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October 21, 2019

Ms. Ashlynn Winton
New Mexico Environment Department
Ground Water Quality Bureau – Water Protection Division
Mining Environmental Compliance Section
Harold Runnels Building
1190 Saint Francis Drive
Santa Fe, NM 87502

Subject: Monthly Construction Update, September 2019, in Partial Fulfillment of item #4, "Request for Additional Information and Conditional Approval of Construction Quality Management Plan Phase I Construction, Mt. Taylor Mine Reactivation Rev. 0, 6/15/2018 for Conditions 31 and 32 of Discharge Permit 61"

Dear Ms. Winton,

Rio Grande Resources is pleased to submit the September 2019 Monthly Construction Update, attached with this letter. This Monthly Construction Update is sent as requested in item #4 of the NMED letter dated 9/11/18: Request for Additional Information and Conditional Approval of Construction Quality Management Plan Phase 1 Construction Mt Taylor Mine Reactivation Rev. O, 6/15/2018 for Conditions 31 and 32 of Discharge Permit 61.

If you have any questions, please contact me at (505) 287-7971 or by email at bruce.norquist@ga.com. A hard-copy of this document is also being sent by regular mail.

Sincerely,

A handwritten signature in cursive script that reads "Bruce Norquist".

Bruce Norquist
Facilities Manager, Mt. Taylor Mine
Rio Grande Resources Corporation

CC: David Otori, NMMMD (via email)

This construction update report provides details of construction activities that occurred in September, 2019. It is being prepared and sent as partial fulfillment of the 9/11/18 letter from NMED, "Request for Additional Information and Conditional Approval of Construction Quality Management Plan Phase I Construction Mt Taylor Mine Reactivation Rev 0, 6/15/2018 for Conditions 31 and 32 of Discharge Permit 61." It provides an update of ongoing activities, forecast of future activities and discusses schedule delays and proposed plan changes.

Milestones to the Beginning of September 2019:

- 1) Construction Design Package – Completed 1/18/18
- 2) Contract Bid Award – Awarded 4/11/18, Contractor Selected and Notified
- 3) RGR Preparation Work on the MWTU ponds (1, 2, 3, 4, 5, 6, 7 and 8) – May and June, 2018
- 4) Construction Contractor Mobilization to Site – Began 5/8/18
- 5) Reshaping of Waste Rock Pile – Began 5/14/18, Completed 7/12/18
- 6) Delivery of HDPE Liner Materials to Site – Completed 6/7/18
- 7) Disposal Cell Floor Clay Liner Construction –
 - Began construction of the clay floor liner by 7/13/18
 - Initial liner floor area 80% completed by 8/1/18
 - Task completion delayed because original clay source was exhausted
 - Initial liner floor area completed 10/22/18
 - The disposal cell clay liner remains open and uncompleted because of the need for expansion to accommodate unexpected excessive quantities of contaminated materials excavated from the MWTU ponds, ore pad and ore pad retention pond
 - Contaminated soils being excavated have been nearly 4 times greater than estimated
 - The final configuration of the disposal cell cannot be determined until the full extent of remaining contaminated soils is known
 - At the end of June, the existing disposal cell was filled to 100% of current capacity
 - A plan for eastward expansion of the disposal cell was presented to MMD and NMED. At the end of June, NMED informed RGR that eastward expansion would not be allowed without a permit modification
- 8) Contaminated Sediment and Soil Placement in Disposal Cell – Began 8/15/18, in-progress
 - This task could not start until a suitable amount of disposal cell floor had been constructed
 - Resumed placement of contaminated materials on 3/12/19, once weather warmed sufficiently to achieve compaction
 - Majority of contaminated materials to date have come from MWTU ponds 2, 3 and 8
- 9) South Stormwater Pond Excavation - began 8/2/18
 - Excavation was 40% complete by 8/13/18
 - The task was stopped to prioritize excavation work of MWTU Pond No.3 as well as to control stormwater runoff during the monsoon season
 - Excavation completed by 10/20/18
 - Task completion was delayed due to difficulties in ripping a persistent sandstone lens
 - Task completion was also delayed due to the radiological scanning and cleanup verification process

- 10) South Stormwater Pond Concrete Structures – completed
- Run-down chute base, wing walls and South Force Main concrete pipe pad –completed 10/4/18
- 11) South Stormwater Pond – Clay Liner and Protective Soil Cover – 100% Complete
- Construction of 2-ft Clay Liner began 10/24/18 and completed by 11/19/18
 - Pre-clay liner radiation cleanup verified complete by 10/22/18
 - Placement of 6-inch protective soil cover began 11/19/18 and completed by 11/27/18
 - The SSWP was made functional and ready to receive stormwater runoff by 12/5/18
- 12) South Stormwater Pond (SSWP) – Other Construction Completed
- Placement of rip-rap at toe of run-down chute completed by 11/26/18
 - Installation of overflow structure started 11/29/18, finished by 12/21/18
 - Installation of the concrete cloth (rundown channel) completed 4/22/19
 - Installation was delayed because of continued freezing weather conditions
- 13) New Septic System - Started 7/11/18, 100% Completed 8/7/18
- 14) Service Road Fill – 100% Completed 8/13/18
- 15) Waste Rock Pile (WRP) –
- Placement of Clay Cover Soil on Outer-Slopes – Began 8/15/18, now 100% complete
 - Completed placement of all clay cover soil by 11/20/18
 - Final compaction of all clay cover soil on the out-slopes completed 12/5/18
 - Conducted Radon Flux Test on the south and west out-slopes on 4/25/19
 - South and west out-slopes are the only completed portions of the WRP cap
 - Results of the Radon Flux test were available on 5/7/19
 - Average flux rate was 1.23 pCi/m²s; maximum flux rate was 3.12 pCi/m²s
 - Maximum flux rate was well below the permitted limit of 20.0 pCi/m²s
 - Erosion blanket cover and protect nearly all of the south and west slopes
 - Erosion blankets and straw waddles placed on south slope – May 2019
 - Erosion blankets and straw waddles placed on south slope – June 2019
 - Reached full capacity of the disposal cell in June 2019
 - Requested approval for upward expansion in July 2019
 - Received approval for upward expansion in August 2019
 - Began filling with contaminated sediments and soils in August 2019
 - Vegetation Test Plot Plan
 - Created stockpiles of construction material in Borrow Area A
 - General fill
 - Clayey soil for liner material
 - Growth Media soil for the Vegetation Test Plot Plan
 - Majority of available soil is suitable for this use
 - Material sampling and characterization is in progress
- 16) MWTU Pond No. 3 Excavation – Began 9/10/18, 100% Complete by 10/5/18
- Lining of this pond was significantly delayed (1 month +) due to the excavation of excessive quantities of contaminated soils
 - Original estimate of 2,500 cu. yds.; actually excavated 9,000+ cu. yds. (4 times greater)
 - Final excavation took longer than anticipated because of the need for radium soil sampling and analysis during cleanup instead of reliance on correlated gamma scanning

- 3 stages of cleanup; each stage of radium soil sampling required a minimum of 9 days for return of results of analyses
 - Correlated gamma scanning results at low radiological levels were not reliable due to area shine effects
- 17) MWTU Pond No. 3 – Backfilling to design grade – 100% completed
- High Priority Task: Started 10/29/18, completed 11/6/18
 - A significant delay of the liner installation occurred due the greater amount of fill needed to reach design grade and the need for additional compaction effort
 - Refurbishment of the hydraulic structures was also delayed because of backfill volume
 - Radiation cleanup verified complete, approval to backfill received on 10/24/18
- 18) MWTU Pond No. 3 – Repair and Upgrade of Concrete Hydraulic Structures 100% Completed
- All four of the hydraulic structures of Pond 3 were completed by 12/12/18.
 - This date was time-critical because slippage would have increased the risk that the clay sub-liner would not be ready for liner installation (scheduled for 12/17/18).
 - The design for the new concrete structure upgrades was complicated. Each required specialized forming, pouring of concrete and cure time
 - The curbs required imaginative and skilled forming to achieve the design shapes. Form-work was tedious and time-consuming. Water stop materials were sole-sourced and had a long lead time.
 - On average, each piece required 3 to 4 days of work. For the 3 structures, a total of 9 pours was required, amounting to around 32 days of work.
- 19) MWTU Pond 3 - Placement of the 6-inch Clay Sub-liner began 11/27/18; Completed by 12/6/18
- 20) MWTU Pond 3 – Liner Installation – Installation of Liner 100% Completed by 12/26/18
- Finish grading of the 6-inch clay sub-liner began 12/6/18; completed by 12/14/18
 - Winter weather conditions slowed the progress of work
 - The liner installer arrived on 12/17/18; no work occurred due to training requirements
 - RGR's QA/QC inspector arrived on 12/17/18 and the leak locating contractor arrived 12/18/18
 - Actual liner installation work began 12/18/18; by end of day, 1/3rd of the secondary liner was installed
 - By end of day 12/20/18 the secondary liner installation was completed
 - About 1/3 of the geonet was installed by end of day
 - Leak detection testing of the secondary liner was completed by 12/21/18
 - By 12/21/18 Installation of the geonet was completed as well as about 15% of the primary liner
 - The primary earthwork contractor left the site for the holiday, returned 12/26/18
 - Nearly 75% of the primary liner had been installed by the end of 12/22/18
 - Cold and windy weather slowed work on 12/22/18
 - The primary liner was 100% installed by 12/23/18
 - The liner installer left the site for the Christmas holiday
 - The liner installer returned 12/26/18 to finish some minor welding, install vents and instruct the primary contractor on proper backfilling methods of the anchor trenches
 - The liner installer demobilized on 12/27/18
- 21) MWTU Pond 3 – Backfilling of Liner Trench – started 1/9/19; completed 1/15/19

- Work delayed from December due to cold weather and associated compaction issues
- 22) MWTU Pond No. 3 Water Filling for Leak Location Survey of Primary Liner
- RGR crews began work on the clean-water delivery system on 12/4/18
 - RGR crews completed the first water delivery system 12/20/18
 - RGR began filling MWTU Pond No.3 with clean water on 1/17/19
 - Could not start until after the anchor trench backfilling had been completed
 - By 1/21/19 approximately 300,000 gallons had been delivered from the site water tank
 - By 1/22/19 a new delivery pipe was constructed to deliver water from well 8 (Point Lookout well) to Pond No.3
 - A water meter was placed in this delivery pipe system
 - Pumping from well 8 began 1/24/19
 - Water from well 6 was sampled for water quality on 1/22/19
 - Water from well 8 was sampled for water quality on 1/30/19
 - RGR crews completed water filling on 2/19/19 for the final leak test
 - The leak test for the primary liner was performed on 2/26/19; no leaks were detected
 - A sump pump was placed in the LDCS by 2/28/19
 - The liner was considered fully commissioned for water storage by 2/28/19
 - Installed power for the LDCS pump system (sump) in early March 2019
- 23) MWTU Pond No. 2
- Began excavation of contaminated sediments 9/19/18, completed 10/19/18
 - Restarted excavating and hauling contaminated soil from MWTU Pond 2 on 3/12/19
 - By the end of May 2019, all remaining contaminated soils had been excavated
 - Results of confirmatory soil sampling were received in early July 2019
 - ERG provided a Final Status Survey (FSS) report by 7/10/19
 - Results showed that cleanup efforts were successful
 - NMED gave approval to begin Pond 2 reconstruction activities (7/25/19)
 - Cleanup efforts resulted in a much deeper pond than planned
 - Approximately 9,000 cu. yds. of contaminated sediment and soil had been removed, nearly 4 times more than originally planned
 - Reconstruction of the pond began in August 2019 with backfilling of the floor and sides
- 24) Stormwater Drainage System – North Alignment
- Began excavation 10/30/18
 - Task was significantly delayed because of a lack of availability of materials
 - Several of the primary manholes had long procurement lead-times
 - By 12/13/18, manhole MH26 was set in place
 - Installation of this manhole connected the existing south site drainage system to the SSWP by 12/18/18
 - By 1/23/19 the north alignment drainage system was connected and fully functional
 - North alignment commissioned by the end of January 2019
 - By 3/31/19 a new concrete rundown for manhole 27 was completed
 - By 4/3/19 a new rundown above manhole 28 was completed
- 25) Stormwater Drainage System – South Alignment
- A contractor was awarded the bid-work by the end of March 2019
 - Manhole structures were fabricated and delivered on site by the end of March

Existing Mining Operation

- Contractor arrived on site 4/8/19 and completed site training
- Job mobilization was completed by 4/9/19 and excavation work began by 4/10/19
 - A 2-day delay occurred almost immediately when it was discovered the existing drainage pipe for connection was not at the expected grade
 - Snow and rain caused additional delays
- By 4/16/19, the first manhole structure was excavated and the first 60 feet of trench was excavated
- Another delay occurred when several unknown utility lines were encountered
 - Rain and snow caused additional delays
- By 4/19/19, the base for the first manhole was poured
- A delay occurred when an unknown buried power cable was severed
- By 4/26/19, the first barrel of manhole 23 was placed and 40 feet of pipe installed
- By 4/30/19 connection was made to the existing storm drain
- By end of May, all trenching and installation of the main pipe-line had been completed
- By end of May, all manhole structures had been installed
- By end of June, all of the south alignment installation had been completed
- By end of June, the south force main system installation was completed

26) Ore Stockpile Removal

- Thickness and volume definition of the cover soil was completed in 2018
- RGR began contract negotiations with a licensed receiving facility in early 2019
- A bid for hauling ore was awarded in early March 2019
- Contracts were still in legal review at the end of April 2019
- In April, preparation of the ore pile for hauling began
- By 7/10/19 all milling and haulage agreements were signed
- On 6/25/19, the first loads of ore were hauled to the mill
- Currently operating 5 trucks per day, 5 days a week

27) Phase II Reactivation Projects

- Surface piping upgrades - A contractor was selected to perform integrity testing of the MWTU facility piping in February 2019
 - RGR had difficulty in finding a qualified contractor to conduct the permit-specified testing using the API Recommended Practice 1110
- Consultants for revising the Water Treatment Plant (WTP) design were contacted in February 2019
 - Discussions are ongoing regarding the selection of the most appropriate treatment process
 - Discussed selenium treatment problems; an industry-wide issue
 - RGR's WTP engineering group informed RGR about a major design change required for the previously submitted WTP plan
 - The adsorptive media process technology was found to not be currently viable
 - The technology vendor is insolvent and no other vendors provide this technology
 - NMED informed RGR to wait to submit new water treatment designs until the application for DP-61 renewal is made
- RGR is in communication with a hoist engineering consultant
- Refurbishment of the facility is proceeding
 - Heating and air handling units were made operational

- Water supply lines were made operational

28) Connection to Surface Water Drains

- A holding tank was installed for WP5 by end of March 2019
- Plans were made in April 2019 to run power and waterlines and acquire a pump for WP5
- By end of June 2019, electrical power equipment had been installed
- By the end of July 2019, 90% of piping and electrical controls had been installed
- The North Force Main piping was completed in July 2019
- Completed installation of all major pipe runs and electrical equipment in August 2019

29) MWTU Pond No.'s 4, 5, 6, 7 and 8

- Excavation of the side slopes in MWTU No.8 began in April 2019
- By end of May, all of the sediments on the side-slopes of ponds 4 and 8 had been removed
- Excavation of contaminated sediments and soils from pond 8 was completed in August 2019
- Several concrete structures were removed from MWTU Pond No.'s 4 and 8
- A work delay occurred in June from encounters with previously unidentified electrical cables

September 2019 Milestones

1) MWTU Pond No.2

The earthworks contractor finished filling and reconstructing the pond to the subgrade design elevation. Work then began on constructing the clay sub-liner. By end of month, approximately 50% of the clay sub-liner had been completed.

By end of month, concrete contractors began setting up for making repairs to the hydraulic structures. The liner installer, liner QA/QC contractor and leak detection contractor were contacted and scheduled for the liner installation phase. Liner installation is expected to begin in early November. During September, rain events caused minor work delays.

2) Other MWTU Ponds

Excavation of contaminated sediments and soils from the other MWTU ponds continued (ponds 1, 4, 5, 6, and 7). Contaminated sediments were fully removed from ponds 1, 4, and 7. Contaminated soils were also removed from these ponds but not completed by month end.

After removal of the contaminated sediments, a gamma scan was conducted on pond 1, 4, and 7. It appears that contamination in these ponds is nowhere as deep as that encountered in ponds 2 and 3. Removal of hotspots proceeded in ponds 1, 4, and 7. It is anticipated that contamination in these ponds will be fully removed by next month.

Pond 5 still had a large amount of contaminated material to be removed and was actively being excavated. Pond 8 has been essentially clean and ready for a final status survey.

3) Ore Pile Removal

Removal and transportation of the ore pile material to the mill continued in September. There are currently 5 trucks per day operating 5 days per week.

4) Waste Rock Pile – Disposal Cell

Filling of the disposal cell continued with placement of contaminated sediments and soils from the remaining MWTU ponds. Fill is being placed in the portion of the disposal cell that was approved for the upward expansion plan.

5) Waste Rock Pile Vegetation Test Plot Plan

RGR made plans for and prepared to conduct the “Reference Area Study”. A vegetation consultant is planning to conduct the study in early October.

6) Borrow Areas

Stockpiling of material continued in Borrow Area A.

7) Phase II Activities

-Facility Refurbishment

RGR continued with repairs to the facilities. The primary repair work involved replacing pumps in the Service building heating system and repairing the wind bracing in the Hoist House. Lighting systems were upgraded in the core shed.

8) WP5 Well Connections

By month end, the WP5 well pump and electrical connections were completed. Power supplies were verified and equipment test-runs made. The Force Main vault was cleaned out and piping and pumps were connected. Electrical power to the vault pumps was nearly completed.

The integrity test for the Force Main pipe system was set up and made ready for testing. A professional engineer will conduct the test and certify the system next month. The Force Main system enables water from the WP5 well to be continuously pumped to MWTU pond 3 as well as water from the south stormwater pond, should the need arise.

9) Investigation of Potential Diesel Spill

RGR focused the limited investigation on exposing the fuel delivery pipeline system in search of fuel leaks or active sources. RGR trenched along the pipeline route to expose the buried pipe and verify whether or not it had leaked. RGR discovered that the original pipelines had been abandoned and a newer fuel delivery pipeline had been installed. The newer system connected the above-ground storage tanks (AST's) directly to a “surface-run” fuel supply pipeline. Neither the underground portion nor the surface portion of the newer fuel delivery pipeline showed signs of leakage. The older abandoned fuel line was in poor condition, but showed no sign of leakage where excavated.

To-date, RGR's limited investigation has focused on the facility water piping and diesel fuel delivery system. So far, no active source or direct leak has been found that can explain the reason for the diesel release reported in July. It is RGR's belief at this time that the source is remnant product from

the reported 1991 diesel spill. RGR has issued a request for proposal and will be awarding a bid to conduct a more formal investigation to delimit the extent of contamination. Corrective actions will be taken based on the results of that investigation.

Forecasted Activities

- 1) Disposal Cell Expansion (Upwards)
 - At current earthmoving rates, it is anticipated that the disposal cell will be filled sometime in November
 - Shaping and capping of the disposal cell will commence after completion of filling. Initial work is expected to begin in October.
- 2) MWTU Pond No. 2 Excavation, Reshaping and Liner Installation
 - Complete repairs to the hydraulic structures - October
 - Finish placing and rolling the clay sub-liner – October or early November
 - Begin installation of the HDPE liner – early to mid-November
- 3) Removal of Contaminated Sediments from MWTU Ponds 1 and 4 through 8
 - Removal of sediments from the remaining MWTU ponds is expected to be completed by November
- 4) Ore Pile Removal
 - In progress
 - Anticipating 1 to 1.5 years to complete, depending on weather
- 5) Connection to Surface Water Drains – WP5
 - Anticipate performing integrity tests on pipelines in early October
 - Anticipating commissioning by late October
 - As a temporary measure, all pumped well water is being trucked to MWTU Pond No.3
- 6) Vegetation Test Plot Plan
 - Working towards plan approval
 - Perform the reference area study – first week of October
 - Long growing season this year and need for cool-season species to be established
 - RGR does not anticipate the test plot plan area to be seeded in 2019:
 - Need to complete the reference area study in the late fall season
 - Unapproved test plot plan
 - Slopes are protected by erosion control blankets
- 7) Potential Diesel Release
 - Anticipating awarding the bid for the formal investigation in October
 - Anticipate beginning the investigation in late October or early November
 - First step is to submit a work plan for approval

- 1) Reshaping and lining of MWTU Pond No. 2
- 2) Approval for eastward expansion of the disposal cell
 - This has become a critical path due to the amount of contaminated soil still expected to be removed from the remaining 6 MWTU ponds, ore pad and ore pad retention pond

Plan Changes

- Upward expansion of the disposal cell has been approved (8/16/19)
- No new variances issued in September 2019

Drawing Variances

VARIANCE #	Drawing			Variance Subject	Date
	Sheet #	Drawing #	Title		
2018-5	ST2, 5,7, 9, 10, 11	See Tables 2018-5.1 and -5.2, GS00-GC130, 132, 133, 134	Storm Manholes	Constructibility issues of the reinforced concrete storm manholes - design diameters not large enough to accept drain pipe sizes. STMH20-23, 27, 28, 29; MH01-04	7/23/18
2018-6	ST19A	GS00-GC119-02	Force Main North Plan View	concrete valve vault, elbow, and coordinates	9/14/18
	ST19B	GS00-GC120-02		concrete valve vault, elbow, coordinates, elevati	
	ST20	GS00-GC121-02		elbow, elevations	
2018-8	SW00	GSSW-GC01-01	South Storm Water Pond and Waste Rock Pile-Cover Sheet and Key Drawing	deletion of reference to ore storage	9/19/18
	SW02	GSSW-CS504-01	Waste Rock Pile and Disposal Cell Survey Layout and Control Points	deletion of reference to ore storage	
	SW03	GSSW-CB101-01	South Storm Water Pond and Waste Rock Pile-Site Plan	deletion of reference to ore storage	
	SW06A	GSSW-CB104-01	South Storm Water Pond and Waste Rock Pile-Site Plan	deletion of reference to ore storage	
	SW06B	GSSW-CB105-01	Waste Rock Pile and Disposal Cell Earthwork and Grading Plan - South	deletion of reference to ore storage	
2018-11	MW02	MW00-CX501-00	Pond Liner Details	Delete seaming of geomembranes edges in the anchor trench, extend geomembrane to the top of the outer trench wall.	12/21/2018

Construction Specification Variances

VARIANCE #	Specification		Section		Approval	
	Number	Title	Number	Title	By	Date
2018-1	MW-CB01-00	EARTHWORK FOR POND CONSTRUCTION	2.2.1	Waste Pile Slopes	A.K. Kuhn	6/7/2018
2018-2	MW-CB01-00	EARTHWORK FOR POND CONSTRUCTION	2.2.2	Mine Debris Pit	A.K. Kuhn	6/7/2018
2018-3	MW-CB01-00	EARTHWORK FOR POND CONSTRUCTION	2.2.3	Disposal Cell on the Waste Pile	A.K. Kuhn	6/8/2018
2018-4	MW-CB01-00	EARTHWORK FOR POND CONSTRUCTION	2.2.4 (new)	Shaft Muck Excavation, Placement and Compaction	A.K. Kuhn	6/8/2018
2018-7	GS-GC02-00	DRAINAGE AND HYDRAULIC CONTROL STRUCTURES, Rev	2.7	Manholes, Catch Basins, and Vaults	A.K. Kuhn	9/14/18
2018-9	MW-CB01-00	EARTHWORK FOR POND CONSTRUCTION	2.2.3	Disposal Cell on the Waste Pile	A.K. Kuhn	10/15/2018
2018-10	MW-CX01-00	INSTALLATION OF GEOMEMBRANE POND LINERS	2.5	Mechanical Connections	A. K. Kuhn	11/21/2018
			3.11	Rub Sheets at Inflow Points	A. K. Kuhn	11/21/2018
			Also Drawing Sheet HY-18, Note 7		A. K. Kuhn	11/21/2018

General Comments:

A major project delay occurred in June when NMED informed RGR that it could not proceed with eastward expansion of the disposal cell. Eastward expansion of the disposal cell is necessary to provide storage capacity for additional contaminated materials. Without the ability to expand the disposal cell eastward for placing these contaminated materials, RGR will not be able to proceed with much of the remaining Phase I work. Because of the dependence of subsequent work on the removal of contaminated materials, RGR will also have to delay completion of many Phase II and III projects. These include lining of the MWTU ponds and ore pad runoff pond, cleaning up and reconstructing the ore pad, installing process piping for the water treatment plant, commissioning of the water treatment system and dewatering the mine. Ultimately, these delays impact mining activities.

Phase I work tasks to date have generally been delayed due to:

- Excavation of excessive amounts of contaminated materials in the MWTU ponds and waste rock pile and excessive amounts of debris encountered during excavation
- In-field radiological measurements heavily influenced by “shine”
- Need for radium soil sampling (long analyses time) instead of fast continuous gamma scanning during cleanup efforts
- Weather conditions
- Equipment mechanical failures contributed to slower moving of materials.
- Encounters with unknown utility lines during construction
- Approvals for plan changes caused by unforeseen conditions
- Longer task durations resulting from increased work effort to properly conduct cleanup activities and accommodate regulations

Plan Changes:

- 1) MWTU Pond No. 3 was the first MWTU pond to be lined, instead of MWTU Pond No.2
 - It was initially believed that both MWTU Ponds 2 and 3 could be lined by the 12/1/18 deadline
 - This belief changed when it became apparent that the contractor was unable to mobilize sufficient resources to complete excavation, backfilling and lining of more than 1 pond by the deadline
 - Because of heavy monsoonal rains in August and September 2018, control of stormwater would become problematic if MWTU Pond No.2 was taken offline
 - A decision was made to prioritize the completion of Pond No.3 to meet the deadline and plans were put into place
 - In September, the contractor believed it could finish one pond ahead of the deadline
 - Dependent on weather; temperatures would need to be above freezing for compaction and moisture could not be on the liner during installation. There was a physical need to get the liner installed before winter weather set in.
- 2) Shortening of the storm drainage system south alignment to accommodate the eastward expansion of the disposal cell (May 2019)

- 1) Ability to line a single MWTU Pond (Pond No.3) by the deadline of 12/1/18 was impacted for the following reasons:
 - Schedule slip first began with the excavation process of MWTU Pond No.3
 - Schedule slip occurred when excessive quantities of contaminated materials were encountered, this significantly lengthened excavation time and ultimately contributed to pushing back the liner installation task into late December
 - Schedule slip increased further because of increased radiological sampling and analysis time during the cleanup verification process
 - Schedule was originally based on continuous correlated gamma scanning
 - Wide-area “shine” rendered gamma scanning unreliable as a confirmatory cleanup tool
 - Schedule was impacted because of the need to perform radium soil sampling
 - Each radium soil sampling and analysis campaign required 9 days of time for return of results before work could continue; with 3 cleanup campaigns, this resulted in 27 days of unanticipated schedule slip
 - Through the course of work activities, it became apparent that the contractor was unable to mobilize sufficient resources to complete more than one excavation and construction task at a time
 - Because of excessive quantities of contaminated materials as well as excessive radiological sampling time, nearly 1 full month of delay was added to the schedule
 - Difficulties in procuring specialized and sole-source materials during upgrades of the hydraulic structures
 - Design complexity of forming and pouring new concrete hydraulic structures.
 - There were 9 individual concrete pours. Each pour required 3 to 4 days duration for forming, pouring and curing for a total of 1-1/2 months of work in concrete work alone
 - This level of work effort was not accounted for in the original schedule. Ultimately this caused a 2-week delay
 - Another week of schedule slip occurred because of late scheduling by the contractor; the liner installer could not mobilize by the time needed with the short notice given
 - Four more days of delay occurred due to winter weather and the Christmas holiday
 - While the geomembranes had been fully installed in Pond No.3, completion and commissioning were delayed another 3 weeks because backfilling of the anchor trench has not yet been completed
 - The cause of the delay in anchor trench backfilling was primarily due to persistent winter weather on site since 12/26/18;
 - Compaction could not be performed in freezing weather
 - The delay in backfilling of the anchor trench delayed final commissioning of Pond No.3
 - Filling of the pond could not proceed until the anchor trench was backfilled
 - In turn, the final leak test of the primary liner could not be conducted until Pond No.3 was filled with water
 - Generally, winter weather was the most significant delay in commissioning of the liner. However, project delays from prior activities had contributed strongly to the schedule slip of the liner installation.
- 2) Excavation of contaminated sediments from MWTU Ponds 1, 4, 5, 6, 7 and 8 delayed by
 - Other priority work tasks (i.e. MWTU Pond No.3)

- Cold weather, contributed to decreased excavation efficiency
 - Safety issues related to equipment operation on steep slopes and multiple crews working in small areas
 - Regulatory cancellation of plans for the eastward expansion of the disposal cell
- 3) Stormwater Drainage System Schedule
- Significant delays due to availability of materials, procurement management issues and lack of contractor's ability to commit additional resources
 - Originally anticipated that work crews and materials would be on-site by late August
 - Materials did not arrive on site until 10/23/18
 - Manhole structures – long fabrication lead time
 - Contractor procurement issues
 - Need for more specialized and different equipment than that of regular earthmoving
 - Cold weather conditions during construction
- 4) Construction of the Disposal Cell Clay Cap
- Originally a Phase II activity
 - Anticipated to be partially constructed in late 2019 depending on completing the upward expansion of the disposal cell
 - Construction of the disposal cell clay cap was intended to occur after the excavation and subsequent placement of all contaminated sediments from the MWTU ponds and contaminated soils from the ore pad and retention pond
- 5) Removal of the Low-grade Ore stockpile
- Delayed by lengthy legal review of the contracts and attendant negotiations between RGR and the mill
- Note: After discussion with MMD and NMED in July 2018, the task of removing low-grade-ore and ore pad materials was deleted from the Phase I implementation plan. Under the Phase I plan the low-grade ore material would have been temporarily placed in the disposal cell. While deleted from the Phase I implementation plan, RGR has committed to removing the low-grade ore materials from the site and shipping to a licensed receiver.
- 6) Restart of Phase I Activities in 2019
- Resumption of Phase I work was delayed in January and February due to winter weather and cold temperatures
 - Specified compaction of fills could not be achieved because of freezing temperatures
- 7) Connection to Surface Water Drains – WP5
- The delay in completing this project occurred because of:
 - i. Need to finish constructing the Force Main piping system
 - ii. Preparation and setup for the Force Main piping integrity tests
 - iii. Installation of site electrical and power facilities
- 8) Earthwork Soil Sampling
- Return of soil sample analysis results has been slow due to high seasonal demand at commercial laboratories. Analysis time for the hydraulic conductivity tests was particularly affected by this seasonal demand