibrate to it even during the dewatering period. It is best to calibrate a model when water levels are changing due to a hydrologic stress, such as a pumping test or recharge event. In this case, we are fortunate to have both stresses

occurring (dewatering and seasonal rises) that create dynamic aquifer level fluctuations. This allowed us to better calibrate model parameters such as hydraulic conductivity, storativity, and canal and streambed leakage properties. We therefore believe the models predicted drain flows based on 2011-2019 data are more representative of future conditions than if we would have used a different year such as 2023 or even 2011.

11. Figures 9 and 10 need additional clarification. Both Figures are stated to be calibrated to July 2019 groundwater elevations, however the 4861 contour does not appear to correctly placed in Figure 9 and the contours do not match with the observed groundwater elevations in Figure 10 (e.g. the 4861 contour should intersect with MW-Z1 and MW-Z2 and it does not).

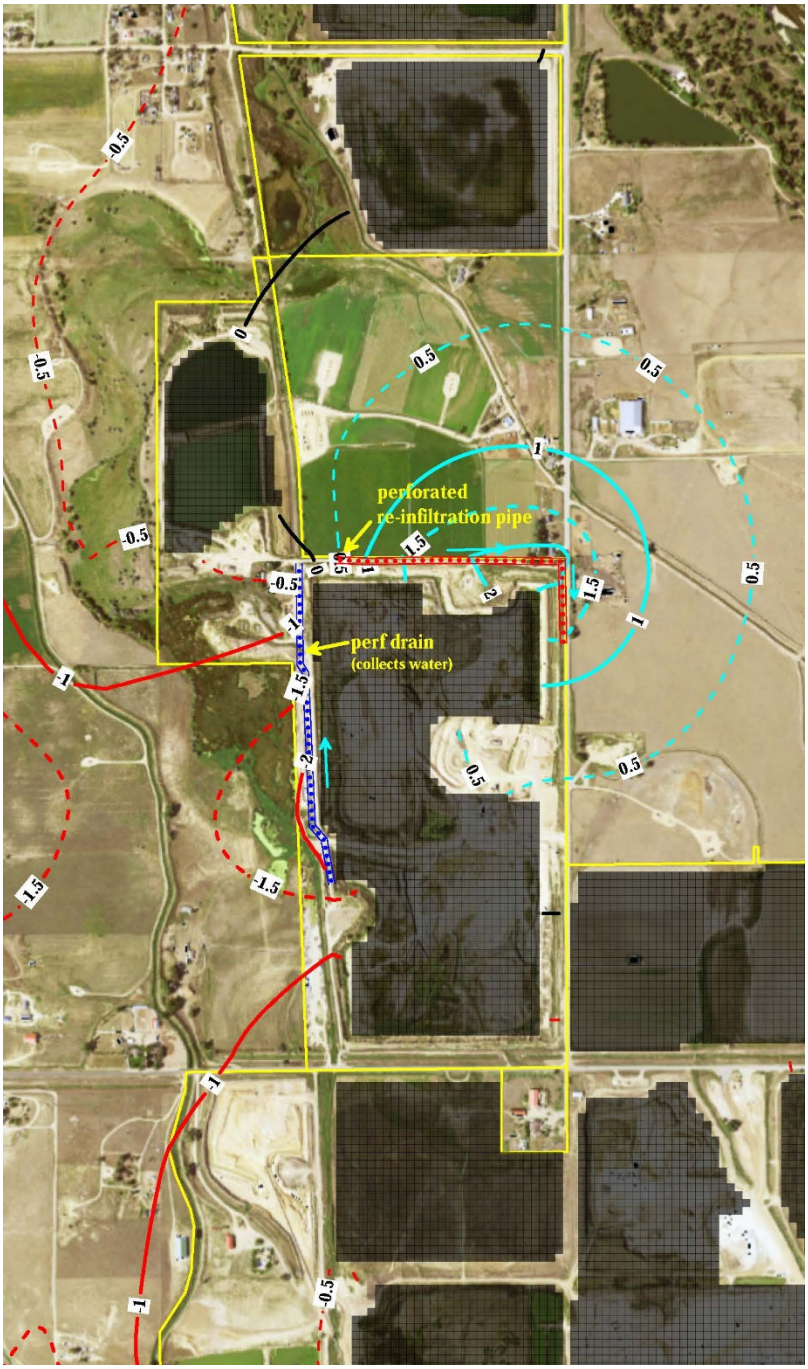
    Response: As stated under comment no. 10, the model was calibrated to "best fit" all the 2011-2019 data. The water table contours shown in Figure 9 are meant to simulate predevelopment conditions during July when a high water table is present. During dewatering (Figure 10), the contours are much lower, closer to the observed 4861 ft level observed at MW-Z1 and MW-Z2.

12. April 2022 to July 2022 there is a sudden increase in groundwater elevations across the site, please explain what occurred at the site that accounts for the sudden increase.

    Response: This was caused by the cessation of pit dewatering and additional clay liner construction being completed at the pit.

13. A review of the groundwater elevations for MW-Z1 and MW-Z2 for 2023 shows that groundwater elevations came within one foot of the ground surface. Prior to June 2022 the average depth from ground surface to groundwater was 9.2 feet. The Division believes the Operator is no longer minimizing disturbances to the hydrologic balance pursuant to Rule 3.1.6. The Operator shall within 60 days of the date of this letter submit a Technical Revision detailing what mitigation measures (e.g. French Drain) will be implemented to address groundwater mounding in the area, construction schedule for installation, and a new groundwater model demonstrating the effectiveness of the proposed mitigation measures.

    Response: We considered that the Division may eventually want to see a subsurface drain installed around the site, so we used the model to evaluate the expected net change in the future water table that could be accomplished by a drain. This drain simulation was based on July 2019 water table conditions. The figure below was created by subtracting post-drain water levels (Figure 15) from pre-drain water levels (Figure 12).



The resulting figure shows that a drain causes only a minor (mostly <2 foot) decline in water levels on the upgradient (west) side of the pit, and caused a similar increase in the water levels on the downgradient side. We believe that in an above-average precipitation year (such as 2023), the upgradient water levels would be the similar, and still causing an increase in phreatophytes, but more water would be moved to the downgradient side which could also cause undesirable results. There is a home and farm on that side. As stated earlier, we believe the shallow water and phreatophyte situation on the west side occurred prior to the

mine, based on earlier aerial photography, and that installing a drain may cause other undesirable consequences.

NCCI appreciates your consideration of this adequacy review response.

Please feel free to contact me with any questions or comments.

Sincerely,

J.C. York, P.E.
J&T Consulting, Inc.

Zadel Pit

	Off-site Monitoring Wells							
Piezometer Number	**MW-Z1**			**MW-Z2**			**MW-Z3**	
Ground Surface Elevation (ft) [1]	4870.33			4870.66				
Top of PVC Elevation (ft) [1]	4869.73			4870.05			4862.14	
Date of Measurement	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)
8/13/2010	4.25	4865.48		5.40	4864.65			
9/16/2010	5.22	4864.51	(0.97)	6.33	4863.72	(0.93)		
10/14/2010	6.06	4863.67	(0.84)	6.76	4863.29	(0.43)		
11/16/2010	8.31	4861.42	(2.25)	8.92	4861.13	(2.16)		
12/3/2010	9.20	4860.53	(0.89)	9.90	4860.15	(0.98)		
1/11/2011				11.40	4858.65	(1.50)		
2/15/2011	11.49	4858.24	(2.29)	12.34	4857.71	(0.94)		
3/15/2011	12.10	4857.63	(0.61)	12.90	4857.15	(0.56)		
4/19/2011	11.85	4857.88	0.25	12.70	4857.35	0.20		
5/17/2011	8.10	4861.63	3.75	9.40	4860.65	3.30		
6/16/2011	7.60	4862.13	0.50	8.50	4861.55	0.90		
7/25/2011	4.87	4864.86	2.73	5.85	4864.20	2.65		
8/17/2011	3.35	4866.38	1.52	4.81	4865.24	1.04		
9/20/2011	4.20	4865.53	(0.85)	5.38	4864.67	(0.57)		
10/21/2011	5.37	4864.36	(1.17)	6.22	4863.83	(0.84)		
11/23/2011	6.64	4863.09	(1.27)	7.63	4862.42	(1.41)		
12/21/2011	8.60	4861.13	(1.96)	8.80	4861.25	(1.17)		
1/27/2012	8.10	4861.63	0.50	9.59	4860.46	(0.79)		
2/28/2012	8.75	4860.98	(0.65)	10.50	4859.55	(0.91)		
3/26/2012	8.90	4860.83	(0.15)	10.83	4859.22	(0.33)		
4/24/2012	8.20	4861.53	0.70	10.25	4859.80	0.58		
5/17/2012	7.15	4862.58	1.05	8.75	4861.30	1.50		
6/19/2012	5.75	4863.98	1.40	7.10	4862.95	1.65		
7/18/2012	4.80	4864.93	0.95	6.30	4863.75	0.80		
8/21/2012	5.78	4863.95	(0.98)	6.82	4863.23	(0.52)		

9/24/2012	6.89	4862.84	(1.11)	7.72	4862.33	(0.90)	
10/22/2012	6.30	4863.43	0.59	7.05	4863.00	0.67	
11/19/2012	7.14	4862.59	(0.84)	8.23	4861.82	(1.18)	
12/18/2012	8.85	4860.88	(1.71)	10.11	4859.94	(1.88)	
1/24/2013	9.73	4860.00	(0.88)	11.19	4858.86	(1.08)	
2/18/2013	10.15	4859.58	(0.42)	11.62	4858.43	(0.43)	
3/19/2013	10.55	4859.18	(0.40)	12.01	4858.04	(0.39)	
4/26/2013	10.15	4859.58	0.40	11.50	4858.55	0.51	
5/24/2013	8.90	4860.83	1.25	10.02	4860.03	1.48	
6/19/2013	8.88	4860.85	0.02	9.98	4860.07	0.04	
8/6/2013	5.70	4864.03	3.18	6.74	4863.31	3.24	
8/29/2013	6.40	4863.33	(0.70)	7.42	4862.63	(0.68)	
9/23/2013	4.20	4865.53	2.20	5.24	4864.81	2.18	
10/31/2013	6.28	4863.45	(2.08)	7.12	4862.93	(1.88)	
12/16/2013	8.54	4861.19	(2.26)	9.09	4860.96	(1.97)	
1/21/2014	9.03	4860.70	(0.49)	9.40	4860.65	(0.31)	
2/18/2014	9.34	4860.39	(0.31)	9.79	4860.26	(0.39)	
3/31/2014	11.85	4857.88	(2.51)	12.50	4857.55	(2.71)	
4/21/2014	13.30	4856.43	(1.45)	13.61	4856.44	(1.11)	
6/18/2014	8.90	4860.83	4.40	9.95	4860.10	3.66	
7/29/2014	7.61	4862.12	1.29	8.31	4861.74	1.64	
8/19/2014	6.50	4863.23	1.11	7.20	4862.85	1.11	
9/23/2014	5.75	4863.98	0.75	6.13	4863.92	1.07	
10/23/2014	7.93	4861.80	(2.18)	8.41	4861.64	(2.28)	
11/20/2014	12.25	4857.48	(4.32)	12.20	4857.85	(3.79)	
12/23/2014	12.33	4857.40	(0.08)	12.33	4857.72	(0.13)	
1/20/2015	12.64	4857.09	(0.31)	12.84	4857.21	(0.51)	
2/10/2015	13.03	4856.70	(0.39)	13.40	4856.65	(0.56)	
3/1/2015	14.71	4855.02	(1.68)	14.75	4855.30	(1.35)	
6/9/2015	8.89	4860.84	5.82	9.55	4860.50	5.20	
7/20/2015	7.23	4862.50	1.66	8.07	4861.98	1.48	
8/17/2015	6.60	4863.13	0.63	6.95	4863.10	1.12	
9/29/2015	6.75	4862.98	(0.15)	7.07	4862.98	(0.12)	
10/19/2015	7.23	4862.50	(0.48)	7.80	4862.25	(0.73)	

12/7/2015	8.30	4861.43	(1.07)	8.93	4861.12	(1.13)		
1/28/2016	9.41	4860.32	(1.11)	10.35	4859.70	(1.42)		
3/15/2016	10.20	4859.53	(0.79)	11.15	4858.90	(0.80)		
6/7/2016	9.33	4860.40	0.87	10.70	4859.35	0.45		
7/22/2016	8.13	4861.60	1.20	9.30	4860.75	1.40		
9/27/2016	8.13	4861.60	0.00	7.01	4863.04	2.29		
10/24/2016	7.13	4862.60	1.00	7.35	4862.70	(0.34)		
1/10/2017	11.38	4858.35	(4.25)	11.83	4858.22	(4.48)		
3/10/2017	12.03	4857.70	(0.65)	12.58	4857.47	(0.75)		
6/23/2017	9.12	4860.61	2.91	8.43	4861.62	4.15		
9/22/2017	11.54	4858.19	(2.42)	10.22	4859.83	(1.79)		
1/12/2018	14.60	4855.13	(3.06)	14.13	4855.92	(3.91)		
3/27/2018	13.47	4856.26	1.13	13.65	4856.40	0.48		
6/20/2018	7.43	4862.30	6.04	7.73	4862.32	5.92		
9/20/2018	7.63	4862.10	(0.20)	8.05	4862.00	(0.32)		
12/21/2018	9.19	4860.54	(1.56)	10.21	4859.84	(2.16)		
3/28/2019	10.64	4859.09	(1.45)	11.36	4858.69	(1.15)		
6/19/2019	8.63	4861.10	2.01	9.31	4860.74	2.05		
8/6/2019	8.79	4860.94	(0.16)	8.63	4861.42	0.68	14.58	4847.56
9/18/2019	7.01	4862.72	1.78	7.57	4862.48	1.06		
1/15/2020	8.97	4860.76	(1.96)	10.40	4859.65	(2.83)	17.77	4844.37
2/26/2020	10.42	4859.31	(1.45)	11.72	4858.33	(1.32)	18.20	4843.94
3/13/2020	10.84	4858.89	(0.42)	11.98	4858.07	(0.26)	20.38	4841.76
4/22/2020	10.30	4859.43	0.54	11.12	4858.93	0.86	16.64	4845.50
6/18/2020	7.46	4862.27	2.84	7.41	4862.64	3.71	13.10	4849.04
7/24/2020	6.90	4862.83	0.56	7.60	4862.45	(0.19)	12.15	4849.99
9/16/2020	7.02	4862.71	(0.12)	7.21	4862.84	0.39	8.62	4853.52
9/30/2020	7.05	4862.68	(0.03)	7.33	4862.72	(0.12)	8.60	4853.54
1/7/2021	9.10	4860.63	(2.05)	10.00	4860.05	(2.67)	12.90	4849.24
3/3/2021	10.21	4859.52	(1.11)	11.27	4858.78	(1.27)	14.16	4847.98
4/1/2021	10.41	4859.32	(0.20)	11.32	4858.73	(0.05)	13.40	4848.74
5/10/2021	9.14	4860.59	1.27	9.66	4860.39	1.66	10.43	4851.71
6/14/2021	8.57	4861.16	0.57	8.78	4861.27	0.88	7.20	4854.94
7/19/2021	7.34	4862.39	1.23	7.40	4862.65	1.38	7.17	4854.97

8/12/2021	6.93	4862.80	0.41	7.00	4863.05	0.40	8.63	4853.51
9/7/2021	6.22	4863.51	0.71	5.54	4864.51	1.46	9.30	4852.84
10/12/2021	6.61	4863.12	(0.39)	7.11	4862.94	(1.57)	8.75	4853.39
11/9/2021	6.78	4862.95	(0.17)	7.50	4862.55	(0.39)	10.10	4852.04
12/2/2021	8.30	4861.43	(1.52)	9.13	4860.92	(1.63)	11.69	4850.45
1/10/2022	10.00	4859.73	(1.70)	11.10	4858.95	(1.97)	12.91	4849.23
2/10/2022	10.75	4858.98	(0.75)	12.05	4858.00	(0.95)	13.95	4848.19
3/14/2022	11.30	4858.43	(0.55)	12.50	4857.55	(0.45)	14.23	4847.91
4/19/2022	11.65	4858.08	(0.35)	12.94	4857.11	(0.44)	14.41	4847.73
5/13/2022	9.78	4859.95	1.87	11.20	4858.85	1.74	10.63	4851.51
6/14/2022	6.66	4863.07	3.12	8.05	4862.00	3.15	7.93	4854.21
7/11/2022	5.95	4863.78	0.71	6.76	4863.29	1.29	9.55	4852.59
8/10/2022	3.96	4865.77	1.99	4.70	4865.35	2.06	9.33	4852.81
10/14/2022	1.40	4868.33	2.56	2.30	4867.75	2.40	6.80	4855.34
11/15/2022	1.82	4867.91	(0.42)	2.44	4867.61	(0.14)	7.21	4854.93
12/17/2022	2.05	4867.68	(0.23)	2.76	4867.29	(0.32)	9.28	4852.86
2/14/2023	2.42	4867.31	(0.37)	3.13	4866.92	(0.37)	9.96	4852.18
3/13/2023	3.44	4866.29	(1.02)	4.08	4865.97	(0.95)	10.35	4851.79
4/24/2023	3.32	4866.41	0.12	4.08	4865.97	0.00	9.88	4852.26
6/27/2023	1.40	4868.33	1.92	2.03	4868.02	2.05	7.15	4854.99
8/24/2023	0.60	4869.13	0.80	1.04	4869.01	0.99	3.38	4858.76
9/11/2023	0.45	4869.28	0.15	0.75	4869.30	0.29	3.17	4858.97
10/18/2023	0.50	4869.23	(0.05)	0.90	4869.15	(0.15)	3.22	4858.92
11/13/2023	1.02	4868.71	(0.52)	1.45	4868.60	(0.55)		
Max	14.71	4869.28	6.04	14.75	4869.30	5.92		
Min	0.45	4855.02	(4.32)	0.75	4855.30	(4.48)		
Max Change	14.26	14.26		14.00	14.00			
Average	7.88	4861.84	0.03	8.64	4861.41	0.03		

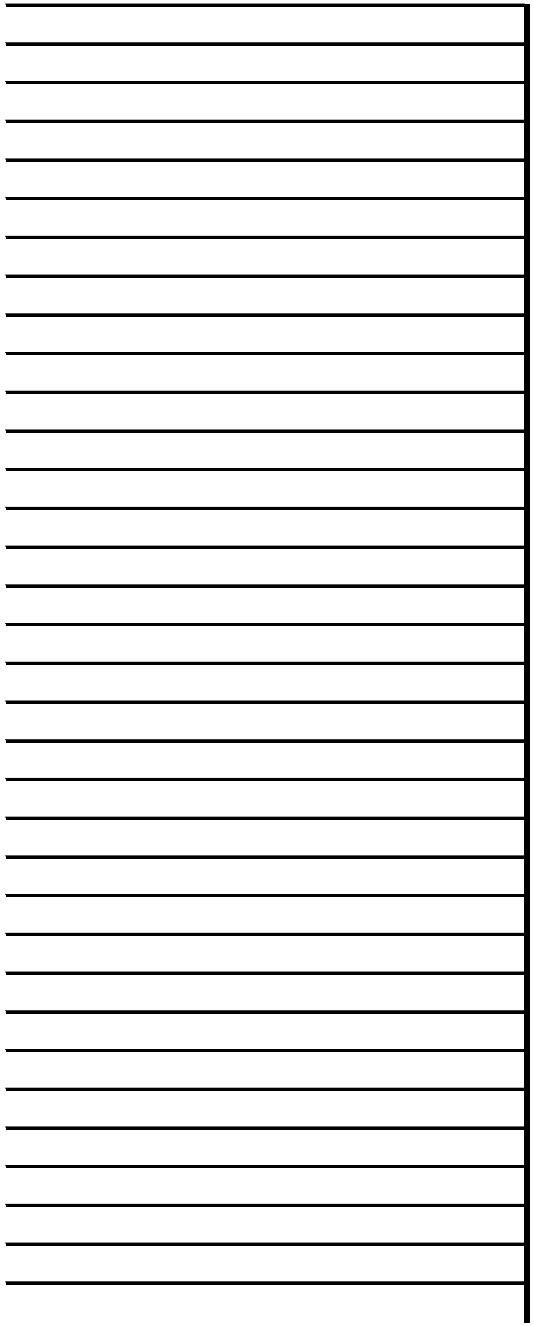
[1] Elevations surveyed by Survey Systems, Evergreen, Colorado (July, 2011).

	MW-Z4 4862.72			MW-Z5 4869.24			MW-Z6 4869.47		
Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)

	15.79	4846.93		27.36	4841.88		26.65	4842.82	
(3.19)	19.94	4842.78	(4.15)	19.73	4849.51	7.63	26.81	4842.66	(0.16)
(0.43)	19.92	4842.80	0.02	19.98	4849.26	(0.25)	27.05	4842.42	(0.24)
(2.18)	17.78	4844.94	2.14	15.25	4853.99	4.73	26.74	4842.73	0.31
3.74	19.93	4842.79	(2.15)	15.96	4853.28	(0.71)	25.85	4843.62	0.89
3.54	17.00	4845.72	2.93	14.54	4854.70	1.42	23.73	4845.74	2.12
0.95	19.93	4842.79	(2.93)	9.45	4859.79	5.09	17.10	4852.37	6.63
3.53	19.93	4842.79	0.00	18.47	4850.77	(9.02)	25.57	4843.90	(8.47)
0.02	16.85	4845.87	3.08	21.42	4847.82	(2.95)	26.69	4842.78	(1.12)
(4.30)	20.00	4842.72	(3.15)	25.80	4843.44	(4.38)	27.75	4841.72	(1.06)
(1.26)	22.06	4840.66	(2.06)	26.73	4842.51	(0.93)	27.89	4841.58	(0.14)
0.76	20.34	4842.38	1.72	24.56	4844.68	2.17	27.74	4841.73	0.15
2.97	14.41	4848.31	5.93	18.65	4850.59	5.91	26.04	4843.43	1.70
3.23	12.11	4850.61	2.30	18.97	4850.27	(0.32)	25.96	4843.51	0.08
0.03	10.88	4851.84	1.23	20.54	4848.70	(1.57)	26.44	4843.03	(0.48)

(1.46)	10.94	4851.78	(0.06)	20.94	4848.30	(0.40)	26.79	4842.68	(0.35)
(0.67)	11.21	4851.51	(0.27)	16.68	4852.56	4.26	24.88	4844.59	1.91
0.55	11.63	4851.09	(0.42)	23.55	4845.69	(6.87)	27.09	4842.38	(2.21)
(1.35)	11.99	4850.73	(0.36)	24.25	4844.99	(0.70)	26.24	4843.23	0.85
(1.59)	12.26	4850.46	(0.27)	24.50	4844.74	(0.25)	22.82	4846.65	3.42
(1.22)	12.65	4850.07	(0.39)	25.38	4843.86	(0.88)	23.30	4846.17	(0.48)
(1.04)	13.10	4849.62	(0.45)	25.71	4843.53	(0.33)	23.90	4845.57	(0.60)
(0.28)	13.08	4849.64	0.02	23.70	4845.54	2.01	23.83	4845.64	0.07
(0.18)	12.50	4850.22	0.58	23.25	4845.99	0.45	23.32	4846.15	0.51
3.78	11.77	4850.95	0.73	20.90	4848.34	2.35	20.54	4848.93	2.78
2.70	11.13	4851.59	0.64	7.80	4861.44	13.10	5.49	4863.98	15.05
(1.62)	10.96	4851.76	0.17	12.33	4856.91	(4.53)	11.77	4857.70	(6.28)
0.22	11.23	4851.49	(0.27)	10.52	4858.72	1.81	9.39	4860.08	2.38
2.53	10.72	4852.00	0.51	10.64	4858.60	(0.12)	8.54	4860.93	0.85
(0.41)	10.98	4851.74	(0.26)	10.63	4858.61	0.01	8.64	4860.83	(0.10)
(2.07)	12.84	4849.88	(1.86)	11.64	4857.60	(1.01)	10.00	4859.47	(1.36)
(0.68)	13.60	4849.12	(0.76)	12.14	4857.10	(0.50)	10.45	4859.02	(0.45)
(0.39)	13.67	4849.05	(0.07)	12.55	4856.69	(0.41)	10.93	4858.54	(0.48)
0.47	13.46	4849.26	0.21	11.49	4857.75	1.06	10.28	4859.19	0.65
2.73	7.10	4855.62	6.36	4.27	4864.97	7.22	4.10	4865.37	6.18
3.77	6.70	4856.02	0.40	5.30	4863.94	(1.03)	4.89	4864.58	(0.79)
0.21	6.76	4855.96	(0.06)	6.25	4862.99	(0.95)	5.75	4863.72	(0.86)
(0.05)	7.15	4855.57	(0.39)	5.78	4863.46	0.47	5.39	4864.08	0.36
	7.18	4855.54	(0.03)	6.53	4862.71	(0.75)	6.04	4863.43	(0.65)

MW-Z7 4868.39		
Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)



26.85	4841.54	
26.88	4841.51	(0.03)
26.94	4841.45	(0.06)
26.00	4842.39	0.94
26.50	4841.89	(0.50)
24.71	4843.68	1.79
20.40	4847.99	4.31
26.60	4841.79	(6.20)
26.90	4841.49	(0.30)
27.25	4841.14	(0.35)
27.32	4841.07	(0.07)
27.24	4841.15	0.08
25.88	4842.51	1.36
24.80	4843.59	1.08
26.68	4841.71	(1.88)

26.85	4841.54	(0.17)
26.12	4842.27	0.73
26.91	4841.48	(0.79)
20.72	4847.67	6.19
21.50	4846.89	(0.78)
22.50	4845.89	(1.00)
23.15	4845.24	(0.65)
20.40	4847.99	2.75
23.02	4845.37	(2.62)
18.29	4850.10	4.73
3.65	4864.74	14.64
8.90	4859.49	(5.25)
7.60	4860.79	1.30
6.23	4862.16	1.37
6.40	4861.99	(0.17)
7.92	4860.47	(1.52)
8.38	4860.01	(0.46)
8.91	4859.48	(0.53)
8.40	4859.99	0.51
2.87	4865.52	5.53
3.25	4865.14	(0.38)
4.05	4864.34	(0.80)
3.81	4864.58	0.24
4.42	4863.97	(0.61)