June 13, 2022

Mr. Holland Shepherd
Program Manager
Mining Act Reclamation Program
Mining and Minerals Division
New Mexico Energy Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

And

Mr. Joseph Fox
Acting Program Manager
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, New Mexico 87502

Subject: Request for Submittal of a Permit Revision Application Including a Revised Closeout/Closure Plan for Mining Act Permit No. CI002RE and Additional Information for Discharge Permit 61 (DP-61) Renewal and Modification, Rio Grande Resource Corporation, Mt. Taylor Mine

Dear Mr. Shepherd and Mr. Fox,

Rio Grande Resources Corp. (RGR) received a letter from the Energy, Minerals and Natural Resources Department (EMNRD) Mining and Mineral Division (MMD) and the New Mexico Environment Department (NMED) Mining Environmental Compliance Section (MECS), dated October 15, 2021 requesting that RGR accelerate the submittal of its application for revision of Permit No. CI002RE (Permit Renewal Application) for the Mt. Taylor Mine. The due date of the submittal of the Permit Renewal Application was April 13, 2022.

On March 14, 2022, RGR sent a letter to MMD and NMED requesting a 2-month extension of the due date to June 10, 2022. MMD and NMED approved the extension of time by letter on March 24, 2022.

The letter also requested that RGR submit an updated Closeout/Closure Plan (CCP) with cost estimate, and a separate cost estimate for implementation of activities approved under the groundwater abatement plan. Additionally, MMD and NMED requested that RGR include the long-term monitoring proposal, submitted to NMED dated July 31, 2021, in the revised CCP.

RIO GRANDE RESOURCES CORPORATION

Please find attached RGR's application for revision of Permit No. CI002RE and the updated CCP. The long-term monitoring proposal is included in the CCP. At this time, RGR is submitting the CCP without the cost estimate. The cost estimate is in internal review and is not yet approved for release. RGR will submit the CCP cost estimate in a supplementary submission shortly.

The cost estimate for implementation of activities approved under the groundwater abatement plan is also in internal review. RGR will submit this cost estimate in a supplementary submission as soon as it is approved.

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,

Bruce R. Norquist

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

RIO GRANDE RESOURCES CORPORATION

June 13, 2022

Mr. Holland Shepherd
Program Manager
Mining Act Reclamation Program
Mining and Minerals Division
New Mexico Energy Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

Subject: Application to Revise the Permit CI002RE, Inclusive of Expansion of Disposal Cell and Update of Closeout/Closure Plan, Mt Taylor Mine

Dear Mr. Shepherd,

Please find attached Rio Grande Resources' (RGR) permit revision application for the Mt Taylor Mine, Permit No. CI002RE.

In this Permit Revision, RGR is providing an updated Closeout/Closure Plan (CCP) that includes descriptions regarding closeout activities and reclamation of the site. RGR is proposing and requesting approval to expand the Waste Rock Pile/Disposal Cell (Disposal Cell), from 11.5 acres to 25 acres.

This expansion is necessary to enable RGR to place all contaminated soils, debris and remediated materials within the protective boundaries of the Disposal Cell, as it progresses through Closeout of the site. By placement of these materials in the permanent repository of the Disposal Cell, RGR will comply with the Mining Act Rules (19.10.5), to protect the public and the environment.

The updated CCP included with this application further describes the details of closeout/closure process that RGR intends to follow. At this time, the Cost Estimate for the Closeout/Closure Plan is not ready. It will be submitted in a supplemental submission.

Specific information required under Section 19.10.5.502 NMAC for this permit revision application is contained in Attachment 1. Attachment 2 includes informational responses by RGR as appropriate under Sections 19.10.5.505 and 506 NMAC. Attachment 3 includes the Public Notices (English and Spanish) that were posted and mailed. The calculation for the Permit Application Fee is included in Attachment 4.

I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals responsible for obtaining the information, I believe the submitted information is true, accurate, and complete.

Included with this application is the application fee of $14,375.00.

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,

Bruce L. Norquist

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

CLOSEOUT/CLOSURE PLAN
MT. TAYLOR MINE

EXISTING MINE PERMIT No. C1002RE
DISCHARGE PERMIT DP-61

RIO GRANDE RESOURCES CORPORATION

JANUARY 1998

REVISED DECEMBER 1998

UPDATED JULY 2012

REVISED APRIL 2013

REVISED NOVEMBER 2013

REVISED JUNE 2022

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1 INTRODUCTION

1.1 Background

Rio Grande Resources Corporation (RGR) is the owner and operator of the Mt. Taylor Mine located at San Mateo, Cibola County, New Mexico. The mine is currently on active status under Permit No. CI002RE, Rev 13-2 (Mine Permit), approved 12/29/2017 by New Mexico Mines and Minerals Division (MMD). In 2013, RGR submitted an application for revision of its Mine Permit from standby status to active status (RGR 2013a: RGR 2013b) in accordance with 19.10.5.505 and 19.10.7.701 H NMAC. RGR is submitting this permit renewal application in accordance with the provisions of NMAC 19.10.5. This Closeout/Closure Plan (CCP) is submitted, as required by 19.10.5.506 and 19.10.5.507 NMAC, to update and describe the measures and estimated costs for reclamation of the mine site for the designated post-mining land uses at closeout/closure.

The CCP was originally submitted in 1998 by RGR as a revision to its existing-Mine Permit No. C1002RE in accordance with the New Mexico Mining Act of 1993, Section 69-36-1 Section 69-36-11B(3) and (4), and the New Mexico Mining Act Rules subparts 506.A and 506.B of 19.10.5 NMAC.

In addition, the New Mexico Water Quality Control Commission, through 20.6.2.3107 A (11) NMAC as enforced by the Mining Environmental Compliance Section (MECS) of the New Mexico Environment Department's Ground Water Quality Bureau (NMED), required a closure plan under Discharge Permit No. DP-61 (DP-61). DP-61 was originally approved in 1979 and was subsequently modified and renewed in 1984 and 1989 and amended to include a closure plan in 1995. Both the Mine Permit and the discharge plan require reclamation of some of the mine facilities as well as financial assurance (FA) to cover the cost of such reclamation. Because the mine closeout plan and the discharge permit closure plan have common elements and similar FA requirements, the MMD and MECS agreed that RGR could submit one document, a CCP, including one cost estimate, that satisfies the requirements of both agencies, with MMD taking the lead in coordinating the regulatory review and approval process. RGR submitted its CCP for existing conditions, those applicable to the mine site during standby, in July 2012 (RGR 2012).

In April 2013, RGR submitted a CCP for the mine after return to active status. MMD/NMED accepted the 2013 CCP revision and MMD approved and issued an active status permit (CI002RE, Rev 13-1) on December 29, 2017. This updated CCP is for revision of the approved 2013 CCP (RGR 2013b) to closeout/closure to reflect the status of the active Mine Permit.

The original Mine Permit CCP and the DP-61 closure plan renewal, both submitted in 1998, anticipated that the primary post-mining land use (PMLU) of the mine site and most facilities would be a water supply project (WSP). Although the WSP remains a feasible PMLU (see section 3), the previous business agreements for the WSP have expired, so the WSP was not included in either the 2012 CCP update or the 2013 CCP update and is also not included in this revision of the CCP.

The mine remains in active permit status, but in 2019 RGR decided not to bring the mine back into production and to begin some closeout/closure activities included in the 2013 CCP, which is permissible under the Mining Act. Accordingly, this submittal has been prepared to revise the 2013 CCP to reflect both the existing land disturbances and the mine facilities, both those already removed and those remaining. This CCP describes the measures that will be taken to reclaim the disturbed land for post-mining land uses and to satisfy the requirements of relevant environmental standards.

The following sections contain a description of the mine site and mining-related disturbances (section 2); proposed post-mining land uses and related ecosystems (section 3); both completed and pending closeout/closure measures to achieve the post-mining land uses (section 4); and environmental monitoring, environmental standards and permits required for closeout/closure (section 5). Section 6 addresses the closeout/closure schedule. The updated cost estimate for closeout/closure of the mine is discussed in section 7.

1.2 Project Description

RGR is owner and operator of the Mt. Taylor Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Figure 1-1). The mine site is 1/2-mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605.

The mine facilities at ground surface are shown on Figure 1-2. There are no mill facilities present within the permit area. Since 2020, RGR has been removing some surface facilities for closeout/closure; the disposition and status of surface facilities already removed and pending removal as of April 2022 are shown on Figure 1-2B.

The existing Mt. Taylor Mine units are described in the Mine Permit Application of December 1994. Of the 4006.7 acres included in the permit area (Figure 1-3), the mine surface facilities are located on 285.6 acres, of which approximately 148 acres are disturbed land.

The Underground Mine Unit, consisting of the underground workings, shafts, and conduits, has no surface disturbance other than that included in the Service and Support Facilities Unit (shaft collars and connecting ventilation openings). The mine extracted uranium ore from depths of over 3,000 feet below ground surface using room-and-pillar and stope mining methods. Mining was conducted on a single level (Westwater Formation ore horizon), approximately 3,100 feet below the surface. These mine workings were connected to two approximately 3,300-ft deep shafts via shaft stations. Several aquifers were penetrated by the shafts, requiring three sets (phases) of deep wells for local dewatering to access the ore body (Figure 1-4).

The disturbed land surface in the permit area consists of:

- Support (Service and Support) Facilities – 93.0 acres
- Mine Water Treatment Area - 28 acres
- Ore Stockpile Pad - 6.8 acres
- Waste Rock Pile - 11.5 acres
- Storm water Retention Ponds (2) - 3.7 acres
- Access Road - 4.7 acres

The existing facilities and those already removed as of April 2022 are shown on Figure 1-2B and are described in more detail in the Mine Permit and the closeout drawings (Appendix A). Permits other than the Mine Permit are listed in Table 1.1. Detailed locations and descriptions of deep wells are shown on Figure 1-4 of this CCP.

An inactive Treated Water Discharge Pipeline extends 4.3 miles from the Mine Water Treatment Unit (MWTU) area to the outfall point in San Lucas Canyon north of the mine (Figures 1-3 and 2-3). RGR estimates up to 21 acres of surface disturbance could occur during removal of the pipeline, based on right-of-way dimensions.

A maintained gravel access road, NM 334, bisects the mine site. This is a state road and right-of-way, maintained by Cibola County, that provides public access to the west edge of the Cibola National Forest; it is not part of the Mine Permit area, but is an affected area. Any soils with levels of radium and uranium above background will be removed during closeout/closure.

An adobe ruin, remnants of a pre-mining dwelling, remain on the small hill east of the south storm water pond (Figure 1-2b). This feature was not disturbed by, or used in, mining and will be left in place.

1.3 Project History

Prior to 1971, when Gulf Mineral Resources Corporation acquired the property, there was no mining within the permit area of the Mt. Taylor Mine. However, some disturbance for exploratory drilling and access roads was created before 1971.

1.3.1 Mine Development

The Mt. Taylor Mine was developed in the 1970's by Gulf Mineral Resources Company. To gain access to the ore zones, two, approximately 3,300-foot-deep mine shafts were constructed using traditional drill-and-blast methods with progressive liner construction. Shaft sinking began in 1976 and was completed in 1979. Once the shafts were completed, development drifting into the orebody began. During development, dewatering of the mine was accomplished by using a series of dewatering wells constructed in 3 phases.

1.3.2 Mine Production

Gulf started production in 1980, after the orebody was sufficiently developed. Production continued until September 1982, when the market price of uranium fell dramatically, resulting in the temporary cessation of production by Gulf. Mine pumps continued dewatering the mine during this shut-down period. Ownership was transferred to Chevron Resources Company in 1985 when the two companies merged. Chevron produced ore from the mine from 1986 to 1990, when it suspended mining of uranium ore, again due to low market prices for uranium.

1.3.3 Mine De-activation

Chevron Resources Corp. ceased mining activities at the Mt Taylor Mine in January 1990 due to low uranium market prices. RGR acquired the mine property in 1991 and maintained the mine in ready status in anticipation of improving uranium market conditions.

1.3.4 Mine Permitting

RGR submitted its application for an Existing Mine Permit in December 1994, shortly after the New Mexico Mining Act was passed and the Rules went into effect. The MMD approved the Mt. Taylor Mine Permit No. CI002RE as an existing mine operation on July 28, 1995. On December 18, 1998, the MMD approved the Closeout Plan and financial assurance (FA) for the mine.

RGR submitted its first application for Standby status of the Mt. Taylor Mine on March 25, 1999. MMD approved Standby status on October 7, 1999, under permit revision 99-1. From 1999 to 2017, the mine was in standby status due to the depressed uranium market.

Anticipating recovery of the uranium market, RGR submitted an application in 2013 to revise the Mine Permit from standby to active status (RGR 2013a, RGR 2013b). Since December 29, 2017, the mine has been in active status. However, in 2019 RGR decided that the uranium market was not recovering sufficiently to justify resuming production of the Mt. Taylor Mine, so closeout/closure activities began.

1.3.5 Mine Water Pumping, Treatment, and Discharge

To gain access to the ore zones during mine development, dewatering (depressurizing) wells were drilled and operated in stages. The primary function of these wells was to reduce the water pressure on the shaft as it was constructed. Pumping of water from these dewatering wells began in the early 1970's and ceased by 1978. Locations and descriptions of these dewatering wells within the mine area are shown on Figure 1-4. A typical geologic section and typical well construction are shown on Figure 1-5. Shallow monitoring wells were installed to track the effects on shallow water resources of mine water brought to ground surface (Figure 1-6).

During mining operations in the late 1970’s and through the 1980’s, the mine was dewatered via underground pumps and piping to the MWTU facility on the surface, where it was treated to reduce radium concentrations before discharge. The treated water was then discharged through a 24-inch diameter, 4.3-mile-long pipeline (Treated Water Discharge Pipeline). This pipeline crossed mostly private land, except for approximately a three-quarter mile portion leased from the US Forest Service and terminated at the outfall in San Lucas Canyon north of the mine (Figures 1-3 and 2-3). The water was discharged under NPDES Permit No. NM 0028100 (now terminated) from Outfall 001 into the San Lucas Canyon, an ephemeral stream. At the time, the discharged water flowed northward from the San Lucas Canyon and disappeared approximately 22 miles from the point of discharge after comingling with the San Miguel Creek drainage system. A study by RGR (RGR 2013b, Appendix E) found that uranium levels in soil and ground water downstream from the Outfall 001 are very low, below human health limits, indicating that previous mine water discharge has not contaminated the soil or ground water.

Seven observation wells were installed for monitoring drawdown during the initial dewatering of the mine (Figure 1-4 and 1-8). Observation wells SM 24-89, SM 24-43, and SM24-38 are located in the mine area near the production shaft (Figure 1-4). One of these observation wells, SM 24-23E is located in the mine area near dewatering well DW-8. The three other wells are located outside of the mine area at locations shown on Figure 1-8. These observation wells have not been used since operations ceased in the 1980’s. Water levels in the dewatering and observations wells are listed in Table 1.2.

The mine historically produced uranium using conventional underground mining methods from ore zones of the Morrison Formation at depths of more than 3,000 feet below ground surface. Approximately 675,085 tons of ore and approximately 698,000 tons of waste rock have been mined. The ore was shipped off site for milling. Overlying formations, including the water-bearing Dakota Sandstone, were penetrated by the shafts, but no mining of ore was conducted in those formations.

Waste rock from shaft sinking (shaft muck) and from mine development was placed in an on-site stockpile, located at the southwest corner of the waste rock pile. The shaft muck was found to meet the criteria of clean materials (radioactive components at or below background values) and was subsequently used for the newly constructed disposal cell (2018).

The mine has not produced since RGR purchased the property because of the continued low market price for uranium and high cost of reactivation. Facility descriptions remain unchanged from those provided in previous renewals of this plan.

1.4 Other Permits

RGR maintains several permits that are relevant to the closeout/closure of the Mt. Taylor Mine. In addition to the Mine Permit and DP-61, the other permits related to the mine are listed in Table 1.1.

The NPDES Permit No. 0028100 was terminated in 2021 because it was no longer required. The Mt Taylor Mine facility has not discharged through Outfall 001 since the early 1990's. With the mine site in closeout, RGR has no future plans to discharge from the facility.

The Radioactive Material License SO043-14 was terminated in 2021 because it was no longer required. The sources covered under the license were no longer needed and were disposed.

There are no stationary sources with potential emissions of regulated contaminants associated with closeout/closure activities, so there are no air quality permit requirements for closeout.

A Clean Water Act Section 404 permit would be required only if the amount of riprap placed will be more than one cubic yard per running foot or more than 500 feet long (40 CFR 232.3). The closeout/closure design volumes are below these limits. However, if design modifications cause these limits to be exceeded, the work could be done under the Nationwide Permit #13 (Jean Manger, Albuquerque COE office, telecom (4/23/98), which requires a Joint Application for Department of the Army Permit and NM Water Quality certification.

No other permits beyond those listed in Table 1.1 and those just discussed above are required for closeout/closure of the Mt. Taylor Mine.

2 SITE CHARACTERISTICS

2.1 Site Climate

The climate and air quality of the permit area are described in the Environmental Site Assessment (RGR 1994a) and the Permit Application (RGR 1994b). The climate is semi-arid, like most of the state, but the elevation (about 7,300 feet above MSL) and orographic effects of Mt. Taylor cause low winter temperatures and frequent high winds that impose some limitations on post-mining land uses and ecosystems. In particular, the climate of the site is not well suited to crop production other than hay, but it has historically allowed livestock grazing. Rainfall is not sufficient to support forest within the area of the surface facilities, where most disturbance has occurred.

2.2 Site Geologic Setting Summary

The geologic setting of the mine has been described in detail in the Baseline Study prepared by NMEI in 1974 and the Site Assessment submitted in 1994. The following summary is derived from those reports. The geologic section is illustrated in Figure 2-1.

The mine level is approximately 3,200-3,300 feet deep in the Recapture Creek Sandstone member of the Morrison Formation. This member grades laterally into the Westwater Canyon member above. The Westwater Canyon member is quite variable in thickness owing to lensing and vertical gradations into both the Brushy Basin and Recapture Creek members. The lower sandstone unit is about 64 feet thick, while the upper sandstone unit is approximately 123 feet thick in the mine shaft area. These two sandstone units, which carry the uranium ore reserves of the mine, are most often separated by a green shale. The Brushy Basin member conformably overlies and interfingers with the Westwater Canyon member. It measures 80 feet thick and contains uranium ore deposits at several locations in New Mexico.

Between the ore-bearing formations and ground surface is a sequence of sedimentary units approximately 2,900 feet thick, starting with the Dakota Sandstone, which unconformably overlies the Brushy Basin member of the Morrison Formation. The Dakota is approximately 58 feet thick and is only slightly mineralized and not mined at the Mt. Taylor Mine. The overlying Mancos Shale, nearly 900 feet thick, is composed chiefly of dark-gray, calcareous, marine clay shale. The Gallup Sandstone interfingers with and conformably overlies the Mancos Shale and is the lowermost member of the Mesaverde group.

The Gallup Sandstone consists of two separate sandstone units separated by 130 feet of dark gray shale. The Crevasse Canyon Formation contains three major members, in ascending order the Dilco Coal, Dalton Sandstone, and Gibson Coal. The Hosta Tongue Sandstone of the Crevasse Canyon Formation, 115 feet thick, is overlaid by another Mancos Shale wedge called the Satan Tongue, consisting of dark gray, sandy shale. The Point Lookout Sandstone, the shallowest aquifer at the mine, averages 767 feet deep and approximately 115 feet thick. The Point Lookout aquifer provides the domestic water supply for both the mine and the Village of San Mateo.

The Menefee Formation is the uppermost geologic unit present at the mine. It forms uneven slopes around the mine and near the Village of San Mateo. The formation is composed of interbedded pale yellowish-brown silt stone, fine to medium grained sandstone, gray shale, carbonaceous shale, and thin coal beds. Its thickness at the mine is approximately 767 feet (NMEI 1974). Mine water treatment pond basins were excavated into the Menefee, and both the manway/vent and production shafts are collared in this formation.

Deposits of Quaternary age exposed in the area consist of unconsolidated talus, alluvial and eolian sediments. Talus, landslides, and black lava blocks cover extensive areas on the slopes adjacent to the high basalt-covered mesas to the south, southwest and east of the mine. Clay, silt, sand, and gravel alluvial lenses underlie the valleys, as well as the lower topographic slopes (NMEI 1974).

2.3 Site Hydrology Summary

The hydrologic conditions of the mine and impacts from mining have been described in detail in the Baseline Study prepared by NMEI in 1974 and the Site Assessment submitted in 1994. The following summary of the surface and ground water hydrology from those reports and updates from more recent observations and studies are provided here as the basis for proposed closeout/closure measures.

2.3.1 Surface Water

Two main surface drainage systems collect both bedrock seepage water and storm water run-off in the vicinity of the mine. The primary surface water course is San Mateo Creek, located one-half mile south of the mine. This perennial stream is fed with numerous springs in the San Mateo Canyon area but disappears into the stream bed approximately two miles beyond the Village of San Mateo. During spring peak run-off and after heavy rainstorms, the surface flow may occasionally extend for a brief period farther down San Mateo Creek. Surface water runoff within the permit area occurs only after heavy precipitation on or upstream from the site.

The second main drainage system is the Marquez Canyon ephemeral steam, located immediately north of the mine. This deeply incised arroyo collects water during the infrequent heavy rainstorms, but otherwise is dry throughout the year. Low-flow springs are located at higher elevations feeding this drainage, but their total flow has never been large enough to be measurable at the mine's elevation. Marquez arroyo flattens out and dissipates into the alluvium about one-half mile west of the mine.

Constructed during mine development in the 1970's, diversion ditches and below-grade collection systems intercept and channel runoff originating on the site to storm water retention ponds where water is evaporated. These ditches replace three shallow ephemeral drainage courses that existed prior to mine development (Figure 2-2). Storm water originating directly on the mine site area was channeled into a below-ground storm water collection system (culverts) and retained in storm water retention ponds and evaporated.

As part of site drainage upgrades completed during mine reactivation (2018):

1. Runoff from the service and support area previously directed into mine water treatment pond #2 has been diverted into a replacement culvert (re-constructed 2018) along the county road that discharges to the south storm water retention pond (Drawing Sheet CL 03), which was updated in 2018.
2. Runoff from the east and north slopes of the Waste Rock Pile now collects in a culvert system (Storm Drainage System) that discharges to the south storm water retention pond (Drawing CL 14), which was completed in 2019.

The storm water runoff retention structures are designed to contain not less than the 100-year storm runoff and hold the water for evaporation. After closeout/closure, those diversion ditches and retention structures that support post-mining land use will remain in use for stock watering; otherwise, runoff will be re-directed to existing drainage courses that naturally would receive runoff from the site (Drawing Sheet CL 14).

2.3.2 Ground Water

Aquifers and the ground water conditions in the mine area are described in detail by NMEI (1974) in the Baseline Study and by a report by Geohydrology Associates, Inc., 1994. Ground water occurs in some Cretaceous formations and in the Jurassic Morrison Formation, where the uranium ore bodies are found.

Several aquifers are intersected by the mineshafts and were affected by the mine dewatering. These water-bearing strata produce a large amount of water that was removed by pumping a series of dewatering wells during mine development until 1978 (Figures 1-4 and 1-5) and then by underground mine pumps into 1990 to dewater the ore bodies. The underground mine pumps were shut off June 1990, after mining operations were suspended, and the mine has subsequently flooded as ground water levels recovered. The mine water has concentrations of uranium and radium that slightly exceed current drinking water standards (Table 2.1). Sampling in 2021 of several dewatering wells indicate good water quality in the Cretaceous aquifers.

The shallowest aquifer capable of sustaining a potable water supply in the mine area, the Cretaceous Point Lookout Sandstone, has a potentiometric surface at a depth of approximately 460-610 feet below the surface (bgs) and the aquifer has a large flow potential (Table 1.2). The Village of San Mateo and the mine both have wells reaching approximately 650-1190 feet into the Point Lookout Sandstone. The quality of the Point Lookout aquifer remains very good (Table 2.2). The mine began using this water in 1972, whereas the San Mateo village water well, located at 35° 19' 56.14" N, 107° 39' 02.53" W, was drilled in 1976 by Gulf and serves approximately 200 residents. The typical geologic cross-section indicates that the Point Lookout Sandstone is separated vertically from the surface and alluvium by over 700 feet of shale and sandy shale sequences (Figure 2-1) in the Menefee, minimizing the possibility of any shallow Menefee aquifer water reaching the Point Lookout aquifer.

The NMEI Baseline Study (1974) includes a list of other shallow water wells, most of which are clustered in and around San Mateo. Six wells (three hand-dug) are in the alluvium less than 100 feet deep, and nine wells produce from the Upper Menefee Formation from 120 feet to 336 feet deep. Some of these wells may be still used for watering livestock, but a number of them were abandoned when the Point Lookout water well was drilled for village use by Gulf.

The alluvial and Menefee Formation are unconfined aquifer systems that yield small amounts of water in the local area. Water levels vary from 35 to 90 feet below ground surface (ft bgs). The alluvial sediments vary from 0 to 65 feet thick at the mine site. The Menefee Formation is approximately 770 feet thick and is comprised of interbedded shales, clay-stones and sandstones, which provide a confining layer to the underlying Point Lookout Sandstone (Figure 2-1).

Perched groundwater occurs in some locations in the mine area. A discontinuous perched ground water zone occurs at approximately 12-25 feet bgs located within the Waste Rock Pile and paleochannels. Alluvial groundwater occurs at the alluvial/bedrock contact at approximately 45-60 feet bgs primarily in paleo-arroyos within the operational area of the mine and in shallow, low-volume saturated zones elsewhere in the Upper Menefee.

A geophysical study was conducted in 2020 (Willowstick, 2020) across the southern half of the mine site. This study concluded that preferential ground water flow paths exist beneath the Waste Rock Pile and the operations area. The primary preferential ground water flow paths identified in the study overlap the paleo-arroyo channels that were filled in as part of the mine site development. The study also identified several areas of perched water within the Waste Rock Pile. In late 2020 an additional site investigation was conducted, with installation of seven new monitor wells located in the preferential flow paths identified in the Willowstick study (Ensero,2021). These new wells were completed in water-bearing siltstones and sandstones within the Upper Menefee just below the alluvium/bedrock contact. One background monitoring well was installed in the southeast portion of the mine site (MW 1C, Figure 1-6). Alluvial and Menefee monitor wells are shown on Figure 1-6.

Recharge to the alluvial and Upper Menefee ground water at the mine site comes from the Menefee formation the east of the mine. Recharge to the alluvium and Upper Menefee beds at the mine site is primarily through paleochannels from seeps and possibly springs along the (now) subcrop of Menefee sandstone beds that were covered when Gulf conducted extensive cut and fill of the mine surface during 1976-1980. The paleochannels were the drainage courses for discharge from those springs as well as surface runoff from the mine site and the mesa above the mine site. Groundwater flows west to northwest through the mine site.

2.4 Mine Units

Mt. Taylor Mine is an underground mine, with the ore bodies over 3000 feet below surface, supported by a surface facility. Refer to the Permit Application (RGR 1994b) for details of the mine facilities. Ore was mined by conventional drill-and- blast methods, hoisted to the surface in ore skips via shafts, and transported offsite for milling.

A worst-case subsidence analysis was performed in support of the 1994 Permit Application. Even with the assumed case of 100 percent extraction of ore, which would not be physically possible, no subsidence would reach ground surface and would be limited to 300 feet above the mine workings. During previous mining operations, approximately 1.3 million tons of ore and waste rock were extracted from the ore bodies in the Morrison units.

Using best current practices of room-and-pillar mining with backfilling, subsidence would be limited to heights less than one room width above the room, leaving overlying aquifers and ground surface unaffected. Therefore, upon closeout, underground workings (the Underground Mine Unit) will be abandoned, and shafts plugged.

Mine units identified in the 2013 Mine Permit renewal application include the underground workings (Mine Unit in the permit) and surface mine units that consisted of all activities at ground level needed for support of underground mining and included:

- hoisting of men, materials, and ore
- ventilation and cooling of air for the underground
- removal and treatment of mine water
- disposal of waste rock
- administrative, health and safety, and maintenance services
- stockpiling and loading of ore for offsite milling

The location and identification of mine facilities are shown on Figure 1-2 and Figure 1-2b. Mine units are delineated primarily by function and secondarily by location; there is some overlap in locations of the mine units. The mine units are described in the following sections and include:

- Underground Mine Unit (Section 2.4.1)
- Mine Dewatering and Mine Water Treatment Unit (Section 2.4.2)
- Service and Support Unit (Section 2.4.3)
- Low Grade Ore Stockpile (Section 2.4.4)
- Waste Rock Pile (Section 2.4.5)
- Storm Water Ponds (Section 2.4.6)
- Access Road (Section 2.4.7)

2.4.1 Underground Mine Unit

The facilities in this category, collectively called the Underground Mine Unit (formerly the Mine Unit), consist of below-surface facilities - the two shafts and associated underground workings. The underground mine workings, including all drifts, stopes, haulage ways, and other openings for ore extraction are shown on Figure II of the Site Assessment (RGR, 1994a). These underground workings follow the ore body at depths of 3,100-3,200 feet below ground surface.

The Mt. Taylor Mine has two shafts, the production shaft (24-foot diameter shaft) and a manway/ ventilation shaft (14-foot diameter shaft). In addition, two 10 ¾ -inch I.D. utility conduits extend from ground surface to mine level. The shafts and conduits penetrate all the geologic units and aquifers described in sections 2.2 and 2.3.

The conduits have steel casings, grouted in place. The conduits are 11.5 inches O.D., cemented in place in 12.5-inch diameter boreholes through the entire length of 3,100 feet (north conduit) and 3,200 feet (south conduit). The annulus between the steel casing and the bored hole is cement-grouted. The grout isolates the conduit from all aquifers except the Westwater at the mine level. As previously requested by MMD and approved in the Mine Permit, the entire length of each conduit will be grouted during closeout/closure.

Both shafts have slip-formed, cast-in-place concrete liners from collar level to mine level. The liner thickness increases with depth, from 1.0 feet at sub collar level to 3.0 feet at the mine level. The rock/ concrete contact is pressure-grouted through the water-bearing sections from the Point Lookout aquifer to the shaft stations at mine level, isolating the shafts from the aquifers above mine level and the aquifers from each other. The hydrologic isolation of the shafts and the mine water from the Point Lookout aquifer is demonstrated by the difference in static water levels between the shafts and the Phase I dewatering wells in the Point Lookout aquifer (Table 1.2): the water levels in the Point Lookout wells average approximately 502 in depth or about elevation 6,840 (on the west side of the shafts). The average depth of water in the Point Lookout wells east of the shafts is approximately 583, or about elevation 6802. In the shafts. the water levels are approximately 780 feet below ground surface, or about elevation 6,566 versus the water level depth in the Phase I well #2A in the Point Lookout aquifer of approximately 483 feet below ground surface, or about elevation 6,864.

After 32 years without dewatering, this water level difference of approximately 300 feet over a relatively short distance of 200-400 feet from the production shaft (Table 1.2) indicates that there is no discernible hydrologic connection between the mine water (Morrison/ Recapture/Westwater) and the Point Lookout. Table 1.2 lists the most recent water levels measured in the mine shafts, which show that the potentiometric surface in the shaft water is that of the mine-level aquifers, not the Pt. Lookout aquifer. If a connection exists between the shafts and the Pont Lookout aquifer, it would have equalized the water levels in the mine shafts to those in the Point Lookout by flow from the Point Lookout to the shafts during the time since pumping stopped. The isolation of mine water from the Point Lookout is also evident from the contrast in water quality between the mine water (Table 2.1) sampled in the production shaft and the Point Lookout water (Table 2.2) sampled in well 2A.

2.4.2 Mine Dewatering and Mine Water Treatment Unit

2.4.2.1 Mine Dewatering Wells

The mine facilities include deep dewatering wells for removing water from the mine, a Mine Water Treatment Unit (MWTU), and a Treated Water Discharge Pipeline. During initial mine operations, water was pumped from up to 22 deep dewatering wells to dewater the mine. These wells are located concentrically around the shafts, as shown on Figures 1-2 and 1-4 and listed in Table 2.3.

When the mine was operating, these facilities were used to pump, treat, and discharge up to 7,200,000 gallons per day. However, during mine standby and the more recent active status period (2018-2019), no mine water was discharged, and these facilities were not in operation.

2.4.2.2 Mine Water Treatment

The Mine Water Treatment Unit (MWTU) is regulated under Discharge Permit 61 (DP-61), which was originally approved on July 20, 1979 and subsequently renewed every five years hence. DP-61 is in the process of timely renewal concurrently with RGR's application for renewal of the Mine Permit.

The MWTU covers 28 acres of land surface within the Mine Permit boundary. The mine water treatment unit includes the water treatment equipment and buildings (Ion Exchange plant, flocculant treatment and barium chloride treatment facilities), as well as the ponds, which had an original combined capacity of approximately 62 acre-feet (RGR 2013, Appendix B, MT13-04).

In the 1970's and 1980's, when the mine was operating, the mine water was treated in the MWTU to remove low concentrations of uranium and radium so that the treated water met human health standards (20.6.2.3103A NMAC). Treatment consisted of sediment settlement assisted by flocculation and precipitation of radium using barium chloride. An ion exchange (IX) circuit for removal of uranium was constructed but never placed into full operation because the uranium concentrations of the mine water were below the groundwater standard (0.05 mg/L) in effect at that time. The IX circuit was run only in an initial test mode; it was not subsequently used for uranium removal.

Mine water was first treated with flocculant before being released into Pond #1. Mine water then flowed from pond #1 through ponds #2 and #3, where settling of suspended solids occurred. The settled mine water then flowed from pond #3, through the barium chloride mixing facility, and into pond #8. From pond #8, the treated water flowed into pond #4, then into pond #5. Through addition of barium chloride, barium precipitation was induced (barium-radium-sulfate co-precipitation) as the mine water flowed through these three ponds. After barium precipitation in pond #5, the treated water flowed into ponds #6 and #7 before release to the discharge pipeline.

From Pond #7, treated water was pumped through a 4.3 mile long, 24-inch diameter discharge pipeline and discharged to San Lucas Canyon (Figures 1-3 and 2-3) under authority of NPDES Permit No.

NM0028100. The pipe, all above-ground construction, consisted of 1/4 to 3/8-inch thickness steel sections, welded in the field.

The MWTU was upgraded during the mine reactivation period (2018-2019), after the Mine Permit was revised to active status. During this time, MWTU Ponds 2 (2019) and 3 (2018) were reshaped, existing hydraulic structures were refurbished, new concrete spillways were constructed at the inlets, and double-membrane high-density polyurethane (HDPE) liner systems were installed according to DP-61. Both ponds were enlarged for increased storage capacities (Table 2.4) Excavated contaminated soils generated during the reshaping activities were placed in the disposal cell.

MWTU Pond #3 is being used to retain and evaporate contaminated water and fluids generated around the site including ground water from abatement activities, surface water runoff collected from containment structures, monitor well purge water and wash water generated on site from equipment and materials decontamination. MWTU Pond #2 is not in use; it serves as backup storage in case MWTU Pond #3 becomes filled to capacity. A shallow pool of clean water is maintained in MWTU Pond #2 to preserve and maintain the liner.

MWTU Ponds #2 and #3 will remain in place until ground water abatement objectives have been achieved and site decontamination activities are no longer required. These ponds were constructed as below-grade basins excavated into native rock and soil. When no longer needed, these two ponds will be reclaimed. The sediments contained on the liners will be removed and placed in the disposal cell. The hydraulic structures and liners will then be removed and placed in the disposal cell. The berms will be pushed in, and the ponds backfilled and regraded to meet final grading contours (Drawing Sheets CL 07A and CL 08). The pond areas will then be re-vegetated according to Appendix F.

MWTU Ponds #1, #4, #5, #6, #7, and #8 were excavated in 2019, during the reactivation phase, to remove contaminated sediments and soil, which were subsequently placed in the disposal cell. These ponds were not relined and never put into use during active status because RGR initiated closeout/closure activities before those ponds were re-constructed.

Demolition of the MWTU pond hydraulic structures has been initiated, with completion anticipated later in 2022.

Once the disposal cell expansion is approved, RGR will complete cleanup and reclamation of MWTU Ponds #1, #4, #5, #6, #7, and #8. After these six ponds are demonstrated to be clean, the berms will be pushed in and the ponds backfilled. These six ponds will be regraded to meet final grading contours during closeout (Drawing Sheets CL 07A and CL 08).

2.4.3 Service and Support Unit

The Service and Support Unit includes all surface facilities other than mine water treatment and mine waste rock disposal. The location and identification of these facilities are shown on Figure 1-2B and listed on Table 4.2

Service facilities are those units at ground surface that support the overall mine operation but do not provide direct support of underground operations., These units provide site access control, administrative services, personnel and sanitary services, warehousing and storage, maintenance and repair, water and power utilities. The facilities include the guard house, fire equipment building, service building, car shop, carpenter shop, electrical building, water treatment building, storage building, core storage building, water tanks, fuel storage tanks, fan shop, septic tank, leach field, and water wells for water supply to the mine.

Support facilities are those facilities at ground surface (above the shafts collars) that have a direct function in underground mining operations. These support facilities supply air for ventilation; pumping of water from the underground space; cooling and heating of underground air; and hoisting of personnel, materials, and ore to and from the underground mining levels. The mine support facilities included the compressor building, chiller building, cooling towers, chiller pump building, shaft heating buildings, hoist house, headframes, and the exhaust fan structure.

An electrical substation is located at the north side of the service and support facilities area. This substation is owned by the Continental Divide Electrical Cooperative and Public Service of New Mexico and is not subject to regulation under the Mine Permit. However, because the substation has some contamination from fugitive dust, it is an affected area and will be cleaned up during closeout/closure.

2.4.4 Low Grade Ore Stockpile and Ore Pad

The ore stockpile covered 6.8 acres and contained approximately 60,000 tons of low-grade ore. The ore stockpile has been removed, and the ore has been trucked to the White Mesa uranium mill in Utah. The chemistry of the ore in the stockpile is represented by the test results in Appendix D.3.

In the previous version of the CCP, a new 10-acre ore pad was to be constructed, with a liner, truck wash, and runoff collection system as described in RGR, 2013b. This was never built.

As part of closeout, the surface soils currently in the ore pad will be removed to eliminate any soil contamination from the ore stockpile. Contaminated soils in the ore pad will be placed in the disposal cell. This is described further in the Earthwork Section 4.4.2

2.4.5 Waste Rock Pile and Disposal Cell

This mine unit consists of the original Waste Rock Pile (WRP) and the disposal cell within and adjacent to the original WRP footprint that contains radiologically-contaminated materials that have been, and will be, removed from other locations. The WRP and disposal cell constitute the permanent repository for radiologically-contaminated materials of the Mt Taylor Mine and affected areas.

The original WRP is comprised of the waste material generated from previous mining and development activities. The disposal cell is a distinctly separate structure constructed above and adjacent to the original WRP. The disposal cell is a clay-lined cell intended to be the repository for all newly generated site waste. The purpose of this clay liner, along with its engineered cap, is to prevent surface water from infiltrating the contaminated materials within. By preventing surface water infiltration, leaching and mobilization of contaminants is minimized, thus protecting the general public and the environment.

The existing WRP was reshaped during the mine reactivation period (2018-2019) and occupies 11.5 acres in the southwest corner of the surface facility area. Upon resumption of mining operations, waste rock was to be placed on this pile until it reached the maximum build-out configuration (Drawing Sheets CL 09, CL 10, and CL 11). The WRP contains waste rock (rock with uranium content below ore value), excavated during mine development and production, from non-ore bearing formations or below-ore-grade rock in the mine.

The mound of material previously located at the southwest corner (before 2018) was shaft muck excavated from strata above mine level, making its radionuclide content essentially background level. The shaft muck pile was reshaped into the south sloping berm of the current WRP and disposal cell during the 2018 reconstruction period.

The WRP also contains a variety of non-rock waste from the mine such as rock bolts, timbers, ventilation bag, pipes, and other mine-related debris. These materials occur randomly throughout the pile. Waste rock removed from underground mines typically includes non-rock materials that are hoisted with the rock and remain mixed with the rock when placed in the WRP. At the Mt. Taylor Mine this mixture has been in place for up to 34 years with no evidence of settlement.

Non-rock waste (site debris and scrap materials) generated during closeout/closure will be placed in the disposal cell in a controlled manner to minimize potential for settlement. This material will be placed in lifts and either covered with soil and compacted after each lift or flooded with soil/cement slurry to fill voids.

Analyses were performed previously to determine the structural stability (resistance to mass movement) of the pile upon ultimate buildout, the largest size that the pile could have. This condition would include slopes that are higher than those that existed or planned for closeout/closure. The results of these analyses, documented in Appendix B, show that the minimum factors of safety are 2.42 under static load conditions and 1.61 under pseudo-static (earthquake) load conditions. These values are well above the minimums necessary (1.00) to ensure slope stability and remain conservative and relevant for the maximum configuration of the unit.

2.4.6 Storm Water Ponds

Two runoff retention ponds, the north storm water retention pond (NSWP) and the south storm water pond (SSWP), capture and retain runoff from areas of the mine surface that contain ore or waste rock (Figure 1-2 and Drawing Sheet CL 03). The NSWP is also referred to as the ore pad runoff retention pond.

The NSWP (0.9 acres), located between the ore stockpile pad area and the mine water treatment area, retains runoff from the ore pad and holds it until it evaporates. The NSWP will be remediated as part of closeout, once the disposal cell expansion is approved and after the ore pad is removed.

The SSWP was reconstructed in 2018 to its current size of 2.67 acres increasing the capacity sufficiently to hold the runoff of two 100-year storm events. The SSWP retains storm water from the existing WRP and the service and support facilities and will remain as part of PMLU after closeout/closure to retain and evaporate site runoff.

During reactivation (2018), the sediments and contaminated soils in the SSWP were excavated and placed in the disposal cell. Once cleaned, a 2-ft thick clay liner was installed over the floor and sides. Subsequent runoff from the mine facility has introduced new contaminated sediment onto the pond floor, as anticipated. At closeout/closure, these newly deposited contaminated sediments will be excavated and placed in the disposal cell.

Along with reconstruction of the SSWP during mine reactivation (2018-2019), the mine facility runoff that formerly flowed to MWTU Pond #2 was rerouted via reconstructed and new culverts to the SSWP. At this time, all mine facility storm water runoff has been diverted to the SSWP, including the catchment of storm water runoff from the disposal cell. Upon closeout/closure, this runoff will continue to be diverted to the south storm water pond.

Both ponds have radium levels exceeding the 6.8 pCi/g limit and will be cleaned up during closeout/closure. All contaminated soils from the cleanup of both ponds will be placed in the disposal cell.

2.4.7 County Road

County Road 334 (County Road), also known as the Access Road, is a public gravel road and right-of-way, totaling approximately 4.7 acres, maintained for the State of New Mexico by Cibola County, that provides access to the west edge of the Cibola National Forest; it is not part of the Mine Permit area, and not subject to closeout. However, contaminated soil along the County Road corridor will be removed and the road surface restored during closeout/closure.

3 POST-MINING LAND USE

3.1 Factors in Selection of Post-mining Lands Uses

In selecting post-mining land uses (PMLUs) for the permit area, RGR took into account many factors. These included:

- Technical feasibility
- Economics
- Land ownership
- Current and possible future surrounding land uses
- Public interests
- Site resources and ecosystems
- Environmental impacts and standards

Technical feasibility - No post mining land uses were considered for which necessary technology does not presently exist.

Economics - This factor consists of two parts, economic feasibility and economic compatibility. A PMLU should have net positive economic returns (returns at least equal to costs). The net returns can be in the form of revenues, cost savings, or any combination of these. The PMLU should work positively within the local economy, either by improving it or helping to sustain it.

Land Ownership - RGR controls, either through direct ownership or through leases with landowners, the permit-area surface listed in the Permit Application. RGR owns the surface land in the E-1/2, Section 24, T13N, R8W, containing the mine facilities, with exception of a wedge-shaped portion of land around the

SSWP. RGR is working with the landowners of record to acquire those lands, but in the event it cannot reach agreement, RGR will return those land areas to the previous owner(s).

Current and possible future surrounding land - The surrounding lands have been used for livestock grazing and small-scale logging for several generations, and these uses are expected to continue in the foreseeable future. The Cibola National Forest to the east provides a number of recreational, commercial, and cultural uses available to the public. The selected PMLUs should be consistent and compatible with surrounding land uses but need not be the same uses.

Public interests - The San Mateo community has a strong cultural heritage and places great value on its rural, independent lifestyle. PMLUs that would require substantial new infrastructure or impose demographic changes were avoided to reduce the chance for negative impacts to the community.

Site resources and ecosystems - RGR examined the resources of the site other than the uranium ore, especially those already disturbed by mining, to identify which ones have potential for productive use after mining. Site resources include both natural and man-made attributes of the site. Water removed from the mine and some mine surface facilities are considered to be resources that have potential use after mining operations. Reclamation should restore the pre-mining ecosystem to the extent consistent with the PMLU(s).

Environmental impacts and standards - Potential PMLUs should limit land disturbance or, preferably, contribute to mitigation of mining disturbances. Each PMLU must be able to meet standards for air and water protection established by the New Mexico Environment Department (NMED) and federal agencies as applicable.

3.2 Potential Post-Mining Land Uses

Using the factors described above, RGR identified the following potential PMLUs:

- livestock grazing
- wildlife habitat
- commercial or government facilities

Livestock grazing as a PMLU is consistent with surrounding and historical land uses and local public interest. It is also consistent with the wishes of those land surface owners who have expressed a preference. This use will be facilitated through covering of the WRP and mine water treatment ponds, final grading of disturbed surfaces, and revegetation. This PMLU could coexist with or next to the other potential PMLUs and would restore the pre-mining ecosystem.

Wildlife habitat is consistent with surrounding lands uses and community values. It is readily implemented with the same measures used for establishing livestock grazing.

Commercial or government facilities would make use of some existing mine buildings and infrastructure, all in usable condition, for services, manufacturing, storage or wholesale/ retail sales, providing a center for employment in the San Mateo area. This use is consistent with a municipal/ industrial water supply or livestock grazing PMLU but is not compatible with wildlife habitat. The mine surface facilities include office, warehouse, and maintenance facilities that could be used by other mining operations in the area or by land management agencies such as the Bureau of Land Management and the US Forest Service. Although located away from main transportation routes and in a thinly populated area, the mine facilities could attract light industrial business.

3.3 Selected Post-Mining Land Uses

For the purposes of this CCP, RGR has selected grazing and light industrial as the primary PMLU and the basis of the cost estimate for financial assurance. RGR intends to utilize the selected buildings (retained for PMLU, Table 4.2 and Figure 1-2B) for its continued business operations in New Mexico and focus on maintaining a continued presence at the Mt Taylor facility. The buildings and facilities will provide for storage and maintenance of its equipment, as well as office space for RGR's site personnel and current and future business opportunities, including light industrial. The equipment will be used to maintain the PMLU facilities (water wells, grazing endeavors, other business potential).

3.3.1 Grazing

Prior to the development of the mine, the site was used for grazing by generations of the same families Refer to the Mine Permit Application (RGR, 2022) for current delineation of surface ownership. Specifically, the following present and future surface owners have grazed livestock on, or expressed this preference for, the following areas:

- Portion of NE 1/4, section 24 - This is the northerly portion of the mine surface area, containing the Mine Water Treatment Unit as well as the county road right-of-way. RGR is the surface owner of this tract. This land has been grazed historically so the non-excluded parts of this surface will be returned to grazing as the PMLU.
- Portion of SE 1/4, section 24 - This is the southerly portion of the mine surface area as well as undisturbed land south of the mine facilities. It contains most of the surface support and mine

support facilities and the WRP. RGR is the surface owner of all but a wedged-shaped portion of this tract (see bullet point below).

- Northwest Portion of SE 1/4, section 24 - This triangle of land, about six acres owned by others, is the surface presently occupied by part of the WRP and the adjacent storm water retention pond. A land swap agreement to transfer title of this land to RGR is anticipated. This triangle of land would be included subsequently with the rest of the SE 1/4 of section 24. The SSWP will be retained as a stock tank, and the remainder of the area will be converted to grazing with the exception of the WRP, which will be fenced to exclude grazing.

3.3.2 Commercial or Government Facilities

The existing service and support facilities are multiple-use buildings that support offices, warehouse, and maintenance/repair activities. Some buildings and facilities will be left in place for PMLU in support of agricultural and future commercial activities. As landowner, RGR desires that the facilities designated on Table 4-2 and shown on Figure 1-2B as "Facilities to be Retained for PMLU" and on Figure 1-4 as "Retain for Domestic Water and Post-Mining Land Use" will remain in place for PMLU.

3.3.3 Facilities Retained for PMLU

The following facilities will remain in place for PMLU:

- Guard House (Security Building)
- Septic System (Septic Tank, Leach Field and piping)
- Dewatering Wells # 1, 2, 2A (domestic use well), 3, 4, 5, 6, 7, 8 and 10 (Point Lookout wells)
- Water Tank
- Service Building
- Electric Building
- Capacitor Building
- Hoist House (for warehouse and equipment storage)
- Access/utility Tunnels (water, electric supply and other utilities to the PMLU facilities)
- South Storm Water Pond
- Storm Drain System
- MWTU ponds #2 and #3 (until ground water abatement per DP-61 is completed)

These facilities are listed on Table 4.2 and shown on Figure 1-2b and Drawing Sheet CL03 (Appendix A).

3.3.4 Radiological Levels for PMLU

Preliminary surveys performed in the habitable buildings designated for PMLU have indicated that radioactive contamination does not exceed the Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86 criteria for unrestricted release (Table 3.1). A final radiological characterization survey will be conducted before mine closeout/closure is complete to determine whether contamination has spread into these facilities during closeout/closure activities at levels that exceed the NRC Regulatory Guide 1.86 criteria. Areas that exceed the criteria will be decontaminated to levels that do not exceed the unrestricted release criteria

3.4 No Waiver from Self-Sustaining Ecosystem or Post-Mining Land Use

RGR is not seeking a waiver from a self-sustaining ecosystem or post-mining land use (19.10.5.506C, 507B NMAC). RGR is proposing livestock grazing as the primary PMLU, with wildlife habitat as a natural and compatible use inevitably associated with livestock grazing. Once vegetation is re-established on the portions of the site not used for other purposes, grazing should be sustainable as it has been in this area for many generations. The WRP area will be fenced and restricted from grazing so that a self-sustaining ecosystem can regenerate on fill slopes without interference from livestock.

Agricultural/ commercial or government use of the service and support structures to be left in place, are additional PMLUs that will provide valuable infrastructure for sustainable economic opportunities for the San Mateo community and for RGR's continued business endeavors in New Mexico.

4 DESCRIPTION OF CLOSEOUT/CLOSURE ACTIVITIES

RGR's mine reactivation program, initiated in January 2018 and suspended in December 2019, was structured in four sequential phases:

- Phase 1 – Environmental Upgrades
- Phase 2 – Water Treatment Facilities Upgrades
- Phase 3 - Dewatering and Water Treatment Reactivation
- Phase 4 – Underground Facilities Reactivation

The scope of Phase 1 was focused on environmental clean-up and environmental upgrades identified in the Revision 13-2 of the Mine Permit and set as priorities in the Implementation Plan of DP-61.

Phase 1, initiated in 2018, was planned to include activities that were equally necessary for both reactivation and closeout/closure. Phase 1 was substantially completed by December 2019 and included:

1. Reshaping and flattening the west and northwest slopes of the WRP to 5H:1V grades.
2. Constructing the south and west berms of the disposal cell.
3. Constructing the disposal cell clay liner.
4. Excavating radiologically contaminated sediments and soils from all MWTU pond basins and placing material in the disposal cell.
5. Reshaping of MWTU Ponds #2 and #3 and upgrading their associated hydraulic control structures.
6. Reshaping and lining the SSWP and installing hydraulic control structures.
7. Installing double HDPE liner systems in MWTU Ponds #2 and #3.
8. Leak testing and commissioning of MWTU Ponds #2.
9. Upgrading and extending the surface water drainage system.
10. Constructing the new septic system.
11. Installing the North Force Main
12. Began removing ore from the low-grade ore stockpile to an off-site licensed facility at MMD and NMED direction.

The scope of work for Phase 1 was started January 2018 with preparation of construction bid documents. Earthwork began May 2018, focused on reshaping of the WRP and SSWP, reconstruction of the stormwater drain system, initial construction of the disposal cell and reconstruction of MWTU Pond #3 Construction was substantially completed by the end of December 2019. Phase 1 construction work has been documented in previous reports (RGR 2020). Phase 1 work completed subsequently was addressed in supplemental reports of closeout/closure construction in 2020 and later.

Removal of the ore pad was the only Phase I activity not initiated before the end of 2019. This activity could not begin until all of the low-grade ore on the pad had been removed. Ore removal was completed in April 2022. Removal of the ore pad material is pending approval of the disposal cell expansion.

After RGR made its decision to begin the closeout/closure process of the mine, work related solely to mine reactivation in Phases 2, 3 and 4 ceased. RGR continues to conduct closeout/closure activities under its active status permit. Many activities, such as earth moving and facility removal, are suspended until approval is granted to expand the disposal cell. Expansion of the disposal cell is necessary as the existing and approved 11.5-acre disposal cell has been filled to near-capacity by the volume of contaminated sediments and soils excavated from the MWTU Ponds (Ponds 1 through 8) during Phase I.

The following sections describe the closeout/closure practices (Section 4.1), activities completed by April 2022 (Section 4.2) and activities remaining to be completed (Section 4.3).

4.1 Closeout/Closure Practices

For Phase 1 and subsequent closeout/closure activities, Best Management Practices (BMP) were followed and will be followed, including "Best Practice in Environmental Management of Uranium Mining", IAEA Nuclear Energy Series NF-T-1.2., and FHWA (Federal Highway Administration), 1995, *Best Management Practices for Erosion and Sediment Control* FHWA-SLP-94-005. Technical specifications for these measures, as appropriate, are contained in Appendix C. Closeout/closure measures are illustrated in Drawing Sheet CL 01 through CL 16, and the anticipated surface configuration of the site after closeout/closure is shown on Drawing Sheet CL 14 and CL 15.

All contractors using heavy equipment, trucks, and other materials involving fuel, lubricant, solvents or capable of collecting and transporting solid contaminants will be refueled, serviced, washed, and parked in a specified area. This area will be located by the contractor and approved by RGR. The area will include a temporary wash facility with a temporary liner and water collection system. Alternatively, a temporary decontamination area will be set at the concrete wash-bay adjacent to the production shaft, unless and until it is scheduled for removal under closeout/closure. Wash water will preferentially be transported to MWTU Pond 3 and evaporated or evaporated at the temporary decontamination site. Residues from evaporated water will be removed for disposal, either temporarily stored for placement in the disposal cell or offsite in a licensed facility.

At the time of this submittal, small quantities of solvents and lubricants from the maintenance shops may remain on site at the time of closeout/closure. The products being used and expected to be in use through that time are listed in Table 4.1. Eventually all such materials will be removed and disposed of offsite by a qualified contractor at appropriate disposal facilities.

Radiation levels in the facilities that will be retained for PMLU do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. A final radiological characterization survey of these facilities will be conducted to ensure release criteria are met (see section 3.3.4).

4.2 Closeout/Closure Activities Completed

Since early 2018, RGR has conducted numerous closeout/closure activities including those specific to Phase 1, in accordance with the Mine Permit. These include regrading of the WRP, excavation of sediments from the MWTU ponds, construction of the existing disposal cell within the 11.5-acre WRP limit, removal of the ore stockpile and dismantling of numerous facility structures and buildings (deemed non-essential for PMLU). Table 4.2 lists the status of each mine facility and its disposition as of April 2022.

The following Phase I Reactivation tasks have been completed during the period of Mine Permit No. C1002RE, Rev. 13-2 (after 12/29/2017):

1. Reshaping of the WRP
2. Construction of the disposal cell liner and south, west and north-west berms
3. Excavation of contaminated sediments and soils within the 8 MWTU ponds.
4. Construction and commissioning of MWTU Ponds 3 and 2
5. Filling of the existing 11.5-acre disposal cell to near-capacity
6. Covering the filled disposal cell with 24 inches of compacted clay and 12 to 18 inches of loam soil
7. Re-constructing the SSWP and septic system
8. Upgrading the surface water drainage system
9. Removal of the low-grade ore stockpile

Documentation of these efforts has been provided previously to MMD and NMED (RGR 2020).

4.2.1 Removal of Service and Support Facility Units

As of April 2022, the following facilities were dismantled in placed. Once characterized, this debris will be placed in the expanded disposal cell, when approved:

1. Compressor Building
2. York Chiller Building
3. Pump Building (Chill Water Pump House)

4. Chlorine Building
5. Shaft Heat Buildings (2)
6. Glycol Heat Exchanger
7. Cooling Towers
8. Fire Equipment Building
9. Carpenter Shop
10. Water Treatment Building
11. Storage Buildings
12. Flocculant Treatment Building
13. Barium Chloride Building
14. Portable Building
15. Fuel Pump House
16. Fuel Storage Tanks
17. Mine Ventilation Structure (fan and base)
18. Mine Car Rails
19. MWTU Pump House and MCC

Table 4.2 lists the status of these and other mine structures, as well as the facilities that will be retained for support of post-mining land use identified in Section 3.3.3.

4.2.2 Concrete Foundations

Concrete foundations (including floor slabs) of the facilities will be either:

- Left in place and rubblized, then covered with clean soil
- Left in place intact, or
- Rubblized, removed and recycled for other reclamation purposes, such as rip rap.

If no other purpose can be found, the rubblized concrete will be placed in the disposal cell. All concrete left in place (intact or rubblized) will be covered with two feet of soil.

Prior to removal of facilities and buildings, and breakage of the associated concrete foundations, radiological surveys of the structures will be performed, for free release. Only those concrete foundations meeting the release criteria of the appropriate NRC guidance, as demonstrated via the radiological survey, will be buried in place or used for other reclamation activities. Those that fail to meet release criteria will be buried in the disposal cell along with other contaminated materials.

Table 4.2 provides a list of the disposition of the facilities and foundations. The concrete foundations of the Carpenter Shop, Water Treatment Building and Fuel Pump House have been rubblized, removed and stockpiled for use in other reclamation applications. The foundations of the Compressor Building and the Fuel Storage Tanks remain unbroken. The radiological surveys performed for these foundations demonstrated that the release criteria was met (Table 3.1). Except for the Electrical Building (preserved for PMLU), all facilities on the Compressor bench are to be removed in preparation for remediation of potentially diesel contaminated soils existing beneath portions of the Compressor bench.

The foundations for the fire equipment building, glycol building, and storage buildings are to remain intact for use as material storage areas for PMLU. The radiological surveys for these facilities demonstrated that the release criteria were met (Table 3.1).

The concrete foundations around the manway shaft and production shaft will not be broken, so as to provide protection and confinement for the shaft plugs (when constructed). These foundations will be covered with two feet of clean soil once construction around the shaft is completed. In addition to providing a growth medium for revegetation, the soil cover will also minimize chances of surface storm water re-entering the shafts. The ventilation structure foundation is part of a concrete pit, so before the end of reclamation, the pit walls will be broken to below ground surface and the pit filled with debris and backfilled (soil or flowable fill).

The following foundations have been rubblized (Table 4.2):

a. Carpenter Shop: foundation also removed
b. Water Treatment Building: foundation also removed
c. Fuel Storage Tank foundation partly rubbilized
d. Fuel Pump House: foundation also removed
e. Generator Pad
f. Chiller Building Electrical Room
g. Flocculant Treatment Facility: foundation also removed
h. Barium Chloride Treatment Facility: foundation also removed

The foundations remaining, and their disposition (Table 4.2) include:

a. Chiller Building less electrical room – rubblize and leave in place*

b. Compressor Building – rubblize and remove
c. Fire Equipment Building – rubbilize and remove
d. Chiller Pump Building – rubblize and leave in place*
e. Cooling Towers – rubblize and place in the disposal cell
f. Chlorine Building – rubblize and leave in place*
g. Shaft Heat Buildings (2) – leave intact for protection of shaft plug
h. Glycol Heat Exchanger - leave intact for PMLU
i. Storage Buildings - leave intact for PMLU
j. Manway Shaft Headframe foundations – remain intact for protection of shaft plug
k. Ventilation Structure (evase' and fan) -leave intact/fill pits

*Note: broken concrete may be removed and used for other reclamation projects, depending on final configuration of Chiller Bench and highwalls

4.2.3 Removal of Other Facilities

The removal status of other facilities is:

a. Process Water Piping – estimated at 20% dismantled, to be removed to disposal cell
b. Mine Rails – removed, temporarily staged, final placement is in disposal cell
c. MWTU Pond Hydraulic Structures (demolition estimated at 50% complete, debris temporarily staged, final placement is in disposal cell)
    - MWTU Pond #8: hydraulic structures completely removed
    - MWTU Ponds #4, #5, #6 and #7: approximately 50% removed
    - MWTU Pond #1: approximately 60% removed
d. Low-grade Ore Stockpile: removal completed, transported to White Mesa Mill

The current status of closeout/closure activities of facilities is summarized in Table 4.2. That table summarizes the disposition of mine facilities, those already decommissioned or removed and those still to either be retained for post-mining land use or removed.

4.2.4 Waste Rock Pile and Disposal Cell Status

The initial activity in Phase 1 construction was re-shaping of the WRP followed by construction of the disposal cell within the 11.5-acre footprint of the WRP approved under Revision 13-2 of the Mine

Permit. The WRP and disposal cell are the permanent repository for radiologically contaminated materials generated on site that exceed applicable unrestricted release criteria. By December 2019 the disposal cell was filled to near-capacity after the MWTU ponds were remediated during the reactivation stage of the active status permit. Filling of the disposal cell to near-capacity was a result of RGR's efforts to comply with the permit and remove all soils exceeding the approved radium background limit of 5+ background pCi/g. At that time, RGR recognized it could not proceed with earthwork remediation efforts unless the disposal cell was expanded. RGR continued to fill any available capacity of the disposal cell with contaminated materials throughout 2020 as it awaited decisions by MMD and NMED on expanding the disposal cell.

RGR submitted a permit modification request in May 2020 to MMD (MOD 20-1), to alter the PMLU list of retained buildings, to expand the disposal cell from 11.5 to 19.3 acres, and to alter the closeout/closure schedule. At that time, MMD indicated a simple permit modification (MMD definition) was appropriate, however, NMED informed RGR that a modification of DP-61 (as defined by NMED rules) would be required. As of the date of submittal of this CCP regulatory approval of the disposal cell expansion is pending. Because of the need for approval to expand the disposal cell, RGR has focused its closeout/closure efforts on removing facilities rather than continuing with earthwork.

4.3 Closeout/Closure Activities Pending

At the time of submittal of this CCP, the closeout/closure actions taken from 2018 through early 2022 have accomplished most of the CCP goals to remove and encapsulate contaminants and facilitate the designated PMLU(s). The remaining activities, as summarized on Table 4.2, will resume once regulatory approval of expansion of the disposal cell is approved as part of the DP-61 renewal and the Mine Permit revision.

4.3.1 Production Shaft Headframe Dismantling

The manway/ventilation shaft (14-ft dia. shaft) headframe was removed in January 2022. It has been sheared into manageable pieces for placement in the disposal cell. If uncontaminated, it may be removed from the site as salvageable metal scrap.

The production shaft (24-foot diameter shaft) headframe remains standing at the time of this submittal. Due to its size and its proximity to structures remaining for PMLU, special arrangements for demolition must be made, such as explosive methods for toppling. These arrangements are in process at this time. Once toppled, it will be sheared into manageable pieces for placement in the disposal cell. If clean, it may be removed from the site as salvageable metal scrap.

The Ventilation Structure (exhaust fan and evase') was removed in January 2022. It has been sheared into manageable pieces. Once the disposal cell expansion is approved, the metal scrap from this structure will be placed in the disposal cell.

4.3.2 Shaft Plugging

Both the production shaft and the manway/ventilation shaft will be closed in the same manner, as approved in the current Mine Permit and illustrated on Drawing Sheets CL 05 and CL 06 and described in Appendix C. In the approved design (Mine Permit), the plugging concept was to use recycled steel from the headframes. A caveat to the approved design was that prior to plugging the shaft, the design would be reviewed by a registered professional structural engineer. Subsequently, a structural analysis of the approved conceptual design was completed. It found the prior concept of using recycled steel from the headframes did not provide an acceptable structural Factor of Safety against failure in the design for the production shaft plug. A set of revised conceptual design drawings has been prepared by MRB Technical Services (Appendix G).

The updated design by MRB Technical Services is essentially the same concept of plug design as approved previously, namely a steel reinforced structural member. However, the construction materials are slightly different. The new concept is to utilize a steel (rebar) reinforced concrete plug rather than steel I-beams encased in concrete. Structurally reinforced concrete is a proven and well-established structural member design, utilized in most new building construction around the world. The advantage of this revised concept is that the steel is encapsulated sufficiently to prevent corrosion and the constructability of the structural member is more easily accomplished. The factor of safety is higher and the structure is more efficient in shape and size.

Using the following procedures (Appendix C.3), the entire closure plug in the production shaft will extend to a depth of 62 feet and to 40 feet in the manway shaft:

- Equipment and fittings within the shaft collar will be removed to the sub-collar level. Softer, less rigid materials such as wood and rope guides, pipes, electrical cable, and duct work may be dropped down the shaft.
- The headframe will be toppled to the ground with explosives and/or heavy equipment and cut into pieces by excavator-mounted hydraulic shears.
- Once all protruding metal in the shaft is removed to below the sub-collar, a work deck and supporting scaffolding and plug forms will be erected.

- Reinforcing rebar will be tied and concrete of appropriate design strength will be poured (Drawing Sheets CL 05 and 06, and Appendix G).
- After the structurally reinforced concrete plug member has cured, the remainder of the shaft, as well as connecting tunnels, will be backfilled with cementitious slurry of soil, Portland cement, fly ash, and water. The proportions will be determined using test batches of the available materials.
- Remaining space at the top of the shaft will be capped with concrete, including a marker monument.

The hydrologic isolation of the shaft from the surrounding aquifers was established by the initial design and construction of each shaft, which included a slip-formed, cast-in place concrete liner and pressure grouting of the rock around the liner through the water-bearing formations. The effectiveness of these features, described in section 2.4.1, has not diminished over time and will not be compromised by shaft closure measures. The space within each shaft is isolated from the surrounding aquifers and is hydrologically connected only to the ore zone in the Recapture/Westwater members of the Morrison Formation. The effectiveness of the shaft liners and annular grout is evident in the difference between the water levels of the Pt. Lookout wells versus the mine shaft and Tres Hermanos/Dakota/Westwater wells shown in Table 1.2. Mine water quality (Table 2.1) naturally bears the chemical effects of the ore zone, while the Pt. Lookout water chemistry (Table 2.2) is clearly different, also demonstrating the effectiveness of the hydrologic isolation of both shafts.

Infiltration or inflow of water from surface runoff will be prevented by the shaft plug and backfill in each shaft. The existing shaft liner and annular grout also provide a barrier to infiltration. Therefore, the proposed shaft closure measures will be protective of ground water quality from both mine-level and surface sources of potential contamination.

A system of tunnels provides access to, and utility corridors for, the shafts and facilities (Drawing Sheet CL 03). The portions of the tunnels connecting directly to the shafts will be backfilled with slurried weak soil cement (Flowable fill) as part of shaft closure. The steel culvert (Figure 1-2b) from the compressor bench to the Car Shop will also be closed with Flowable Fill.

4.3.3 Well and Conduit Plugging

4.3.3.1 Conduits

Two vertical utility conduits, casings extending from ground surface to mine level, will be plugged. The conduits are 11.5 inches O.D., cemented in place in 12.5-inch diameter boreholes through the entire length of north conduit (3,100-feet) and south conduit (3,200-feet). The conduits will be grouted from bottom of casing to ground surface using tremie methods. The grout mix will be 4:1

cement to bentonite. Details are described in the technical specifications in Appendix C.6. These specifications are preliminary and will be modified in accordance with a well plugging plan approved by the Office of the State Engineer (OSE).

4.3.3.2 Dewatering/Depressurizing and Deep Aquifer Monitor Wells

Of the 22 wells used to depressurize and dewater the mine (Table 2.3 and Figure 1-4), 14 wells extend to depths greater than 2,000 feet; eleven wells of which will be plugged and three will be retained for post-closure monitoring. All nine dewatering wells completed in the Pt. Lookout will be retained for PMLU. In addition, five observation wells and two deep aquifer (>3500 feet) monitor wells were used to observe drawdown in the mine area (Figures 1-4 and 1-8). These seven observation wells were used only during initial drawdown. These wells are too deep to be economically maintained and operated for PMLU and will be plugged.

As required under DP-61, two Point Lookout aquifer wells, one Tres Hermanos /Dakota aquifer well and two Westwater Canyon aquifer wells will remain for post-closure monitoring (NV5, 2021). These wells will eventually be plugged and abandoned when they are no longer needed for monitoring.

4.3.3.3 Abatement Monitor and Extraction Wells

There are 23 shallow alluvial and Upper Menefee wells in the groundwater-abatement monitoring program as of 2022. Once these wells are no longer useful to the abatement program, they will be plugged and abandoned. Likewise, any future abatement wells that are installed will be plugged and abandoned once the wells' utility has ceased.

Before plugging and abandoning is initiated for any wells, and on behalf of RGR, the contracted, licensed-water well driller will submit to the OSE a deep well plugging plan on OSE's Form WD-08 that will include:

- Sealant design including ratios and material specifications of seal components.
- Well construction details – borehole and casing diameters, screen types and intervals
- Depth to water
- Casing annulus seal description
- Plugging steps
- Documentation and reporting of well plugging

Plugging and abandonment will be conducted in accordance with the approved OSE well plugging plan and 19.27.4 NMAC. The conduit and deep well plugging plan will be submitted for approval separately. Abatement wells and post-closure monitoring well plugging plans will be submitted separately, as well. Details are described in the technical specifications in Appendix C.6. These specifications are preliminary and will be modified in accordance with a well plugging plan submitted by the driller and approved by the OSE.

4.3.4 Surface Facilities Removal Pending

Surface facilities not needed for PMLUs described in Section 3.2, will be demolished. Table 4.2 lists all surface buildings, their sizes and their disposition at closeout/closure. Facilities to be demolished include:

- Car (Maintenance) Shop
- Production Shaft Headframe
- Ion Exchange Plant
- Process water piping
- MWTU Hydraulic Structures (remaining)
- Treated Water Discharge Pipeline
- Foundations (see Table 4.2)
    - Fire Equipment Building
    - Chiller and Chiller Pump Building
    - Chlorine Building
    - Compressor Building
    - Cooling Towers
- Other facility foundations (see Table 4.2)
- Core Storage Building
- Fan Shop
- Car Shop
- Sanitary Treatment Plant
- Phase II Wells
- Phase III Wells

Radiological characterization surveys have been and will be conducted to determine whether contamination exists at levels that exceed the NRC Regulatory Guide 1.86 unrestricted release criteria.

All building demolition debris and other scrap materials will be placed in the disposal cell. However, materials that meet the unrestricted release criteria may be removed from the site. Materials that exceed the criteria may be decontaminated to levels that meet the release criteria and be removed from the site.

All pipe, except the potable water line in the Utility Tunnels, will be removed and buried in the disposal cell.

Demolition of these facilities will include some concrete slabs or other foundations not needed for PMLU. Uncontaminated concrete slabs not retained for PMLU will be broken and covered by clean soil; however, some clean concrete may be recycled for use as riprap for erosion control around the site during closeout/closure.

The treated water discharge pipeline (Figures 1-3 and 2-3) is a 3/8-inch-thick steel pipe (approximate). The in-place and spare lengths total approximately 23,000 feet. This pipe will be removed and buried in the disposal cell. Prior to removal of the pipeline, a cultural resources study of the pipeline right of way will be conducted, followed by clearing or protection of artifacts if necessary. RGR is working with the USFS on plans for the removal of this pipeline where crossing USFS land.

The mine hoists will be removed from the Hoist House and buried in the disposal cell.

Generally, MWTU ponds will be decommissioned during closeout/closure. However, MWTU Ponds 2 and 3 will remain in use until the groundwater abatement project is successfully completed. RGR envisions the need to keep these ponds for storing contaminated water for at least the first half of the 12-year period of responsibility. These two ponds are monitored for water quality and water levels quarterly per requirements of DP-61 and will take additional time to remediate because of the steps involved:

- Evaporate remaining water
- Remove contaminated sediments
- Remove liners
- Demolish hydraulic controls structures and piping.
- Backfill pond basins

The buried drainage culvert from the storm drain along the county road, which diverts runoff away from the mine water treatment area, will not be removed. Under PMLU, it will continue to direct water to the SSWP, which will be a stock tank after reclamation.

Contaminated pond sediments and soils in these pond areas will be removed and placed in the disposal cell. Contaminated demolition debris, including scrap steel, pipe and concrete, will be placed in the disposal cell. Clean debris may be placed in the shafts or removed from the site for salvage and recycling.

4.4 Earthwork

Earthwork for mine closeout/closure will begin after the disposal cell is expanded and after the facility demolition work has been completed. Cultural resources surveys, and clearances if required, will be performed on any land surface not previously surveyed that will be disturbed by closeout earthwork. In general, earthwork will involve short hauls by dozer to redistribute berm fills or mine waste rock and by scraper, excavator and trucks or grader for contaminated soil removal. Some loader excavation and short truck hauling may be required, as well. Except for short pushes of up to 300 feet on pond berms and WRP slopes, the working grades are less than 5%.

At this time Borrow Area A, located within the permit area and previously approved for use under the current Mine Permit, is expected to provide the necessary clean soils for reclamation. RGR may need to use heavy clay deposits adjacent to the Mine Permit area to construct the required engineered caps and clay liners of the disposal cell should Borrow Area A have insufficient materials. These heavy clay soils have been identified in two locations thus far: 1) Borrow Area B (west of the permit area on RGR land) and Borrow Area C within the permit area (Figure 1-2)

Borrow area C (approximately 14 acres in size) is the preferred choice for providing clean clayey soils for liners and caps. Investigations of soils at Borrow area B have indicated that insufficient quantities of clayey soils exist there for future needs for the remaining earthwork on the site. Borrow Area B is considered an affected area and will not be used in the future unless absolutely necessary. Borrow Area B is presently being used, and will continue to be used as a stock tank, but the area will be regraded and revegetated in accordance with Appendix F.

Steep cut slopes (steeper than 1H: 1V) in weak sedimentary rock or soil will be flattened by cut-and-fill to final gradients of not greater than 1H:1V. Alternatively, clean fill material may be placed against steep faces to reduce the slope. Cut slopes in hard sandstone or basalt, or sedimentary slopes that have naturally revegetated to basal coverage and canopy equivalent to similar natural slopes, will not be flattened. Slopes reduced to 1H:1V will be left uncovered and will not be revegetated, providing an artificial talus habitat for wildlife.

Once the disposal cell expansion is approved, the general sequence for removing contaminated soils from the mine site will be to start with the MWTU area and work southward. This sequencing is focused on efficient movement of materials while minimizing the spread of contamination and optimizing work efficiency. The first earthwork will be removal of contaminated sediments in the NSWP, ore pad working surface materials, and contaminated site soils in the MWTU area. Table 4.3 lists the estimated quantities and locations of these materials prior to excavation.

The NSWP sediments and ore pad working surface materials will be excavated and hauled to the disposal cell in the WRP for placement. Some of these materials may be used in the flow-fill used to bury construction debris placed in the disposal cell and some will be used to construct the berms of the expanded disposal cell.

Contaminated soils from around the remainder of the mine site (support area and others) will be placed in the disposal cell next. Contaminated soils from affected lands outside of the permit area will then be placed in the disposal cell. A small portion of the disposal cell will have to remain open until MWTU ponds 2 and 3 are ready to be decommissioned. Contaminated sediments from those ponds as well as the SSWP will then be removed and placed in the disposal cell. This will also allow any other contaminated soil materials discovered at that time to be placed in the disposal cell.

The remaining earthwork for mine site closure has been designed to use available soils from areas already disturbed, and sufficient fill volumes should be available from the design cut quantities (Table 4.4). However, if additional borrow soil is needed, it can be obtained from the area immediately north of Marquez Arroyo within the permit area (Borrow Area C, preferred source). As alternative, additional borrow soil may be obtained from the area west of the MWTU area (Borrow Area B, alternate source). These soils consist of sandy clay, clayey sand and clay with Unified Soil Classification of SC and CL as determined by test pits and laboratory testing (Appendix D). Table 4.3 lists the estimated volumes of clean soil required for closeout/closure earthwork and the sources for that soil as well as the overall balance of site earthwork.

The site and adjacent land owned by RGR provides ample quantities of native soils with good engineering properties and suitable agronomic properties. The east-dipping interbedded shale, claystone, mudstone, and thin sandstone lenses that underlie the site are the parent materials for the residual and colluvial soils that thinly blanket most of the site. The NRCS web site has soil survey results for this area (http://soildatamart.nrcs.usda.gov/manuscripts/NM682/0/cibola.pdf) that identify the mine site soils as Penistaja- San Mateo- Sparank series. These are surficial soils that have supported native vegetation; they are not overburden or inter-burden materials. The units on the mine site are #230 dumps-pits complex on the disturbed areas and otherwise #57 San Mateo clay loam and #257 Sparank- San Mateo Complex. According to the NRCS survey, the latter two soils, from which borrow soil will be excavated, naturally support western wheat grass, vine mesquite, alkali sacaton, and four-wing saltbush. Site soils are consistently low-to-moderate plasticity clays with some sandy clay. Alluvial sand with some gravel and cobbles exists in the few arroyos on site, but these soils are not in borrow locations or on the ore pad, WRP, or water treatment ponds. The referenced soil chemistry data in Appendix D.3.1 demonstrate the consistency of soil chemistry and physical properties of soils across the site. The only soil contaminant of concern is radium arising from mining operation; radium-contaminated soil will not be used in site closeout/closure covers or backfill, other than the disposal cell.

4.4.1 Disposal Cell and Expansion

The disposal cell, which was constructed atop the WRP, is the permanent repository for contaminated pond sediments and soils, and demolition debris generated by mine site closeout/closure activities (Figure 4-1). RGR constructed the disposal cell during the mine reactivation phase (2018-2019), according to an approved design. The cell was constructed within the 11.5-acre footprint of the WRP. The existing disposal cell was filled to near-capacity by the contaminated materials (sediments and soils) excavated from MWTU pond basins, storm water ponds, and other locations within the Mine Permit area. As of April 2022, the disposal cell has reached a filled volume of approximately 99,300 cubic yards.

To accommodate the further remediation of the site during closeout/closure, the expanded portion of the disposal cell will be located east and north of the existing disposal cell and WRP at a nominal bottom elevation of 7340 ft. (Drawing Sheets CL 09, CL 10 and CL 11). The expanded cell will be up to 13.5 acres in area (bringing the total area of WRP plus disposal cell to 25 acres. A clay liner, consisting of not less than 1.0 ft. of compacted clay soil (CL, CH, or SC soils per USCS classification) will be constructed under the disposal cell to provide additional protection for ground water. This cell will be started as soon as approval is given.

Additional capacity is available by excavating trenches within the disposal cell footprint and below existing grade, providing space for disposal of pipe, structural steel, broken concrete, machinery and other materials that are not readily crushed or easily compacted. Once these materials are placed in the trenches, they will be encapsulated in cementitious flowable fill. When the flowable fill has set to a solid, additional lifts of contaminated materials can be placed within the disposal cell.

This disposal cell provides for permanent disposal of radiologically -contaminated material. As illustrated in Figure 4-1, it is the repository for contaminated pond sediments and soils excavated at mine closeout/closure, as well as debris generated during closeout/closure.

To date, no demolition debris has been identified as containing RCRA Subtitle C hazardous wastes (EPA). A recently excavated process water pipe was found to be wrapped with a Category II non friable asbestos containing material (ACM). RGR does not expect to find much ACM (volumetrically) during closeout/closure and is considering proper disposal of the ACM offsite. Mitigation and disposal of ACMs will be in accordance with all State and Federal regulations and will be performed by a certified asbestos contractor.

Once all contaminated materials remaining on the site have been placed in the disposal cell, it will be covered with 2.0 ft. of compacted clay and 2.0 ft. of growth media soil (loam). The surface will be revegetated in accordance with the revegetation plan, Appendix F of this CCP and approved in the Mine Permit and DP-61. The resulting cover will be a minimum of 4-feet in thickness.

The final position and dimensions of the expanded closure cell will not be known until mine closeout/closure is complete. The illustration on Figure 4-1 assumes that the cell expansion will be 13.5 acres resulting in a total footprint of 25 acres for the disposal cell and WRP, plus a 1.0 ft.-thick clay liner and a cover consisting of 2.0 ft.-thick clay and 2.0 ft of, loam. The cover thickness for that portion of the WRP south and west of the disposal cell will be a minimum of 3.0 feet.

The cover will have several functions – barrier to infiltration of water, protection from erosion, support of vegetation, and radon attenuation. Extensive research and experience with uranium mill tailing covers indicates that an appropriately designed and constructed soil cover accomplishes these objectives (NRC 2010). The radon attenuation function is unique to cover of uranium- and radium-bearing materials, but it governs the design thickness of the cover. The RADON code was used to model radon attenuation achieved with 2.0 feet of cover soil, derived from clean soil in the pond berms and elsewhere. The modeling shows that 2.0 feet of cover consisting of clay and sandy clay soils found on site would be sufficient to meet the radon flux standard of 20 pCi/m^{2}s from the cover surface. The key parameters for the RADON model, the sediment thickness and concentration of radium of the sediments, were based on the measured values of these parameters in the MWTU sediments and WRP during standby. The RADON input and output files for each model are included in Appendix B.1.

In addition to its function as a barrier to release of radon from the wastes, the soil cover will serve other functions – a barrier to infiltration of water (runoff and direct rainfall), erosion protection, and a growth medium for vegetation. Extensive research and experience with uranium mill tailing covers indicates that an appropriately designed soil cover accomplishes all three objectives (NRC 2010). The two-foot-thick soil cover that existed from 1990 to 2019 on the Mt. Taylor Mine ore stockpile supported robust volunteer vegetation, demonstrating that this local soil is a good growth medium. The WRP characterization study (Kleinfelder 2012) showed that water infiltration is very low even in sandy waste rock, as indicated by low degree of soil saturation even without a soil cover. The two-foot-thick soil cover that existed from 1990 to 2019 on the Mt. Taylor Mine low-grade ore stockpile supported robust volunteer vegetation, demonstrating that this local soil is a good growth medium. The WRP characterization study (Kleinfelder, 2012) showed that water infiltration is very low even in sandy waste rock, as indicated by low degree of soil saturation even without a soil cover.

4.4.2 Ore Pad Working Surface Removal

The ore pad material will be excavated by loader and hauled by truck to the disposal cell, alongside other cleanup related materials, in accordance with the Reclamation and Post-reclamation Radiation Work Plan.

4.4.3 MWTU and NSWP Backfill

The sediments in the Mine Water Treatment Unit (MWTU) ponds #1 and #4 through #8 have been excavated and already placed in the approved disposal cell (11.5 acre) They contain low levels of uranium, radium, barium sulfate and other constituents in the sediments from the mine and mine water treatment circuit described in section 2.4.2 and Appendix D. MWTU ponds were allowed to dry by natural evaporation, then the pond sediments were removed until residual gamma readings in the underlying soil met the soil cleanup standard (App. D). The pond sediments were placed in the disposal cell on the WRP, as described in Section 4.4.4. Once the Ore Pad is removed, the NSWP will be excavated to clean (background) radium values, with the contaminated materials being placed in the disposal cell (when expansion is approved).

MWTU ponds #2 and #3 were lined with a double HDPE membrane system and used for evaporation of contaminated ground water, surface water runoff and other wash-water generated on site. These two ponds will be used during closeout/closure until ground water abatement objectives have been achieved. When no longer needed, any newly generated pond sediments will be removed and the pond liners will be removed and placed in the disposal cell, then the hydraulic controls and related structures including foundations in the pond area will be demolished. Concrete and other pond debris not exceeding radiological contamination limits of clean soil and not salvaged will be placed in the disposal cell.

The NSWP sediments have not yet been removed. They will be excavated and placed in the disposal cell like the MWTU pond sediments.

When the remaining portions of the hydraulic control structures of the ponds are demolished and all debris is removed, the clean berm soils (not exceeding MMD's 2016 Joint Guidance standard of 5 pCi/g Ra-226 above background) around each pond will be pushed in to fill the pond basins, spread and tracked in lifts appropriate to the size of the contractor's equipment, and the area will be regraded to match final design grade (Drawing Sheets CL 07, CL 15). This earthwork will involve balanced cut and fill of clean soil (Table 4.3), essentially placing this soil back where it originated. If necessary, clean soil will be added to achieve design grade. Technical specifications for this earthwork are included in Appendix C.4.

4.4.4 Affected Areas

Affected Areas (19.10.1.7.A.(3) NMAC) will be reclaimed according to 19.10.5.507.A and 19.10.1.7.R.1 NMAC. At this time, RGR is in the process of identifying affected areas and will continue to characterize and survey surrounding lands around the site according to the recently approved Reclamation and Post-Reclamation Radiological Survey Work Plan (RGR 2020). RGR is focused on characterizing contiguous land around the site, including those potentially impacted by windblown and water-born contamination.

Borrow Area B

Borrow Area B is situated on land that RGR owns, outside of the permit boundary (Figure 1-2). No mining occurred on this land and no activities were performed that were related to mining. Borrow Area B was used to supply the heavy clay required to construct the 2-foot-thick clay cap on the west and northwest slopes of the WRP. Borrow Area B is comprised of a shallow pit and access road. The depression is presently being used as a stock tank and has 3:1 slope. The pit and access road will be regraded and revegetated according to Appendix F.

Borrow Area B was opened to supply these materials in 3rd quarter 2018, shortly after these specific clay materials were exhausted in Borrow Area A. Borrow Area B was reopened in 2020 to provide these same heavy clays to construct the 2-ft thick cap covering the disposal cell after it had been filled to near-capacity. RGR does not intend to bring any more material from Borrow Area B because the supply of heavy clay materials appears to be nearly exhausted. The material provided from Borrow Area B was simple construction materials used for reclamation purposes.

A radiation characterization survey will be performed at Borrow Area B and any contaminated soil will be removed so that the area meets the soil standard. Borrow Area B will be graded and revegetated according to Appendix F.

Continental Divide Substation Area

The electrical substation, located north of the Service Building (Drawing Sheet CL 03) will remain unchanged or otherwise disposed, as determined by Continental Divide Electrical Cooperative and Public Service of New Mexico. The Substation is considered to be an affected land, although it lies within the permit boundary. Before final closeout, a radiation characterization survey will be performed, and any contaminated soil will be removed and placed in the disposal cell so that the area meets the soil standard. Because this area is controlled by Continental Divide, RGR will work with them for any revegetation and reclamation planning.

County Road 334

Existing NM 334 and its right-of-way through Section 24 will remain unchanged. The right-of-way is not under RGR control either during or after mining. This surface is dedicated to public use and is not subject to reclamation or PMLU considerations under the Mining Act. A radiation characterization survey will be performed, and any contaminated soil will be removed so that the area meets the soil standard. No revegetation is expected as the area is comprised of a gravel roadway. RGR will work with Cibola County Road Maintenance Dept. to re-establish the roadway once contaminated materials are remediated.

Treated Water Discharge Pipeline

The Treated Water Discharge Pipeline and Right-of-Way (ROW) are part of the permit area (Figure 2-3). RGR has identified two areas along the pipeline that indicate above-background gamma readings just outside of the ROW (Drawing Sheet CL 16). Another area of above-background gamma readings is the outfall area, just beyond the pipe outfall. The areas outside of the ROW and downstream from the pipeline discharge point will be cleaned up to meet permitted soil standards. These areas will be revegetated along with the rest of the Pipeline corridor according to Appendix F. Because a portion of the pipeline traverses USFS land, approvals from the USFS will have to be granted for the cleanup and revegetation of the areas under their jurisdiction.

4.4.5 Excavation and Disposal of Contaminated Soil

As is typical for a uranium mining operation, materials bearing uranium and uranium progeny are found at locations within the Mine Permit boundary including the WRP, mine water treatment ponds, and the immediate vicinity of the production shaft, the ore pad area, the storm water retention ponds, and approximately seven acres north of Marquez Canyon arroyo, due to windblown contamination.

Along with remediation of uranium contaminated soils, RGR will remediate the remnants of a diesel spill, located in the soils on the east edge of the Compressor bench (Figure 1-3 and Ensero 2021a). The diesel was first identified in soil in 2019, while RGR was reactivating facility piping. The spill was originally reported in 1991 by RGR, which was subsequently cleaned up (1992). RGR will excavate all soils with diesel and uranium contamination exceeding the cleanup standards and place the materials in the disposal cell. After an investigation into the cause and source of the diesel contamination, NMED has verbally approved the placement of these soils in the disposal cell (2021). RGR submitted a corrective action (CAP) to NMED in 2021 (Ensero 2021b).

The mine water discharge pipeline corridor includes isolated locations where surface soils have radiological contamination above the clean-up level, and removal of the pipeline could cause release of contaminated scale and sediment. After the pipeline is removed, the contaminated materials will be excavated and placed in the disposal cell.

Investigative radiation surveys and soil sampling were performed in Spring 2012 in the mine area to 1) establish background levels of radium and to 2) identify higher levels of radioactive materials that might have been dispersed from the mine by wind, rain and snow runoff. Additional surveys were conducted in the time period from 2019 through 2021 to confirm cleanup efforts in progress. Background levels are those levels due to natural content of radium unrelated to mining. The radium background as 1.8 pCi/g and background total uranium is 9.96 ppm. Both values were established by samples taken in June 2007 and in April 2012, which has been approved in the DP-61 and Mine Permits.

Radium-226 levels above background are assumed to indicate impacts from mining. This investigation included the Marquez Canyon arroyo and the other San Mateo Creek tributaries situated north and east of the Village of San Mateo. All the surveys and soil sampling found uranium and uranium progeny (e.g., radium) at background concentrations along these drainages. This finding indicates: 1) operations at the mine have used administrative and engineered controls that prevent the spread of uranium mining contaminants beyond the mine area permit; and 2) the controls implemented under the NPDES-Multi Sector General Storm Water Permit (MSGP) (i.e., storm water ponds, berms, diversion channels) have prevented the discharge of radioactive materials from the mine property.

Access to the mine is controlled by fences, locked gates, and surveillance to prevent exposure to the general public. Administrative and physical controls are implemented to maintain radiation exposures to levels as low as reasonably achievable (ALARA). Occupational exposure controls and monitoring are implemented for those activities where annual radiation exposures can reasonably exceed the dose limits and applicable provisions specified in 29CFR§ 1910.1096. These controls will be continued during closeout/closure activities.

After facilities demolition is complete and debris has been transported to the locations of staging or placed in the disposal cell, the site soils will be excavated to remove radiological contamination above the cleanup standard as dictated by MMD's 2016 Joint Guidance, 5 pCi/g Ra-226 above background in the top 15 cm (~6 inches) of soil. The technical specifications for contaminated soil earthwork are included in Appendices C.1 and C.2.

Previous site radiological surveys (Trinitek, 2012) indicate an average background Ra-226 concentration of 1.8 pCi/g, so soils exceeding 6.8 pCi/g radium are being excavated and placed in the disposal cell. Gamma readings, correlated against Radium-226 soil samples, are taken while soil cleanup excavation is being performed, and readings below pre-determined action levels will indicate that the soil radium concentrations are below 6.8 pCi/g, and the soil cleanup standard has been achieved. A final status survey consisting of independent laboratory analysis of soils from all remediated areas will be used to verify that soil remediation is complete. RGR has submitted a radiation work plan for reclamation and post reclamation cleanup, which was approved in May 2022. The Reclamation and Post-reclamation Radiation Survey Work Plan will serve to guide radiation contamination cleanup efforts.

The area limits and estimated volumes of soil cleanup at closeout/closure are approximately 133 acres and ~ 200,000 cubic yards for the entire mine site, including County Road 334.

Contaminated soil in large, unobstructed areas will be excavated, loaded and hauled to the disposal cell by truck or scraper. Smaller or obstructed areas of soil will be removed by loader, excavator or grader and either windrowed for scraper pickup or loaded onto trucks for placement in the disposal cell.

4.4.6 Existing Waste Rock Pile Stabilization

Starting in 2018, RGR stabilized (reclaimed) the WRP to protect it against erosion. In the initial step of this stabilization, RGR reshaped the existing WRP to enhance long-term stability, as shown on Drawing Sheets CL 09, CL 10 and CL 11. The north, west and south slopes were flattened to 5H:1V, as represented in the lower slopes shown on Drawing Sheets CL 09 and CL 10 (Appendix A), then covered with 2.0 feet of compacted clay. The clay was obtained from the clean soil stockpile (shaft muck) located in the southwest corner of the pile (Drawing Sheets CL 09 and CL 11) and from Borrow Areas A and B. The shaft muck was used to form the south slope of the WRP.

Burial of non-rock waste generated during closeout/closure was controlled so that the material was placed in lifts and either covered with soil after each lift or placed in disposal trenches created in the disposal cell and flooded with soil/cement slurry (flowable fill) to fill voids.

As part of the original CCP, analyses were performed to determine the structural stability (resistance to mass movement) of the pile after maximum buildout and stabilization. The results of these analyses, documented in Appendix B, show that the minimum factors of safety are 2.42 under static load conditions and 1.61 under pseudo static (earthquake) load conditions for slope gradients steeper than those proposed for the reconfiguration of the existing WRP. These values are well above the minimums necessary (1.00) to ensure stability. The configuration of the pile reshaped from its 2013 form to 5H:1V slopes has even higher factors of safety, given the lower height and flattened slopes compared to those assumed in the model.

Contaminated soil and pond sediments, excavated as part of the reactivation of the mine, were the first materials placed in the newly constructed clay-lined disposal cell on the WRP (discussed in Section 4.4.1). Once these materials were placed, the disposal cell and WRP slopes were finish-graded, covered with a compacted clay radon barrier and clean growth media soil (loam), and protected with erosion control materials (e.g., Curlex or other surface stabilization materials), as described below. The technical specifications for this earthwork are included in Appendix C.4.

A WRP characterization study (Kleinfelder, 2012) was performed in support of the Stage II abatement plan for the perched water contaminant excursion from the pre-mining waste lagoon buried under the WRP. This study showed that infiltration of precipitation into the WRP is offset by evaporation and that contaminants in the waste rock (low levels of radionuclides, no acid rock drainage) are not being leached from the waste rock. Therefore, a soil cover is not needed to protect the waste rock from infiltration or leaching, and the function of a cover will be to provide radon attenuation, a suitable growth medium for vegetation, and erosion protection of the waste rock.

The mound of shaft muck (soil stockpile) that occupied the southwest corner of the WRP was found to have levels of radiation at or below background and supported healthy volunteer vegetation, so it was used to form the reshaped WRP south slope. Results of soil tests (Appendix D) show that the shaft muck has weathered to soil consistency and classifies as low to moderate plasticity clay and clayey sand (loam in USDA classification), similar to the soil that covered the ore stockpile, on which two feet of cover supported healthy volunteer vegetation. Therefore, 2.0 feet of compacted clay overlain by a minimum of 1.0 feet of loam soil cover over the WRP and disposal cell will support a vegetative cover consistent with the local ecosystem and with the PMLU. RADON modeling (Appendix B) shows that 2.0 feet of clay also limits radon flux at the cover surface to less than the standard of 20 pCi/m^2s.

To protect the cover from erosion after finish grading, and until vegetation is established, the side slopes will be covered with tobacco netting, Curlex®, or similar biodegradable mat through which water can pass and plants can grow. If needed, crushed concrete will be used to create water bars and riprap blankets on the lower portions of side slopes and other locations where runoff may concentrate. Exact locations will be determined by where erosional features begin to develop, but may be predicted based on as-built slopes using the:

- Revised Universal Soil Loss Equation (RUSLE2), available at http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm, and
- Water Erosion Prediction Project erosion model (WEPP), available at http://forest.moscowfsl.wsu.edu/cgi-bin/fswepp/wd/weppdist.pl.

For purposes of closeout/closure planning and estimating, RGR assumes that all broken concrete meeting radiological release standards that is generated by demolition (approximately 2,500 cubic yards) will be crushed, screened, and applied on the WRP and adjacent diversion channel for erosion protection.

4.4.7 Finish grading

After demolition, soil cleanup, shaft and well plugging, and backfilling are complete, the land surface disturbed by these, and related mine site activities will be regraded to approximately the line and grades shown on Drawing Sheets CL 07 through CL 15 to provide controlled drainage and to prepare those areas for revegetation. Grading along the treated water pipeline corridor will be performed as needed to prepare the ground for revegetation. Grading will be adjusted as needed to remove obstacles or depressions in the ground surface that might obstruct or divert runoff from the intended flow directions. The technical specifications for grading are included in Appendix C. Finish grading will be accomplished by motor grader over approximately 175 acres on the Mine Permit area and pipeline corridor.

4.5 Revegetation

Following regrading, areas that have been disturbed by Mt. Taylor Mine operations and soil cleanup will be revegetated in accordance with the Revegetation and Weed Management Plan (Appendix F) and Appendix C.5 of this CCP. Revegetated areas include the Treated Water Discharge Pipeline, the WRP and disposal cell, the ore pad area, the mine water treatment pond area and locations of demolished facilities. The SSWP bottom and those areas where mining-related features such as buildings and roads are retained at the request of the surface owner will not be revegetated.

Preparations for revegetation and the selected seed mix will be directed toward establishing a vegetation community that can thrive at this site and that can support grazing of livestock. Plants native to the general area will be used as much as possible to provide for long-term stability of the soils and vegetation communities. Plant species that provide rapid initial cover will be used in the seed mix to achieve initial soil stabilization. Species selected will not necessarily be found in the surrounding undisturbed area but will have been approved for use in reclamation by the Natural Resources Conservation Service (NRCS, 1980) and other appropriate government agencies.

Revegetation of the recontoured areas will employ a variety of methods, depending principally on the steepness of the slope. A large percentage of the total disturbed area will be revegetated using standard mine reclamation equipment, i.e., tracked, and wheeled tractors, rangeland seed drill, and mulch applicator. In areas with slopes of 3H:1V or steeper (natural or cut slopes east of the shafts), a mixture of manual and mechanical application techniques will be used, including hand broadcasting, hydro-seeding/mulching, and heavy chains dragged by a tracked dozer to incorporate the seed with the soil. Mulching in most cases will be accomplished by a mulch blower and crimped by a tracked dozer. If hand application of mulch is required, crimping will be accomplished by hand as well. Seeding with a seed drill will be conducted as much as possible along the contour to minimize the development of rills. During the revegetation period temporary runoff controls will be used as necessary to impede or divert rainfall and snowmelt runoff from revegetated areas. RGR may use irrigation water as necessary to ensure establishment of vegetation, particularly in situations of drought and naturally dry areas such as south-facing slopes. Water for this irrigation will be provided by RGR's wells in the Point Lookout formation.

Runoff control during regrading and revegetation will use the most appropriate technology available at that time, including methods recognized by the NRCS or the International Association for Erosion Control. Measures that use present technology include check dams constructed of hay bales, geotextile silt fences secured in shallow trenches, and water bars across the disturbed area and perpendicular to the slope. Tobacco net, Curlex or similar net-and-fiber mats might be used as required for protection of surfaces susceptible to drilling or wind erosion. The specific measures applied to revegetated surfaces will be based on the method most appropriate for the seeding method, erodibility and depth of the soils, degree of slope, proportion of large rocks at the surface, roughness of the surface, and anticipated rainfall.

Locations of temporary runoff controls will be selected, consistent with the Stormwater Pollution Prevention Plan (SWPPP), to retard or divert runoff, trap sediment, and provide improved conditions for germination and plant establishment. These locations will be changed over time to keep pace with revegetation. Once revegetation has been achieved, temporary erosion control measures that have not disintegrated will be removed.

4.5.1 Vegetation Test Plot Plan (VTPP)

The purpose of the test-plot program, proposed to MMD in 2018, was to determine the combination of methods and materials that would result in an appropriate, adequate, and sustainable radon barrier / infiltration barrier, and vegetative cover for the mine site after reclamation. At that time, RGR anticipated that the mine would go back into operation under the active status of the mine, which would provide a number of years for RGR to plan and implement the VTPP and optimize the revegetation plan for subsequent closeout.

In early 2020, RGR initiated the closure/closeout phase of the mine site. Because the original objectives of the VTPP have been largely superseded and the site is undergoing closure, RGR has concluded the proposed VTPP is not relevant to the vegetation plan and is not feasible within the time available before closeout/closure must be completed.

4.5.2 Alternative to the VTPP

RGR intends to eliminate the VTPP. Instead, RGR proposes that in agreement to eliminate the VTPP, RGR will construct a 4-ft thick cover over all new portions of the WRP and disposal cell during its expansion to 25 acres. The cover will be composed of a 2-ft thick clay cap overlain by a 2-ft thick growth media layer, composed of loam soil.

RGR would also commit to placing an 18-inch-thick layer of growth media over the lower west slope (2018 construction) of the presently covered WRP. Placement of a 24-inch-thick seeding medium over this area would be infeasible with respect to slope stability (erosion) and loss of drainage ditch capacity to handle a 100-year storm event. Additionally, placing a 24-inch-thick growth media over the west slope would require relocation and reconstruction of the west access road. The west embankment toward the west fence line would be over-steepened as a result of this and no longer be compliant with the permit.

At the end of 2020, RGR completed covering the existing WRP and disposal cell with the following cover thicknesses (Figure 1-2, Drawing Sheet CL 09):

- Lower west slope (2018 construction) – 2-feet of clay radon barrier and 12-inches of growth media (loam)

- Upper west slope, north slope and south slope (disposal cell) – 2-feet clay radon barrier and 18-inches growth media (loam)
- East slope – 8-inches of uncompacted clay radon barrier

It should be noted that the east slope cover was not constructed as a final cover because the disposal cell will expand eastward from this face, once approved. The cover was placed to minimize erosion and prevent contamination spread during the interim period.

4.5.3 Revegetation Species

The predominant native grass species in the area is blue grama (NMEI 1974). Therefore, this species will be the primary species in the revegetation seed mix if it is readily and economically available at the time of closeout/closure. Other species in the mix have been selected on the basis of their suitability for the terrain and climate, compatibility with native species and nutrient value to livestock. Additional factors in the selection of species are (1) likelihood of becoming a "pest" species in the area, (2) ability to achieve quick cover with a minimum of care and moisture, (3) strength of their root system for stabilizing the soil, and (4) ability to act as a nurse crop for the later establishment of local grasses, shrubs and forbs. Several cool-season and warm-season grass and shrub species are proposed in this plan to reestablish species that have been severely impacted by grazing and to optimize the chances for successful germination and establishment, regardless of the particular microclimate. The list of proposed species is shown on Table 4.4 and App. F.

The seed mixture proposed in this plan is intended to introduce both cool-season grasses and permanent warm-season species to the recontoured areas. This approach incorporates a full range of seed species into the seedbed in one application, allowing one or more among them to exploit conditions favorable to their establishment. Vegetation establishment over the long term will be augmented by natural succession and seeding by plant species already established in the adjoining undisturbed areas. Depending on the growing conditions of any particular year, the adjacent established vegetation will have the potential to enhance natural succession in the revegetated areas.

A weed control plan will be prepared before mine closeout/closure begins. This plan will include a monitoring schedule to ensure the establishment of weed populations don't impact the success of revegetation. Eradication measures may include application of herbicides, mechanical removal, or burning. Specific measures will be selected at the time of eradication.

4.5.4 Other Revegetation Materials

Hay bales and mulch. These materials will be used to slow runoff and provide temporary protection to newly emergent vegetation. To reduce the likelihood of introducing small grain species to the area, native grass hay will be used. Blue grama or similar hay may be available locally and would be preferable since its use would likely provide additional seed source to the revegetated areas. Alfalfa *(Medicago sativa)* will be used if native grass hay is unavailable or impractical. Hay mulch will be spread by means of a blower or by hand on steep slopes. It will be applied at a rate of approximately 1-2.5 ton per acre, sufficient to provide adequate cover for the seeds yet not so much to prevent moisture from percolating into the soil or smother emerging seedlings. The use of hydro-mulch is not anticipated since, in the dry climate normal for this area, the fairly dense surface that forms on the mulch layer tends to impede percolation of the limited rainfall.

Stabilization Netting. A number of materials are commercially available for this purpose. Tobacco netting, Curlex®, jute or other biodegradable material will be used if netting is chosen as a means to stabilize the soil. However, the additional stabilization achieved with its use may not be sufficient to justify its cost. In the areas where jute or other suitable netting is used, it will be rolled by hand onto the surfaces to be treated, then anchored in place to prevent the net from being dislodged by the wind or surface water runoff.

4.5.5 Seed-Bed Preparation and Seeding

The regraded surfaces will be prepared for seeding by scarifying the surface and creating minor depressions to provide a proper seed bed. Seed will then be applied by either rangeland drill or broadcast. Broadcast seed will be incorporated into the growth medium by hand raking or some mechanical means such as heavy chains dragged behind tracked dozers.

Amendments. Soil amendments will be applied on a location-specific basis, taking into consideration the properties of the soil at that source. The material specifics and applications rates for the proposed Soil Amendment Package are described in Appendix F.

4.5.6 Seed Origin and Quality

Seed for the dominant species of grasses and shrubs that are indigenous to the mine area are available commercially and will be secured through those sources. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

4.5.7 Revegetation Success

Technical Standard - Because of the history of intensive grazing in the area of the Mt. Taylor Mine, the use of reference area or baseline data for establishing technical standards for revegetation success was considered to be inappropriate. Therefore, a technical standard based on range site descriptions has been proposed and is described in Table 5.2. Range site descriptions were obtained from the Natural Resource Conservation Service (NRCS 1980) for soil mapping units existing on the mine site.

This standard is of a higher quality than comparing to the reference area site north of Marquez Arroyo which has already shown through monitoring measurements to be of a lesser productivity than NRCS standards (RGR 2020). The reference area has been heavily disturbed (grazing), resulting in poor plant growth and lack of species diversity.

Monitoring - Monitoring of revegetated areas will be conducted on a periodic basis in accordance with the Revegetation and Weed Management Plan (Appendix F). Success of both germination and establishment will be dependent in large part on the moisture received in the summer and winter months and variations from year to year. Monitoring activities will be designed and scheduled to recognize this. An annual survey of the revegetated areas will be conducted to determine species composition and vegetation cover, frequency, and density. Since establishment of vegetation is a function of its ability to reproduce, vegetation will also be assessed for its reproductive status, as well as its overall vigor. The annual survey will be conducted toward the end of the growing season, in September to early October. The survey will be conducted by a qualified vegetation specialist. Survey results will be analyzed and summarized to aid in determining the need for any changes in management practices or the need for reseeding or other supplementary practices. Less formal monitoring will be conducted through the year by RGR personnel to identify conditions in the revegetated areas that may require attention.

Sampling for Vegetation Success – The following sampling methods for conducting studies will be used to determine the success of revegetation efforts in reclaimed area:

- Species Diversity will be measured and compared to Table 5.2.
    - The vegetation standard for diversity for the revegetated area is at least three perennial grasses, two perennial forbs, and two perennial shrub species.
    - The minimum occurrence of native perennial warm season grasses and perennial shrubs will be at least one percent of cover.
    - The minimum occurrence of perennial cool season grasses will be 0.5 percent of cover and

the minimum occurrence of perennial forbs will be 0.1 percent of cover.

- Percent Ground Cover will be sampled by the line interception
    - Ground cover will be at least the minimum range value of 50% in order to be successful as referenced in NRCS standard in table 5.2.

- Productivity will be measured by clipping from quadrats to a 3-inch stubble height
    - All standing biomass will be clipped for grasses and forbs; for shrubs, only current year's growth will be clipped. Noxious weeds will not be clipped.
    - Samples will be dried and weighed to the nearest 0.1 gram. For sample adequacy, the combined weight of each life form at each plot will be used.
    - Productivity will be reported as pounds/acre. Productivity will be considered successful upon meeting total production range and range within species for 8 of the 10 listed species in Table F2.

4.5.8 Management and Contingency Plans

After revegetation efforts have been completed, management of the revegetated areas will follow the Revegetation and Weed Management Plan (Appendix F) and will include:

- instruction of staff in measures to protect revegetated areas
- posting of signs to warn against disturbance
- placement, and replacement as necessary, of erosion controls
- supplementary seeding of areas as necessary
- periodic inspections and monitoring

Revegetation efforts will be repeated until successful. If results of annual monitoring indicate failure in all or part of a revegetated area, RGR will either supplement work already accomplished or revegetate the affected area, as appropriate. Efforts will be modified as necessary depending on what the cause of the failure is determined to have been.

4.6 Erosion Protection

4.6.1 Protection of the Waste Rock Pile Surfaces

Erosion modeling using the Revised Universal Soil Loss Equation (RUSLE) performed for the original CCP submittal showed that the maximum annual soil loss rate on the un-reclaimed WRP is only 0.02 T/acre/yr and would be reduced to less than 0.005 T/acre/yr. after revegetation of the soil cover.

The analysis examined several base management scenarios, from smooth bare slope surface to 4-year-old vegetation on the modeled slope. For the modeled slope, representing the worst case for the WRP, 350 feet long at 20% slope, best erosion protection is achieved by use of hay mulch. The predicted soil loss is 0.77 t/ac/yr. using hay mulch, compared to slightly higher soil loss of 0.82 t/ac/yr. using rock mulch or gravel. For comparison, with vegetation after four years the predicted loss is 4.3 t/ac/yr., and a smooth bare surface is predicted to have 5.6 t/ac/yr. soil loss. Therefore, RGR's use of hay mulch will provide the best slope protection while also encouraging vegetation of the WRP cover.

The WRP has been reshaped to avoid concentration of runoff and maintain sheet flow over the pile slopes. Erosion control blankets used in conjunction with revegetation should provide adequate interim protection of the 5H:1V and flatter slopes. If additional erosion protection is needed for surfaces on the WRP that are susceptible to erosion due to high runoff velocities or concentrated flows, such as steep slopes or drainage swales, riprap will be applied. In most cases, crushed concrete screened for minus five inches with average particle diameter (d_{50}) of not less 2.7 inches will be applied at least 0.5 feet thick as riprap in the bottom 1/3 of steeper slopes and as water bars in swales. Larger riprap (12 inches plus) will be used along the south diversion channel bank, south of the WRP. Riprap will consist of crushed concrete or basalt or equivalent rock.

Only durable, adequately-size concrete pieces meeting the size criteria will be applied as riprap. Gravel and sand-size fragments will be used as crusher fines in rock mulch (Appendix C.3, Section 2.9.3), and larger. RGR intends to make the maximum possible use of broken concrete for environmental and resource conservation reasons as well as economic reasons, in accordance with Sections 2.3 and 3.5 of "Best Practice in Environmental Management of Uranium Mining", IAEA Nuclear Energy Series NF-T-1.2.

Durability of all candidate concrete material will be evaluated by the procedures in:

- ASTM D 4992 Standard Practice for Evaluation of Rock to be Used for Erosion Control
- ASTM C 88 Test Method for Soundness of Aggregates by Use of Sodium or Magnesium Sulfate
- ASTM C127 Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
- ASTM C535 Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

If the quantity of suitable crushed concrete is not sufficient, basalt boulders can be harvested from the mesa slope east and south of the mine and crushed into the necessary sizes.

Information on drainage structures and erosion protection design for the WRP is provided in Appendix B and Drawing Sheets CL 09 through CL 13. Design runoff and shear calculations were prepared as part of the original CCP in 1998 and address the issue of erosion protection for the ultimate build-out size and shape of the WRP surfaces. Those calculations determined that the peak shear stress during design storm runoff would not exceed the allowable shear stress for the cover soil or riprap protection. The WRP at final buildout will have flatter slopes than assumed in the calculation; therefore, the runoff parameters and results in the 1998 calculations modeled a more extreme (conservative) condition than would develop for the actual WRP closure slopes. Nevertheless, the 1998 calculations have been retained and applied to this revision for conservatism.

Water bars of crushed concrete or basalt will be placed in swales or on slopes as necessary, based on final actual slope grades and lengths, using calculation methods in Appendix B. The need for, or location of, water bars cannot be determined until the actual amount of contaminated soil placed on the WRP and the final grades of the cover are known. However, for cost estimating purposes approximately 1,600 cubic yards of riprap on the pile out-slopes has been assumed.

4.6.2 Arroyos

Hydrologic analyses using the HEC-1 and HEC-2 models (Appendix B) show that Marquez Canyon arroyo will conduct the 24-hour, 100-year flood without need for erosion protection or channel improvements. These analyses show that the design flood water and energy surfaces are well within the arroyo banks in both cases, indicating that there should be no out-of-bank flow during the design flood and that the arroyo morphology appears to be in equilibrium with much larger runoff events.

The middle arroyo was largely filled in during site construction, but its remnants lead to the SSWP (ultimately the stock tank) north of the WRP. The middle arroyo has a very small watershed; therefore, it receives little runoff that can be accommodated with site grading and channel shaping.

The southern arroyo (south diversion channel) was diverted at the time of mine development to run along the south side of the WRP. HEC-1 and HEC-2 analyses show that its hydraulic parameters are also sufficient to convey the 24- hour, 100-year flood but its north bank adjacent to the WRP will require protection by large (12 inch or larger) riprap. For this purpose, broken concrete from demolition or basalt cobbles and boulders will be used. The riprap will be placed from toe of the north bank to the elevation of the peak water surface of the 100-year design flood, less than 10 vertical feet above the arroyo thalweg. The riprap thickness will be not less than two times the average particle diameter and will extend from the southwest corner of the WRP eastward for at least 400 feet or to the southeast corner of the WRP at approximately where the arroyo crosses E 559450 (Drawing Sheet CL 12). Riprap will be placed also at other locations of concentrated flow in this arroyo, especially areas where flow has bypassed some of the existing concrete liners and at the western end of the entire channel. Approximately 600 cubic yards of channel protection riprap has been estimated for this application, and additional 250-300 cubic yards would be available if needed. A preliminary design for south arroyo improvements, illustrated on Drawing Sheet CL 12, includes stilling basins, weirs, and drop structures. The final design will be prepared after the final size and slopes of the disposal cell are determined.

A surface water diversion channel, located north and east of the manway shaft and ore stockpile areas, intercepts and diverts runoff northward to Marquez Arroyo. The diversion channel is very stable, with substantial amount of rock and vegetation in place, and will be preserved in closeout/closure in this condition. See Drawing Sheet CL 13.

4.7 Fencing

RGR has replaced and increased the height of existing fences on the mine site to provide better exclusion of cattle and wildlife from the mine site. One chain link fence, eight feet high, encloses the MWTU, approximately 5,000 feet in length. Another eight-foot chain link fence will be up to 4,750 feet long surrounding the WRP and disposal cell, depending on its final footprint. An additional 2,000 feet of this fence will prevent entry to the shaft areas.

5 POST-CLOSURE ENVIRONMENTAL COMPLIANCE AND MONITORING

Through the closeout/closure measures described in section 4 and the requirements of other permits, listed in Table 1.1 and described (RGR, 1994a), the Mt. Taylor Mine site is expected to stay within environmental standards for air and water quality.

5.1 Ground Water Monitoring

5.1.1 Alluvial and Menefee Ground Water Monitoring

Previous mining activity has adversely impacted the shallow ground water at the site. RGR has been addressing this nitrate and uranium contamination under a NMED-approved Stage 2 Abatement Plan (S2AP) since 2011. Findings from site investigations indicate that the shallow groundwater quality and quantity is variable throughout the mine area. In various areas of the WRP and service areas, groundwater concentrations of arsenic, boron, chloride, iron, manganese, nitrate, pH, total radium, selenium, sulfate, total dissolved solids, and uranium exceed New Mexico Water Quality Control Commission (WQCC) drinking water standards.

Site investigations performed over the years (Ensero, 2021; Willowstick, 2020; RGR 2012; Kleinfelder 2012; METRIC 2005; METRIC 2006; METRIC 2009; RGR 1994a; NMEI 1974) indicate that alluvium forms a discontinuous, thin veneer over residual soil and rock of the east-dipping Menefee shales and interbedded sandstones. The alluvial soil cover is thin or absent over most of the mine site. Shallow alluvial ground water occurs primarily in preferential pathways that occur in the paleo arroyos that lie below part of the Service and Support area and the existing WRP (Willowstick, 2020; Kleinfelder, 2012).

The unlined sewage lagoon, operated from 1975 to 1982, is the primary source of perched water and alluvial saturation and the source of uranium and nitrate observed in monitoring wells. Shallow groundwater flows from the site west-northwest along the alluvial-bedrock interface, primarily in paleo arroyos in the bedrock. Upper Menefee siltstones and sandstones, east of the mine site, provide ground water recharge to alluvium and the Upper Menefee bedrock underlying the operational areas.

In addition to seepage of sewage lagoon water, minor amounts of water from 30+ years of precipitation and surface runoff infiltration appears to contribute to a persistent groundwater mound within the WRP. As this mound dissipates, the water travels downward by gravity drainage in preferential pathways created by the different material buried in the WRP and paleochannels in the top of the Menefee bedrock (now buried beneath the WRP). This perched water is hydraulically connected to the underlying alluvial sediments and Upper Menefee silty sandstones as indicated by elevated uranium and nitrate concentrations present in monitor wells completed in the upper 50 feet of the Menefee in this area.

The S2AP remedial action is extraction and evaporation of contaminated ground water. RGR maintains a series of shallow recovery wells and alluvial/Menefee-aquifer monitor wells as part of the ongoing abatement. Wells are completed in a perched-water zone within the WRP, in alluvium at the bedrock contact, and in the upper 50 feet of the Upper Menefee Formation. Six wells (MW-6, WP-5, WL-2, WL-3, WL-4 and WL-5) are currently used as extraction wells. These wells are in the area of the former lagoon and on the western edge of the WRP (Figure 1-6).

RGR is planning to install two additional extraction wells near MW-1M and MW-11A (Figure 1-6). Elevated levels of uranium and nitrate in the ground water were discovered in these areas during the 2020 site investigation (Ensero, 2021).

A piping system, referred to as the North Force Main (NFM), was refurbished and updated during the 2018-2019 mine reactivation period. The NFM system is located just south of the Sanitary Treatment Plant (Drawing Sheet CL03) and is comprised of a vault, pumps and piping. The piping is buried and connects the vault to MWTU Pond #3. Monitor well WP5 is plumbed into the NFM system, so that water extracted from the well can be delivered in the NFM system for fully automated pumping. Both the NFM and the WP5 water delivery piping were leak-tested and certified leak-free by a registered New Mexico Professional Engineer, but neither has been placed into operation.

RGR intends to connect all other existing and future extraction wells to the NFM for transferring extracted water to MWTU Pond #3. This will eliminate the need to pump extraction water from the wells into a mobile water tank, which is currently used to truck the impacted water from the wells to MWTU Pond #3. The new delivery pipe will run below ground surface from the wells to the NFM Vault via an HDPE pipe. The NFM system will operate throughout the closeout/closure period until it is no longer needed.

Based on evaluation of Piper diagrams of monitor well water-quality, data indicate a few different hadrochemical facies in the groundwater at the mine. Water from wells 1C, 2F, and 1J are sodium-bicarbonate water. Water from these wells appear to represent background water quality in the Upper Menefee at the mine site. These three wells are located east of the WRP and have low total dissolved solids (TDS), low sulfate concentrations, and no elevated levels of chemicals of concern at the site. Water quality of all other abatement wells are sodium chloride-type waters and have variable levels of elevated TDS, sulfate, nitrate, and uranium concentrations. WP-4 water quality is a mixed-type water between sodium chloride and sodium bicarbonate. This reflects its location on the fringes of the TDS plume. More details on the water quality and groundwater impacts are reported in the quarterly DP-61 groundwater report (NV5, 2022).

Additional site investigation as part of the abatement program will continue to assess the source, nature and extent of groundwater impacts in the area of the shafts, near well MW-1M, and to the northwest of these areas.

Other potential sources of shallow ground water contamination are the MWTU ponds, the ore pad and the NSWP, but such contamination is not expected. Well MW-3, which monitors ground water down gradient of these areas, has not shown any contamination from nitrate, uranium, nor radium (NV5, 2022). In the area of these features, the alluvial cover is thin or absent. The mine treatment ponds have been remediated and closed except for Ponds #2 and #3, which will remain open and serve as evaporation ponds until ground water abatement activities are complete. Ponds #2 and #3 were remediated and reconstructed with HDPE liners and leak detection systems. The ore pad is graded so that water falling on it is directed to the NSWP. The NSWP is clay lined.

The S2AP will continue until the ground water quality meets the WQCC water quality standards for nitrate and uranium. RGR expects to remediate the ground water during the closeout/closure period. However, this monitoring could extend to and beyond closeout/closure. At this time, ground water extraction is the only approved remediation method, so no additional technology is included in this CCP. However, RGR intends to conduct a feasibility study of several other treatment options that potentially could accelerate the ground water cleanup. The plume and the effects of the abatement plan are being assessed through the DP-61 monitoring program. When the abatement plan objectives have been achieved, this monitoring program will be discontinued, and a completion report will be submitted to NMED. All abatement wells will be plugged and abandoned at this time, except for the four alluvial/Menefee wells, MW-1M, MW-5, WP-5, and MW-11A that are proposed to be monitored for water quality as part of the Post-Closure Monitoring Plan (NV5, 2021). These well locations are shown on Figure 1-6. The Post-Closure Monitoring Plan is included in Appendix H.

5.1.2 Deep Aquifer Ground Water Monitoring

As required by DP-61, RGR submitted a Post-Closure Deep Well Monitoring Plan (NV5 2020) to NMED in April 2020. Condition 57 requires post- closure ground water monitoring of the Point Lookout, Tres Hermanos, Dakota, and Westwater Canyon aquifers. Five wells were selected for long-term monitoring – DW-2A and DW-8 (Point Lookout aquifer wells); DW-12 (Tres Hermanos and Dakota); DW-14 and DW-19 (Westwater) (Figures 1-4 and 1-6). RGR's Post-Closure Monitoring Plan (NV5 2021) includes the water quality parameters and schedule for monitoring and reporting.

5.1.3 Surface Water

Surface water releases will continue to conform to NPDES-Multi Sector General Storm Water Permit No. NMR05J02B (MSGP) requirements until closeout/closure is completed and the permit has been terminated.

The surface water courses across the site are ephemeral. The storm water retention ponds collect runoff during larger storm or snowmelt events but are usually dry.

5.2 Radiological Safety and Monitoring

5.2.1 Radiological Safety

Radiation safety controls are implemented to protect workers and the public, and to ensure compliance with 29CFR§ 1910.1096 and the ALARA requirement in 10CFR§ 20.1101. The performance standards are the pertinent monitoring requirements and radiation dose limits and provisions specified in 29CFR§ 1910.1096. The controls will be implemented pursuant to the Mt. Taylor Mine Radiation Safety Program Manual (RSPM) and its subordinate standard procedures. Radiation work permits (RWP) will be written and implemented for those phases of work for which no applicable standard procedures are in place.

On 5/6/22, MMD/NMED approved the "Reclamation and Post-Reclamation Radiation Survey Work Plan" in which radiation safety controls will be implemented to protect workers and the public.

5.2.2 Radiological Monitoring

Gamma radiation surveys have been performed routinely on the site, including the surface of the service and support area, and will continue throughout closeout/closure. After closeout/closure activities are completed, a contamination survey will be performed in buildings retained for PMLU. The radiation and contamination surveys will be used as a part of the radiation safety program to monitor radiation dose and to control intakes of radioactive materials.

The site surveying methodologies will be described in a Radiation Work Plan (RWP) based on the guidance in the Multi-Agency Radiation Survey and Site Investigation Manual (or equivalent methodologies, 2016 Joint Guidance) for soil characterization that are applicable to uranium the mine reclamation. As allowed by DP-61, MARSSIM and the RWP, the release criteria of 6.8 pCi/g Ra-226 will be used in lieu of a derived concentration guideline limit (DCGL). Alternatively, portions of MMD's Joint Guidance for the Cleanup and Reclamation of Existing Uranium Mining Operations in New Mexico (MMD, 2016) may be utilized. All radiological surveys will be conducted by a qualified Radiation Safety Officer (RSO).

The monitoring and analysis for intake of respirable particulates will use methods consistent with NRC guidance, such as Regulatory Guides 4.14, 8.34, and 8.37. The airborne radioactivity monitoring will consist of continuous and grab samples using filter media on calibrated air samplers (pumps). The filters will have high efficiency for removal of sub-micron particles. The guidance in ANSI/HPS N13.1-1999 (Section 6.6.2 Filter media) will be followed in using the filter media. Particulates collected on the filters will be analyzed for radioactivity per unit volume of air by an off-site lab. Radiation dose will be estimated using the derived air concentrations (DAC) and annual limits on intake (ALI) for natural uranium given in in 10CFR20 as required by 29CFR§ 1910.1096.

5.3 Air Quality

Air quality impacts from Mt. Taylor Mine are minimal, resulting primarily from fugitive dust generated by truck traffic which is controlled by application of water daily. Completion of closeout/closure measures will reduce truck traffic to occasional trips by the landowner if grazing is the PMLU. Traffic related to other continued use of mine facilities retained by the surface owners cannot be predicted at this time. Revegetation of disturbed ground and erosion protection on steep slopes will reduce other fugitive dust to background levels. There are no other sources of dust or gaseous emissions left after closeout/closure. For additional information on air quality, see page 14 of the Mt. Taylor Mine Site Assessment (RGR 1994a).

5.4 Sanitary Treatment Plant Discharge

The sewage treatment plant (STP), which has not operated since the early 1990's, will be demolished during closeout/closure. The existing septic tank will be inspected, repaired or replaced if necessary, and placed back into service with the leach field through closeout. No monitoring of the septic system is planned.

5.5 Erosion Control and Monitoring

After the CCP earthwork is completed and the surface water runoff controls have been installed per the Erosion and Sediment Control Plan (RGR 2018 Rev.1) RGR will initiate and continue erosion monitoring through the succeeding 12-year period, or until released under the New Mexico Mining Act.

RGR will visually inspect reclaimed land for signs of erosion and will mitigate significant erosion features to prevent further degradation of the site. RGR will inspect drainage channels, diversion structures, retention ponds, and auxiliary erosion control measures and will repair and maintain them in accordance with standards identified in the Field Office Technical Guides (FOTG) of the U.S. Natural Resource Conservation Service (NRCS), Section IV accessed at: https:llefotg.sc.egov.usda.gov/treemenuFS.aspx.

Inspections will continue until the specific units are released under the New Mexico Mining Act. Inspections will be conducted monthly for the first year following completion of reclamation construction activities for each unit, and quarterly thereafter. Reclaimed areas will also be inspected for evidence of erosion after storm events of one inch or greater in anyone-day period.

Erosion control measures that are damaged or ineffective will be repaired or redesigned as necessary. RGR commits to using a variety of erosion control measures, as needed, if erosion control problems develop. Long-term erosion control measures will include the installation of berms, designed channels, and sediment containment structures, as necessary. Short-term erosion control measures may include, but not be limited to silt fences, hay bales, water bars, and mulching.

Monitoring methods include visual observation followed as needed by more quantitative methods that could include time-sequenced UAV-based imagery, close-range photogrammetry, silt fences, erosion bridges placed across active rills, and sediment traps at the terminus of rills. These and other methods are described in detail in Upland Soil Erosion Monitoring and Assessment: An Overview (BLM 2011).

As a supplement to visual erosion inspections, ground surfaces created, disturbed, or reclaimed by closeout activities may be mapped by UAV-based imagery to document as-built topography and baseline terrain conditions. For the first three years after completion of closeout, the UAV imagery of reclaimed areas will be used as baseline conditions against which visual observations can be mapped. Based on those observations, erosion can be accurately located and quantitatively evaluated. Ideally, these observations and quantitative methods will be performed annually at the end of monsoon season.

5.6 Vegetation Monitoring

Monitoring of revegetated areas will be conducted in accordance with the Revegetation and Weed Management Plan (Appendix F). Vegetation establishment monitoring of revegetated areas will be conducted annually until vegetation success is determined. The annual survey will be conducted at the end of the growing season. Results will be analyzed and summarized to assist in determining the need for any changes in management practices or the need for reseeding.

Once vegetation success is determined, monitoring will continue to ensure quality of success. Quantitative vegetation surveys will be performed in the year immediately after success is determined and in two out of the last four years of the twelve-year vegetation re-establishment period. Monitoring results will be used track the revegetation progress and assist in identifying management practices for improvement.

6 CLOSEOUT/CLOSURE SCHEDULE

The schedule for mine closeout/closure is shown in the Gantt chart in Figure 6-1. From initiation of the closeout/closure contracting process to completion of the closeout/closure activities on site is estimated to take about 26 months. The first 5-6 months would be taken up by project management and contractor procurement, followed by 20-21 months of actual construction activities on site from mobilization through demobilization.

7 COST ESTIMATE

The estimated costs of closeout/closure of the Mt. Taylor Mine were developed to satisfy the requirements of both MMD's *CLOSEOUT/CLOSURE PLAN GUIDELINES FOR EXISTING MINES, Attachment #4 (FINANCIAL ASSURANCE CALCULATION HANDBOOK)* and its *Guidance To Mine Operators for Calculating Reclamation Costs in Net Present Value, December 29, 2004* as well as NMED-GWQB's *Discharge Plan Closure Guidance for Mines, May 30, 1996.*

Several references were used for unit costs, the primary being R.S. Means Heavy Construction Cost Data 2019, the Wyoming DEQ Guideline No. 12, and the Caterpillar Performance Handbook. The basis for each unit cost is identified on the cost estimate spreadsheet.

Quantities of work and materials were based on field measurements or counts of materials, construction or design record drawings, and area/ volume calculation functions within AutoDesk AutoCAD Civil 3D® design software. A new base map, completed in June 2018 at 2.0-foot contour intervals, was used as the topographic base along with AutoCAD Civil 3D® design software for the earthwork estimates in this CCP.

The cost estimate does not include any deductions or offsets for re-sale or salvage value of mine components and scrap. No cost credit against the closeout/closure cost estimate has been taken for any sale of the hoists or salvage of any materials.

Cost estimates for closeout of the IX facility are based on the conservative assumption that tubular materials (pipes) and debris internal to the IX circuit will contain scale or corrosion material with radiological contamination that cannot be removed, making it necessary to dispose of these materials in the disposal cell. An additional assumption is that any residual IX resin will either be disposed in the disposal cell. or sent to a third-party facility licensed by NRC or an Agreement State to process equivalent feed source material in the form of IX resin, wherewith the third-party facility would accept title to the resin. The decontamination and demolition (D&D) costs for the IX circuit equipment are included in the Cost Estimate presented along with the IX structure.

The detailed cost estimate is in review and will be presented in a supplemental submission to follow.

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Table 1.1 Other Permits

NAME OF PERMIT	PURPOSE	EXPIRES
FEDERAL		
NPDES NM 0028100	MINE WATER DISCHARGE	TERMINATED 8/21
MULTI-GENERAL STORM WATER PERMIT NMR05J02B	STORM WATER DISCHARGE INDUSTRIAL PLANT	MAY 2024
US FOREST SERVICE "SPECIAL USE PERMIT"	24" WATER TRANSMISSION PIPELINE	DECEMBER 2028
STATE OF NEW MEXICO		
DISCHARGE DP-61	MINE WATER DISCHARGE & RETENTION	APPROVAL PENDING
RADIOACTIVE MATERIAL LICENSE - #SO043-14	RADIOACTIVE MATERIALS (Sources Only)	TERMINATED 12/29/21
MINE PERMIT # C1002RE –REVISION 13-2	ACTIVE (OPERATING) STATUS	DECEMBER 29 2022

Table 1.2 Water Levels in Dewatering Wells and Shafts

Well No.	State Plane Coordinates (NAD 83)		Collar Elevation, Feet AMSL	Well Depth, Feet from Surface	Well Depth, Feet Elevation AMSL	Depth to Water, Feet from Collar	Elevation of Water Level, Feet AMSL	Date of Water Level Measurement	Aquifer in Screened Interval (3)
	N	E							
1	1579419	2782626	7340	1118	6222	471	6869	12/2021	PL
2	1579121	2782606	7345	2920	4425	-	-		TH/D
2-a(1)	1579202	2782709	7347	925	6422	483	6864	4/2018	PL
3	1579008	2782795	7347	1150	6197	595	6752	12/2021	PL
4	1578965	2783021	7349	1130	6214	-	-	-	PL
5	1579038	2783256	7406	1172	6234	-	-	-	PL
6	1579210	2783402	7385	1190	6195	598	6787	12/2013	PL
7	1579455	2783384	7376	1125	6251	568	6808	12/2021	PL
8	1579672	2783240	7346	1044	6302	-	-		PL
9	1579723	2782973	7340	2845	4495	616	6724	12/2021	TH
10	1579619	2782734	7337	1065	6272	462	6875	12/2021	PL
11	1578845	2783245	7446	3028	4418	906	6540	5/2022	TH/D
12	1579421	2783439	7419	2940	4479	831	6588	12/2021	TH/D
13	1579378	2782065	7317	3185	4132	747	6570	8/2021	W
14	1578847	2782182	7341	3205	4133	761	6580	5/2022	W
15	1578491	2782501	7347	3205	4142	-	-	-	W
16	1578334	2782995	7393	3275	4118	812	6581	5/2022	W
17	1578570	2783563	7501	3342	4159	915	6586	12/2021	W
18	1578902	2783778	7495	3314	4188	919	6576	5/2022	W
19	1579493	2783781	7453	3274	4179	-	-	-	W
20	1579945	2783505	7385	3223	4162	811.36	6574	5/2022	D-W
21	1580165	2782966	7316	3184	4132	750	6566	5/2022	D-W
22	1579900	2782460	7305	3195	4110	731	6574	5/2022	W
SM-24-38	1579132	2783007	7349	3535	3814	-	-	-	W
SM-24-43	1579029	2782948	7347	3535	3812	-	-	-	W
SM-24-89	1578964	2782908	7348	3121	4227	--	--	-	W
SM-15-59	1584519	2771754	7738	--	--	--	--	-	--
SM-13-74	1584233	2783313	7480	--	--	1518	5962	10/1991	--
SM-31-1-2D	1584519	2786914	7630	--	--	--	--	-	--
SM 24-23E	1579711	2783249	7342	3077	4265	796.41	6550.59	5/5/2022	D
14-Ft Shaft	1579520	2783065	7342	3340	4008	776	6566	10/2019	W
24-Ft Shaft	1579122	2782964	7346	3300	4043	779	6567	9/2019	W

(1) Well 2-a supplies domestic water from the Pt. Lookout Sandstone
(2) Wells installed in 1977
(3) PL=Pt Lookout, TH= Tres Hermanos, D= Dakota, W= Westwater
(4) -- = Well details unknown.
(5) - = Wells with no water level measurements are not accessible.

Table 2.1 Water Quality Test Results for Mine Pool in Manway Shaft and Production Shaft

Sample ID	Date	As mg/L	Ba mg/L	Cl mg/L	F mg/L	Fe mg/L	Mo mg/L	pH	Ra-226 pCi/L	Se mg/L	SO4 mg/L	TDS mg/L	U mg/L	Zn mg/L
20.6.2.3103 NMAC (1)		**0.01**	**2**	**250**	**1.6**	**1**	**1**	**6-9**	**5**	**0.05**	**600**	**1000**	**0.03**	**10**
MANWAY AND PRODUCTION SHAFT WATER QUALITY RESULTS														
14FT-SEEP-12 FTBGS	6/2/2021	-0.001	0.029	39	-0.5	-0.02	-0.02	8.65	--	-0.001	510	1130	-0.0005	0.011
14FT-PLSS-855FTBGS	10/1/2019	0.0012	0.22	3.2	1.2	-0.02	0.093	8.56	8.36	-0.001	25	353	0.021	0.018
14FT-MSH/DC-1635FTBGS	10/1/2019	0.0021	0.22	4.3	1.1	0.036	0.15	8.51	8.99	-0.001	38	343	0.036	0.019
14FT-THSS-2635FTBGS	10/1/2019	0.002	0.23	4.3	1.1	0.038	0.16	8.5	15.4	-0.001	38	347	0.036	0.026
14FT-WWSS-3110FTBGS	10/1/2019	0.0021	0.22	4.2	1	0.032	0.16	8.48	17.1	-0.001	37	344	0.036	0.021
24FT-PLSS-855FTBGS	10/1/2019	0.0012	0.26	3	0.91	0.024	0.094	8.48	8.19	-0.001	24	306	0.021	0.025
24FT-MSH/DC-1635FTBGS	10/1/2019	0.0022	0.22	4.4	1.1	0.037	0.16	8.48	12.2	-0.001	38	344	0.037	0.029
24FT-THSS-2635FTBGS	10/1/2019	0.0022	0.21	4.4	1.1	0.041	0.17	8.5	14.1	-0.001	39	349	0.037	0.024
24FT-WWSS-3110FTBGS	10/1/2019	0.0014	0.25	3.2	0.97	0.027	0.1	8.47	13.4	-0.001	26	308	0.023	0.018
24-FT SHAFT	9/28/2007	--	--	4	--	0.05	0.2	8.38	16.8	-0.001	44	--	0.071	-0.01
FB-12/9/21	12/9/2021	0.001	0.002	-0.5	0.1	-0.02	0.008	6.24	ND	-0.001	-0.5	-20	0.0005	-0.01
EQB-12/6/21	12/6/2021	0.001	0.002	-0.5	0.1	-0.02	0.008	6.35	ND	-0.001	0.59	-20	0.0005	0.078

(1) Water quality standards for human health, domestic water supply, and irrigation use as listed in 20.6.2.3103 NMAC

Notes:

Yellow highlighted values indicate that the water quality result exceeds the standards of 20.6.2.3103 NMAC.

-0.001 - A negative sign in front of result indicates that the analyte was not detected above the Practical Quantitation Limit (PQL).

Bold lettering indicates that the analyte was detected above the PQL, but below the WQCC standard.

Notes (cont):

ND = Not Detected above the minimum activity count

-- = No analytical results available for the analyte

PLSS= Point Lookout Sandstone

MSH/DC = Mancos Shale/Dilco Coal

THSS = Tres Hermanos Sandstone

WWSS – Westwater Sandstone

Table 2.2 Water Quality Test Results for Point Lookout Aquifer Wells (Dewatering Wells)

Sample ID	Date	As (mg/L)	Ba (mg/L)	Cl (mg/L)	F (mg/L)	Fe (mg/L)	Mo (mg/L)	pH	Total Ra (pCi/L)	Se (mg/L)	SO4 (mg/L)	TDS (mg/L)	U (mg/L)	Zn (mg/L)
20.6.2.3103 NMAC (1)		0.01	2	250	1.6	1	1	6-9	5	0.05	600	1000	0.03	10
POINT LOOKOUT AQUIFER WATER QUALITY RESULTS														
DW-1	**12/6/2021**	**0.001**	**0.34**	-2.5	**0.58**	**0.22**	**0.008**	**8.38**	ND	-0.001	**5.3**	**226**	-0.0005	**0.015**
DW-2a(2)	**8/22/2017**	**0.001**	**0.018**	**10**	**2.4**	-0.02	-0.008	**8.85**	**0.682**	**0.003**	**170**	**692**	-0.0005	**0.035**
DW-3	**12/7/2021**	**0.001**	**0.37**	-2.5	**0.52**	**0.12**	**0.008**	**8.34**	**3.93**	-0.001	**3.7**	**212**	**0.0013**	**0.022**
DW-6 (PL-6)	**2/18/2020**	-0.001	**0.39**	**0.084**	**0.48**	**0.059**	-0.008	**8.43**	ND	-0.001	**6**	**209**	-0.0005	**0.011**
DW-7	**12/7/2021**	**0.001**	**0.21**	-2.5	**0.61**	**0.17**	**0.008**	**8.42**	ND	-0.001	**6.6**	**220**	-0.0005	**0.016**
DW-8 (PL-8)	**2/13/2020**	-0.001	**0.38**	**0.73**	**0.61**	**0.029**	-0.008	**8.47**	ND	-0.001	**6**	**201**	-0.0005	**0.017**
DW-10	**12/6/2021**	**0.001**	**0.0058**	**5**	**2.7**	**0.36**	**0.008**	**8.63**	ND	-0.001	**52**	**474**	**0.013**	**0.011**
FB-12/9/21	**12/9/2021**	**0.001**	**0.002**	-0.5	**0.1**	-0.02	**0.008**	**6.24**	ND	-0.001	-0.5	-20	**0.0005**	-0.01
EQB-12/6/21	**12/6/2021**	**0.001**	**0.002**	-0.5	**0.1**	-0.02	**0.008**	**6.35**	ND	-0.001	**0.59**	-20	**0.0005**	**0.078**

(1) Water quality standards for human health, domestic water supply, and irrigation use as listed in 20.6.2.3103 NMAC

(2) Well 2-a supplies domestic water from the Pt. Lookout Sandstone

Notes:

Yellow highlighted values indicate that the water quality result exceeds the standards of 20.6.2.3103 NMAC

-0.001 - A negative sign in front of result indicates that the analyte was not detected above the Practical Quantitation Limit (PQL).

Bold lettering indicates that the analyte was detected above the PQL, but below the WQCC standard.

ND = Not Detected above the minimum activity count

Table 2.3 Mine Dewatering and Observation Wells

Well No. [1]	Closure Disposition [3]	State Plane Coordinates (NAD 83)		Collar Elevation, Feet AMSL	Total Depth, Feet BGS	Total Depth Elevation, Feet AMSL	Screened Interval, Feet BGS [5]	Screened Interval Elevation, Feet AMSL [5]	Aquifer in Screened Interval [6]
		N	E						
1	PMLU	1579419	2782626	7340	1118	6222	740-890	6600-6450	PL
2	Plug	1579121	2782606	7345	2920	4425	2550-2920	4795-4425	TH/D
2-a[2]	PMLU	1579202	2782709	7347	925	6422	750-900	6597-6447	PL
3	Plug	1579008	2782795	7347	1150	6197	737-891	6610-6456	PL
4	PMLU	1578965	2783021	7349	1130	6214	750-900	6599-6449	PL
5	PMLU	1579038	2783256	7406	1172	6234	852-1002	6554-6404	PL
6	PMLU	1579210	2783402	7385	1190	6195	845-995	6540-6390	PL
7	PMLU	1579455	2783384	7376	1125	6251	825-995	6551-6401	PL
8	PMLU	1579672	2783240	7346	1044	6302	791-941	6555-6405	PL
9	Plug	1579723	2782973	7340	2845	4495	2538-2840	4802-4500	TH
10	Plug	1579619	2782734	7337	1065	6272	738-888	6599-6449	PL
11	Plug	1578845	2783245	7446	3028	4418	2819-3028	4627-4418	TH/D
12	PCMP	1579421	2783439	7419	2940	4479	2791-2940	4628-4479	TH/D
13	Plug	1579378	2782065	7317	3185	4132	3045-3185	4247-4132	W
14	PCMP	1578847	2782182	7338	3205	4133	3048-3188	4290-4150	W
15	Plug	1578491	2782501	7347	3205	4142	3056-3196	4291-4151	W
16	Plug	1578334	2782995	7393	3275	4118	3105-3245	4288-4148	W
17	Plug	1578570	2783563	7501	3342	4159	3209-3342	4291-4159	W
18	Plug	1578902	2783778	7502	3314	4188	3212-3314	4295-4192	W
19	PCMP	1579493	2783781	7453	3274	4179	3166-3274	4287-4179	W
20	Plug	1579945	2783505	7385	3223	4162	2938-3223	4447-4162	D-W
21	Plug	1580165	2782966	7316	3184	4132	2873-3173	4443-4143	D-W
22	Plug	1579900	2782460	7305	3195	4110	3019-3159	4286-4146	W
SM-24-38[8]	Plug	1579132	2783007	7349	3535	3814	3107-3247	4324-4184	W
SM-24-43[8]	Plug	1579029	2782948	7347	3535	3812	3064-3204	4283-4143	W
SM-24-89[8]	Plug	1578964	2782908	7348	3121	4227	--	--	W
SM-15-59[8]	Plug	1584519	2771754	7738	--	--	--	--	--
SM-13-74[8]	Plug	1584233	2783313	7480	--	--	--	--	--
SM-31-1-2D[8]	Plug	1584519	2786914	7630	--	--	--	--	--
SM 24-23E[8]	Plug	1579711	2783249	7342	4265	3077	--	--	D

(1) Wells installed in 1977
(2) Well 2-a supplies domestic water from the Pt. Lookout Sandstone
(3) PMLU= Post-mining land use, PCMP=Post-Closure Monitoring Plan
(4) All well casings are steel – 8 5/8 " ID in Pt Lookout, 9 5/8 " ID in Tres Hermanos and Dakota, 10 ¾" ID with 7 " liner in Westwater
(5) Elevation and depths of screens and formation intercepts are approximate. BGS = Below Ground Surface. AMSL = Above Mean Sea Level
(6) PL=Pt Lookout, TH= Tres Hermanos, D= Dakota, W= Westwater
(7) -- = Well details unknown
(8) Observation Wells

Table 2.4 As-Built Capacities of MWTU Ponds #2 and #3

Pond Number	Operating Pool Elevation (ft)		Water Surface Area at Pool Elevation (ft^2)	Volume (cy)	Volume (acre feet)
2	Max	7300	31605	11237	6.97
3	Max	7300	50178	18227	11.23

Note: Calculations based on as-built survey of ponds 2 and 3 by CSTI surveyors in November 2019 after removal of contaminated sediments and soil..

Table 3.1(a) Radiological Survey Results for PMLU Habitable Structures

PMLU Habitable Structure	Interior Surface Alpha Activity (dpm/100 cm^2)		Exterior Surface Alpha Activity (dpm/100 cm^2)	
	Average*	Maximum*	Average*	Maximum*
Hoist House[1]	322	471	-	-
Guard House (Security Building)[1]	3	11	-	-
Service Building (Office and Warehouse)[1]	294	1,189	-	-
Emergency Hoist House[2]	256	732	87	134
Electrical Building[2]	112	278	120	200

*Release Limits for Unrestricted Use: Average = 2,364 dpm/100 cm^2; Maximum = 23,640 dpm/100 cm^2

[1]Surveys conducted in July 2012 by Stan Fitch, CHP

[2]Surveys conducted in 2021 by ERG

TBD = To be determined; NA = Not applicable

Table 3.1(b) Status of Release Surveys for Other PMLU Structures

Other PMLU Structures	Release Survey Status	Applicable Release Survey Type		
		Surface Alpha Activity	Volumetric Sampling	Gamma Survey
Water Tank	TBD	X		
Septic Tank and Leach Field	TBD	X	X	
Phase I Dewatering Wells	TBD	X		
Storm Drain System	TBD		X	X
South Storm Water Pond	Completed		X	X
MWTU Pond 2	Completed		X	X
MWTU Pond 3	Completed		X	X

Table 3.1(c) Summary of Radiological Survey Results for Non-PMLU Buildings

Non-PMLU Building (map ID)	Date Surveyed	Interior Surfaces Alpha Activity (dpm/100 cm^2)		Exterior Surfaces Alpha Activity (dpm/100 cm^2)	
		Average*	Maximum*	Average*	Maximum*
Carpenter Shop (14)	7/14/2020	54	290	123	210
Water Treatment (9)	7/15/2020	253	1,680	221	940
Core Storage Building (20)	9/22/2020	113	6,273	166	455
Ion Exchange Plant (32)	9/30/2020	388	5,330	173	870
"Chiller" Pump Building (25)	7/20/2020	1,200	7,570	347	1,860
York Chiller Building (17)	7/16/2020	238	1,200	100	330
Fire Equipment Building (19)	7/28/2020	193	690	199	340
Fuel Pump Building (13)	7/29/2020	63	160	53	80
Gylcol Heat exchanger (5)	7/29/2020	679	8,150	1,475	10,425
Flocculant (33)	1/18/2021	966	3,853	203	263
Trailer House (N/A)	1/18/2021	96	290	129	210
Rockys Shop (N/A)	1/19/2021	538	1,100	246	600
Auxiliary mine water Treatment MCC (N/A)	1/19/2021	69	170	363	1,716
Mine water treatment (36)	1/19/2021	68	170	138	221
Barium Chloride Building (31)	1/20/2021	84	180	257	1,270
Storage Building/Quonset Hut (4)	1/20/2021	227	620	221	360
Shaft Heat Buildings	1/21/2021	408	1,290	100	237
Compressor Building (10)	8/19/2021	175	526	106	250

*Release Limits for Unrestricted Use: Average = 2,364 dpm/100 cm^2; Maximum = 23,640 dpm/100 cm^2

Table 4.1 Potential Contaminants on Site and in Use

DESCRIPTION	SAFETY DATA Sheets (SDS), CAS #'s		
Antifreeze/Coolant	107-21-1		
Coherex	64742-34-3	64742-11-6	
Diesel Fuel #2	68476-34-6	64742-80-9	64741-44-2
	91-20-3		
Engine Oil	68649-42-3		
Gasoline Fuel	86290-81-5	71-43-2	108-88-3
	110-54-3	110-82-7	108-87-2
	637-92-3	994-05-8	142-82-5
Grease	686-42-3	Mixture	
Holeplug 3/8	14464-46-1	15468-32-3	1302-78-9
Hydraulic Oil	Mixture		
Insulating Oil	64741-97-5	64742-53-6	
Lubricant - Gear	Mixture		
Transmission Fluid	Mixture		
Windshield Wiper Fluid	UN120 50/50 0000067-56-1		
Simple Green	7732-18-5		
Kerosene	8008-20-6		
DEF Fluid	57-13-6	7732-18-5	

Table 4.2 Mine Facility Disposition at Closeout

Facility Name	FacilityType	Dimensions	Disposition at Closeout Status as of April 2022		
			Remove Structure	Foundation	Retain for PMLU
Compressor Building	Steel frame and siding	40'4" X 40'2"x 16'	Removed (12/21)	Rubblized, to be removed	
York Chiller (Chill Water) Building	Steel frame and siding	100' X 50' X 30'	Removed (4/21)	Rubblize and Cover with Soil	temporary
Chiller Electrical Room	Steel frame and siding	30' x 20' x 30'	Removed (4/21)	Rubblized, to be removed	temporary
Pump Building (Chill Water Pump House)	Steel frame and siding	40' X 24' X 16'	Removed (12/21)	Rubblize and Cover with Soil	
Chlorine Building	Concrete Block	23' X 50'6" X 20'	Removed (8/21)	Rubblized, Cover with Soil	
Shaft Heating Building	Steel frame and siding	50' X 30' X J 6'	Removed (12/21)	Cover with Soil (Retain as part of Shaft Plug)	
Glycol Heat Exchanger	Steel frame and siding	50 X 30 X 16	Removed (10/20)	Retain for Storage	√
Cooling Tower	Steel frame and siding	75 X 25 X 25	Removed (12/21)	Rubblized, to be removed	
Hoist House	Steel frame and siding	162' X 120' X 40'			√
Guard House (Security Building)	Steel frame and siding	63' X 20'6" X 16'			√
Fire Equipment Building (Fire House)	Steel frame and siding	27' X 24' X 16'	Removed (3/21)	Retain for Storage	√
Service Building (Office and Warehouse)	Steel frame and siding	194' X 138' X 24'			√
Car (Maintenance) Shop	Steel frame and siding	150' X 100' X 30'	To Be Removed	Rubblize and Cover with Soil	
Carpenter Shop	Steel frame and siding	45' X 24' X 16'	Removed (10/20)	Rubblized and removed	
Electrical Building	Steel frame and siding	62' X 30' X 16'			√
Water Treatment and Boiler Building	Steel frame and siding	62' X 50' X 16'	Removed (9/20)	Rubblized and removed	
Core Storage Building	Steel frame and siding	100' X 38' X 16'	To Be Removed	Rubblize and Cover with Soil	
Fan Shop	Steel frame and siding	40' X 30' X 12'	To Be Removed	Rubblize and Cover with Soil	
Storage Buildings	Steel frame and siding	28' X 30' X 16'	Removed (12/21)	Retain for Hoist House area storage	√
Flocculant Treatment Facility	Steel frame and siding	30' X 23' X 12'	Removed (3/21)	Rubblized, to be removed	

Table 4.2 Mine Facility Disposition at Closeout

Facility Name	FacilityType	Dimensions	Disposition at Closeout Status as of April 2022		
			Remove Structure	Foundation	Retain for PMLU
Continued, page 2 of 3					
Barium Chloride Treatment Facility	Steel frame and siding	40' X 25' X 16'	Removed (3/21)	Rubblized, to be removed	
Ion Exchange Plant	Steel frame and siding	140' X 70' X 40'	To Be Removed	To be removed	
Portable building	Steel frame and siding	12' X 12' X 8'	Removed (11/20)	Removed (11/20)	
Fuel Pump House	Steel frame and siding	10' X 15' X 8'	Removed (4/21)	Rubblized and removed	
Access/utility tunnel	Concrete				√
Sanitary Treatment Plant	Concrete; steel	70' X 30' X 6'; 40' x 20' X 8'	To Be Removed		
Septic Tank and Leach Field	Various (Conrete, Plastic, Gravel)				√
Water Tank	Steel				√
Fuel Storage Tanks	Steel	5 x 30' x 6'	Removed (2/20)	Rubblized, to be removed	
Phase I Water Wells*1	Steel casing and screen				√
Phase II Water Wells*2	Steel casing and screen		Plug/ Abandon		
Phase III Water Wells*2	Steel casing and screen		Plug/ Abandon		
Mine Vent Structure	Evase' (Steel), frame and Fan		Removed (1/22)	Break to below ground and backfill pits	
Conduits	11.5 inch diameter steel pipe	3100'-3200' deep	Plug/ Abandon		
Production Shaft Headframe	Structural steel	180' high	To Be Removed	Remove to ground surface	
Production Shaft	Reinforced concrete liner	3300'	To be Plugged	Cover with Soil (Retain as part of Shaft Plug)	
Ore Loading Pad and Wash Bay	Steel, concrete	5,664 sf base, 400'x 4' x 1' walls	To Be Removed	To be removed	
Manway Shaft	Reinforced concrete liner	3300'	To be Plugged	Cover with Soil (Retain as part of Shaft Plug)	
Mine Car Rails	Steel (with wood and concrete ties)	6750'	Removed (2021)		
MWTU Pond 2*3	Double HDPE liner system	0.73 acres	To Be Removed	Hydraulic Structures to be Removed	

Table 4.2 Mine Facility Disposition at Closeout

Continued, Page 3 of 3

Facility Name	FacilityType	Dimensions	Disposition at Closeout Status as of April 2022		
			Remove Structure	Foundation	Retain for PMLU
MWTU Pond 3*3	Double HDPE liner system	0.93 acres	To Be Removed	Hydraulic Structures to be Removed	
MWTU ponds 1,4,5,6,7 8	Earthen basins and hydraulic control structures	various	To be Backfilled	Hydraulic Structures to be Removed (50% Removed 2021)	
MWTU Pump House and MCC	Steel frame and siding	20' x 12' x 8'	Removed (2021)	Removed (2021)	
Treated Water Discharge Pipeline	24 inch diameter steel pipe, concrete trust blocks	4.3 miles	To Be Removed		
Ore Pad	Earthen pad	6.8 acres	To Be Removed, then regraded		
Ore Pad Storm Water Retention Pond	Earthen basin	0.9 acres	To Be Removed, then regraded		
South Storm Water Pond	Earthen basin	2.67 acres			√
Storm Drain System	Steel and concrete culverts	various			√

*1 Phase I wells to be plugged and Abaondoned: DW3, DW 10

*2 Phase II and III Wells to be maintained until Post-Closure Monitoring Program is completed: DW-12, DW-14, DW-19

*3 MWTU Ponds 2 and 3 maintained until Abatement Plan and Post-Closure Monitoring Plan programs are completed

Table 4.3 Earthwork Balance

EXCAVATION - Contaminated Soil		
LOCATION	**Volume, CY**	**Destination**
Treated Water Discharge Pipeline (TWDP) Corridor	8400	Disposal Cell
Area C north of Marquez Arroyo (Including hotspots identified by ERG survey)	25000	
Ore Pad and Ore Pad Runoff Retention Pond	91400	
MWTU Area less pond basins and Borrow area A	29100	
County Road 334 and Other roads	12000	
Service and Support Areas	106950	
Disposal Cell Expansion Pit Area	9300	
SSWP Area	3000	
Continental Divide Coop Substation	1850	
Total	**287000**	

EXCAVATION - Clean Soil		
LOCATION	**Volume, LCY**	**Destination**
Borrow Area A and C North of Marquez arroyo [1]	45500	Waste Pile/ Disposal Cell -Clay Cover and Liner
MWTU Area	141900	Establishing final grades in MWTU area
Ore Pad and North Diversion channel	12600	Establishing final grades in Ore Pad area
Service and Support Area including chiller bench and north parking lot	56000	General fill in Service and Support area
Final Grading Around the Car Shop (Cut existing grades by 2 to 3 feet)	9300	General fill for north side of Disposal cell
Disposal Cell expansion pit	44000	Waste Pile/ Disposal Cell - loam cover
Total	**309300**	

Fill - Clean Soil		
LOCATION	**Volume, LCY**	**Sources**
MWTU Area	141900	Rough grading for establishing final grades
Ore Pad and North Diversion channel	12600	Rough grading for establishing final grades
Service and Support Area	52700	Chiller bench and North Parking lot
Fill For shaft plugs and other misc structures	3400	Chiller bench and North Parking lot
Fill needed for Disposal cell berms, liners, and cover	98700	Disposal cell pit and grading around Car shop
Total	**309300**	

FINAL GRADING	
LOCATION	**Area, SY**
Treated Water Discharge Pipeline Corridor	70750
Area C north of Marquez Arroyo	104850
Ore Pad	58225
Ore Pad Runoff Retention Pond	9640
Borrow Area A	38270
Borrow Area B	29800
MWTU Area	198416
County Road 334	35150
Mine Access Road	0
Old Ore Load-out Pit	17850
Shaft areas	18375
Service and Support Area (lessbBuilding areas)	46082
Chiller bench	20116
compresser bench	21958
Car Shop Area	30693
Waste Rock Pile / Disposal pit	93412
Substation	4400
Total	**797986**

= 164.9 acres

NOTES

1) Soil must meet project specifications for Clay

Table 4.4 Seed Mix: Selected Species and Planting Rates

1. Western wheatgrass *(Agropyron smithii)* Rate: 6 PLS/ft^2

Cool season native perennial grass, reproduces from seeds and rhizomes, growth starts when daytime temperatures reach 12-13 C, grows in dry, rocky soils.

2. Winterfat *(Ceratoides /anata)* Rate: 2 PLS/ft^2
3. Blue grama, Galleta, Spike Muhly *(Boute/oua gracilis)** Rate: 6.0-6.5 PLS/ft^2

Warm season native perennial grass, reproduces from seed, tillers, and rhizomes, growth starts May- June, and grows on rock slopes.

4. Vine Mesquite2Alkali Sacaton *(Sporobolus airoides)* Rate: 3 PLS/ft^2
5. Rabbitbrush, Broom Snakeweed2 PLS/ft^2
6. Fourwing saltbush *(Atriplex canescens)* Rate: 2 PLS/ft^2 Evergreen native perennial shrub, reproduces from seeds, grows on grassy uplands, excellent reclamation species.
7. Forb-(Globemallow) *(Sphaeralcea fend/en)* Rate: 2 PLS/ft^2
8. Forb-(Narrowleaf Penstemon) *(Penstemon angustifo/ia)* Rate: 2 PLS/ft^2
9. Bottlebrush SquirreltailRate: 2 PLS/ft^2
10. Other-(Perennial flower mix) as available, African Daisy, Cornflower, Perennial Gaillardia, Annual Gaillardia, Black-eyed Susan, Evening Primrose, Baby's Breath, Sweet William, Blue Flax, Shasta Daisy, Sweet Alyssum, Corn Poppy, California Poppy, Catchfly, Wall Flower, Siberian, Rocky Mtn. Penstemon, Prairie Coneflower, Spurred Snapdragon, Plains Coneflower, Purple Coneflower Rate: 6-8 lb./acre

* Black grama may be substituted for these species. Other variations and substitutions may be made based on cost and availability of seed at the time of closeout.

All seed must be certified, weed-free, and each bag must have attached to it a complete label with certification information. Seed labels or copies of seed labels will be submitted to MMD within 90-calendar days after seeding.

Table 4.5

REVEGETATION SUCCESS STANDARDS

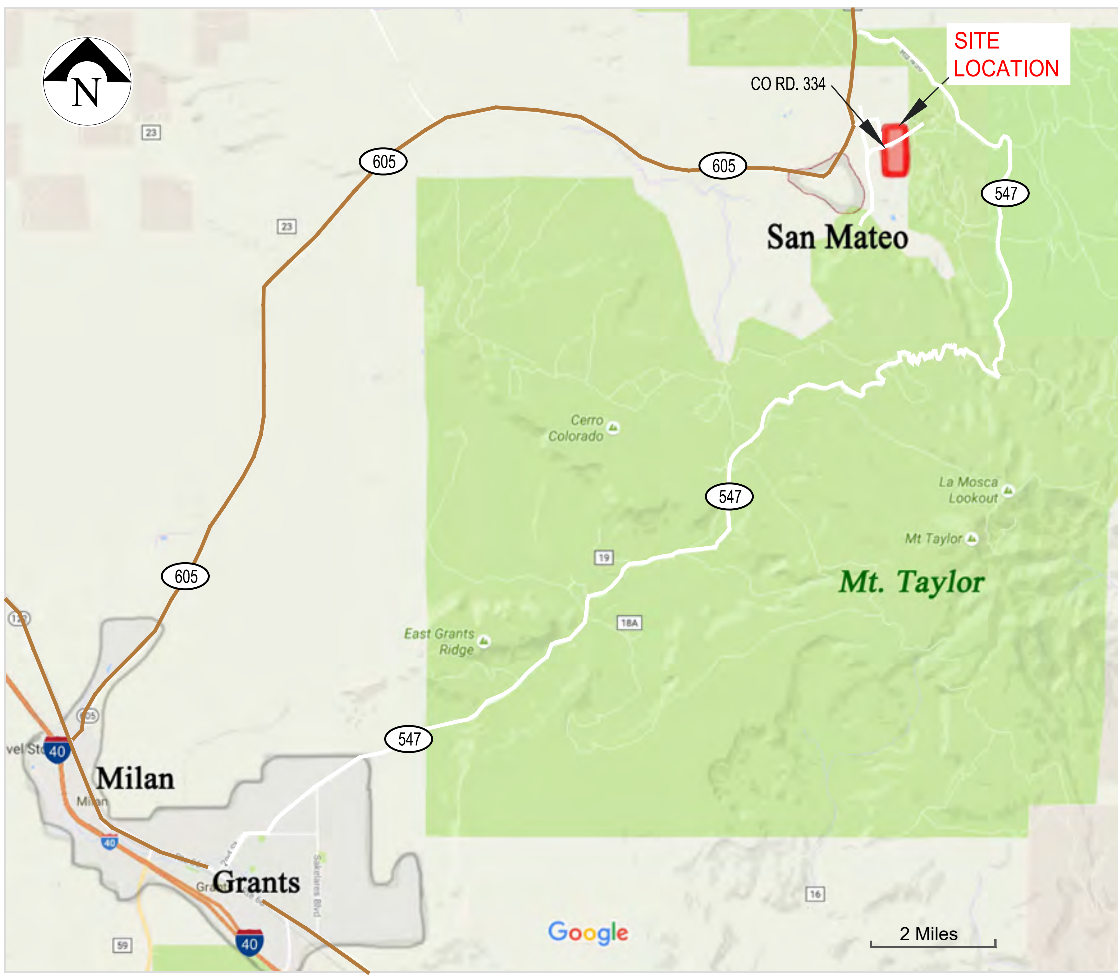
MT. TAYLOR MINE CLOSEOUT PLAN

POTENTIAL PLANT COMMUNITY FROM NRCS RANGE SITE DESCRIPTIONS

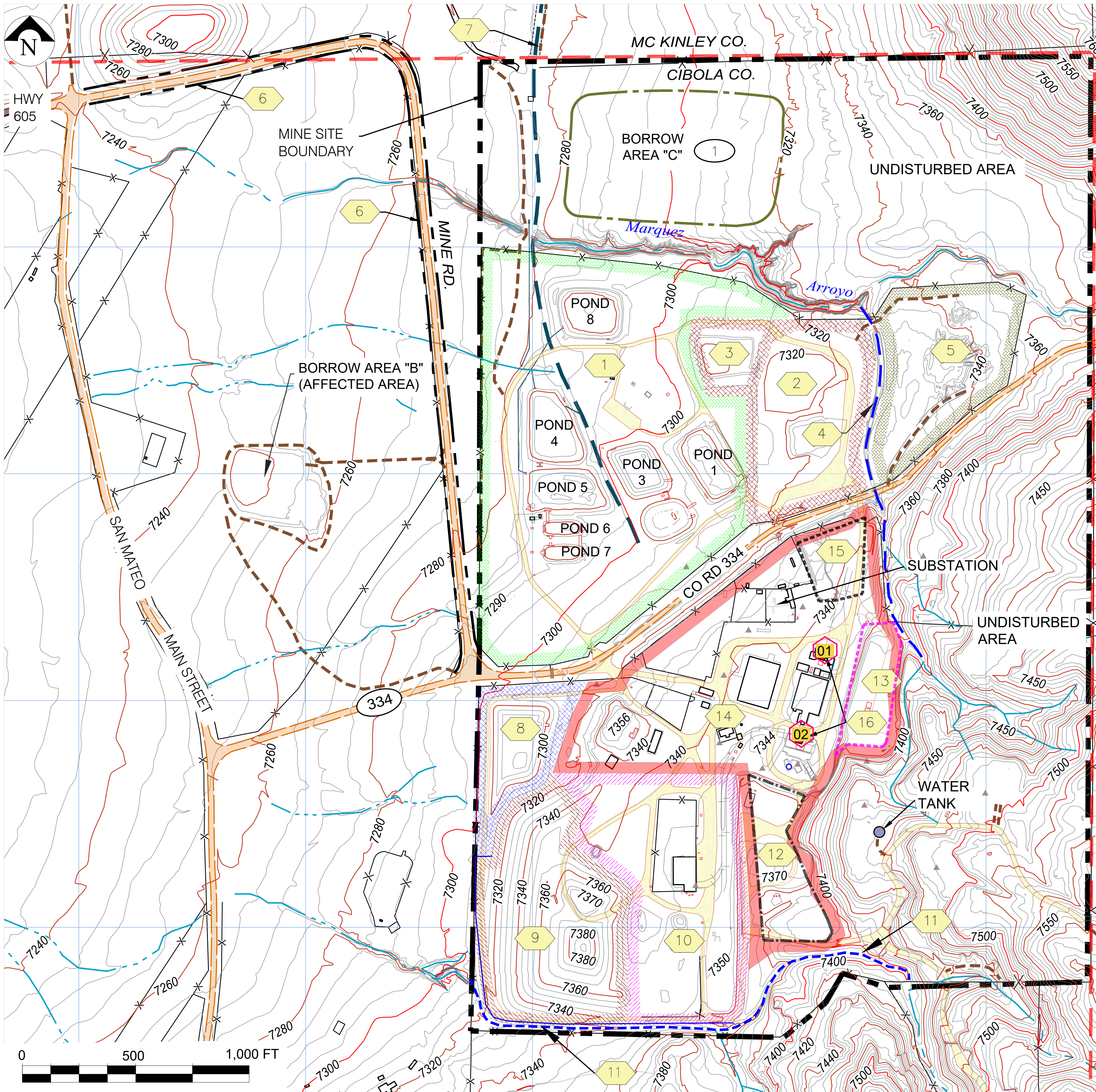
Section IIE, Technical Guide

Natural Plant Species	Percentage of Potential Production		
	Clayey Bottomland Mapping Unit 257	Bottomland Mapping Unit 57	Average
Western Wheatgrass	35-45	20-30	32
Alkali Sacaton	5-10	30-40	21
Vine Mesquite	10-15	1-5	7
Blue Grama, Spike Mulhy, Galleta	15-25	10-15	16
Bottlebrush Squirreltail	1-3	1-5	2
Fourwing Saltbush	3-10	3-10	6
Winterfat	1-3		2
Rabbitbush, Broom Snakeweed	1-5	1-5	3
Forbs	3-8	1-5	4
Others	1	9	5
Ground Cover, %	50	55	52
Production, Ib./acre	1250-3200	1200-3000	2162

NEW MEXICO STATE MAP



RIO GRANDE RESOURCES CORP. **MOUNT TAYLOR MINE -** ***San Mateo, NM***	FIGURE 1-1
Prepared By: Alan Kuhn Associates LLC	**SITE LOCATION MAP**



MINE UNITS AND OTHER AREAS

1	MINE WATER TREATMENT AREA	9	EXISTING WASTE ROCK PILE / DISPOSAL CELL
2	ORE PAD	10	DISPOSAL CELL EXPANSION AREA
3	ORE PAD RUNOFF RETENTION POND	11	SOUTH DIVERSION CHANNEL
4	NORTH DIVERSION CHANNEL	12	COMPRESSOR BENCH AREA
5	BORROW AREA "A"	13	CHILLER BENCH AREA
6	MINE ACCESS ROAD	14	SERVICE AND SUPPORT AREA
7	TREATED WATER DISCHARGE PIPELINE	15	OLD ORE LOADING AREA
8	SOUTH STORM WATER POND	01 16	MINE SHAFTS

LEGEND

- MINE SITE BOUNDARY
- SECTION 24 BOUNDARY
- PUBLIC GRAVEL ROADS
- MINE GRAVEL ROADS
- DIRT / RANCH ROADS
- MINE BUILDINGS (PRIOR TO REMOVAL ACTIVITIES)
- 20' CONTOURS
- 5' CONTOURS
- DRAINAGE PATHWAYS

NOTES:

1 BORROW AREA "C" IS A POTENTIAL SOURCE OF ADDITIONAL CLEAN FILL SOILS IF NEEDED

GENERAL NOTES:

G.1 THE MINE PERMIT AREA INCLUDES THE RIGHT OF WAY ALONG THE TREATED WATER DISCHARGE PIPELINE AND A 50' WIDE CORRIDOR FOR AN ACCESS ROAD. (SEE FIGURE 1-3)

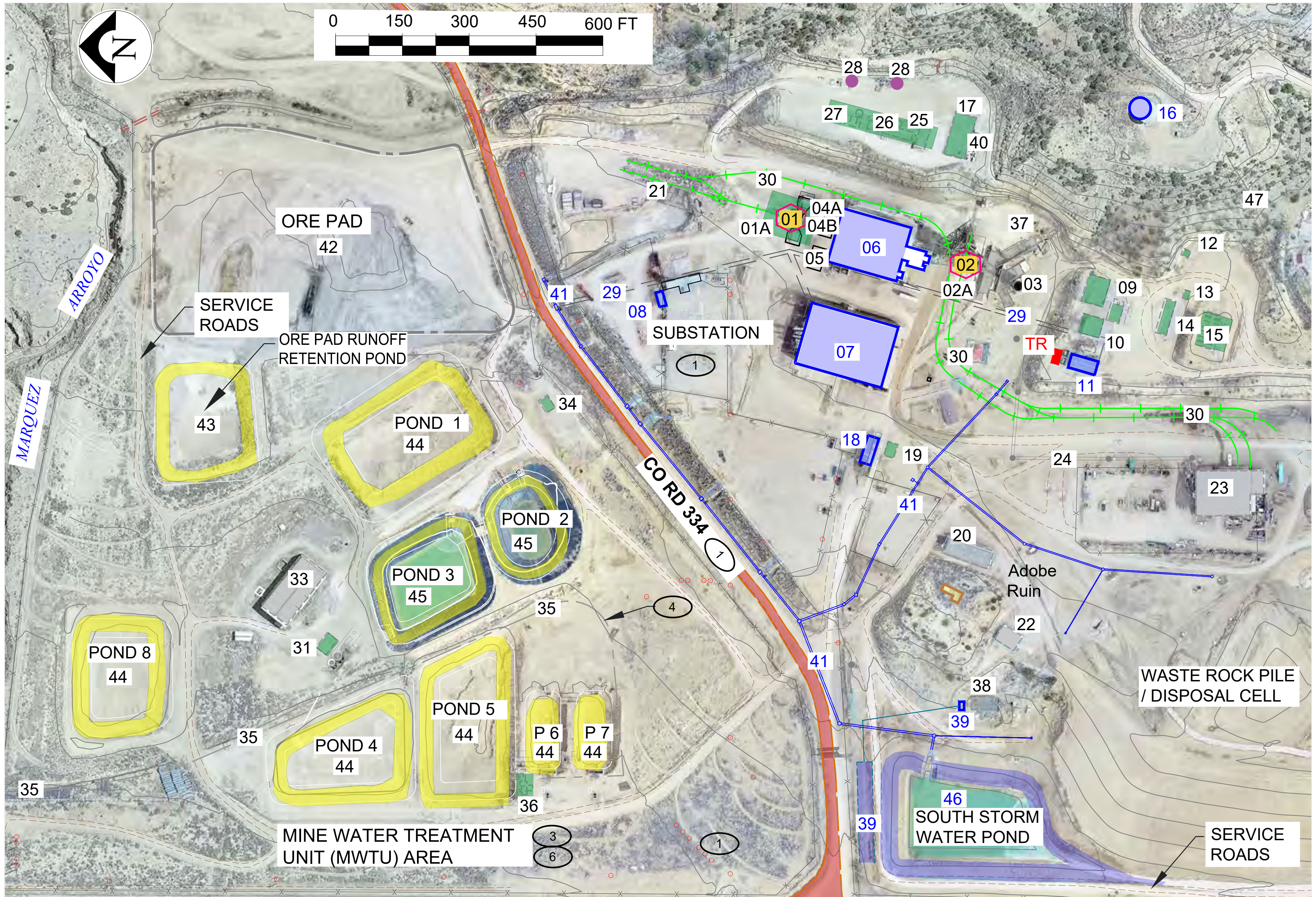
G.2 AFFECTED AREAS INCLUDE BUT ARE NOT LIMITED TO BORROW AREA "B". EVALUATION OF OTHER POSSIBLE AFFECTED AREAS IS ONGOING.

G.3 THIS DRAWING SHOWS THE SITE CONDITIONS AS OF APRIL 2022. SEE FIGURE 1-2B AND TABLE 4.2 FOR DETAILED FACILITY DISPOSITION INFORMATION.

G.4 TOPOGRAPHY BASED ON A 2012 AERIAL SURVEY BY THOMAS R. MANN AND ASSOCIATES AND 2021 SURVEYS BY SOUTHWEST SURVEYING SOLUTIONS (S3).

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*
Prepared By: Alan Kuhn Associates LLC

FIGURE 1-2
MINE SITE AND AFFECTED AREAS



FACILITIES AND FOUNDATIONS REMOVAL PENDING (6)

NO.	FACILITY NAME
02A	Production Shaft Headframe
19	Fire Equipment Building
20	Core Storage Building
21	Shaft Sump Cleanout Bin
22	Fan Shop
23	Car Maintenance Shop
33	Ion Exchange Plant
37	Ore Loading Pad and Wash Bay
38	Sanitary Treatment Plant

SHAFTS AND CONDUITS

NO.	FACILITY NAME	DISPOSITION
01	Manway Shaft	To Be Plugged
02	Production Shaft	
28	Conduits (2)	
03	Mine Vent Structure	

PONDS

NO.	FACILITY NAME	DISPOSITION
43	Ore Pad Runoff Retention Pond	To Be Backfilled and Regraded
44	MWTU Ponds 1,4,5,6,7,8	
MWTU Ponds 2,3 and the South Storm Water Pond are Included in Facilities to Remain for PLMU. (See Note #5)		

OTHER

NO.	FACILITY NAME	DISPOSITION
35	Treated Water Discharge Pipeline (4)	To Be Removed (See CL 16)
47	Plant and Refrigeration Water Pipelines (Not Shown) (3)	To Be Removed or Flowable Filled
24	CMP Utility Tunnel	
42	Ore Pad	To Be Removed

WELLS

Wells are Not Shown on This Figure. See Figures 1-4, 1-6, and 1-8 for Well Locations and Dispositions.

FACILITIES TO BE RETAINED FOR PMLU

NO.	FACILITY NAME
06	Hoist House
07	Service Building (Office and Warehouse)
08	Capacitor Building
11	Electrical Building
16	Water Tank
18	Guard House (Security Bldg.)
29	Access / Utility Tunnel
39	Septic Tank and Leach Field
W	Phase 1 Dewatering Wells
46	South Storm Water Pond
41	Storm Drain System
45	MWTU Pond 2 (5)
45	MWTU Pond 3 (5)

ONLY FOUNDATIONS TO BE RETAINED

NO.	FACILITY NAME
01A	Manway Shaft Headframe
02A	Production Shaft Headframe
04A	Shaft Heating Building
04B	Storage Building
05	Glycol Heat Exchanger

FACILITIES AND FOUNDATIONS REMOVED

NO.	FACILITY NAME (6)
03	Mine Vent Structure
09	Water Treatment and Boiler Building
12	Portable Building
14	Carpenter Shop
30	Ore Car Rails
34	Flocculent Treatment Facility
36	MWTU Pump House

FACILITIES REMOVED, FOUNDATION REMOVAL OR COVER PENDING (6)

NO.	FACILITY NAME
10	Compressor Building
13	Fuel Pump House
15	Fuel Storage Tanks
17	Chiller Building
25	Chiller Pump Building
26	Cooling Towers
27	Chlorine Building
31	Barium Chloride Treatment Facility
40	Chiller Electrical Building

NOTES

1. COUNTY ROAD 334, POWER POLES AND TRANSMISSION LINES, AND SUBSTATION ARE FACILITIES OWNED BY OTHERS AND ARE NOT WITHIN PERMIT. OTHER THAN CLEANUP OF CONTAMINATED SOILS, THESE FACILITIES ARE NOT SUBJECT TO CLOSEOUT.
2. ALL MINE FACILITIES NORTH OF CR 334 WILL BE REMOVED.
3. DEWATERING AND PROCESS WATER PIPELINES (PARTLY SHOWN) TO BE REMOVED AND PROPERLY DISPOSED OF IF NOT NEEDED FOR PMLU WATER MANAGEMENT. (#47 PARTLY SHOWN).
4. TREATED WATER DISCHARGE PIPELINE (#35) TO BE REMOVED - SEE FIGURE 2-3.
5. MWTU PONDS 2 AND 3 TO REMAIN UNTIL ABATEMENT ACTIVITIES ARE COMPLETED. ALL OTHER MWTU PONDS AND THE ORE PAD POND TO BE BACKFILLED.
6. CONCRETE FOUNDATIONS: EXCEPT WHERE OTHERWISE NOTED, REMOVAL OF THE STRUCTURES INCLUDES RUBBLIZATION OF THE CONCRETE SLAB AND FOUNDATIONS. ANY CONTAMINATED CONCRETE SHALL BE REMOVED AND PLACED IN THE DISPOSAL CELL. CLEAN RUBBLIZED CONCRETE CAN EITHER BE REMOVED FOR USE IN OTHER CLOSEOUT WORK, OR COVERED BY 24" OF CLEAN SOIL AT THE DISCRETION OF RGR.

LEGEND

- PONDS TO RETAIN
- PONDS TO BE BACKFILLED
- FACILITIES REMOVED AS OF 4-1-22
- FACILITIES TO BE REMOVED
- FACILITIES RETAINED FOR PMLU
- TR ELECTRICAL TRANSFORMERS TO BE RETAINED
- STORM DRAINAGE SYSTEM
- 01 MINE SHAFTS
- CONDUITS

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FIGURE 1-2B

MINE FACILITIES DISPOSITION AT CLOSEOUT

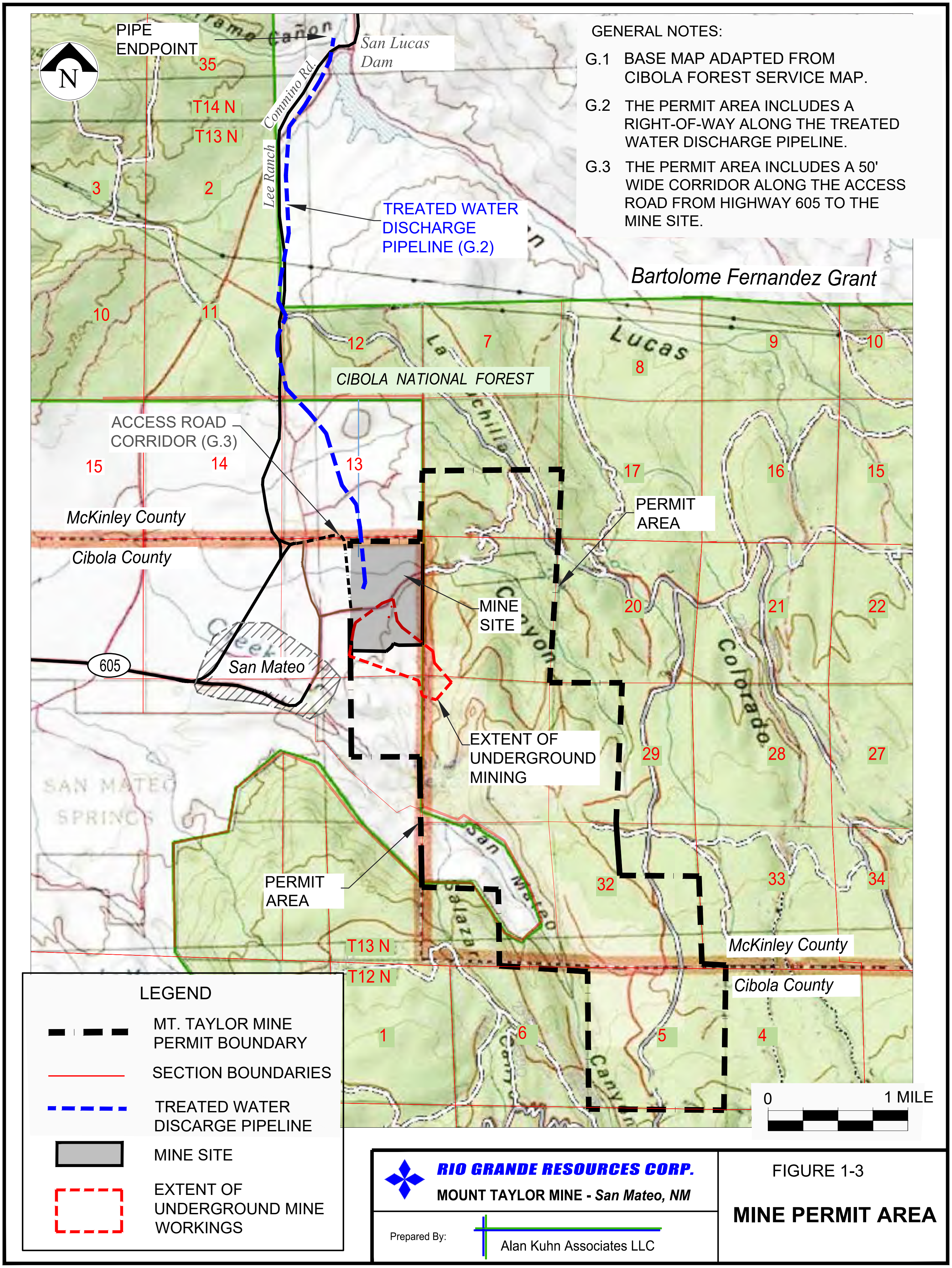

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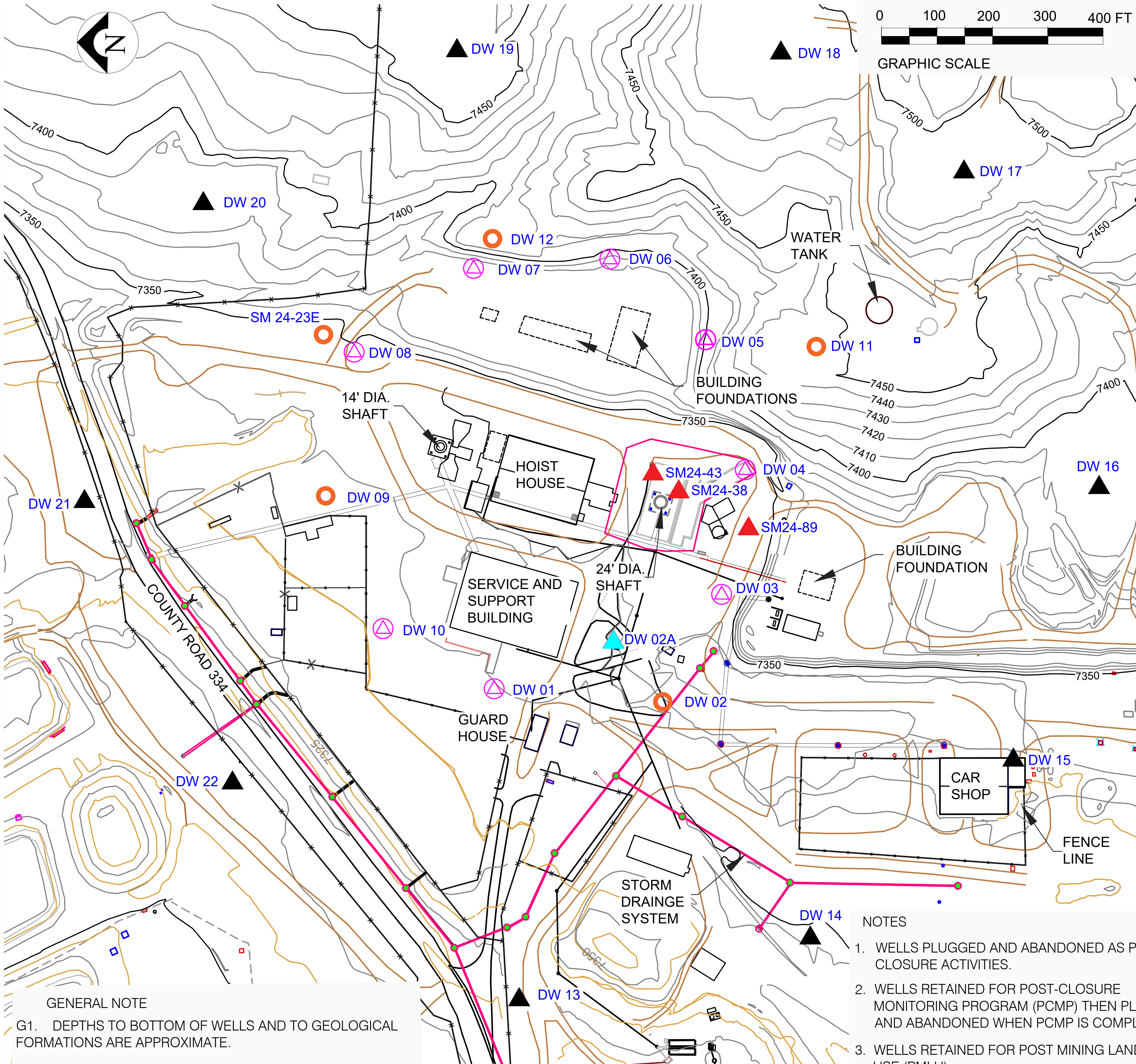
FIGURE 1-3

MINE PERMIT AREA



GENERAL NOTE

G1. DEPTHS TO BOTTOM OF WELLS AND TO GEOLOGICAL FORMATIONS ARE APPROXIMATE.

Phase and Geologic Formation of Screen	Well No	Well Coordinates (NM West NAD 83) Northing	Easting	Collar Elevation (Feet AMSL)	Depth From Surface (*Feet*)	Screen Interval (*Feet*)	Closure Disposition (See Note 1)
(Domestic Water Supply)	DW-2A	1579202	2782709	7347	925	750-900	Retain For Domestic Water
1 Point Lookout	DW-1	1579419	2782626	7340	1118	740-890	Retain for Post-Mining Land Use [3]
	DW-4	1578965	2783021	7349	1130	750-900	
	DW-5	1579038	2783256	7406	1172	852-1002	
	DW-6	1579210	2783402	7385	1190	845-995	
	DW-7	1579455	2783384	7376	1125	825-995	
	DW-8	1579672	2783240	7346	1044	791-941	
	DW-3	1579008	2782795	7347	1150	737-891	
	DW-10	1579619	2782734	7337	1065	738-888	
2 Tres Hermanos / Dakota	SM 24-23E[5]	1579711	2783249	7344	933	833-933	Abandon[1]
	DW-2	1579121	2782606	7345	2920	2550-2920	
	DW-9	1579723	2782973	7340	2845	2538-2840	
	DW-11	1578845	2783245	7446	3028	2819-3028	
	DW-12	1579421	2783439	7419	2940	2791-2940	PCMP [2]
3 Westwater	DW-13	1579378	2782065	7317	3185	3045-3185	Abandon[1]
	DW-15	1578491	2782501	7347	3205	3056-3196	
	DW-16	1578334	2782995	7393	3275	3105-3245	
	DW-17	1578570	2783563	7501	3342	3209-3342	
	DW-18	1578902	2783778	7502	3314	3212-3314	
	DW-20	1579945	2783505	7385	3223	2938-3223	
	DW-21	1580165	2782966	7316	3184	2873-3173	
	DW-22	1579900	2782460	7305	3195	3019-3159	
	DW-14	1578847	2782182	7338	3205	3048-3188	PCMP [2]
	DW-19	1579493	2783781	7453	3274	3166-3274	
Other [5] Westwater	SM24-38	1579132	2783007	7349	3535	3107-3247	Abandon[1]
	SM24-43	1579029	2782948	7347	3535	3064-3204	
	SM24-89	1578964	2782908	7348	3121		
Off-Site Wells [4,5]	SM15-59	1584519	2771754	7738			Abandon[1]
	SM13-74	1584233	2783313	7480			
	SM21-1-2D	1584519	2786914	7630			

NOTES

1. WELLS PLUGGED AND ABANDONED AS PART OF CLOSURE ACTIVITIES.
2. WELLS RETAINED FOR POST-CLOSURE MONITORING PROGRAM (PCMP) THEN PLUGGED AND ABANDONED WHEN PCMP IS COMPLETE.
3. WELLS RETAINED FOR POST MINING LAND USE (PMLU).
4. OFF-SITE WELLS ARE SHOWN ON FIGURE 1-8.
5. THE "SM" WELLS WERE OBSERVATION WELLS NOT DEWATERING WELLS.

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FIGURE 1-4

DEWATERING WELL LOCATIONS AND DESCRIPTIONS

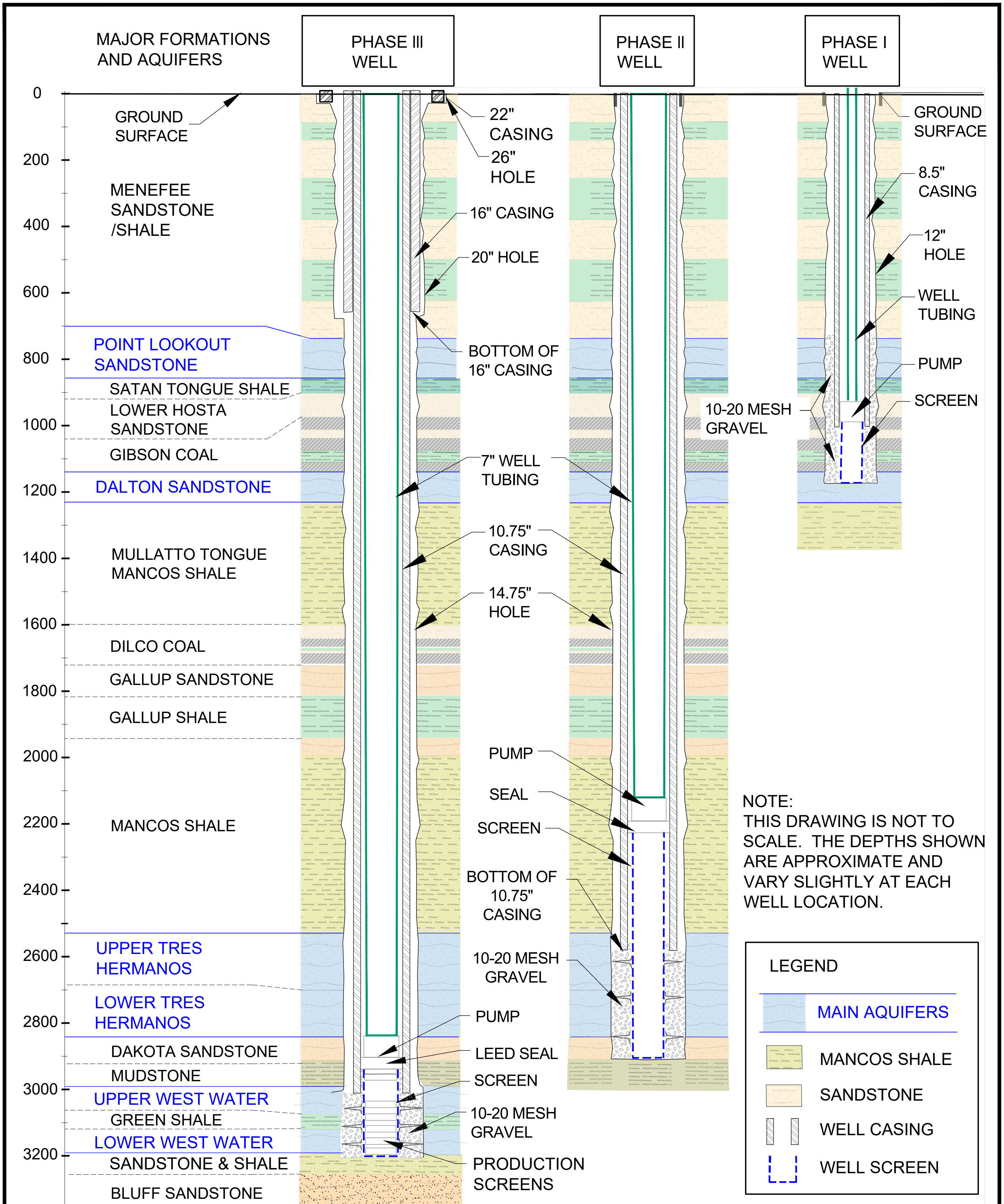

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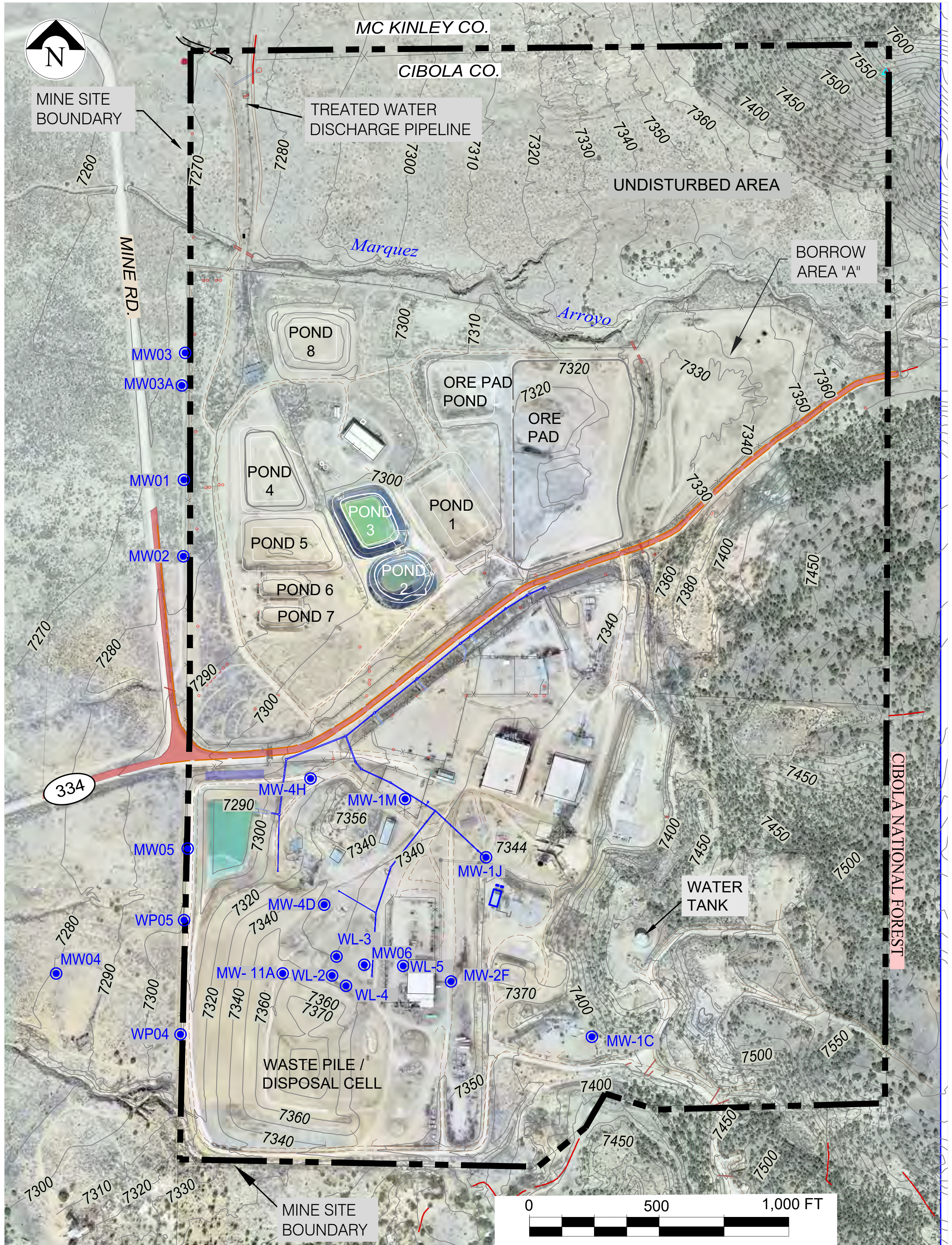
FIGURE 1-5

TYPICAL SECTION OF DEWATERING WELLS



MONITORING WELLS INFORMATION TABLE

Well No.	Well Coordinates (New Mexico State Plane West NAD 83)		Year Installed	Casing Diameter (Inches)	Casing Material	TOC Elevation (ft. amsl)	Depth To Top of Screen (ft. bgs)	Screen Length (feet)	Closure Disposition
	Northing	Easting							
MW 01	1580484	2781541	1979	3	STEEL	7275.3	33.5	5	PL
MW 02	1580191	2781538	1979	3	STEEL	7278.3	30.1	6	PL
MW 03	1580976	2781545	1979	3	STEEL	7273.0	33.6	5	PL
MW 3A	1580976	2781546	2017	2	PVC	7272.0	39	10	PL
MW 04	1578580	2781050	2005	4	PVC	7284.2	31.5	15	PL
MW 05	1579062	2781556	2005	2	PVC	7303.4	22.5	10	RET
MW 06	1578620	2782243	2011	2	PVC	7341.5	15	20	PL
WP 04	1578330	2781527	1982	4	PVC	7312.7	38	10	PL
WP 05	1578786	2781546	1982	4	PVC	7303.1	30	10	RET
WL 02	1578575	2782115	2017	6	PVC	7341.4	39.0	10	PL
WL 03	1578651	2782133	2017	6	PVC	7341.1	39.0	10	PL
WL 04	1578537	2782171	2017	6	PVC	7342.2	39.0	10	PL
WL 05	1578614	2782309	2017	6	PVC	7343.0	40.0	10	PL
MW 1C	1578341	2783120	2020	3	PVC	7395.5	84.0	10	PL
MW 1J	1579034	2782712	2020	3	PVC	7347.4	49.4	10	PL
MW 1M	1579255	2782392	2020	3	PVC	7339.0	38.0	10	RET
MW 2F	1578553	2782577	2020	3	PVC	7348.0	42.0	20	PL
MW 4D	1578849	2782082	2020	3	PVC	7341.4	42.0	20	PL
MW 4H	1579335	2782029	2020	3	PVC	7322.5	51.5	10	PL
MW 11A	1578585	2781928	2020	3	PVC	7355.8	75.0	10	RET

TABLE NOTES:

PL = Plug wells after utility for abatement is complete.

RET = Retain for Post -Closure Monitoring; Plug wells after post closure monitoring requirements are met.

ft. amsl = feet above mean sea level

ft. bgs = feet below ground surface

LEGEND

- MINE SITE BOUNDARY
- PUBLIC GRAVEL ROADS
- MINE GRAVEL ROADS
- DIRT / RANCH ROADS
- MINE BUILDINGS
- FENCE LINES
- 10' CONTOURS
- MW-1 SHALLOW AQUIFER MONITORING WELLS

GENERAL NOTES:

G.1 TOPOGRAPHY BASED ON A 2012 AERIAL SURVEY BY THOMAS R. MANN AND ASSOCIATES AND 2021 SURVEYS BY SOUTHWEST SURVEYING SOLUTIONS (S3).

G.2 CONTOUR LINES REPRESENT 10' FOOT VERTICAL INCREMENTS.

G.3 WELL LOCATIONS SURVEYED BY S3 SURVEYORS AND BY RGR RECORDS.

G.4 TOC ELEVATIONS UPDATED SEPTEMBER 2021 BY RGR BASED ON S3 SURVEY.

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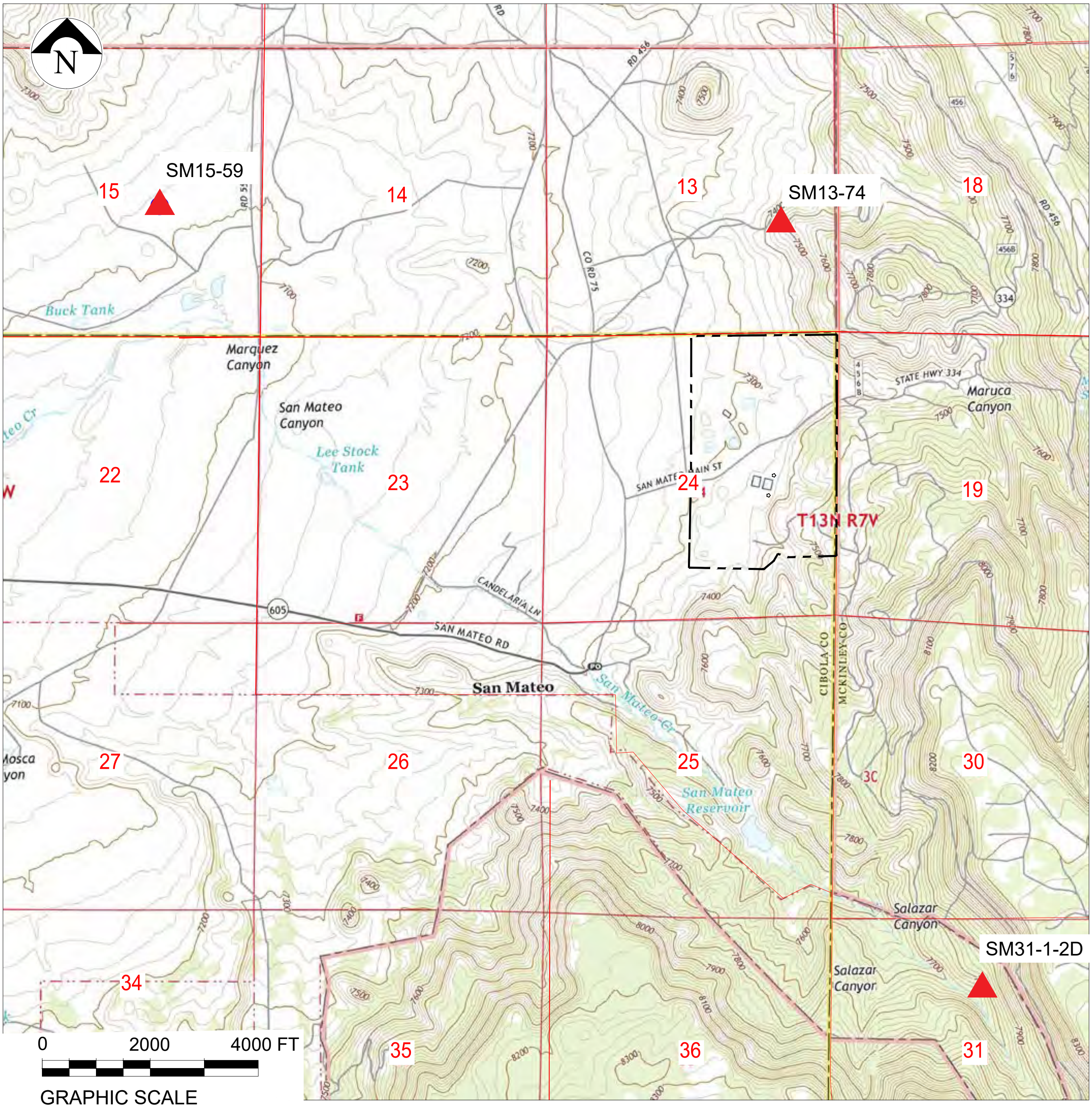
FIGURE 1-6
MINE SITE ALLUVIAL AND MENEFEE MONITORING WELLS



Well No	Well Coordinates (NM West NAD 83)		Collar Elevation (Feet AMSL)
	Northing	Easting	
SM15-59	1584519	2771754	7138
SM13-74	1584233	2783313	7480
SM31-1-2D	1584519	2786914	7630

LEGEND

- MT. TAYLOR MINE PERMIT BOUNDARY
- SECTION BOUNDARIES
- WELL LOCATIONS

GENERAL NOTES:

G.1 BASE MAP ADAPTED FROM USGS QUAD MAP.

G.2 ALL OFF-SITE WELLS TO BE ABANDONED.

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MOUNT TAYLOR MINE - *San Mateo, NM*

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FIGURE 1-8

OBSERVATION WELLS (OFF-SITE)

SYSTEM	FORMATION	MEMBER	LITHOLOGY	ELEVATION IN FEET
CRETACEOUS	MENEFEE	MENEFEE SANDSTONE & SHALE		(767) 7340 - 6573
CRETACEOUS	PT. LOOKOUT	PT. LOOKOUT SANDSTONE		(115) 6573 - 6458
CRETACEOUS	CREVASSE CANYON	SATAN TONGUE SHALE		(23) 6458 - 6435
CRETACEOUS	CREVASSE CANYON	LOWER HOSTA SANDSTONE		(81) 6435 - 6354
CRETACEOUS	CREVASSE CANYON	GIBSON COAL		(165) 6354 - 6189
CRETACEOUS	CREVASSE CANYON	DALTON SANDSTONE		(84) 6189 - 6105
CRETACEOUS	CREVASSE CANYON	MULLATTO TONGUE OF MANCOS SHALE		(395) 6105 - 5710
CRETACEOUS	CREVASSE CANYON	STRAY SANDSTONE		(8) 5710 - 5702
CRETACEOUS	CREVASSE CANYON	DILCO COAL		(92) 5702 - 5610
CRETACEOUS	GALLUP	UPPER GALLUP SANDSTONE		(95) 5610 - 5515
CRETACEOUS	GALLUP	GALLUP SHALE		(130) 5515 - 5385
CRETACEOUS	GALLUP	LOWER GALLUP SANDSTONE		(40) 5385 - 5345
CRETACEOUS	MANCOS	MAIN BODY OF MANCOS SHALE		(536) 5345 - 4809
CRETACEOUS	MANCOS	TRES HERMANOS SANDSTONE		(326) 4809 - 4483
CRETACEOUS	DAKOTA	DAKOTA SANDSTONE		(58) 4483 - 4425
JURASSIC	MORRISON	BRUSHY BASIN MUDSTONE		(80) 4425 - 4345
JURASSIC	MORRISON	UPPER WEST WATER SANDSTONE		(123) 4345 - 4222
JURASSIC	MORRISON	GREEN SHALE		(12) 4222 - 4210
JURASSIC	MORRISON	LOWER WEST WATER SANDSTONE		(64) 4210 - 4146
JURASSIC	MORRISON	RECAPTURE CREEK SS & SHALE		(79) 4146 - 4067
JURASSIC		BLUFF SANDSTONE		(223) 4067 - 3844

GSE *

7000 FT

6500

6000

5500

5000

4500

4000

NOTES:

1. GSE * = GROUND SURFACE ELEVATION. THE GSE FOR THE MINE SITE VARIES FROM 7280' TO 7400'.

2. THE ELEVATIONS SHOWN ON THIS FIGURE ARE IN FEET ABOVE MEAN SEA LEVEL.

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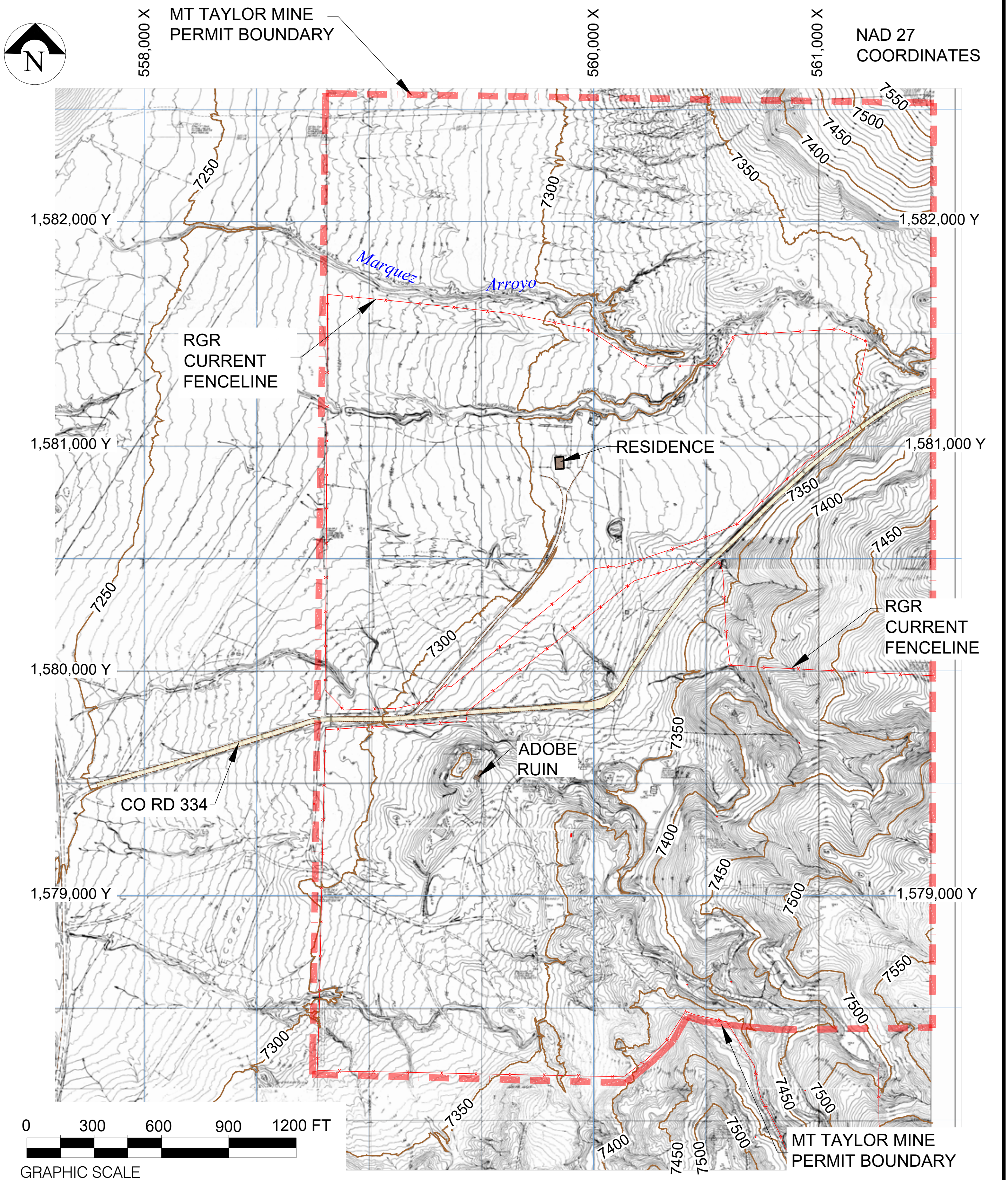
FIGURE 2-1

GEOLOGIC SECTION AT THE MT TAYLOR MINE



NOTE:
THIS MAP IS BASED ON THE WILLIAM MATOTAN & ASSOCIATES ENGINEERS SURVEY THAT WAS BASED ON AERIAL PHOTOGRAPHY DATED 9-6-1974.

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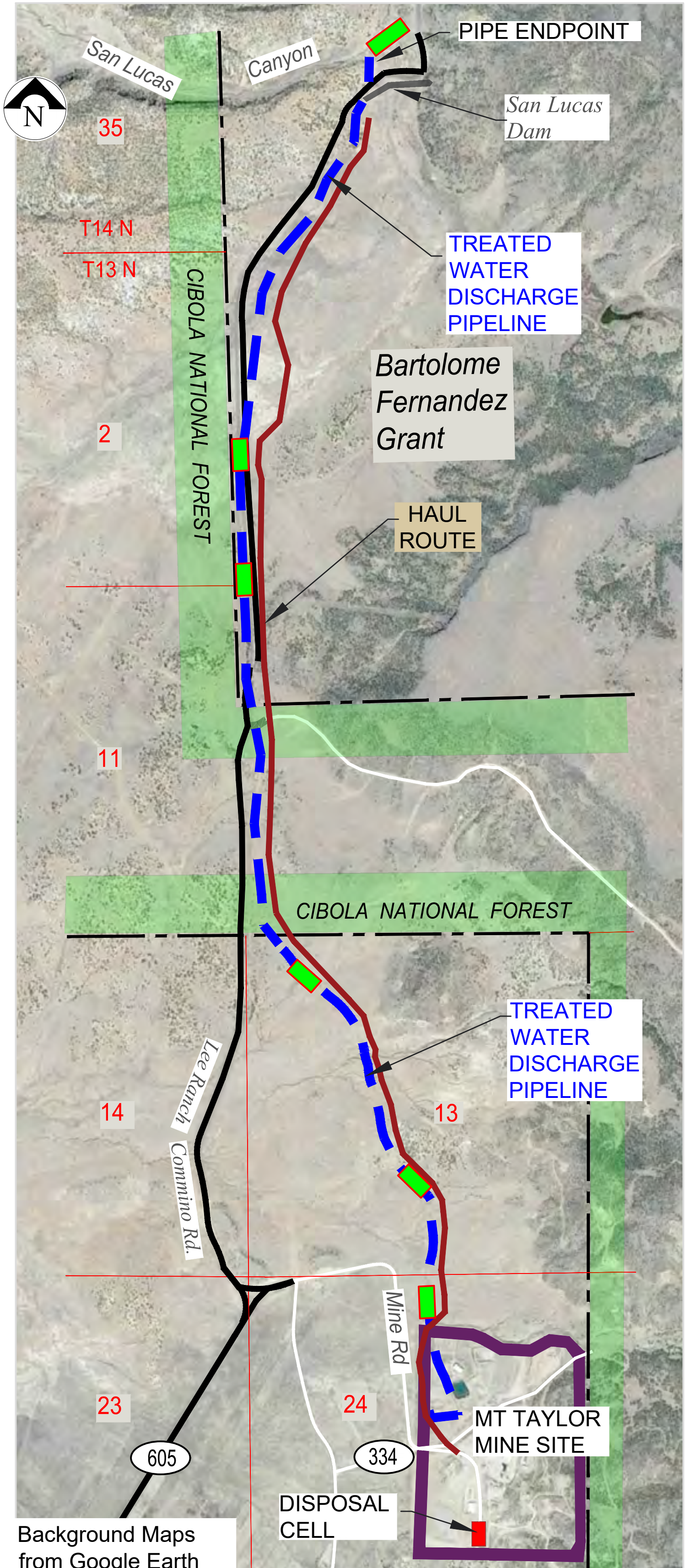
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

FIGURE 2-2

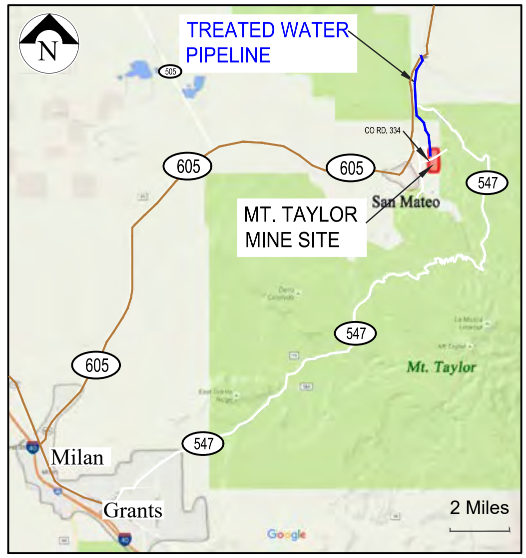
PRE-MINING TOPOGRAPHY



0 .5 1 Mile

GRAPHIC SCALE

PROJECT LOCATION MAP



LEGEND

- MT. TAYLOR MINE MINE SITE
- SECTION BOUNDARIES
- TREATED WATER DISCHARGE PIPELINE
- HAUL ROUTE
- PAVED ROAD
- AREAS IDENTIFIED BY ERG WITH GAMMA READINGS (uR/hr) EQUAL TO OR ABOVE 30 uR/hr.

PIPE REMOVAL AND CLEANUP

THE WORK INCLUDES THE FOLLOWING:

1. REMOVAL OF APPROXIMATELY 4.4 MILES OF 24" DIA. STEEL TREATED WATER DISCHARGE PIPE AND VARIOUS ASSOCIATED CONCRETE SUPPORT STRUCTURES AND TRANSPORTING THEM TO THE RGR DISPOSAL CELL OR IN A TEMPORARY STAGING AREA DETERMINED BY RGR.

2. REMOVAL, TRANSPORT, AND PLACEMENT IN THE DISPOSAL CELL, OF ALL CONTAMINATED SOIL OR OTHER DEBRIS ASSOCIATED WITH THE DISCHARGE PIPE ON EITHER SIDE OF THE PIPE ALIGNMENT.

3. GRADING ANY DISTURBED AREAS TO MATCH THE SURROUNDING GRADES AND REVEGETATING ALL DISTURBED AREAS.

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MOUNT TAYLOR MINE - *San Mateo, NM*

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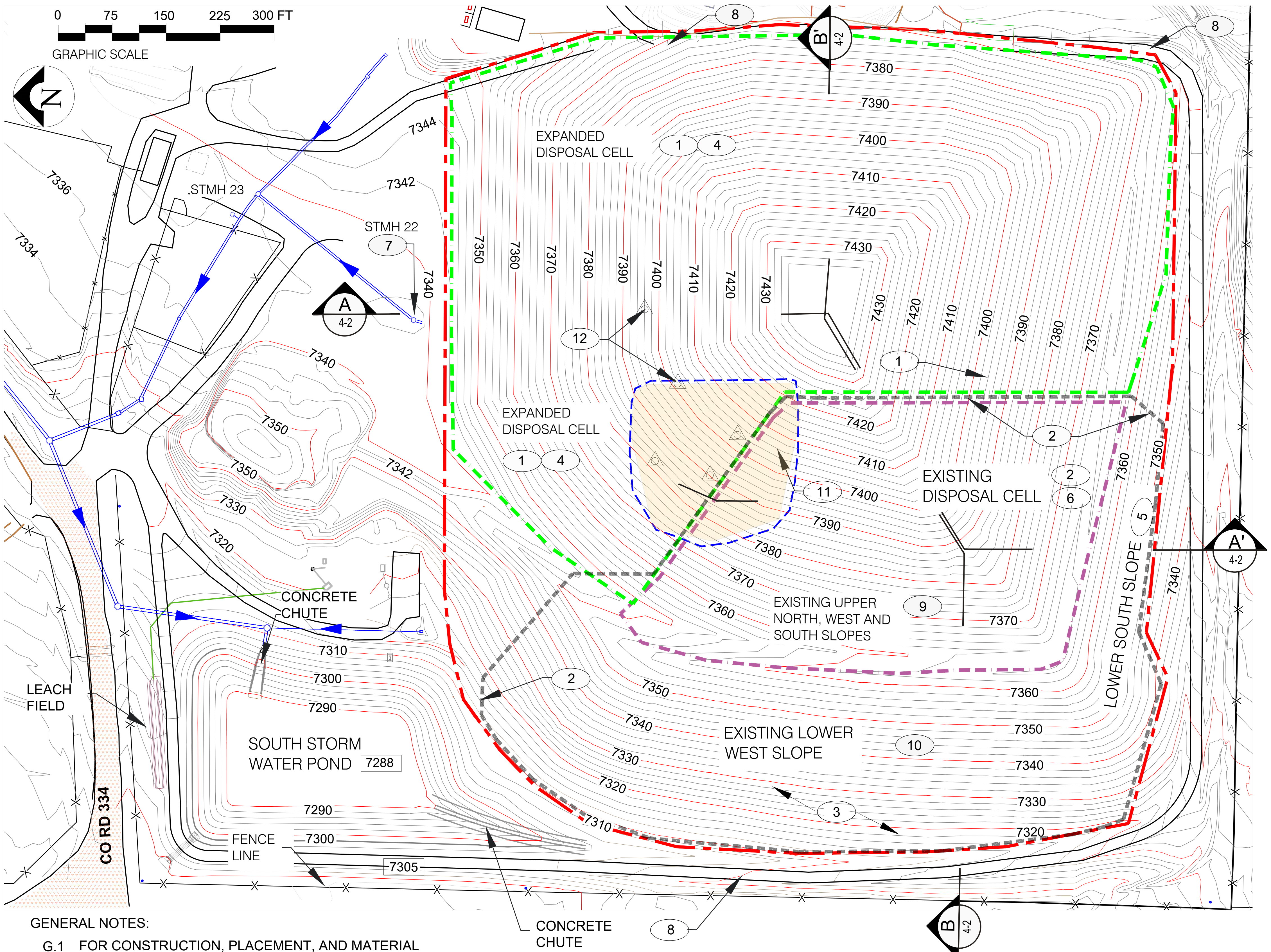
FIGURE 2-3

TREATED WATER DISCHARGE PIPELINE



NOTES:

1. EXPANDED DISPOSAL CELL. (SEE NOTE G.3)
2. WASTE ROCK PILE AND DISPOSAL CELL AS OF DECEMBER 2021 - (11.5 ACRES)
3. WASTE ROCK PILE SLOPES = 5H TO 1V
4. ALL NEW SLOPES = 24" THICK CLAY (RADON BARRIER) AND 24" THICK LOAM COVER (GROWTH MEDIA).
5. LOWER SOUTH SLOPE = CONSTRUCTED WITH CLEAN SOILS (NO COVER NEEDED).
6. EXISTING DISPOSAL CELL WITH 1' THICK CLAY LINER.
7. STORM DRAINAGE PIPES AND MANHOLES
8. EXISTING SERVICE ROADS
9. THE EXISTING UPPER NORTH WEST AND SOUTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
10. THE EXISTING LOWER WEST SLOPE COVER SOILS = 18" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 12" GROWTH MEDIA OVER 24" CLAY)
11. BURIED LAGOON AREA. FILL OVER THIS AREA AFTER ABATEMENT IS COMPLETE.
12. LAGOON MONITORING WELLS WILL BE ABANDONED AS APPROVED BY NMED.

LEGEND

- 2' INTERVAL CONTOURS
- 10' INTERVAL CONTOURS
- TEMPORARY ACCESS / EARTHWORK RAMP
- DRAINAGE PIPES
- EXISTING DISPOSAL CELL (CLAY LINED)
- EXPANDED DISPOSAL CELL (CLAY LINED)
- EXISTING WASTE ROCK / DISPOSAL CELL (11.5 ACRES)
- WASTE ROCK PILE / DISPOSAL CELL FULL BUILDOUT (25 ACRES)
- BURIED LAGOON AREA

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 EXISTING SITE TOPOGRAPHY BASED ON SURVEY DATA BY S3 PERFORMED NOVEMBER 2020. CONTOUR INTERVALS = 2' VERTICAL.

G.3 EXPANSION OF THE DISPOSAL CELL TO 25 ACRES IS SHOWN FOR INFORMATION PURPOSES ONLY, ACTUAL SIZE AND SHAPE OF THE FINAL DISPOSAL CELL WILL DEPEND ON THE AMOUNT OF MINE DEBRIS AND CONTAMINATED SOILS ENCOUNTERED IN THE SITE CLEAN UP.

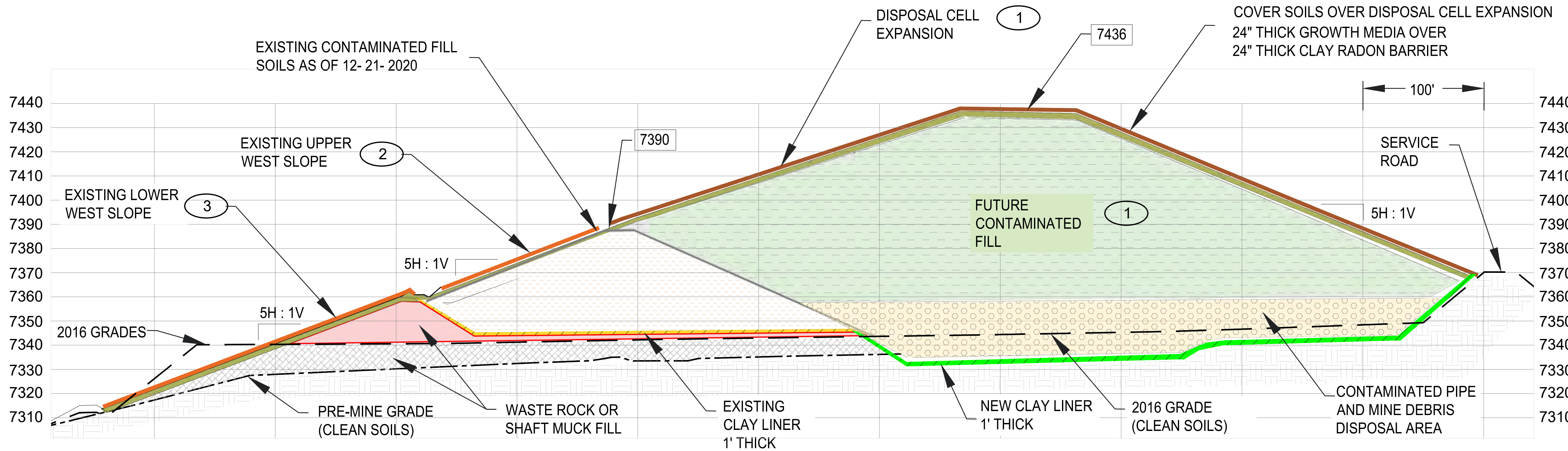
RIO GRANDE RESOURCES CORP.

MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

FIGURE 4-1

MINE CLOSEOUT / CLOSURE DISPOSAL CELL



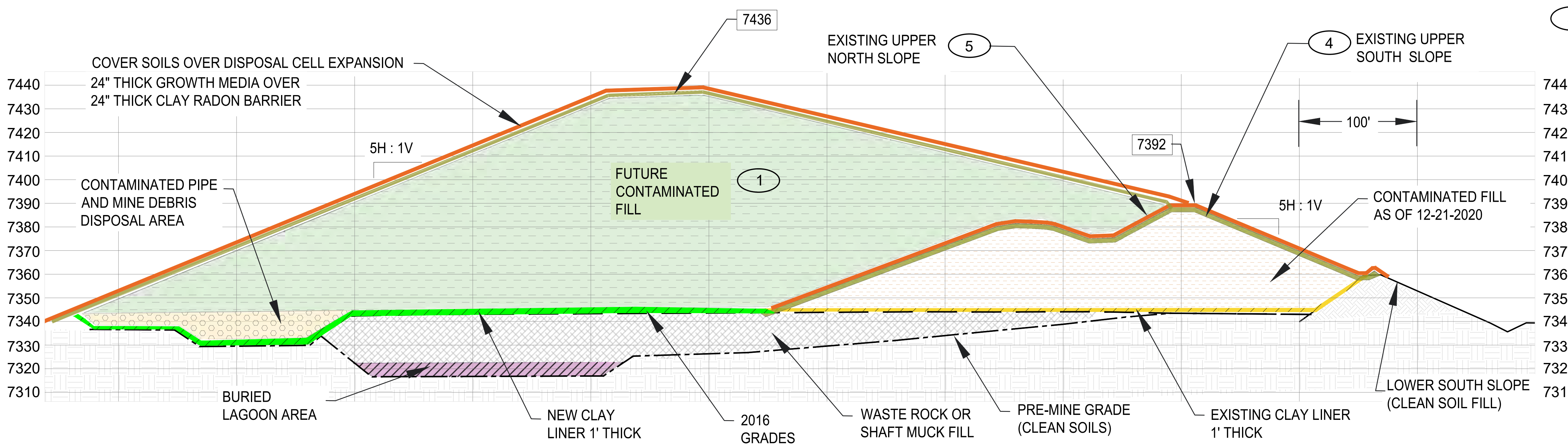
BB' FIG4-1 SECTION BB' - EAST/WEST SECTION

EXISTING WASTE ROCK PILE / DISPOSAL CELL AND EXPANDED DISPOSAL CELL

0 50 100 150 200 FT

GRAPHIC SCALE

(VERTICAL SCALE = 2X HORIZONTAL)



AA' FIG4-1 SECTION AA' - NORTH/SOUTH SECTION

EXISTING WASTE ROCK PILE AND DISPOSAL CELL AND EXPANDED DISPOSAL CELL

0 50 100 150 200 FT

GRAPHIC SCALE

(VERTICAL SCALE = 2X HORIZONTAL)

NOTES:

1. THE DISPOSAL CELL EXPANSION TO EXTEND ONLY AS MUCH AS NEEDED TO ACCOMMODATE THE AMOUNT OF CONTAMINATED SOIL AND DEBRIS FROM THE SITE.
2. THE EXISTING UPPER WEST SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
3. THE EXISTING LOWER WEST SLOPE COVER SOILS = 18" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 12" GROWTH MEDIA OVER 24" CLAY)
4. THE EXISTING UPPER SOUTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
5. THE EXISTING UPPER NORTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)

GENERAL NOTES:

G.1 PROPOSED EXPANDED SHAPE (SIZE AND HEIGHT) OF THE DISPOSAL CELL WILL VARY DEPENDING ON THE AMOUNT OF CONTAMINATED SOIL EXCAVATED FROM THE CLEANUP OF THE SITE.

G.2 EXPANSION OF THE DISPOSAL CELL TO 25 ACRES IS PENDING APPROVAL.

RIO GRANDE RESOURCES CORP.

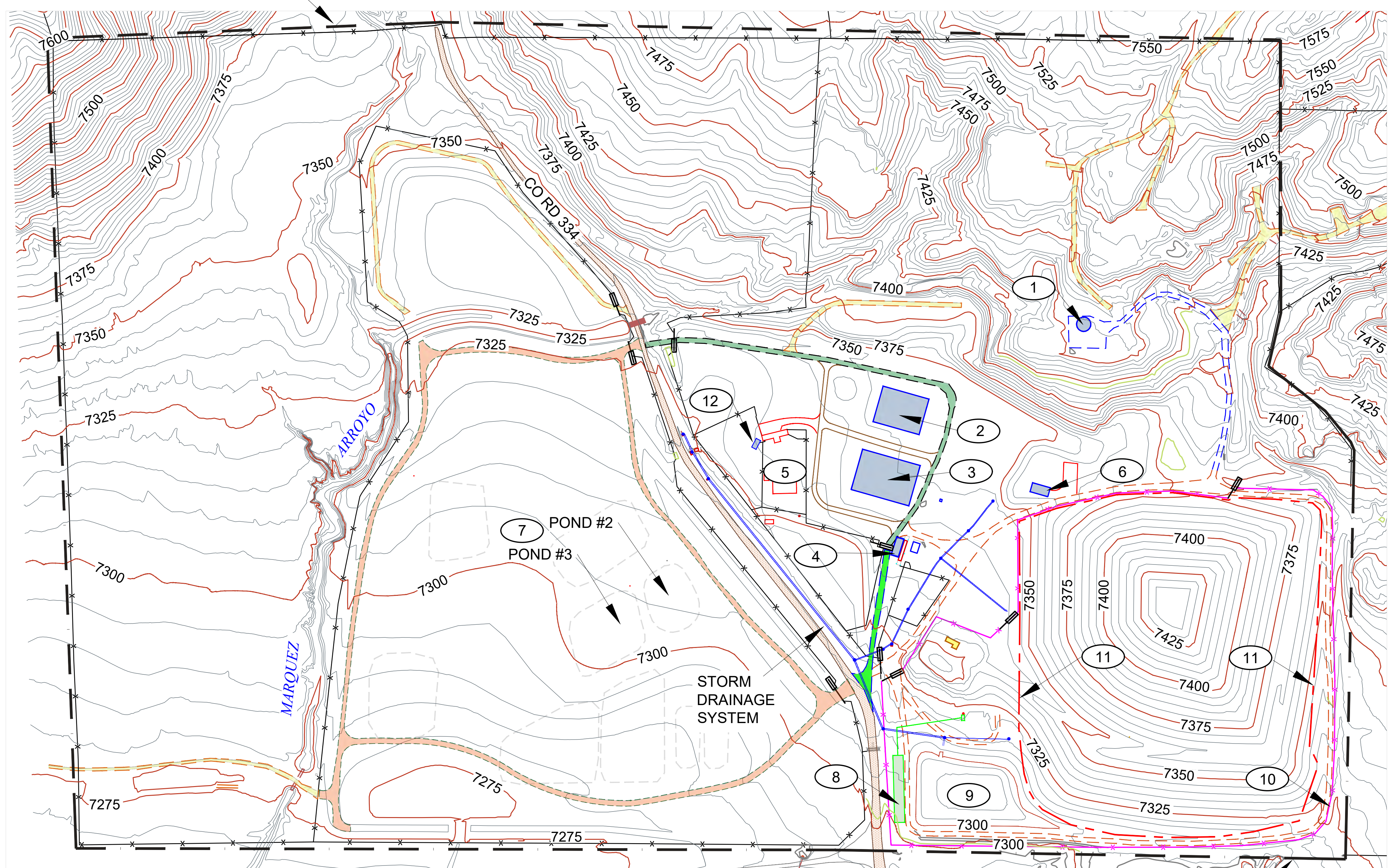
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

FIGURE 4-2

MINE CLOSEOUT / CLOSURE DISPOSAL CELL SECTIONS

MINE SITE BOUNDARY



MINE SITE BOUNDARY

GRAPHIC SCALE

0 400 800 FT

LEGEND

- COUNTY ROADS (NOT RGR'S RESPONSIBILITY)
- PRIMARY ENTRANCE ROAD
- MULTI-FACILITY ACCESS ROAD
- HOIST HOUSE AND SERVICE BUILDING ROADS
- ELECTRICAL SUBSTATION AND ELECTRICAL BUILDING ACCESS ROADS
- WATER TANK ACCESS ROAD
- WRP AND SSWP PERIMETER ROAD
- MWTU SECURITY PERIMETER ROAD
- RANCH ROADS - DRIVABLE DIRT SURFACE - NOT MAINTAINED
- SECURITY GATES
- EXISTING FENCE-LINES TO REMAIN
- NEW SECURITY FENCE
- OUTER EDGE OF WASTE ROCK PILE / DISPOSAL CELL
- EXISTING BUILDINGS TO REMAIN
- ADOBE RUIN

NOTES:

1. WATER TANK
2. HOIST HOUSE
3. SERVICE AND SUPPORT BUILDING
4. GUARD HOUSE - SECURITY BUILDING
5. SUBSTATION
6. ELECTRICAL BUILDING
7. PONDS 2 AND 3 REMAIN UNTIL ABATEMENT ACTIVITIES ARE COMPLETE
8. SEPTIC SYSTEM
9. SOUTH STORM WATER POND
10. NEW SECURITY FENCE AROUND DISPOSAL CELL
11. WASTE ROCK PILE / DISPOSAL CELL
12. CAPACITOR BUILDING

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 EXISTING SITE TOPOGRAPHY BASED ON SURVEY DATA BY S3 PERFORMED NOVEMBER 2020. CONTOUR INTERVALS = 5' VERTICAL.

G.3 EXPANSION OF THE DISPOSAL CELL TO 25 ACRES IS SHOWN FOR INFORMATION PURPOSES ONLY, ACTUAL SIZE AND SHAPE OF THE FINAL DISPOSAL CELL WILL DEPEND ON THE AMOUNT OF MINE DEBRIS AND CONTAMINATED SOILS ENCOUNTERED IN THE SITE CLEAN UP.

RIO GRANDE RESOURCES CORP.

MOUNT TAYLOR MINE - *San Mateo, NM*

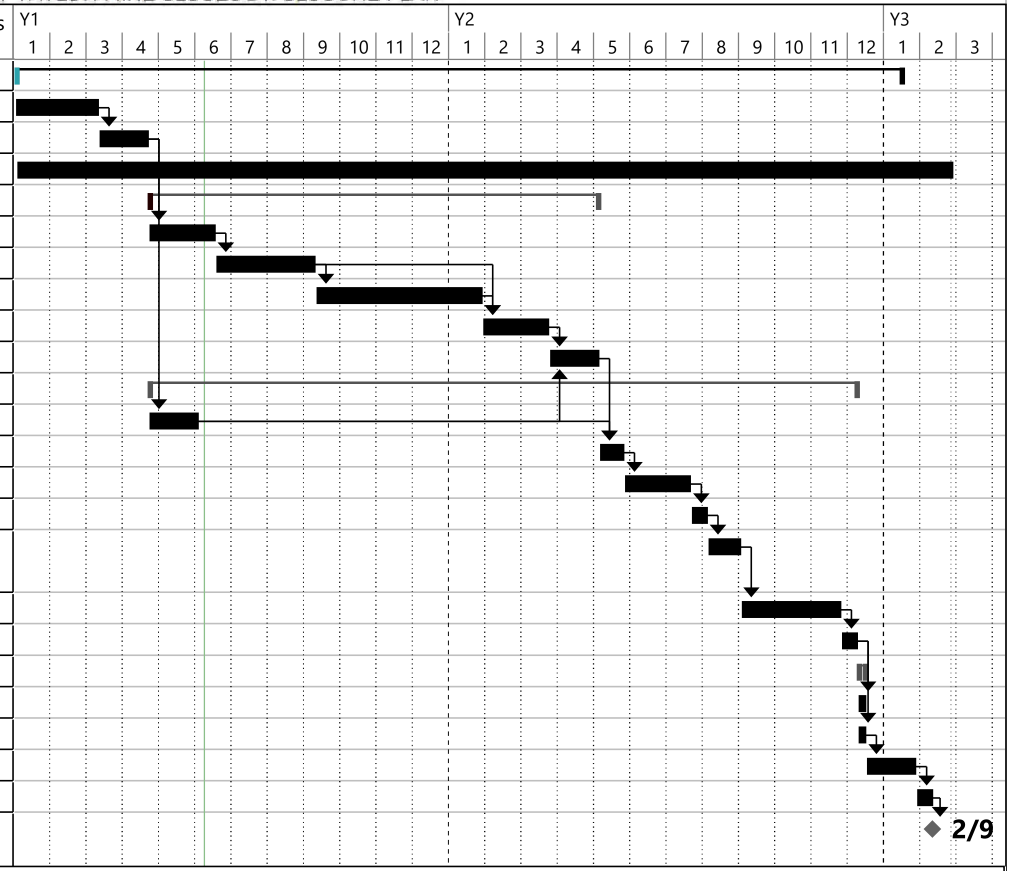
Prepared By: Alan Kuhn Associates LLC

FIGURE 4-3

FINAL SITE PLAN AT CLOSURE / CLOSEOUT

FIGURE 6-1 MT TAYLOR MINE CLOSEOUT/CLOSURE PLAN

	Task Name	Duration	Predecess
1	**PROJECT MANAGEMENT**		
2	Contracting	50 days	
3	Mobilization	30 days	2
4	QC and Documentation	560 days	
5	**FACILITY REMOVAL**	**270 days**	
6	Production Shaft Headframe	40 days	3
7	Shaft Plugging	60 days	6
8	Well and Conduit Plugging	100 days	7
9	Surface Facilities	40 days	7,8
10	Treated Water Pipeline	30 days	9,12
11	**EARTHWORK**	**425 days**	
12	Disposal Cell Expansion	30 days	3
13	Pipeline Corridor	15 days	12,10
14	MWTU and Ore Pad Ponds	40 days	13
15	Affected Areas	10 days	14
16	Excavation & Disposal of Site Contaminated Soil	20 days	15
17	Waste Rock Pile Cover & Stabilization	60 days	16
18	Finish Grading	10 days	17
19	**REVEGETATION**	**5 days**	
20	Ground Preparation	5 days	18
21	Seeding & mulching	5 days	18
22	**EROSION PROTECTION**	30 days	21
23	**FENCING**	10 days	22
24	**POST-CLOSURE ENVIRONMENTAL COMPLIANCE AND MONITORING**	0 days	23



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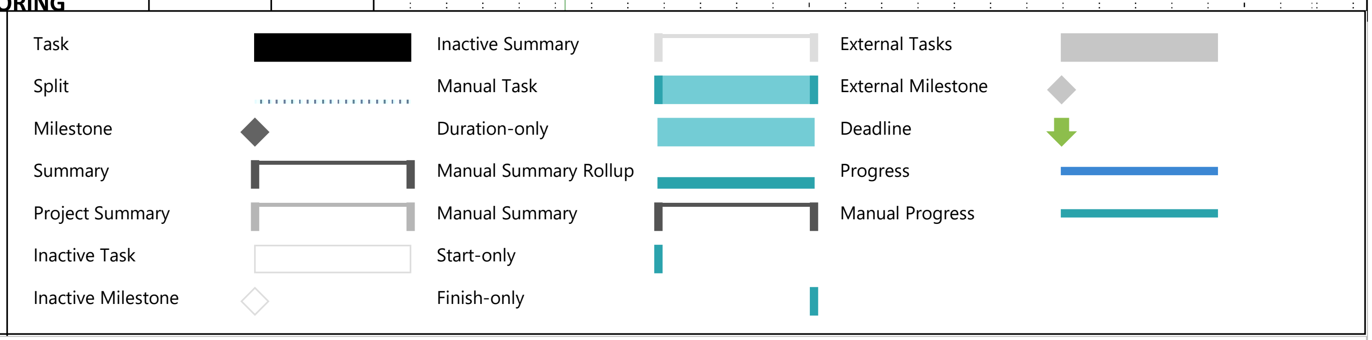
Date: Thu 6/9/22 6:07 PM

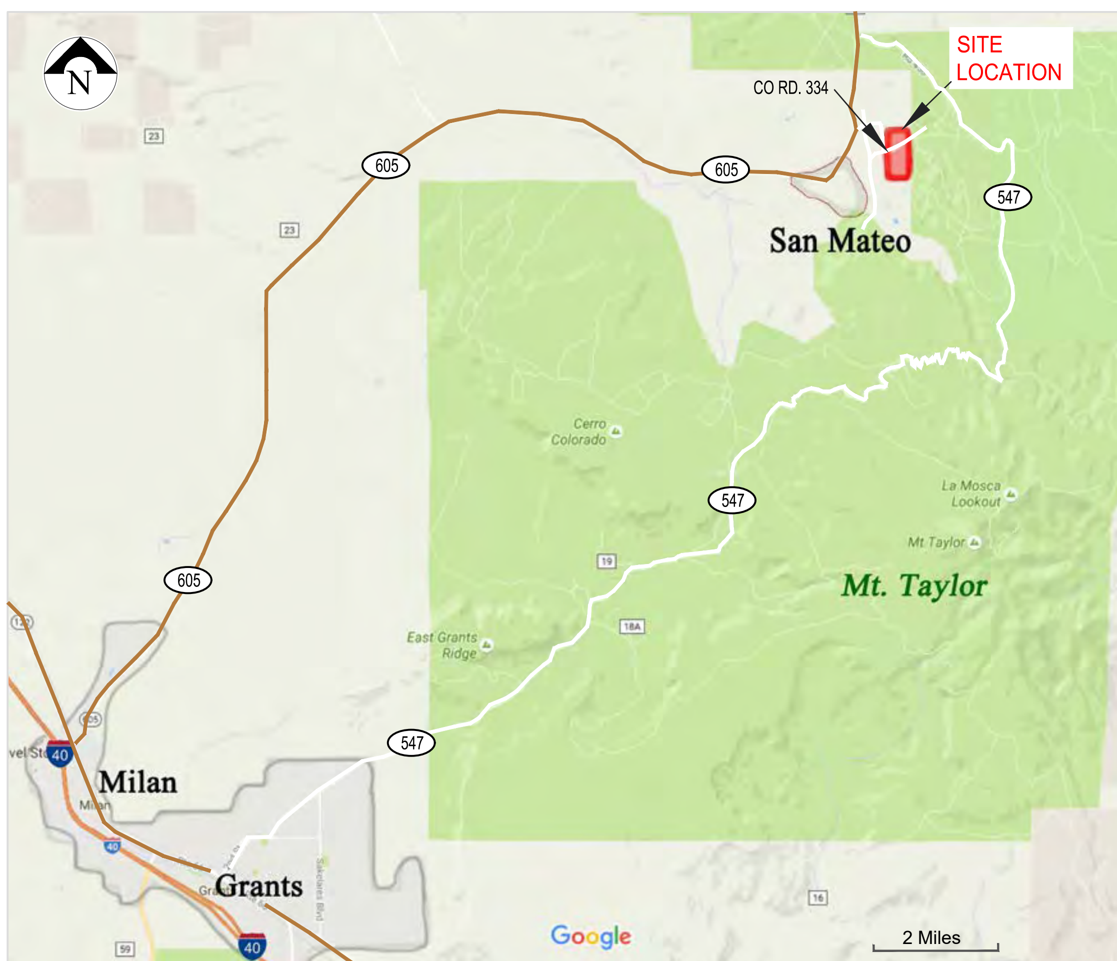


APPENDIX A

DRAWINGS

CL-00	SITE LOCATION MAPS AND DRAWING INDEX
CL 01	CLOSEOUT PLAN TASK SUMMARY
CL 03	FACILITY DISPOSITION PLAN
CL 04	DEWATERING WELL DISPOSITION PLAN
CL 05	SHAFT CLOSURE - MANWAY VENT
CL 06	SHAFT CLOSURE PRODUCTION SHAFT
CL 07A	FINAL GRADING PLAN MINE WATER TREATMENT UNIT
CL 07	BFINAL GRADING PLAN SERVICE AND SUPPORT AREA
CL 08	DETAILS - BACKFILL IN POND AREAS
CL 09	FINAL GRADING PLAN EXPANDED DISPOSAL CELL
CL 10	DISPOSAL CELL SECTIONS EAST / WEST
CL 11	DISPOSAL CELL SECTIONS NORTH / SOUTH
CL 12	IMPROVEMENTS TO SOUTH DIVERSION CHANNEL
CL 13	IMPROVEMENTS TO NORTH DIVERSION CHANNEL
CL 14	FINAL DRAINAGE PLAN
CL 15	FINAL SITE PLAN
CL 16	TREATED WATER DISCHARGE PIPELINE REMOVAL AND DISPOSITION

SITE LOCATION MAPS



MOUNT TAYLOR MINE

2022 CLOSEOUT/CLOSURE PLAN

GENERAL NOTES

G-01 THESE DRAWINGS UPDATE OR REPLACE THE 2013 REVISED DRAWINGS. THESE DRAWINGS REFLECT THE MINE CONDITIONS AS OF APRIL 2022.

G-02 THESE DRAWINGS ARE NOT FOR CONSTRUCTION. DRAWINGS AND SPECIFICATIONS WILL BE PREPARED FOR THE ACTUAL CLOSEOUT WORK.

G-03 THE GRID AND COORDINATES SHOWN ON ALL DRAWINGS ARE NEW MEXICO WEST ZONE NAD 83.

G-04 THE EXISTING GROUND SURFACE TOPOGRAPHY SHOWN ON THESE DRAWINGS IS BASED ON SURVEY DATA BY THOMAS R. MANN & ASSOCIATES, INC IN 2012 AND UPDATED BY S3 SURVEYORS IN 2021.

G-05 THE EXACT DIMENSIONS OF ANY OF THE ELEMENTS SHOWN ON THESE PLANS ARE SUBJECT TO CHANGE DEPENDING ON THE CONDITIONS OF THE SITE AT THE TIME OF CONSTRUCTION.

DRAWING LIST

SHEET ...	DRAWING NO.	SHEET TITLE
CL00	GS21-CB100-00	SITE LOCATION MAPS AND DRAWING INDEX
CL01	GS21-CB101-00	CLOSEOUT PLAN TASK SUMMARY
CL02	GS21-CB102-00	2021 GAMMA SURVEY
CL03	GS21-CB103-00	FACILITY DISPOSITION PLAN
CL04	GS21-CB104-00	DEWATERING WELL DISPOSITION PLAN
CL05	GS21-CB105-00	SHAFT CLOSURE - MANWAY VENT
CL06	GS21-CB106-00	SHAFT CLOSURE - PRODUCTION SHAFT
CL07A	GS21-CB107A-00	FINAL GRADING PLAN - MINE WATER TREATMENT UNIT
CL07B	GS21-CB107B-00	FINAL GRADING PLAN - SERVICE AND SUPPORT AREA
CL08	GS21-CB108-00	DETAILS - BACKFILL IN POND AREAS
CL09	GS21-CB109-00	FINAL GRADING PLAN - EXPANDED DISPOSAL CELL
CL10	GS21-CB110-00	DISPOSAL CELL SECTIONS - EAST / WEST
CL11	GS21-CB111-00	DISPOSAL CELL SECTIONS - NORTH / SOUTH
CL12	GS21-CB112-00	IMPROVEMENTS TO SOUTH DIVERSION CHANNEL
CL13	GS21-CB113-00	IMPROVEMENTS TO NORTH DIVERSION CHANNEL
CL14	GS21-CB114-00	FINAL DRAINAGE PLAN
CL15	GS21-CB115-00	FINAL SITE PLAN
CL16	GS21-CB116-00	TREATED WATER DISCHARGE PIPELINE - REMOVAL AND DISPOSITION

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	11-8-21	EL	EL	AK
B	FOR SUBMITTAL	5-12-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: SITE LOCATION MAPS AND DRAWING INDEX

SHEET NO. CL 00
DWG NO. GS21-CB100-00
REV B

0 200 400 600 800 FT

GRAPHIC SCALE

TASK PROGRESS KEY

- SUBSTANTIALLY COMPLETED
- IN PROGRESS (PROJECT SPECIFIC)
- NOT STARTED

CLOSEOUT TASKS

(COMPLETED AS OF APRIL 22, 2022 AND YET TO BE ACCOMPLISHED.)

1 GENERAL CLEANUP AND GRADING

- CLEAN UP CONTAMINATED SOILS
- ROUGH AND FINAL GRADING
- REVEGETATE

2 EXPAND DISPOSAL CELL

- EXCAVATE AND INSTALL CLAY LINER FOR EXPANSION
- DEPOSIT MINE DEBRIS IN PIT AND BACKFILL
- DEPOSIT CONTAMINATED SOILS IN DISPOSAL CELL
- ROUGH GRADE SLOPES
- PLACE COVER SOILS
- REVEGETATE

3 SHAFT CLOSURE

- PLUG SHAFTS FROM SUBCOLLAR TO SURFACE
- REMOVE PRODUCTION SHAFT HEADFRAME
- REMOVE MANWAY SHAFT HEADFRAME (100% COMPLETE)
- COVER SOILS OVER BACKFILLED SHAFTS
- REVEGETATE

4 STRUCTURE AND PIPE REMOVAL

- REMOVE STEEL AND/OR CONCRETE STRUCTURES
- REMOVE TREATED WATER DISCHARGE PIPELINE
- DISPOSE OF CONTAMINATED MATERIALS IN DISPOSAL CELL
- CLEANUP CONTAMINATED SOILS
- ROUGH AND FINAL GRADING
- REVEGETATE

5 ORE PAD

- REMOVE ORE FROM SITE (100% COMPLETE)
- CLEANUP CONTAMINATED SOILS
- ROUGH AND FINAL GRADING
- REVEGETATE

6 DRAINAGE IMPROVEMENTS

- DIVERSION CHANNEL STABILIZATION AND IMPROVEMENTS
- CULVERT IMPROVEMENTS
- OUTFALL IMPROVEMENTS

GENERAL NOTES

G.1 ALL CONTAMINATED SOILS AND MINE DEBRIS FROM SITE CLEANUP TO BE DEPOSITED IN THE EXPANDED DISPOSAL CELL.

G.2 THIS DRAWING SHOWS A SUMMARY OF THE CLOSEOUT TASKS. FOR FURTHER DETAILS SEE THE SPECIFICATIONS AND THE DRAWING SHEETS IN THIS SET.

G.3 AS OF APRIL 1, 2022 SOME CLOSEOUT TASKS HAVE BEEN COMPLETED OR ARE IN PROGRESS. - SEE LIST.

G.4 SEE DRAWING SHEET CL03 AND TABLE 4.2 OF THE CLOSEOUT/CLOSURE PLAN FOR STATUS OF FACILITIES AS OF THE END OF APRIL 2022.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	11-8-21	EL	EL	AK
B	FOR SUBMITTAL	6-6-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.

MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

PRINT SIZE: B

SCALE: As Shown

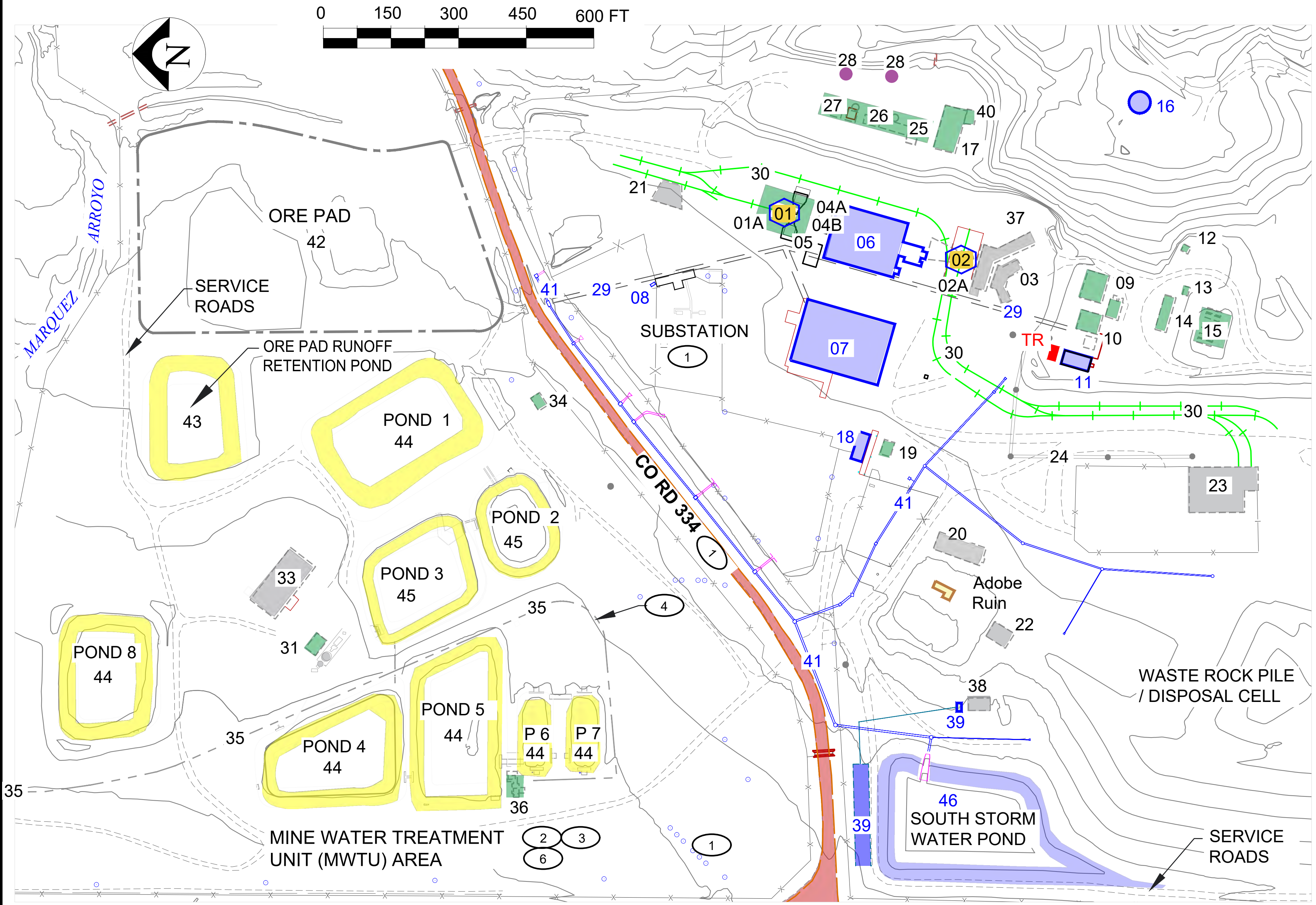
MT. TAYLOR MINE
2022 CLOSEOUT/CLOSURE PLAN

SHEET TITLE: CLOSEOUT PLAN TASK SUMMARY

SHEET NO. CL 01

DWG NO. GS21-CB101-00

REV B



FACILITIES AND FOUNDATIONS REMOVAL PENDING (6)

NO.	FACILITY NAME
02A	Production Shaft Headframe
19	Fire Equipment Building
20	Core Storage Building
21	Shaft Sump Cleanout Bin
22	Fan Shop
23	Car Maintenance Shop
33	Ion Exchange Plant
37	Ore Loading Pad and Wash Bay
38	Sanitary Treatment Plant

SHAFTS AND CONDUITS

NO.	FACILITY NAME	DISPOSITION
01	Manway Shaft	To Be Plugged
02	Production Shaft	
28	Conduits (2)	
03	Mine Vent Structure	

PONDS

NO.	FACILITY NAME	DISPOSITION
43	Ore Pad Runoff Retention Pond	To Be Backfilled and Regraded
44	MWTU Ponds 1,4,5,6,7,8	

MWTU Ponds 2,3 and the South Storm Water Pond are Included in Facilities to Remain for PLMU. (See Note #5)

OTHER

NO.	FACILITY NAME	DISPOSITION
35	Treated Water Discharge Pipeline (4)	To Be Removed (See CL 16)
47	Plant and Refrigeration Water Pipelines (Not Shown) (3)	To Be Removed or Flowable Filled
24	CMP Utility Tunnel	
42	Ore Pad	To Be Removed

FACILITIES TO BE RETAINED FOR PMLU

NO.	FACILITY NAME
06	Hoist House
07	Service Building (Office and Warehouse)
08	Capacitor Building
11	Electrical Building
16	Water Tank
18	Guard House (Security Bldg.)
29	Access / Utility Tunnel
39	Septic Tank and Leach Field
W	Phase 1 Dewatering Wells
46	South Storm Water Pond
41	Storm Drain System
45	MWTU Pond 2 (5)
45	MWTU Pond 3 (5)

ONLY FOUNDATIONS TO BE RETAINED

NO.	FACILITY NAME
01A	Manway Shaft Headframe
02A	Production Shaft Headframe
04A	Shaft Heating Building
04B	Storage Building
05	Glycol Heat Exchanger

FACILITIES AND FOUNDATIONS REMOVED

NO.	FACILITY NAME (6)
03	Mine Vent Structure
09	Water Treatment and Boiler Building
12	Portable Building
14	Carpenter Shop
30	Ore Car Rails
34	Flocculent Treatment Facility
36	MWTU Pump House

FACILITIES REMOVED, FOUNDATION REMOVAL OR COVER PENDING (6)

NO.	FACILITY NAME
10	Compressor Building
13	Fuel Pump House
15	Fuel Storage Tanks
17	Chiller Building
25	Chiller Pump Building
26	Cooling Towers
27	Chlorine Building
31	Barium Chloride Treatment Facility
40	Chiller Electrical Building

LEGEND

- PONDS TO RETAIN
- PONDS TO BE BACKFILLED
- FACILITIES REMOVED AS OF 4-1-22
- FACILITIES TO BE REMOVED
- FACILITIES RETAINED FOR PMLU
- TR ELECTRICAL TRANSFORMERS TO BE RETAINED
- STORM DRAINAGE SYSTEM
- 01 MINE SHAFTS
- CONDUITS

NOTES

1. COUNTY ROAD 334, POWER POLES AND TRANSMISSION LINES, AND SUBSTATION ARE FACILITIES OWNED BY OTHERS AND ARE NOT WITHIN PERMIT. OTHER THAN CLEANUP OF CONTAMINATED SOILS, THESE FACILITIES ARE NOT SUBJECT TO CLOSEOUT.
2. ALL MINE FACILITIES NORTH OF CR 334 WILL BE REMOVED.
3. DEWATERING AND PROCESS WATER PIPELINES (PARTLY SHOWN) TO BE REMOVED AND PROPERLY DISPOSED OF IF NOT NEEDED FOR PMLU WATER MANAGEMENT. (#47 NOT SHOWN).
4. TREATED WATER DISCHARGE PIPELINE (#35) TO BE REMOVED - SEE SHEET CL 16
5. MWTU PONDS 2 AND 3 TO REMAIN UNTIL ABATEMENT ACTIVITIES ARE COMPLETED. ALL OTHER MWTU PONDS AND THE ORE PAD POND TO BE BACKFILLED.
6. CONCRETE FOUNDATIONS: EXCEPT WHERE OTHERWISE NOTED, REMOVAL OF THE STRUCTURES INCLUDES RUBBLIZATION OF THE CONCRETE SLAB AND FOUNDATIONS. ANY CONTAMINATED CONCRETE SHALL BE REMOVED AND PLACED IN THE DISPOSAL CELL. CLEAN RUBBLIZED CONCRETE CAN EITHER BE REMOVED FOR USE IN OTHER CLOSEOUT WORK, OR COVERED BY 24" OF CLEAN SOIL.

GENERAL NOTES:

G.1 SEE TABLE 4.2 FOR FACILITY AND DISPOSITION DETAILS.

WELLS

NOTE W - Wells are Not Shown on This Drawing. See Sheets CL 04, and Figures 1-4, 1-6, and 1-8 for Well Locations and Dispositions.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	11-8-21	EL	EL	AK
B	FOR SUBMITTAL	6-6-22	EL	EL	AK

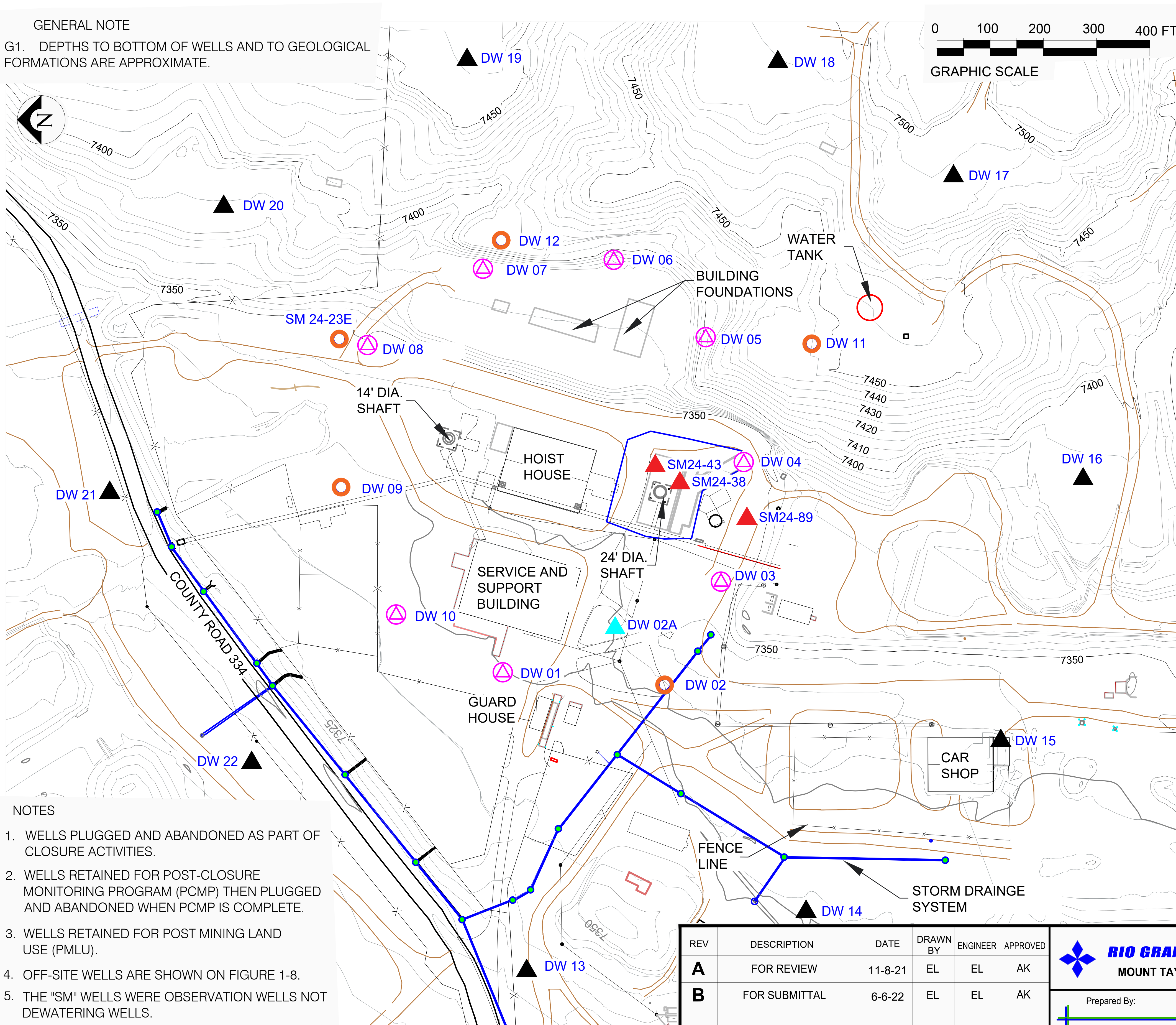
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN
SHEET TITLE: FACILITY DISPOSITION PLAN
SHEET NO. CL 03
DWG NO. GS21-CB103-00
REV B

GENERAL NOTE

G1. DEPTHS TO BOTTOM OF WELLS AND TO GEOLOGICAL FORMATIONS ARE APPROXIMATE.



NOTES

1. WELLS PLUGGED AND ABANDONED AS PART OF CLOSURE ACTIVITIES.
2. WELLS RETAINED FOR POST-CLOSURE MONITORING PROGRAM (PCMP) THEN PLUGGED AND ABANDONED WHEN PCMP IS COMPLETE.
3. WELLS RETAINED FOR POST MINING LAND USE (PMLU).
4. OFF-SITE WELLS ARE SHOWN ON FIGURE 1-8.
5. THE "SM" WELLS WERE OBSERVATION WELLS NOT DEWATERING WELLS.

DEWATERING WELL TABLE

Phase and Geologic .... of Screen	.... ..	Collar Elevation (Feet AMSL)	Depth From Surface (Feet)	Closure Disposition (See Note 1)
(Domestic Water Supply)	DW-2A	7347	925	Retain For Domestic Water
1 Point Lookout	DW-1	7340	1118	Retain for Post-Mining Land Use[3]
	DW-4	7349	1130	
	DW-5	7406	1172	
	DW-6	7385	1190	
	DW-7	7376	1125	
	DW-8	7346	1044	
	DW-3	7347	1150	
	DW-10	7337	1065	
2 Tres Hermanos / Dakota	SM 24-23E[5]	7344	933	Abandon[1]
	DW-2	7345	2920	
	DW-9	7340	2845	
	DW-11	7446	3028	Post-Closure Monitoring Program[2]
	DW-12	7419	2940	
3 Westwater	DW-13	7317	3185	Abandon[1]
	DW-15	7347	3205	
	DW-16	7393	3275	
	DW-17	7501	3342	
	DW-18	7502	3314	
	DW-20	7385	3223	
	DW-21	7316	3184	
	DW-22	7305	3195	
	DW-14	7338	3205	Post-Closure Monitoring Program[2]
	DW-19	7453	3274	
Other[5] Westwater	SM24-38	7349	3535	Abandon[1]
	SM24-43	7347	3535	
	SM24-89	7348	3121	
Off-Site Wells[4,5]	SM15-59	7738		Abandon[1]
	SM13-74	7480		
	SM21-1-2D	7630		

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	11-8-21	EL	EL	AK
B	FOR SUBMITTAL	6-6-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.

MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

PRINT SIZE: B

SCALE: As Shown

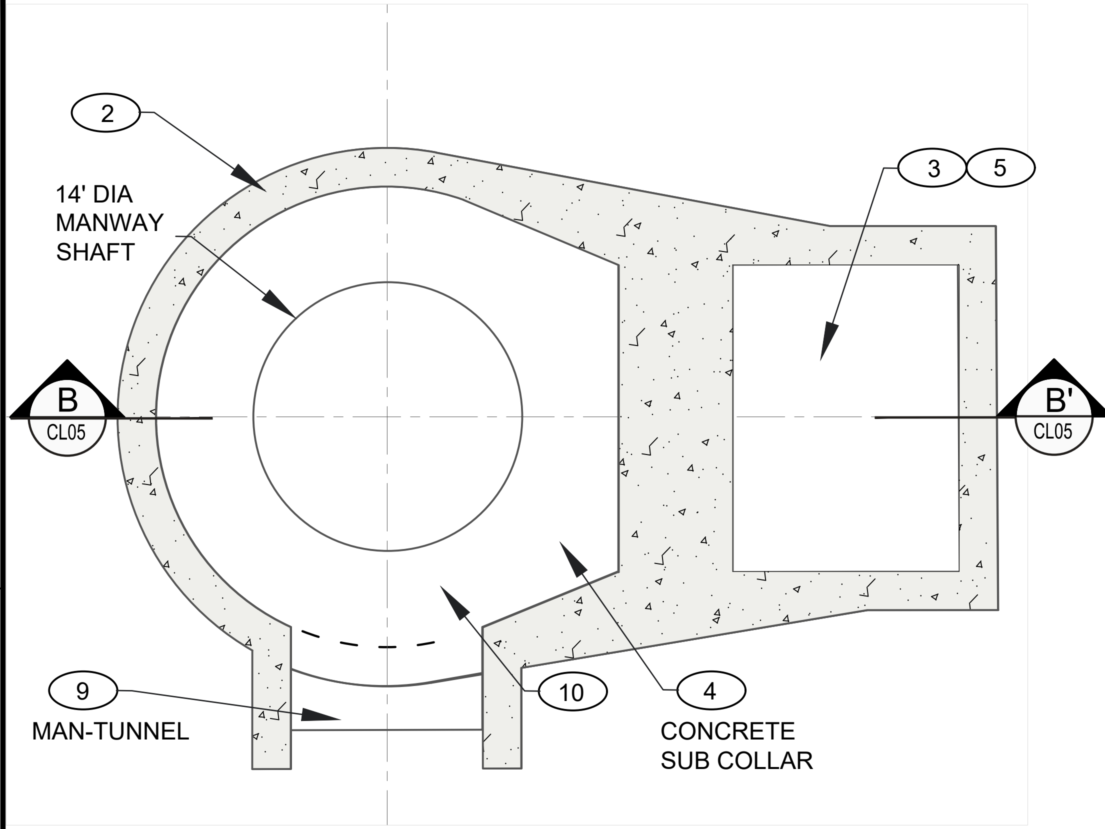
MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: DEWATERING WELL DISPOSITION PLAN

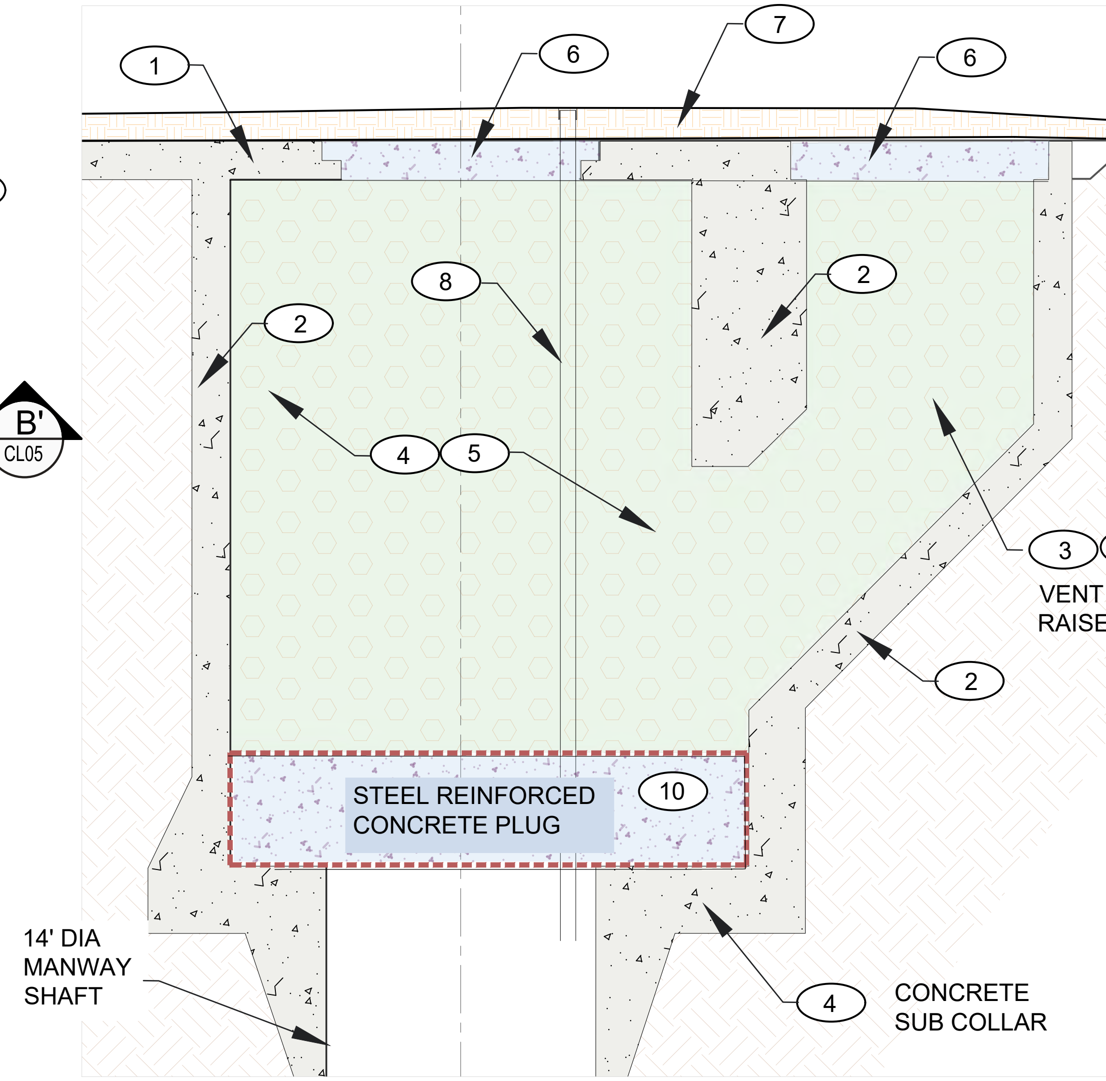
SHEET NO. **CL 04**

DWG NO. **GS21-CB104-00**

REV **B**



AA' CL05 SECTION AA' - PLAN VIEW



BB' CL05 SECTION BB'

NOTES:

1. EXISTING CONCRETE SLAB TO REMAIN.
2. EXISTING CONCRETE SHAFT COLLAR WALLS TO REMAIN.
3. EXISTING VENT RAISE TO REMAIN AS PART OF SHAFT PLUG STRUCTURE. THE VENT RAISE TO BE BACKFILLED WITH FLOWABLE CEMENTITIOUS FILL.
4. REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR TO SUB COLLAR LEVEL AND CLEAN SUB COLLAR OF ANY DEBRIS.
5. FLOWABLE CEMENTITIOUS BACKFILL - USE TO BACKFILL THE VENT RAISE AND SHAFT FROM PLUG AT THE SUB-COLLAR TO WITHIN 1 FOOT OF THE EXISTING CONCRETE CAP. THEN FILL THE REMAINING VOID WITH LIGHT-WEIGHT CONCRETE.
6. PLUG THE EXISTING SHAFT OPENING WITH LIGHTWEIGHT CONCRETE AND PLACE A SHAFT MARKER IN THE PLUG.
7. PLACE 2' OF CLEAN SOIL OVER THE TOP OF THE CONCRETE SLAB AND REVEGITATE.
8. 8" TO 10" PVC MONITORING PIPE WITH ACCESS CAP AT THE GROUND SURFACE.
9. UTILITY TUNNEL SHAFT CONNECTION TO BE BACKFILLED WITH THE SAME FLOWABLE CEMENTITIOUS FILL SPECIFIED FOR THE SHAFT COLLAR.
10. MRB TECHNICAL SERVICES AND CRITICAL VIEW ENGINEERING ARE PREPARING THE STRUCTURAL DESIGN TO IMPLEMENT THE ACCEPTED 2013 DESIGN CONCEPT FOR THE SHAFT PLUG. (SEE APPENDIX G).

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS FOR THE FLOWABLE CEMENTITIOUS BACKFILL SEE PROJECT SPECIFICATIONS.

G.2 CONTRACTOR TO DETERMINE MEANS AND METHODS TO SAFELY FABRICATE AND INSTALL THE SHAFT PLUG AND BACKFILL SHOWN ON THIS DRAWING.

G.3 THIS IS THE APPROVED CONCEPTUAL DESIGN. THE FINAL DESIGN WILL GENERALLY FOLLOW THIS CONCEPT BUT MAY VARY IN MATERIALS AND CONSTRUCTION PER THE FINAL DESIGN OF A LICENSED STRUCTURAL ENGINEER (SEE NOTE 10).

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-17-21	EL	EL	AK
B	FOR SUBMITTAL	6-6-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

PRINT SIZE: B

SCALE: As Shown

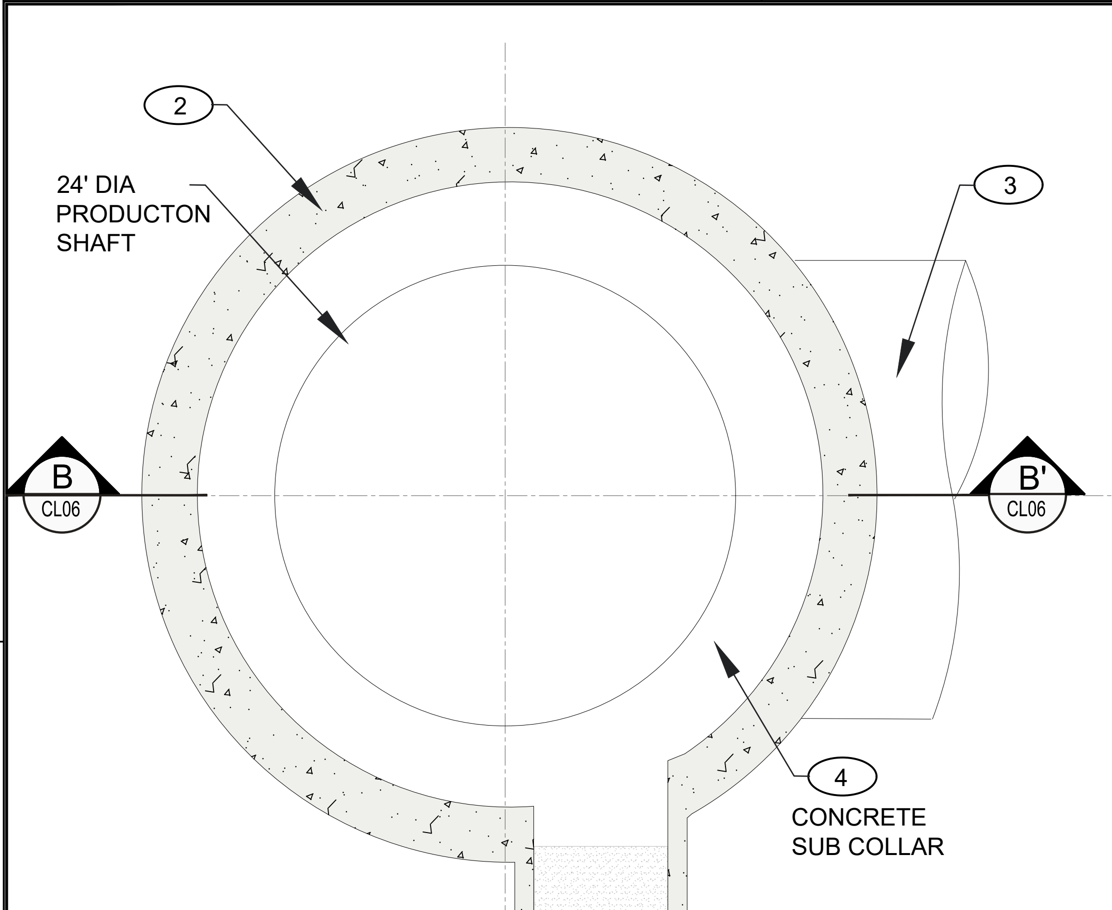
MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: SHAFT CLOSURE - MANWAY VENT

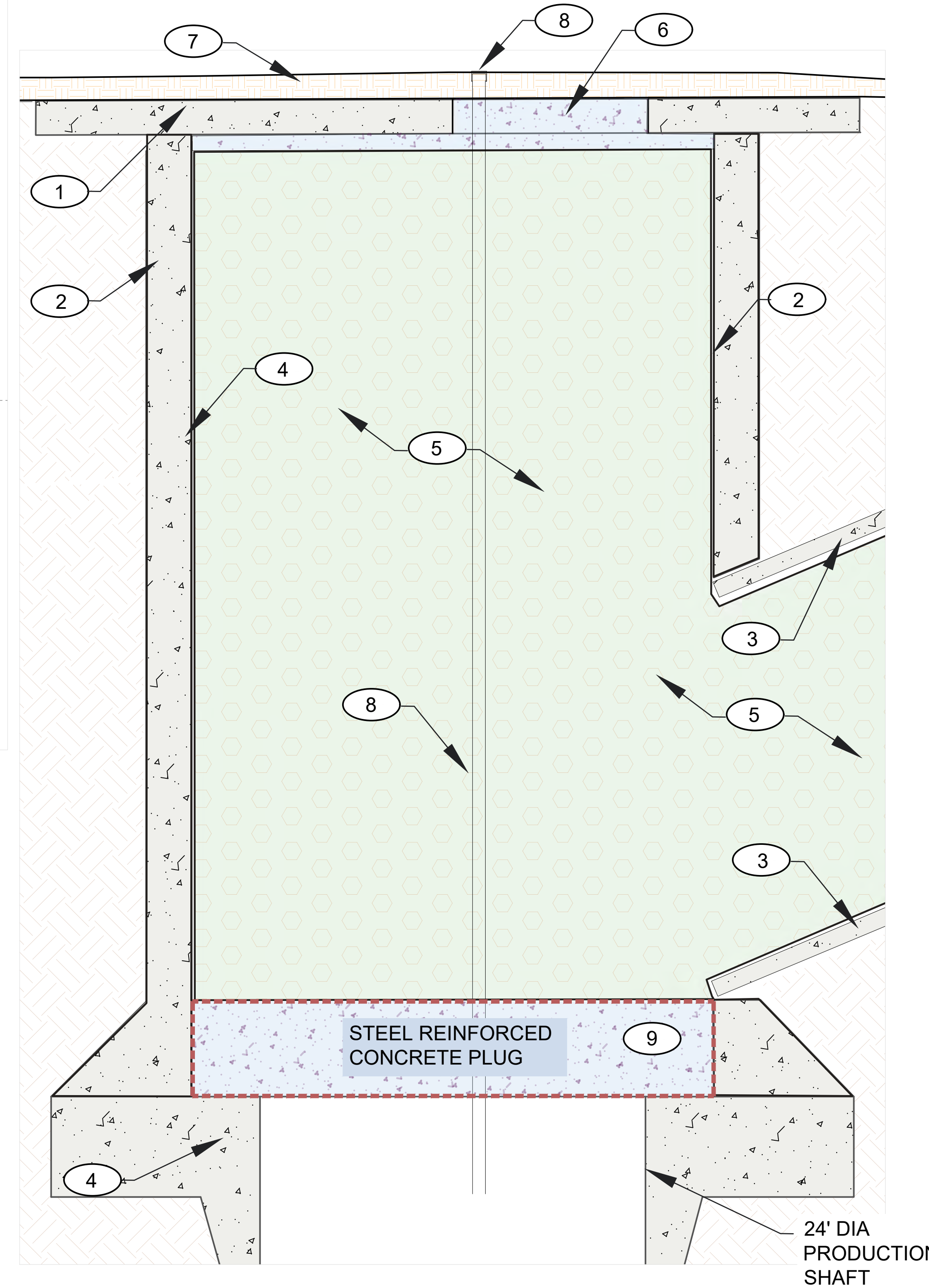
SHEET NO. CL 05

DWG NO. GS21-CB105-00

REV B



AA' CL06 SECTION AA' - PLAN VIEW



BB' CL06 SECTION BB'

NOTES:

1. EXISTING CONCRETE SLAB TO REMAIN.
2. EXISTING CONCRETE SHAFT COLLAR WALLS TO REMAIN.
3. EXISTING 24' DIAMETER VENT RAISE TO REMAIN AS PART OF SHAFT PLUG STRUCTURE. THE VENT RAISE TO BE BACKFILLED WITH SLURRY FILL.
4. REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR TO SUB COLLAR LEVEL AND CLEAN SUB COLLAR OF ANY DEBRIS.
5. FLOWABLE CEMENTITIOUS BACKFILL - USE TO BACKFILL THE VENT RAISE AND SHAFT FROM PLUG AT THE SUB-COLLAR TO WITHIN 1 FOOT OF THE EXISTING CONCRETE CAP. THEN FILL THE REMAINING VOID WITH LIGHT-WEIGHT CONCRETE.
6. PLUG THE EXISTING SHAFT OPENING WITH LIGHTWEIGHT CONCRETE AND PLACE A SHAFT MARKER IN THE PLUG.
7. PLACE 2' OF CLEAN SOIL OVER THE TOP OF THE CONCRETE SLAB AND REVEGITATE.
8. 8" TO 10" PVC MONITORING PIPE WITH ACCESS CAP AT THE GROUND SURFACE.
9. MRB TECHNICAL SERVICES AND CRITICAL VIEW ENGINEERING ARE PREPARING THE STRUCTURAL DESIGN TO IMPLEMENT THE ACCEPTED 2013 DESIGN CONCEPT FOR THE SHAFT PLUG. (SEE APPENDIX G).

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS FOR THE FLOWABLE CEMENTITIOUS BACKFILL SEE PROJECT SPECIFICATIONS.

G.2 CONTRACTOR TO DETERMINE MEANS AND METHODS TO SAFELY FABRICATE AND INSTALL THE SHAFT PLUG AND BACKFILL SHOWN ON THIS DRAWING.

G.3 THIS IS THE APPROVED CONCEPTUAL DESIGN. THE FINAL DESIGN WILL GENERALLY FOLLOW THIS CONCEPT BUT MAY VARY IN MATERIALS AND CONSTRUCTION PER THE FINAL DESIGN OF A LICENSED STRUCTURAL ENGINEER (SEE NOTE 9).

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-17-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

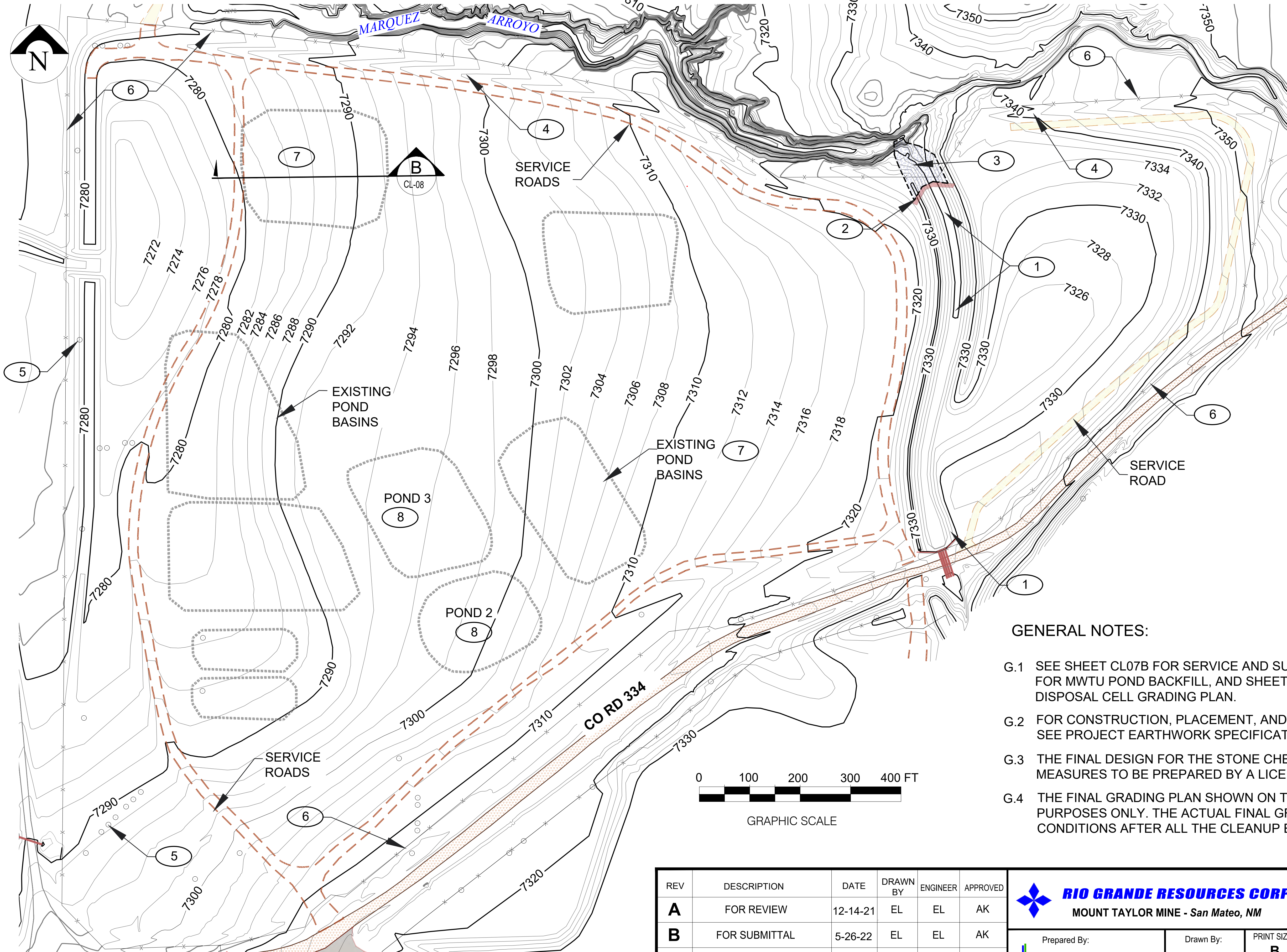
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By:	Drawn By:	PRINT SIZE:
Alan Kuhn Associates LLC	EL Engineering Services LLC	B
		SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: SHAFT CLOSURE - PRODUCTION SHAFT

SHEET NO.	DWG NO.	REV
CL 06	GS21-CB106-00	B



0 100 200 300 400 FT

GRAPHIC SCALE

NOTES:

1. SEE SHEET CL13 FOR NORTH DIVERSION CHANNEL IMPROVEMENTS.
2. STONE CHECK DAM. (SEE SHEET CL13).
3. EROSION PROTECTION - GEOGRID WITH STONE FILL. (SEE SHEET CL13)
4. BERM (2' TO 3' HIGH).
5. EXISTING POWER POLES TO REMAIN.
6. EXISTING SECURITY FENCE TO REMAIN.
7. EXISTING MWTU PONDS TO BE BACKFILLED. (SEE SHEET CL 08)
8. LINED PONDS #2 AND #3 TO REMAIN UNTIL ABATEMENT ACTIVITIES ARE COMPLETED THEN THEY WILL BE BACKFILLED.

GENERAL NOTES:

G.1 SEE SHEET CL07B FOR SERVICE AND SUPPORT GRADING PLAN, SHEET CL08 FOR MWTU POND BACKFILL, AND SHEET CL09 FOR THE WASTE ROCK PILE / DISPOSAL CELL GRADING PLAN.

G.2 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.3 THE FINAL DESIGN FOR THE STONE CHECK DAM AND EROSION PROTECTION MEASURES TO BE PREPARED BY A LICENSED CIVIL ENGINEER.

G.4 THE FINAL GRADING PLAN SHOWN ON THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL FINAL GRADING WILL DEPEND ON THE SITE CONDITIONS AFTER ALL THE CLEANUP EFFORTS ARE COMPLETE.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-14-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

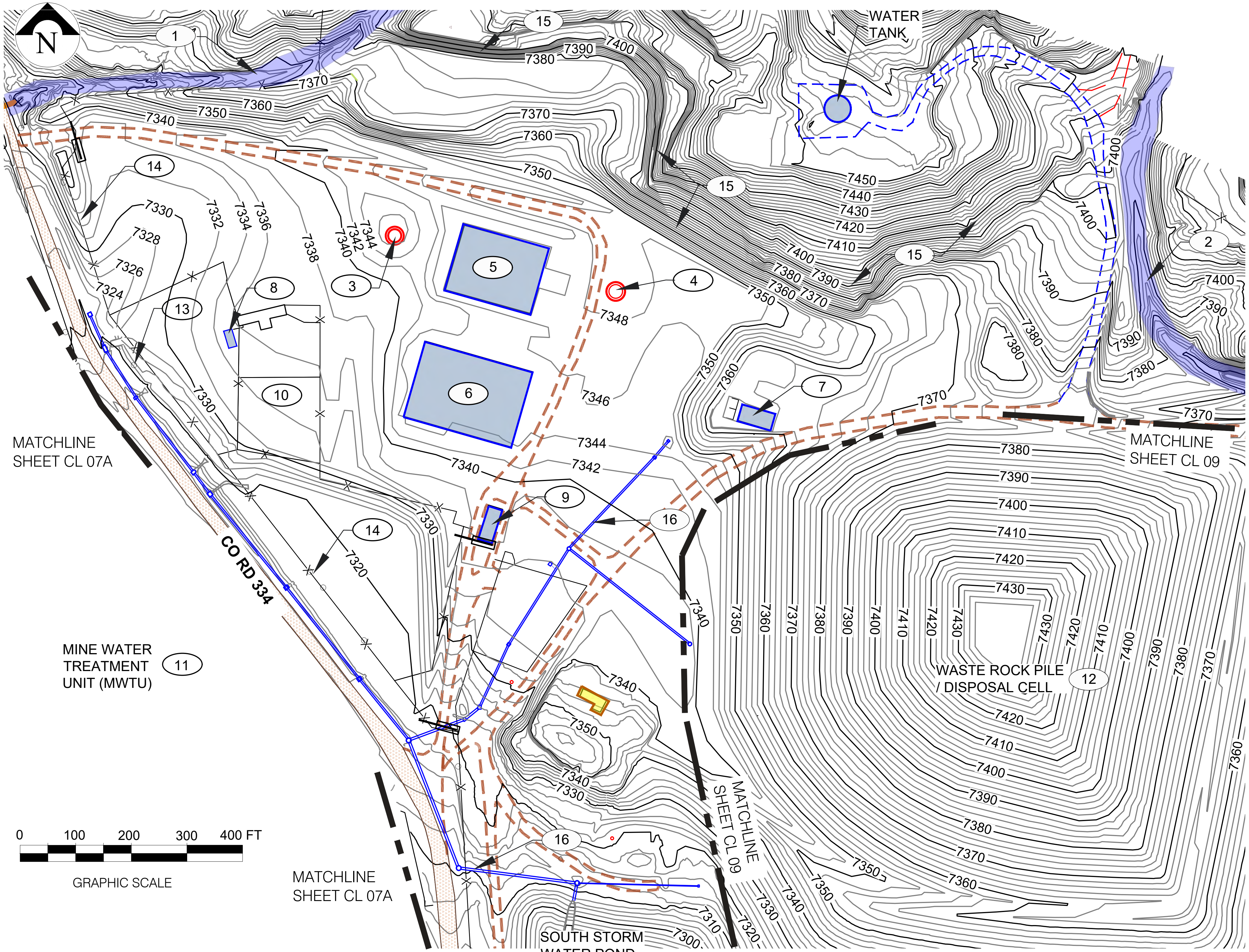
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: FINAL GRADING PLAN - MINE WATER TREATMENT UNIT

SHEET NO.	DWG NO.	REV
CL 07A	GS21-CB107A-00	B



NOTES:

1. NORTH DIVERSION CHANNEL - SEE SHEET CL13.
2. SOUTH DIVERSION CHANNEL - SEE SHEET CL12.
3. MANWAY SHAFT - SEE SHEET CL05 FOR PLUG AND BACKFILL DETAILS.
4. PRODUCTION SHAFT - SEE SHEET CL06 FOR PLUG AND BACKFILL DETAILS.
5. HOIST HOUSE.
6. SERVICE BUILDING (OFFICE AND WAREHOUSE).
7. ELECTRICAL BUILDING.
8. CAPACITOR BUILDING.
9. GUARD HOUSE (SECURITY BUILDING).
10. SUBSTATION (EARTHWORK IN THIS AREA TO BE LIMITED TO CLEAN UP OF CONTAMINATED SOILS AND FILLING TO RESTORE ORIGINAL GRADES).
11. SEE SHEET CL 07A FOR MWTU GRADING PLAN.
12. SEE SHEET CL 09 FOR WASTE ROCK PILE / DISPOSAL CELL GRADING PLAN.
13. EXISTING POWER POLES TO REMAIN.
14. EXISTING SECURITY FENCE TO REMAIN. IMPROVE OR REPLACE SECTIONS OF THE EXISTING FENCE AS NEEDED.
15. SLOPES GREATER THAN 1H: 1V IN THE SERVICE AND SUPPORT AREA TO BE REDUCED TO NO GREATER THAN 1.5H : 1V.
16. EXISTING STORM DRAINAGE SYSTEM TO REMAIN.

LEGEND

- COUNTY ROADS (NOT RGR'S RESPONSIBILITY)
- SERVICE ROADS
- WATER TANK ACCESS ROAD
- SECURITY GATES
- EXISTING FENCE-LINES TO REMAIN
- EXISTING BUILDINGS TO REMAIN
- ADOBE RUIN
- DIVERSION CHANNELS

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 THE FINAL GRADING PLAN SHOWN ON THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL FINAL GRADING WILL DEPEND ON THE SITE CONDITIONS AFTER ALL THE CLEANUP EFFORTS ARE COMPLETE.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-14-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

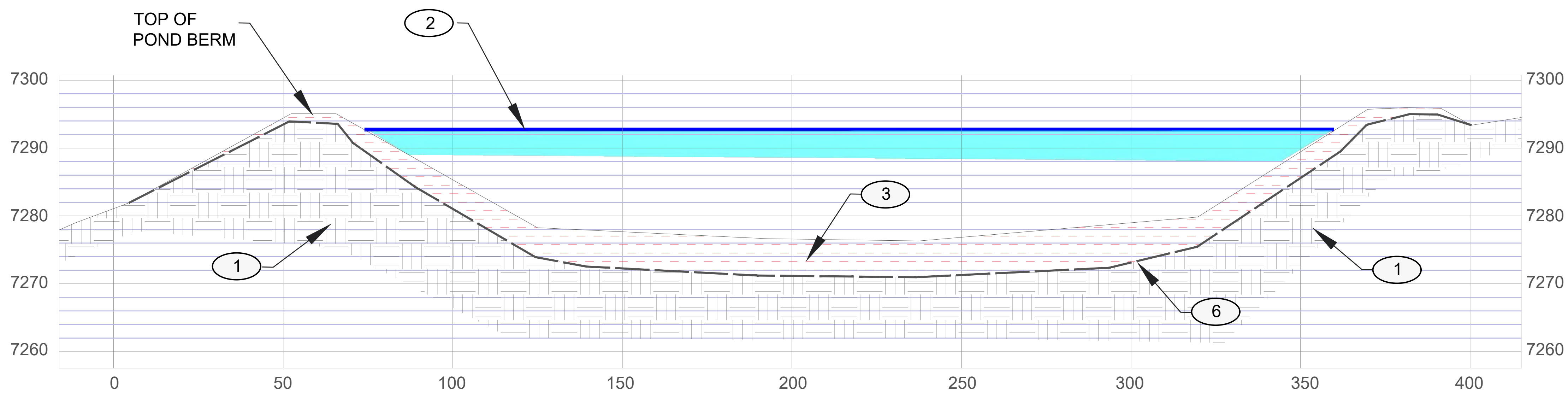
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

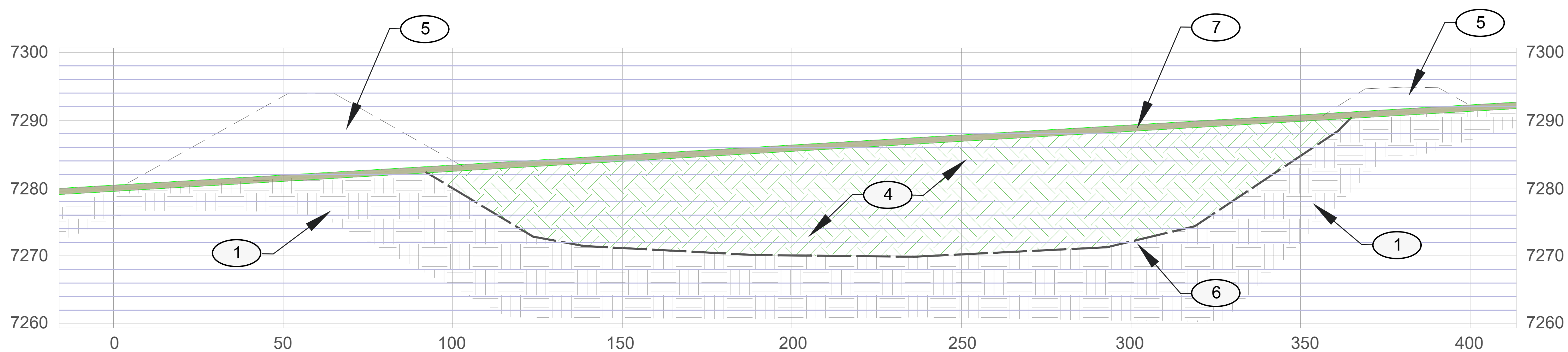
MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: FINAL GRADING PLAN - SERVICE AND SUPPORT AREA

SHEET NO. **CL 07B** DWG NO. **GS21-CB107-00** REV **B**



B
CL07
SECTION B - MINE WATER TREATMENT POND BEFORE CLOSURE
E/W SECTION THROUGH POND 8 SHOWN AS EXAMPLE



B.1
CL07
SECTION B.1 - MINE WATER TREATMENT POND AFTER CLOSURE
E/W SECTION THROUGH POND 8 SHOWN AS EXAMPLE

NOTES:

1. CLEAN SOILS
2. APPROXIMATE TOP OF POND WATER AT OPERATIONAL LEVELS.
3. CONTAMINATED SOILS AND POND SEDIMENTS. (REMOVED AND DEPOSITED IN THE DISPOSAL CELL IN 2018 -2021.)
4. CLEAN FILL FROM POND BERMS AND NEARBY GRADING.
5. POND BERMS REMOVED AND USED AS CLEAN FILL IN POND BASINS.
6. CURRENT GRADES AFTER 2018- 2021 CLEANUP EFFORTS.
7. FINAL GRADES. (NOTE: THE GENTLY SLOPING GRADES ARE SIMILAR TO THE PRE-MINE 1974 TOPOGRAPHY. SEE NOTE G.3)

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 SEE SHEET CL07A FOR MWTU AREA GRADING PLAN.

G.3 THE FINAL GRADES ON THIS SITE MAY NEED TO BE SLIGHTLY LOWER OR HIGHER THAN THE "PRE-MINE" ELEVATIONS DEPENDING ON THE CUT/FILL BALANCE FOR THE SITE.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-13-21	EL	EL	AK
B	FOR SUBMITTAL	6-2-22	EL	EL	AK

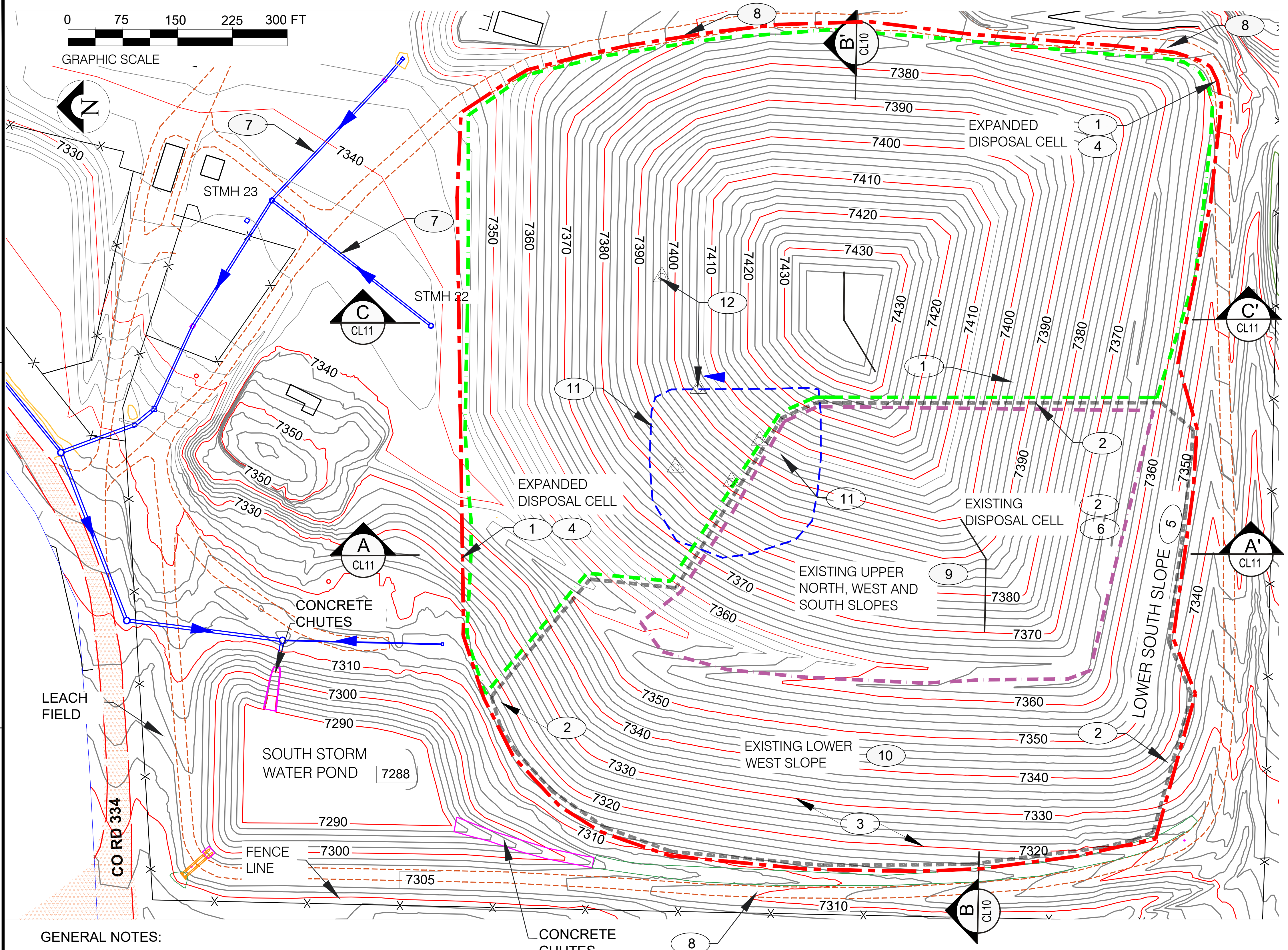
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: DETAILS - BACKFILL IN POND AREAS

SHEET NO. **CL 08**
DWG NO. **GS21-CB108-00**
REV **B**



NOTES:

1. EXPANDED DISPOSAL CELL. (SEE NOTE G.3)
2. WASTE ROCK PILE AND DISPOSAL CELL AS OF DECEMBER 2021 - (11.5 ACRES)
3. WASTE ROCK PILE SLOPES = 5H TO 1V
4. ALL NEW SLOPES = 24" THICK CLAY COVER (RADON BARRIER) AND 24" LOAM COVER (GROWTH MEDIA)
5. LOWER SOUTH SLOPE = CONSTRUCTED WITH CLEAN SOILS (NO COVER NEEDED).
6. EXISTING DISPOSAL CELL WITH 1' THICK CLAY LINER.
7. STORM DRAINAGE PIPES AND MANHOLES
8. EXISTING SERVICE ROADS
9. THE EXISTING UPPER NORTH, WEST AND SOUTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
10. THE EXISTING LOWER WEST SLOPE COVER SOILS = 18" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 12" GROWTH MEDIA OVER 24" CLAY)
11. BURIED LAGOON AREA. FILL OVER THIS AREA IF NEEDED.
12. LAGOON MONITORING WELLS WILL BE ABANDONED AS APPROVED BY NMED.

LEGEND

- EXISTING CONTOURS
- 10' INTERVAL CONTOURS
- SERVICE ROADS
- DRAINAGE PIPES
- EXISTING DISPOSAL CELL (CLAY LINED)
- EXPANDED DISPOSAL CELL (CLAY LINED)
- EXISTING WASTE ROCK / DISPOSAL CELL (11.5 ACRES)
- WASTE ROCK PILE / DISPOSAL CELL FULL BUILDOUT (25 ACRES)
- BURIED LAGOON AREA

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 EXISTING SITE TOPOGRAPHY BASED ON SURVEY DATA BY S3 PERFORMED NOVEMBER 2020. CONTOUR INTERVALS = 2' VERTICAL.

G.3 EXPANSION OF THE DISPOSAL CELL TO 25 ACRES IS SHOWN FOR INFORMATION PURPOSES ONLY, ACTUAL SIZE AND SHAPE OF THE FINAL DISPOSAL CELL WILL DEPEND ON THE AMOUNT OF MINE DEBRIS AND CONTAMINATED SOILS ENCOUNTERED IN THE SITE CLEAN UP.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-13-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

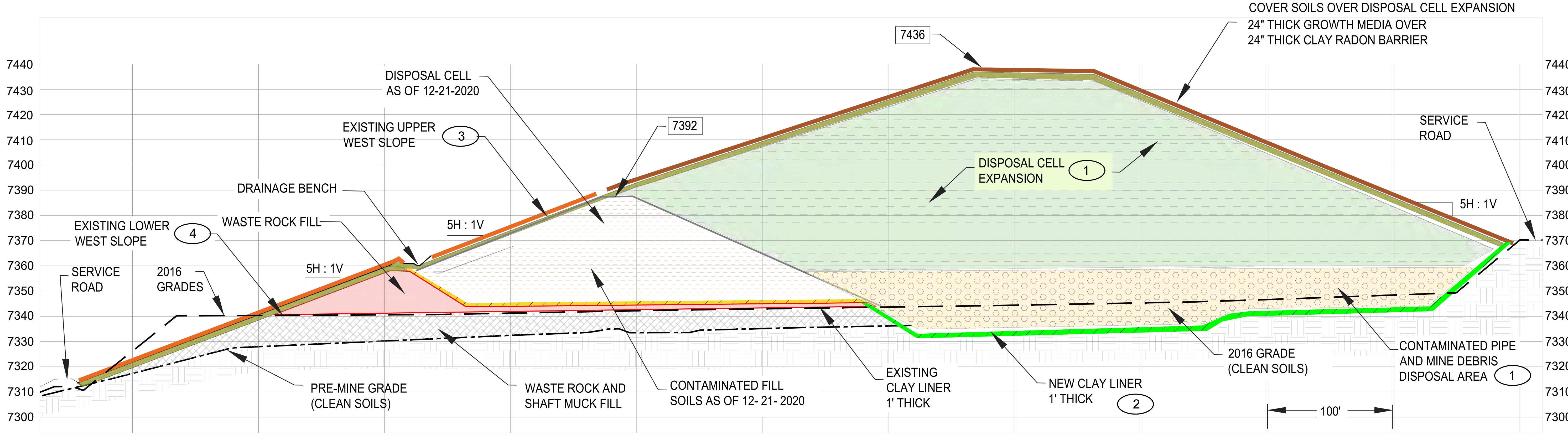
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: FINAL GRADING PLAN - EXPANDED DISPOSAL CELL

SHEET NO. CL 09 | DWG NO. GS21-CB109-00 | REV B



BB' CL09 SECTION BB' - EAST/WEST SECTION

EXISTING WASTE ROCK PILE / DISPOSAL CELL AND EXPANDED DISPOSAL CELL

0 40 80 120 160 FT

GRAPHIC SCALE

(VERTICAL SCALE = 2X HORIZONTAL)

NOTES:

1. PROPOSED EXPANDED SHAPE (SIZE AND HEIGHT) OF THE DISPOSAL CELL WILL VARY DEPENDING ON THE AMOUNT OF CONTAMINATED SOIL EXCAVATED FROM THE CLEANUP OF THE SITE.
2. THE NEW CLAY LINER TO EXTEND ONLY AS MUCH AS NEEDED TO ACCOMMODATE THE AMOUNT OF CONTAMINATED SOIL AND DEBRIS FROM THE SITE.
3. THE EXISTING UPPER WEST SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
4. THE EXISTING LOWER WEST SLOPE COVER SOILS = 18" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 12" GROWTH MEDIA OVER 24" CLAY)

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 SEE SHEET CL09 FOR DISPOSAL CELL AREA GRADING PLAN.

G.3 SITE TOPOGRAPHY BASED ON SURVEY DATA BY S3 PERFORMED NOVEMBER 2020.

G.4 EXPANSION OF THE WASTE PILE TO 25 ACRES IS SHOWN FOR INFORMATION PURPOSES ONLY, PENDING APPROVAL.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-13-21	EL	EL	AK
B	FOR SUBMITTAL	6-6-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.

MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

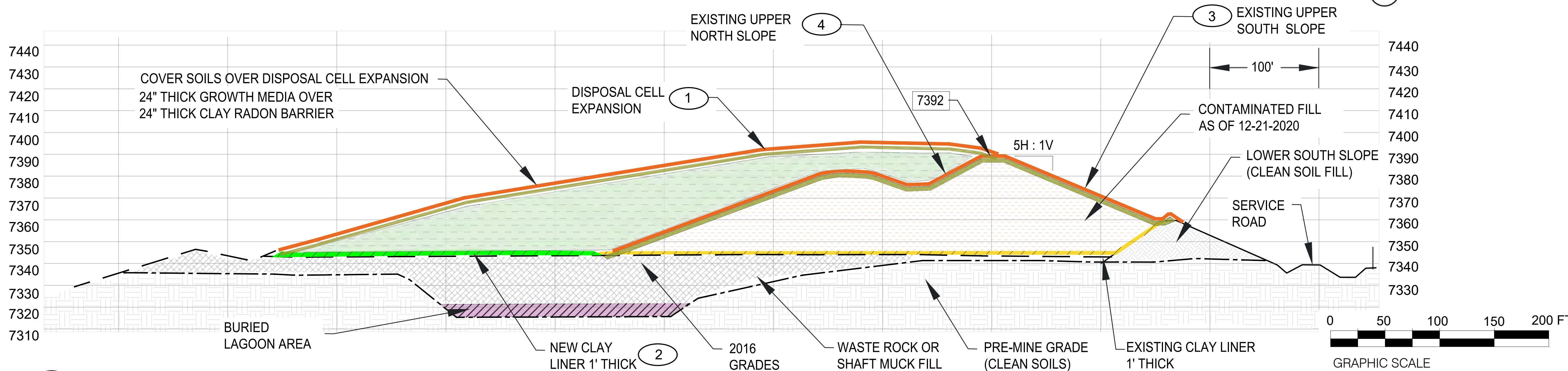
PRINT SIZE: B

SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

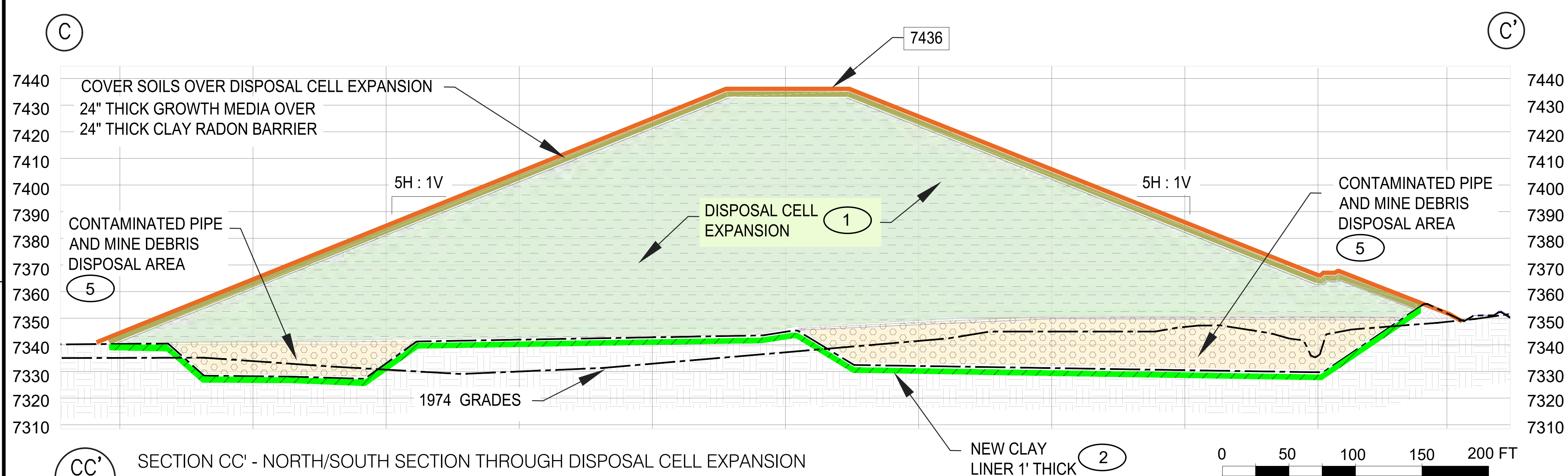
SHEET TITLE: DISPOSAL CELL SECTIONS - EAST / WEST

SHEET NO. **CL 10** | DWG NO. **GS21-CB110-00** | REV **B**



AA' CL09 SECTION AA' - NORTH/SOUTH SECTION

EXISTING WASTE ROCK PILE / DISPOSAL CELL AND EXPANDED DISPOSAL CELL



CC' CL09 SECTION CC' - NORTH/SOUTH SECTION THROUGH DISPOSAL CELL EXPANSION

NOTES:

1. PROPOSED EXPANDED SHAPE (SIZE AND HEIGHT) OF THE DISPOSAL CELL WILL VARY DEPENDING ON THE AMOUNT OF CONTAMINATED SOIL EXCAVATED FROM THE CLEANUP OF THE SITE.
2. THE NEW CLAY LINER TO EXTEND ONLY AS MUCH AS NEEDED TO ACCOMMODATE THE AMOUNT OF CONTAMINATED SOIL AND DEBRIS FROM THE SITE.
3. THE EXISTING UPPER SOUTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
4. THE EXISTING UPPER NORTH SLOPE COVER SOILS = 24" OF GROWTH MEDIA SOIL OVER 24" CLAY RADON BARRIER. (AS OF FEBRUARY 2022 THERE IS 18" GROWTH MEDIA OVER 24" CLAY)
5. CONTAMINATED PIPE AND MINE DEBRIS DISPOSAL CELLS. SEE PROJECT SPECIFICATIONS FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS.

GENERAL NOTES:

G.1 FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATIONS.

G.2 SEE SHEET CL09 FOR DISPOSAL CELL AREA GRADING PLAN.

G.3 SITE TOPOGRAPHY BASED ON SURVEY DATA BY S3 PERFORMED NOVEMBER 2020.

G.4 EXPANSION OF THE WASTE ROCK PILE / DISPOSAL CELL IS SHOWN FOR INFORMATION PURPOSES ONLY, PENDING APPROVAL.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-13-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

PRINT SIZE: B

SCALE: As Shown

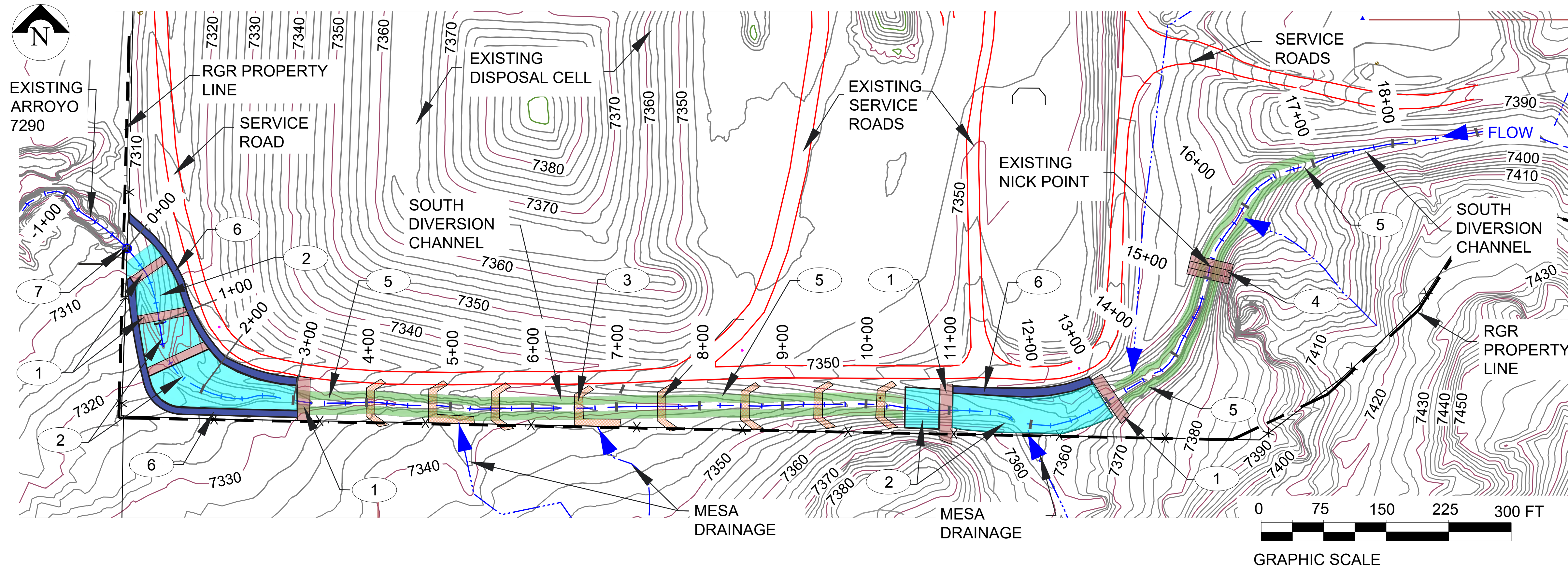
MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

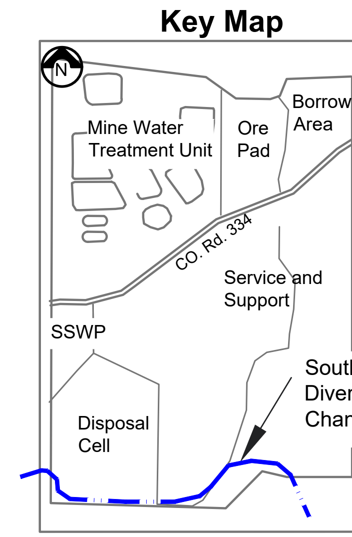
SHEET TITLE: DISPOSAL CELL SECTIONS - NORTH / SOUTH

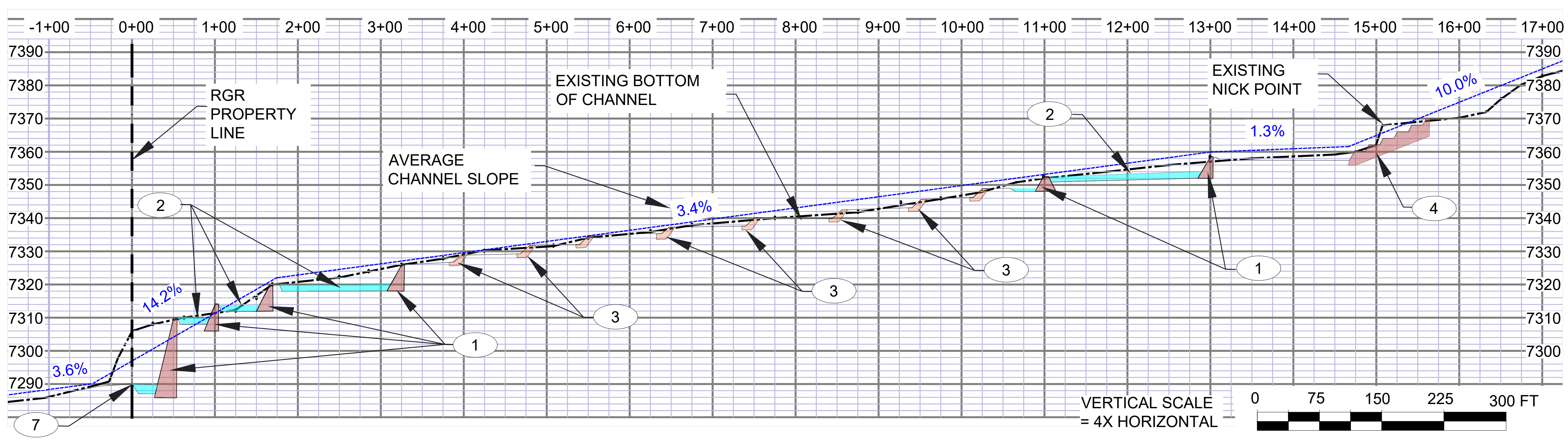
SHEET NO. CL 11

DWG NO. GS21-CB111-00

REV B







NOTES

1. ENERGY REDUCING DROP STRUCTURES.
2. STILLING BASINS.
3. ENERGY REDUCING CHECK DAMS.
4. STEPPED DROP STRUCTURE.
5. BIOENGINEERED CHANNEL AND BANK STABILIZATION FROM STATION 3+00 TO STATION 17+00.
6. ARMORED BANK STABILIZATION AND RETAINING WALLS FROM STATION 0+00 TO STATION 3+00.
7. MATCH EXISTING BOTTOM OF CHANNEL AT STATION 0+00 (RGR PROPERTY LINE).

GENERAL NOTE

THIS DRAWING REFLECTS CONCEPTUAL DESIGN ELEMENTS INTENDED TO REDUCE THE EROSION AND SCOUR POTENTIAL IN THE EXISTING SOUTH DIVERSION CHANNEL AND TO PROTECT THE SLOPES OF THE ADJACENT DISPOSAL CELL. *THIS DRAWING IS NOT FOR CONSTRUCTION.* THE ACTUAL DESIGN FOR THE CONSTRUCTION OF THE CHANNEL IMPROVEMENTS SHOULD BE DONE BY A LICENSED CIVIL ENGINEER.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-8-21	EL	EL	AK
B	FOR SUBMITTAL	5-12-22	EL	EL	AK

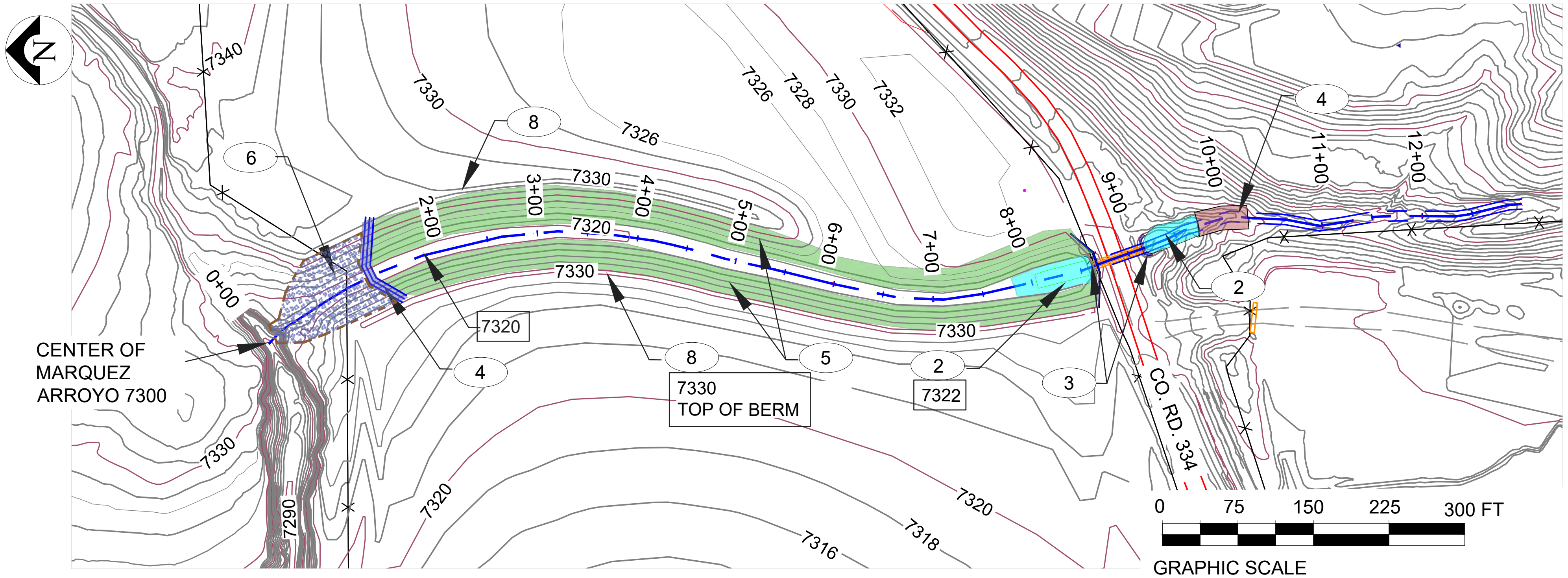
RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

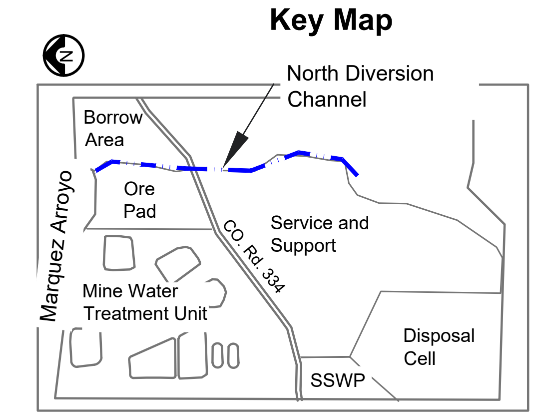
Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: IMPROVEMENTS TO SOUTH DIVERSION CHANNEL

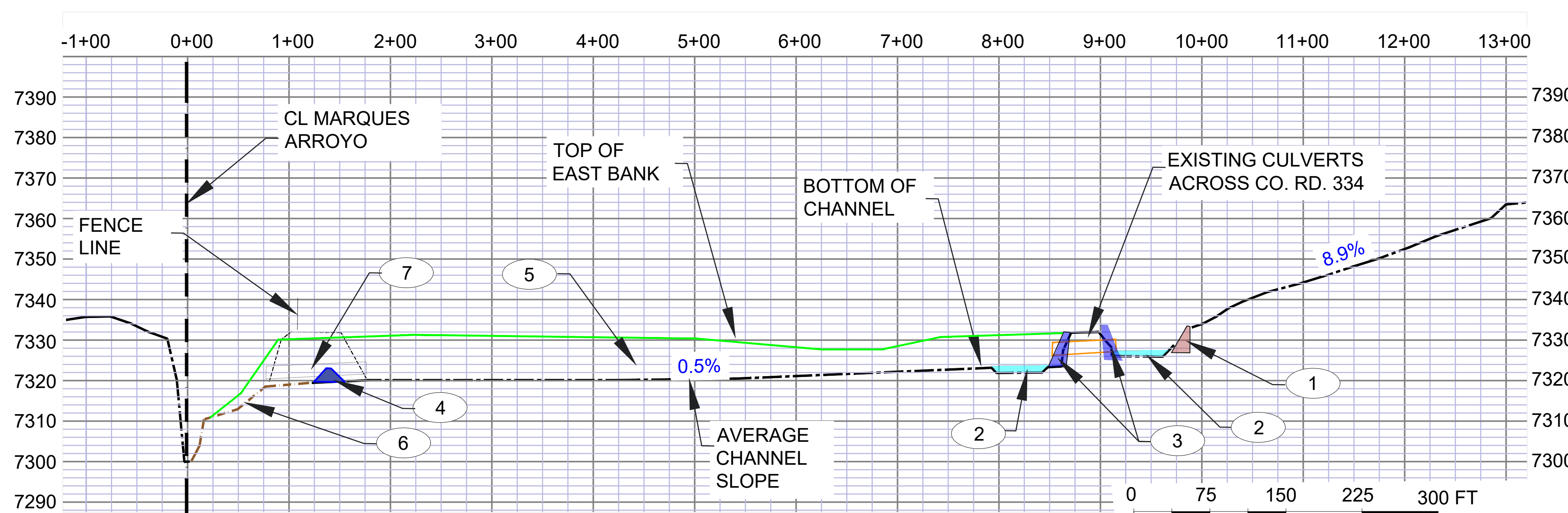
SHEET NO. CL 12
DWG NO. GS21-CB112-00
REV B





NOTES
(FOR ALL DESIGN ELEMENTS LISTED BELOW SEE NOTE G.1)

1. ENERGY REDUCING DROP STRUCTURES.
2. STILLING BASINS.
3. NEW HEADWALL AND OUTFALL STRUCTURES PER NM DOT DETAILS.
4. STONE CHECK DAM.
5. RESHAPE CHANNEL AND STABILIZE BANK FROM STATION 1+50 TO STATION 8+50. THE CHANNEL BOTTOM TO BE MINIMUM 15 FEET WIDE WITH SIDE SLOPES NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL.
6. EROSION PROTECTION - GEOGRID WITH STONE FILL. GEOGRID TO BE PLACED ON THE NATURAL SLOPE TO MINIMIZE DISTURBANCE OF THE NATURAL ARROYO CHANNEL.
7. REMOVE EXISTING CULVERT AND EXTEND CHANNEL.
8. 3' HIGH CONTAINMENT BERM ON BOTH SIDES OF THE CHANNEL. SLOPES TO BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL.



VERTICAL SCALE = 4X HORIZONTAL

GENERAL NOTE

G.1 THIS DRAWING REFLECTS CONCEPTUAL DESIGN ELEMENTS INTENDED TO REDUCE THE EROSION AND SCOUR POTENTIAL IN THE EXISTING NORTH DIVERSION CHANNEL AND TO REDUCE SEDIMENT TRANSPORT INTO THE MARQUEZ ARROYO. *THIS DRAWING IS NOT FOR CONSTRUCTION.* THE ACTUAL DESIGN FOR THE CONSTRUCTION OF THE CHANNEL IMPROVEMENTS SHOULD BE DONE BY A LICENSED CIVIL ENGINEER.

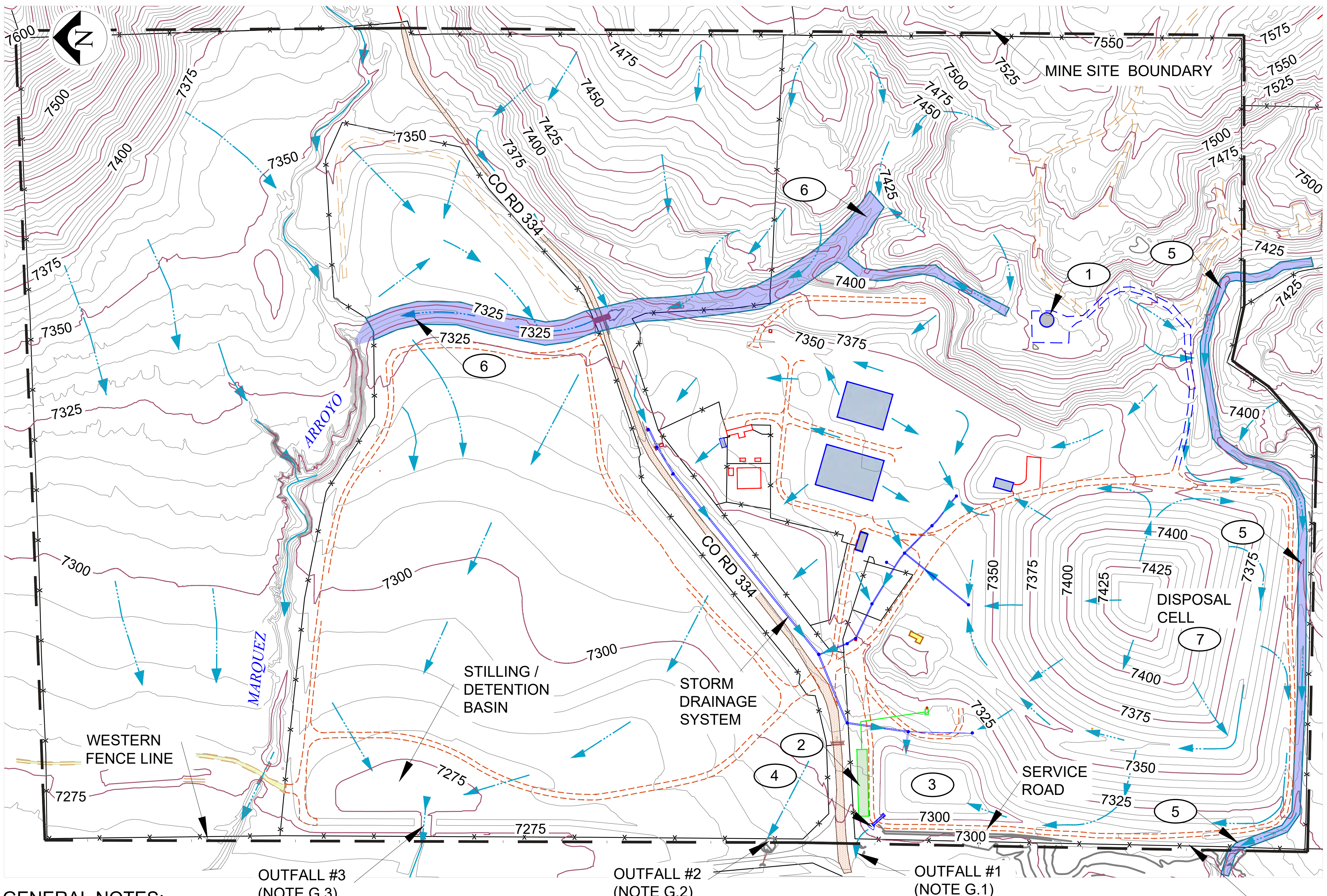
REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-8-21	EL	EL	AK
B	FOR SUBMITTAL	5-12-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN
SHEET TITLE: IMPROVEMENTS TO NORTH DIVERSION CHANNEL

SHEET NO.	DWG NO.	REV
CL 13	GS21-CB113-00	B



LEGEND

- COUNTY ROADS
- ELECTRICAL SUBSTATION AND TRANSFORMERS
- MINE SERVICE ROADS
- FENCE-LINES
- EXISTING BUILDINGS TO REMAIN
- SEPTIC SYSTEM
- INTERMITTENT FLOW WITH DIRECTIONAL ARROW
- DIVERSION CHANNELS
- MINE SITE BOUNDARY
- STORM DRAINAGE SYSTEM
- PRE-MINE ADOBE STRUCTURE

NOTES:

1. WATER TANK
2. SEPTIC SYSTEM
3. SOUTH STORM WATER POND (SSWP)
4. SOUTH STORM WATER POND OVER-FLOW CULVERTS
5. SOUTH DIVERSION CHANNEL- FLOW IN THIS CHANNEL IS ISOLATED FROM THE DISPOSAL CELL DRAINAGE. SEE SHEET CL12
6. NORTH DIVERSION CHANNEL - SEE SHEET CL13
7. ALL DRAINAGE FROM THE WASTE ROCK / DISPOSAL CELL AREA FLOWS INTO THE SOUTH STORM WATER POND.

GENERAL NOTES:

G.1 OUTFALL #1 DRAINS THE SOUTHERN HALF OF COUNTY ROAD 334 FROM THE MINE ACCESS ROAD TO THE WESTERN FENCE LINE. IT ALSO DRAINS THE NARROW STRIP OF PROPERTY BETWEEN THE SERVICE ROAD THE FENCE LINE ON THE NORTH AND WEST SIDES OF THE SSWP .

G.2 OUTFALL #2 DRAINS THE NORTHERN HALF OF THE COUNTY ROAD 334 RIGHT OF WAY FROM THE NORTH DIVERSION CHANNEL TO THE WESTERN FENCE LINE.

G.3 OUTFALL #3 DRAINS THE AREA FROM THE NORTH DIVERSION CHANNEL TO THE WESTERN FENCE LINE AND FROM THE NORTHERN FENCE ALONG COUNTY ROAD 334 TO THE THE FENCE LINE ALONG THE MARQUEZ ARROYO.

G.4 ALL FLOWS INDICATED ON THIS DRAWING SHOW INTERMITTENT FLOW ONLY. THERE ARE NO PERENNIAL OR INTERMITTENT STREAMS NEAR OR ON THIS SITE.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-16-21	EL	EL	AK
B	FOR SUBMITTAL	6-2-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

Drawn By: EL Engineering Services LLC

PRINT SIZE: B

SCALE: As Shown

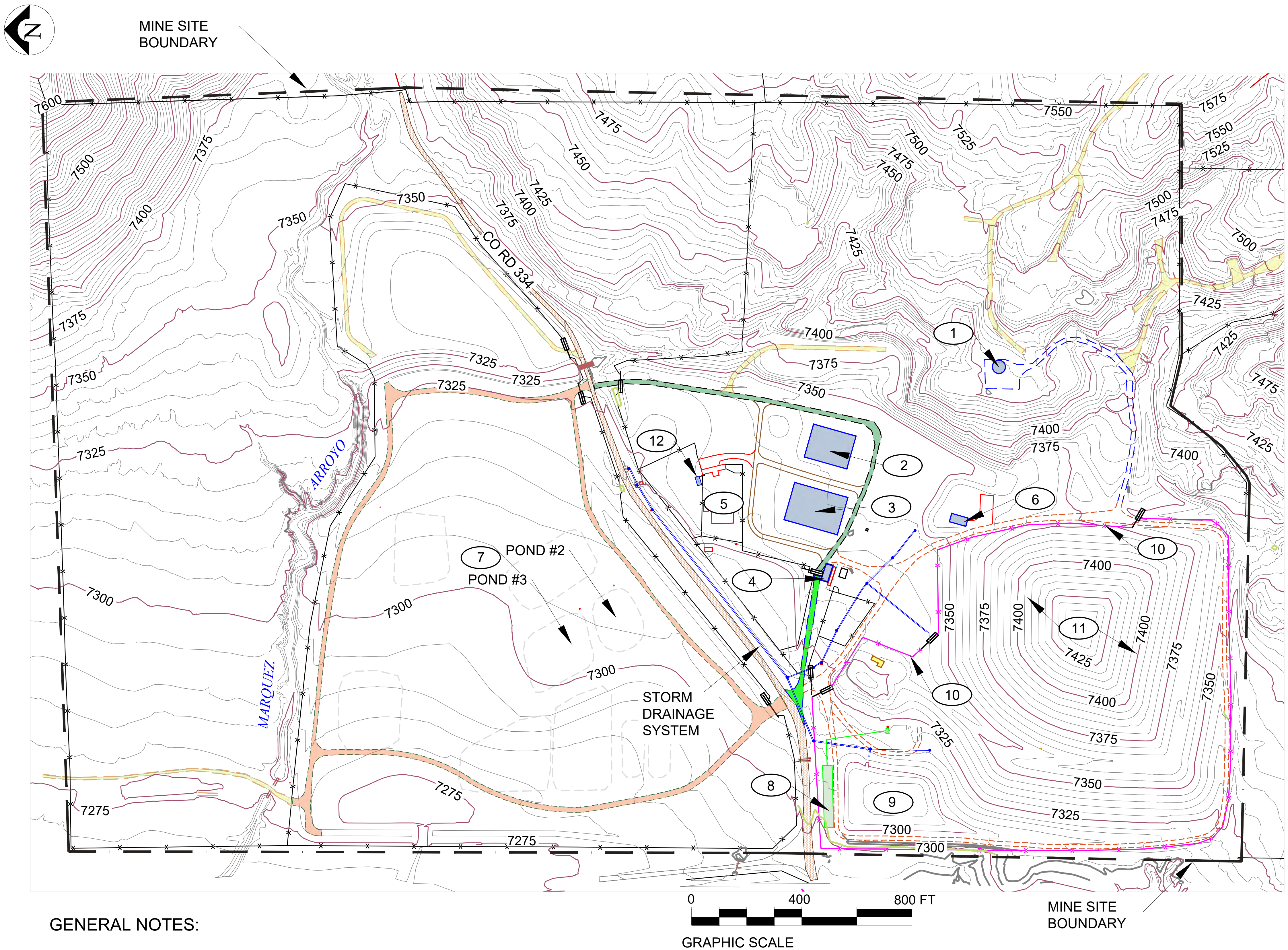
MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: FINAL DRAINAGE PLAN

SHEET NO. **CL 14**

DWG NO. **GS21-CB114-00**

REV **B**



LEGEND

- COUNTY ROADS
- PRIMARY ENTRANCE ROAD
- MULTI-FACILITY ACCESS ROAD
- HOIST HOUSE AND SERVICE BUILDING ROADS
- ELECTRICAL SUBSTATION AND ELECTRICAL BUILDING ACCESS ROADS
- WATER TANK ACCESS ROAD
- WRP AND SSWP PERIMETER ROAD
- MWTU SECURITY PERIMETER ROAD
- RANCH ROADS - DRIVABLE DIRT SURFACE - NOT MAINTAINED
- SECURITY GATES
- EXISTING FENCE-LINES TO REMAIN
- NEW SECURITY FENCE
- EXISTING BUILDINGS TO REMAIN
- PRE-MINE ADOBE RUIN

NOTES:

1. WATER TANK
2. HOIST HOUSE
3. SERVICE AND SUPPORT BUILDING
4. GUARD HOUSE - SECURITY BUILDING
5. SUBSTATION
6. ELECTRICAL BUILDING
7. PONDS 2 AND 3 REMAIN UNTIL ABATEMENT ACTIVITIES ARE COMPLETE
8. SEPTIC SYSTEM
9. SOUTH STORM WATER POND
10. NEW SECURITY FENCE AROUND DISPOSAL CELL
11. WASTE ROCK PILE / DISPOSAL CELL
12. CAPACITOR BUILDING

GENERAL NOTES:

G.1 SEE SHEETS CL07 AND CL09 FOR DETAILED GRADING PLANS.

G.2 SEE SHEET CL14 FOR THE SITE DRAINAGE PLAN INCLUDING A DESCRIPTION OF THE OUTFALLS FOR THIS SITE.

G.3 CONTOURS AT 5' VERTICAL INTERVALS.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-16-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - *San Mateo, NM*

Prepared By: Alan Kuhn Associates LLC

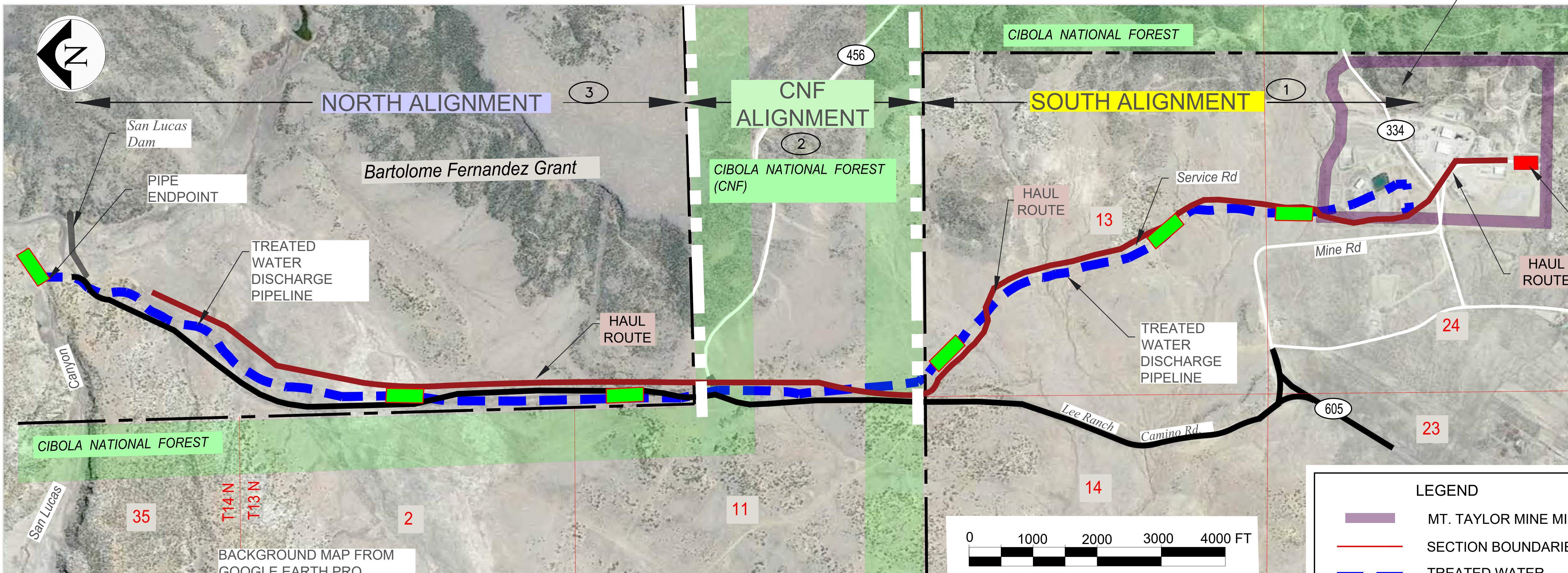
Drawn By: EL Engineering Services LLC

PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: FINAL SITE PLAN

SHEET NO. CL 15
DWG NO. GS21-CB115-00
REV B



LEGEND

- MT. TAYLOR MINE MINE SITE
- SECTION BOUNDARIES
- TREATED WATER DISCHARGE PIPELINE
- HAUL ROUTE
- PAVED ROAD
- AREAS IDENTIFIED BY ERG WITH GAMMA READINGS (uR/hr) EQUAL TO OR ABOVE 30 uR/hr.

NOTES:

1. SOUTH ALIGNMENT EXTENDS FROM THE SOUTH CIBOLA NATIONAL FOREST PROPERTY LINE TO THE PUMP STATIONS AT PONDS 6 AND 7. APPROXIMATELY 1.7 MILES OF PIPE AND CONCRETE SUPPORTS TO REMOVE.

2. CNF ALIGNMENT CONSISTS OF ABOUT 0.7 MILES OF PIPE LOCATED ON THE CIBOLA NATIONAL FOREST LAND (CNF). SEE PROJECT SPECIFICATIONS FOR INSTRUCTIONS AND LIMITATIONS OF WORKING IN THIS AREA.

3. NORTH ALIGNMENT EXTENDS FROM THE CIBOLA NATIONAL FOREST NORTH PROPERTY LINE TO THE ENDPOINT AT SAN LUCAS DAM. APPROXIMATELY 2 MILES OF PIPE AND CONCRETE SUPPORTS TO REMOVE.

4. PIPE REMOVAL THE WORK INCLUDES REMOVING APPROXIMATELY 4.4 MILES OF 24" DIA. STEEL PIPE AND VARIOUS ASSOCIATED CONCRETE SUPPORT STRUCTURES AND SAFELY TRANSPORTING THEM TO THE RGR DISPOSAL CELL AREA AS SHOWN ON THIS DRAWING.

5. CLEANUP AND FINAL GRADING THE WORK INCLUDES REMOVING ALL CONTAMINATED SOIL OR OTHER DEBRIS ASSOCIATED WITH THE TREATED WATER PIPELINE ON EITHER SIDE OF THE PIPE ALIGNMENT. AFTER THE CLEANUP IS COMPLETED, THE CONTRACTOR WILL GRADE ANY DISTURBED AREAS TO MATCH THE SURROUNDING GRADES AND REVEGETATE ALL DISTURBED AREAS AS DIRECTED BY RGR.

6. HAUL ROUTES THE PREFERRED HAUL ROUTES FOR TRANSPORTING THE PIPE AND OTHER CONTAMINATED DEBRIS TO THE DISPOSAL CELL ARE ALONG THE PIPELINE AND WITHIN THE 40' RIGHT OF WAY. THE CONTRACTOR IS RESPONSIBLE TO MAKE ANY TEMPORARY ROAD IMPROVEMENTS NECESSARY TO ENSURE THE SAFE TRANSPORT OF THE CONTAMINATED PIPES AND OTHER DEBRIS TO THE RGR SITE. NOTE: SPECIAL PERMISSION MAY BE REQUIRED TO WORK WITHIN THE USFS LAND. SEE PROJECT SPECIFICATIONS.

7. REPOSITORY AND TEMPORARY STAGING IT IS PREFERRED THAT THE CONTAMINATED PIPES BE OFFLOADED DIRECTLY INTO THE PREPARED DISPOSAL CELL TO AVOID DOUBLE HANDLING. HOWEVER, IF THE CELL IS NOT READY, A STAGING AREA MAY BE NEEDED FOR TEMPORARY PIPE STORAGE. THE LOCATION OF THE TEMPORARY STAGING AREA WILL BE DECIDED BY RGR.

GENERAL NOTES:

G.1 THE EARTHWORK QUANTITIES IN THIS WORK WILL DEPEND ON THE AMOUNT OF DISTURBANCE FROM THE PIPE REMOVAL AND THE AMOUNT OF CONTAMINATED SOILS ENCOUNTERED.

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
A	FOR REVIEW	12-8-21	EL	EL	AK
B	FOR SUBMITTAL	5-26-22	EL	EL	AK

RIO GRANDE RESOURCES CORP.
MOUNT TAYLOR MINE - San Mateo, NM

Prepared By: Alan Kuhn Associates LLC
Drawn By: EL Engineering Services LLC
PRINT SIZE: B
SCALE: As Shown

MT. TAYLOR MINE
2022 CLOSEOUT / CLOSURE PLAN

SHEET TITLE: TREATED WATER DISCHARGE PIPELINE - REMOVAL AND DISPOSITION

SHEET NO. CL 16
DWG NO. GS21-CB116-00
REV B

APPENDIX B

ENGINEERING ANALYSES

B.1 RADON Analyses

B.2 HYDROLOGIC AND EROSION Analyses

- DESIGN RUNOFF CALCULATIONS
- SURFACE WATER HYDROLOGIC ANALYSIS
  - FLOOD HYDROGRAPH (HEC-1) ANALYSES
  - WATER SURFACE PROFILE (HEC-2) ANALYSES
- REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE) ANALYSES
- SLOPE STABILITY (SB-SLOPE) ANALYSES

These calculations are applicable to the *entire mine site* and were based on full build-out of the mine site. Existing conditions are less than full build-out, therefore these calculations are conservative.

See previous quality control and completion reports listed in references for *facility-specific* engineering analyses.

B.1 RADON ANALYSIS

WATER TREATMENT PONDS AND WASTE ROCK PILE AFTER CLOSURE

Table B.1 Input Parameters and Radon Flux - RADON modeling of Mine Water Treatment Pond Cover and Waste Rock Pile

Pond	Pond Sediment		Fill from Area A and Ore Stockpile Pad		Contaminated Soil Fill		Soil Cover		Total Fill Depth, ft (1)	Calculated Radon Flux from Cover, pCi/m^2 S
	Average Thickness, ft (2)	Average Ra-226, pCi/g	Average Thickness, ft	Average Ra-226, pCi/g	Average Thickness, ft	Average Ra-226, pCi/g (3)	Average Thickness, ft	Average Ra-226, pCi/g		
1	1.5	119	1.0	214	11.0	44	2.0	6.8	14	19.7
2	1.5	224	0.0	NA	11.0	44	2.0	6.8	13	19.9
3	1.65	21	1.0	214	13.0	44	2.0	6.8	16	19.1
4	0.75	18	0.0	NA	10.0	44	2.0	6.8	12	18.8
5	1.7	11	0.0	NA	13.0	44	2.0	6.8	15	18.8
6	1.5	6	0.0	NA	13.0	44	2.0	6.8	15	18.8
7	1.4	10	0.0	NA	13.0	44	2.0	6.8	15	18.9
8	2.25	27	0.0	NA	7.0	44	2.0	6.8	9	18.4
Waste Rock Pile	Waste Rock				Contaminated Soil Fill		Soil Cover			
	17	50 (4)			1.6 (5)	44	2.0	6.8		19.9

(1) Total fill depth is design top of cover to existing top of pond sediment

(2) Pond sediment thicknesses are average values from test pit logs, April 2012. Pond 2 sediment thickness estimated because of standing water

(3) Average of 10 pond surface sediment samples, to represent source of soil contamination

(4) Conservative estimate based on low concentrations of Ra-226 in SPLP leachate from waste pile tests, Table 2, Kleinfelder, 2012

(5) 1.4 ft over 21.7 acres based on 48,660 BCY contaminated soil, 1.6 ft thick with 15% swell for LCY placed.

The RADON model was run in accordance with:
U.S. Nuclear Regulatory Commission Office of Research, RADON, Version 1.2, May 22, 1989, and
U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research, “Regulatory Guide 3.64, "Calculation of Radon Flux Attenuation by Earthen Uranium Mill Tailings Covers”, June 1989.

RADON Model – Mt Taylor Mine July, 2012

Pond #1

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 43.30 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.364 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.45	119	.25	0.4	5	2.704E-6
2	0.3	214	.25	0.4	5	2.704E-6
3	3.3	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.45	3.964	109.4E3	0.850
2	0.3	31.44	104.5E3	0.850
3	3.3	20.75	18.20E3	0.700
4	0.6	19.67	0E0	0.700

Total cover radon retention: 54.57%

Pond #2

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 81.50 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.364 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.45	224	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	3.3	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.45	38.88	118.6E3	0.850
2	0.01	39.70	118.2E3	0.850
3	3.3	20.99	18.39E3	0.700
4	0.6	19.86	0E0	0.700

Total cover radon retention: 75.63%

Pond #3

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 9.818 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.468 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.6	21	.25	0.4	5	2.704E-6
2	0.3	214	.25	0.4	5	2.704E-6
3	3.9	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.6	-23.6	72.31E3	0.850
2	0.3	12.41	73.85E3	0.850
3	3.9	20.04	17.62E3	0.700
4	0.6	19.10	0E0	0.700

Total cover radon retention: -94.5%

Pond #4

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 3.474 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.193 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.23	18	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	3	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.23	-5.23	45.65E3	0.850
2	0.01	-3.79	45.69E3	0.850
3	3	19.68	17.34E3	0.700
4	0.6	18.82	0E0	0.700

Total cover radon retention: -442.%

Pond #5

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 4.474 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.407 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.51	11	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	3.9	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.51	-10.8	37.92E3	0.850
2	0.01	-9.26	38.01E3	0.850
3	3.9	19.72	17.37E3	0.700
4	0.6	18.85	0E0	0.700

Total cover radon retention: -321.%

Pond #6

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 2.183 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.364 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.45	6	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	3.9	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.45	-11.2	37.21E3	0.850
2	0.01	-9.68	37.31E3	0.850
3	3.9	19.72	17.37E3	0.700
4	0.6	18.84	0E0	0.700

Total cover radon retention: -763.%

Pond #7

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 3.417 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.342 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.42	10	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	3.9	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.42	-9.87	39.37E3	0.850
2	0.01	-8.38	39.46E3	0.850
3	3.9	19.74	17.38E3	0.700
4	0.6	18.86	0E0	0.700

Total cover radon retention: -452.%

Pond #8

---------------- Input Parameters ----------------

Number of Layers: 4

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 13.98 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.518 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	0.68	27	.25	0.4	5	2.704E-6
2	0.01	214	.25	0.4	5	2.704E-6
3	2.1	44	.25	0.4	10	1.602E-6
4	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	0.68	-6.44	39.93E3	0.850
2	0.01	-4.96	39.99E3	0.850
3	2.1	19.10	16.86E3	0.700
4	0.6	18.35	0E0	0.700

Total cover radon retention: -31.2%

Waste Rock Pile

---------------- Input Parameters ----------------

Number of Layers: 3

Radon Flux into Layer 1: 0 pCi/m2s

Surface Radon Concentration: 0 pCi/L

Bare Source Flux (Jo) from Layer 1: 43.68 pCi/m2s

Specific Bare Source Flux from Layer 1: 0.874 pCi/m2s per pCi_Ra-226/g

Layer No.	Thickness [m]	Ra-226 [pCi/g]	Emanat Fract	Porosity	Moisture [dry wt_%]	Diff Coeff [m2/s]
1	4.5	50	.25	0.4	7.000	2.216E-6
2	0.5	44	.25	0.4	10	1.602E-6
3	0.6	6.8	.25	0.4	10	1.602E-6

-------- Results of Radon Diffusion Calculation --------

Layer No.	Thickness [m]	Exit Flux [pCi/m2s]	Exit Conc. [pCi/L]	MIC
1	4.5	13.07	35.47E3	0.790
2	0.5	21.08	18.47E3	0.700
3	0.6	19.94	0E0	0.700

Total cover radon retention: 54.35%

SURFACE WATER RUNOFF HYDROLOGIC ANALYSIS

GENERAL PARAMETRIC EVALUATION AND MODEL INPUT DATA SELECTION FOR HEC-1 (WATERSHED RUNOFF) AND HEC-2 (FLOOD ROUTING)

Design Storm Precipitation (Inches) for Various Frequency Intervals and Durations

Interval years	Duration in Hours					
	1	2	3	6	12	24
2	0.89	1.00	1.07	1.20	1.30	1.50
5	1.03	1.17	1.27	1.45	1.60	1.90
10	1.15	1.32	1.44	1.65	1.83	2.20
25	1.38	1.59	1.73	2.00	2.23	2.70
50	1.71	1.91	2.04	2.30	2.50	2.90
100	1.97	2.15	2.27	2.50	2.73	3.20

** Duration selected must be => time of concentration, Tc

Unit Duration ~= Lg/5.5

Time of Concentration, tc
For watersheds < or = 10 sq. mi.
tc = 0.00013*(L^0.77/S^0.385)
where S = gradient
For watersheds > 10 sq. mi.
tc = 0.385*(11.9*L^3)/H
where H = elevation difference

Curve Number, CN
CN = 71 for P-J uplands (Group D) = 78 for Group B/C soils

Time to Peak Discharge, Tp, hours
Tp = 0.5*dt+Tlag
where dt = duration of excess, or computation interval
Tlag = time between center of rainfall excess and time of peak discharge

Peak flow of unit hydrograph, Qp, cfs/in
Qp = 484*Area*/Tp where Area = subbasin area in sq mi

Average Manning's Coefficient, Kn =
0.26 for uplands, general storm
0.13 for PMF and well-developed drainage courses
0.05 for uplands thunderstorm
0.073 for thunderstorm in well-developed drainage courses
For Southwest region
0.07 for coniferous forest areas
0.042 for desert terrain

WEATHER DATA FOR THE MT. TAYLOR AREA

from National Weather Service Annual Climatological Summaries

1986-1995

Grants Airport (1986-1995) and San Mateo (1986-1987) Stations

GRANTS AIRPORT

AVERAGE MONTHLY PRECIPITATION, INCHES

	J	F	M	A	M	J	JL	A	S	O	N	D	Annual
1986	0.00	0.55	0.32	0.47	1.29	1.94	1.75	1.53	1.10	1.55	2.25	1.35	14.10
1987	1.60	1.24	0.54	0.28	0.89	0.26	2.61	3.05	0.72	0.50	0.82	1.25	13.76
1988	0.19	0.09	0.07	1.74	0.20	1.06	1.22	2.30	1.46	0.85	0.15	0.13	9.46
1989	0.77	0.45	0.16	0.00	0.08	0.10	0.98	0.90	1.64	1.07	0.05	0.11	6.31
1990	0.35	0.17	0.88	1.54	1.02	0.37	1.96	3.99	2.13	1.27	0.62	1.59	15.89
1991	0.66	0.05	1.04	0.65	0.26	0.99	1.05	1.66	1.83	0.27	1.33	1.76	11.55
1992	0.72	0.27	0.93	0.67	2.68	0.46	1.68	1.86	1.23	0.90	0.90	1.26	13.56
1993	1.91	1.15	1.94	0.25	1.10	0.00	0.43	4.23	0.35	0.60	0.43	0.18	12.57
1994	0.10	0.38	0.77	0.52	2.02	0.18	0.84	1.50	1.42	1.82	1.84	0.30	11.69
1995	0.49	0.30	0.38	0.09	0.29	0.49	0.45	1.92	0.86	0.00	0.30	0.37	5.94
AVE	0.68	0.47	0.70	0.62	0.98	0.59	1.30	2.29	1.27	0.88	0.87	0.83	**11.48**

	FREEZE-FREE	ANNUAL TEMP., F	
	DAYS	LOW	HIGH
1986	141	0	96
1987	132	-18	NA
1988	120	-6	94
1989	167	-15	101
1990	159	-33	99
1991	154	-7	98
1992	183	-9	99
1993	138	-4	98
1994	140	-3	101
1995	129	2	102
AVE	**146.3**	**-9.3**	**98.7**

SAN MATEO

	J	F	M	A	M	J	JL	A	S	O	N	D	Annual
1986	0.04	0.13	0.45	0.38	0.73	0.84	3.45	1.78	1.90	1.91	3.88	0.57	16.06
1987	0.92	2.81	0.84	0.14	0.78	0.73	0.39	3.97	0.23	0.72	0.54	2.00	14.07
1988	2.64												*10.22*
1989													*6.82*
1990													*17.17*
1991													*12.48*
1992													*14.66*
1993													*13.59*
1994													*12.63*
1995													*6.42*
AVE	1.20	1.47	0.65	0.26	0.76	0.79	1.92	2.88	1.07	1.32	2.21	1.29	**12.41**

	FREEZE-FREE	ANNUAL TEMP., F	
	DAYS	LOW	HIGH
1986	155	4	89
1987	181	0	89
1988	*146*	*5*	*87*
1989	*204*	*-4*	*94*
1990	*194*	*-22*	*92*
1991	*188*	*4*	*91*
1992	*223*	*2*	*92*
1993	*168*	*7*	*91*
1994	*171*	*8*	*94*
1995	*157*	*13*	*95*
AVE	***179***	**2**	***91***

CORRECTION FACTORS

F-F DAYS	LOW	HIGH
0.9097	4	-7
0.7293	18	
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7
0.8195	11	-7

RAINFALL PARAMETERS

Design Storm Precipitation (Inches) for Various Frequency Intervals and Durations

Interval years	Duration in Hours					
	1	2	3	6	12	24
2	0.9	1.0	1.1	1.2	1.3	1.5
5	1.0	1.2	1.3	1.45	1.6	1.9
10	1.2	1.3	1.4	1.65	1.8	2.2
25	1.4	1.6	1.7	2.0	2.2	2.7
50	1.7	1.9	2.0	2.3	2.5	2.9
100	2.0	2.1	2.3	2.5	2.7	3.2

** Duration selected must be => time of concentration, Tc

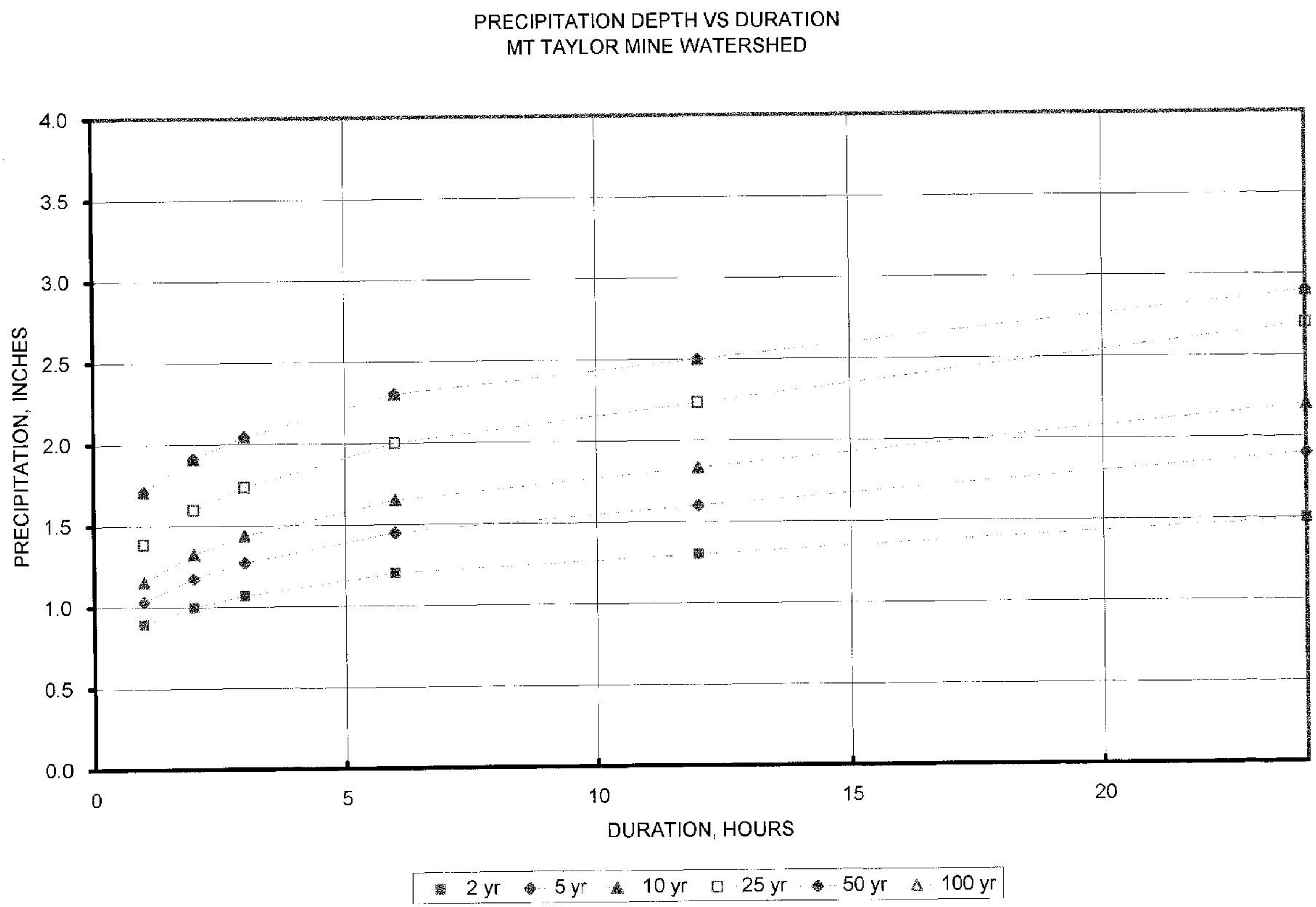
Fraction of one hour

depth10 = 0.59 depth15 + 0.41 depth5
depth30 = 0.49 depth60 + 0.51 depth15

Minutes	Hours	Fraction of 1-Hr Depth inches
0	0	0.00
5	0.08	0.60
10	0.17	0.75
15	0.25	0.85
30	0.50	0.93
45	0.75	0.97
60	1.00	1.00

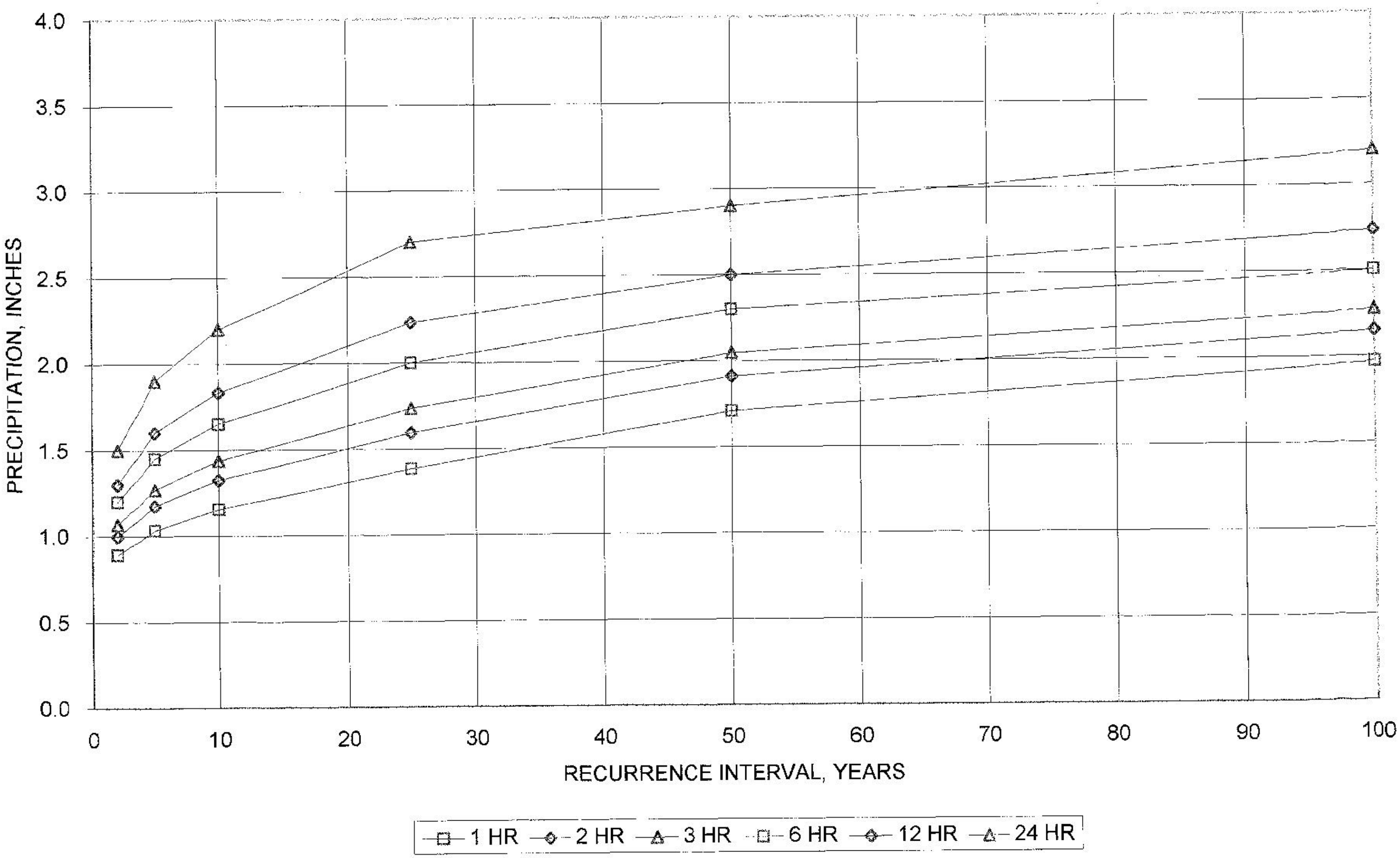
Triangular Precipitation Distribution for 24 hr/100 yr Event

Time Step hours	Cum Precip	Interval Depth	Balanced Storm Hyetograph
0	0	0	0
1	1.97	1.9686	0.0300
2	2.15	0.1812	0.0367
3	2.27	0.1212	0.0400
4	2.35	0.0790	0.0400
5	2.42	0.0700	0.0400
6	2.50	0.0800	0.0400
7	2.54	0.0400	0.0400
8	2.58	0.0400	0.0400
9	2.62	0.0400	0.0400
10	2.66	0.0400	0.0700
11	2.69	0.0300	0.0800
12	2.73	0.0433	0.1812
13	2.77	0.0367	1.9686
14	2.81	0.0400	0.1212
15	2.85	0.0400	0.0790
16	2.89	0.0400	0.0433
17	2.93	0.0400	0.0400
18	2.97	0.0400	0.0400
19	3.00	0.0300	0.0400
20	3.04	0.0400	0.0400
21	3.08	0.0400	0.0400
22	3.12	0.0400	0.0400
23	3.16	0.0400	0.0400
24	3.20	0.0400	0.0300


PRECIPITATION DEPTH VS DURATION
MT TAYLOR MINE WATERSHED
PRECIPITATION, INCHES
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
5
10
15
20
DURATION, HOURS
2 yr
5 yr
10 yr
25 yr
50 yr
100 yr

9431HYD.XLS

PRECIPITATION VS INTERVAL AND DURATION
MT TAYLOR MINE WATERSHED



9431HYD.XLS

SURFACE WATER RUNOFF HYDROLOGIC ANALYSIS - MT. TAYLOR MINE
WATERSHED PARAMETERS

A73.K145

PARAMETERS	Marquez/ Maruca Basin				Hummer Basin		
	Total Basin	Marquez Canyon above junction	Maruca Canyon	Lower Marquez Canyon	Total Basin	East Hummer	West Hummer
L, length of longest watercourse, ft =	32312	26805	26214	7000	10481	9513	5644
Maximum elevation	9250	9250	9380	7928	8300	8300	7810
Minimum elevation	7260	7450	7450	7450	7315	7350	7315
H, difference in elevation	1990	1800	1930	478	985	950	495
S, slope gradient =	0.062	0.067	0.074	0.068	0.094	0.100	0.088
in ft/mi =	325	355	389	361	496	527	463
Time of Concentration, tc, hrs (watersheds < 10 sq. mi.) = 0.00013*(L^0.77/S^0.385) =	1.13	0.94	0.90	0.33	0.40	0.37	0.26
Area, sq. mi.	5.02	2.76	1.63	0.63	0.54	0.4	0.14
Lag Time, Lg, hrs							
USBR method, Lg = C*(L*Lc/S^.5)^N =	1.58	1.38	1.34	0.57	0.70	0.65	0.47
Constant, C = 26*Kn =	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Constant, N =	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Length of Longest Watercourse, L, mi =	6.12	5.08	4.96	1.33	1.99	1.80	1.07
Length Along L to Point Opposite Watershed Centroid, Lc, mi =	3.06	2.54	2.48	0.66	0.99	0.90	0.53
Overall Slope of L, S, ft/mi =	325	355	389	361	496	527	463
Average Manning's Coefficient, Kn = 0.06 average based on: For Southwest region 0.07 for coniferous forest 0.042 for desert terrain	0.06	0.06	0.06	0.06	0.06	0.06	0.06
SCS Method, Lg = 0.6 Tc	0.68	0.57	0.54	0.20	0.24	0.22	0.15
Unit Duration, dt, hours ~= Lg/5.5	0.12	0.10	0.10	0.04	0.04	0.04	0.03
rounded to	0.1	0.1	0.1	0.04	0.04	0.04	0.03
Time to Peak Discharge, Tp, hours							
Tp = 0.5*dt+Lg	0.73	0.62	0.59	0.22	0.26	0.24	0.17
Peak flow of unit hydrograph, Qp, cfs/in							
Qp = 484*Area*/Tp	3344	2166	1342	1384	999	810	401
Vol. = volume of runoff, cfs-day from 1 inch rainfall	134.99	74.22	43.83	16.94	14.52	10.76	3.76
Curve Number, CN							
CN = 71 for P-J upland (Group D) = 78 for Group B/C soils							

Temporal Distribution - Dimensionless Unit Hydrograph

** % of (Lg+D/2)	** q	q*(Lg+D/2)/V	differential q*(Lg+D/2)/Vol.
5	0.19	0.0016	
10	0.32	0.0027	0.0011
15	0.48	0.0040	0.0013
20	0.74	0.0061	0.0022
25	1.21	0.0101	0.0039
30	1.81	0.0150	0.0050
35	2.63	0.0219	0.0068
40	3.68	0.0306	0.0087
45	5.47	0.0455	0.0149
50	8.41	0.0699	0.0244
55	12.61	0.1048	0.0349
60	16.5	0.1371	0.0323
65	20.5	0.1704	0.0332
70	23.97	0.1992	0.0288
75	27.75	0.2306	0.0314
80	28.91	0.2403	0.0096
85	28.07	0.2333	-0.0070
90	26.38	0.2192	-0.0140
95	24.18	0.2009	-0.0183
100	21.55	0.1791	-0.0219
105	18.92	0.1572	-0.0219
110	16.08	0.1336	-0.0236
115	14.19	0.1179	-0.0157
120	12.61	0.1048	-0.0131
125	11.04	0.0917	-0.0130
130	9.99	0.0830	-0.0087
135	9.04	0.0751	-0.0079
140	8.2	0.0681	-0.0070
145	7.36	0.0612	-0.0070
150	6.78	0.0563	-0.0048
155	6.2	0.0515	-0.0048
160	5.83	0.0484	-0.0031
165	5.47	0.0455	-0.0030
170	5.15	0.0428	-0.0027
175	4.84	0.0402	-0.0026
180	4.57	0.0380	-0.0022
185	4.31	0.0358	-0.0022
190	4.1	0.0341	-0.0017
195	3.87	0.0322	-0.0019
200	3.68	0.0306	-0.0016
205	3.47	0.0288	-0.0017
210	3.28	0.0273	-0.0016
215	3.1	0.0258	-0.0015
220	2.93	0.0243	-0.0014
225	2.75	0.0229	-0.0015
230	2.63	0.0219	-0.0010
235	2.47	0.0205	-0.0013
240	2.33	0.0194	-0.0012
245	2.22	0.0184	-0.0009
250	2.1	0.0175	-0.0010
255	1.99	0.0165	-0.0009
260	1.88	0.0156	-0.0009
265	1.78	0.0148	-0.0008
270	1.68	0.0140	-0.0008
275	1.59	0.0132	-0.0007
280	1.5	0.0125	-0.0007
285	1.43	0.0119	-0.0006
290	1.36	0.0113	-0.0006
295	1.28	0.0106	-0.0007
300	1.21	0.0101	-0.0006
305	1.15	0.0096	-0.0005

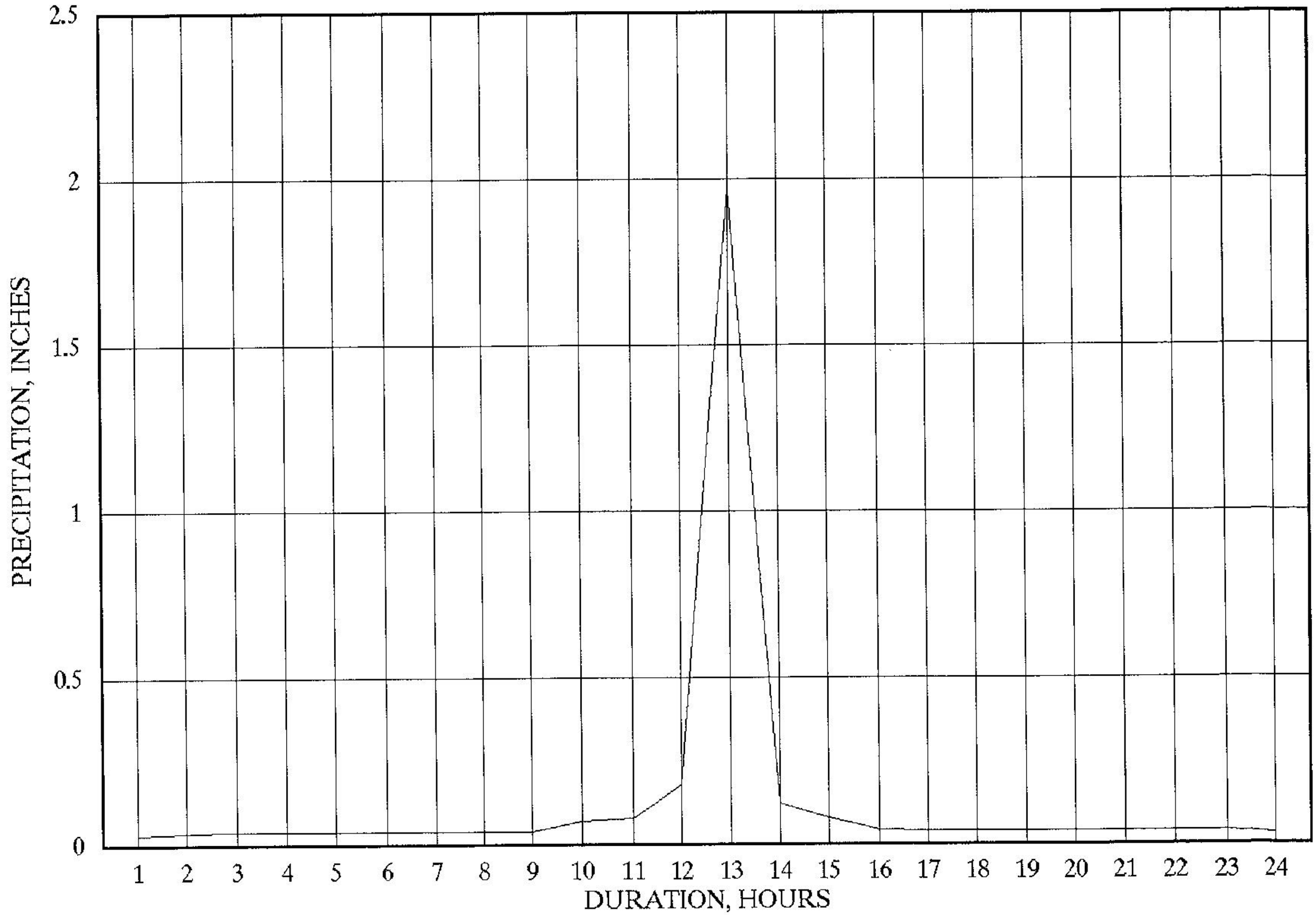
Time hours	% of (Lg+D/2)	Ordinate	Unit q cfs
0.25	40.5	0.032	3.86
0.50	81.1	0.239	28.73
0.75	121.6	0.101	12.11
1.00	162.1	0.129	15.49
1.25	202.7	0.220	26.46
1.50	243.2	0.225	27.06
1.75	283.7	0.167	20.13
2.00	324.3	0.112	13.46
2.25	364.8	0.080	9.61
2.50	405.3	0.060	7.16
2.75	445.9	0.048	5.74
3.00	486.4	0.040	4.79
3.25	526.9	0.034	4.07
3.50	567.5	0.029	3.46
3.75	608.0	0.024	2.93
4.00	648.5	0.021	2.48
4.25	689.1	0.018	2.12
4.50	729.6	0.015	1.80
4.75	770.1	0.013	1.52
5.00	810.7	0.011	1.31
5.25	851.2	0.009	1.11
5.50	891.7	0.008	0.94
5.75	932.3	0.007	0.80
6.00	972.8	0.006	0.68
6.25	1013.3	0.005	0.58
6.50	1053.9	0.004	0.49
6.75	1094.4	0.003	0.42
7.00	1135.0	0.003	0.36
7.25	1175.5	0.002	0.30

Lg =	0.57	0.54	0.20
D =	0.1	0.1	0.04
Lg+D/2 =	0.62	0.59	0.22
Vol. =	74.22	43.83	16.94

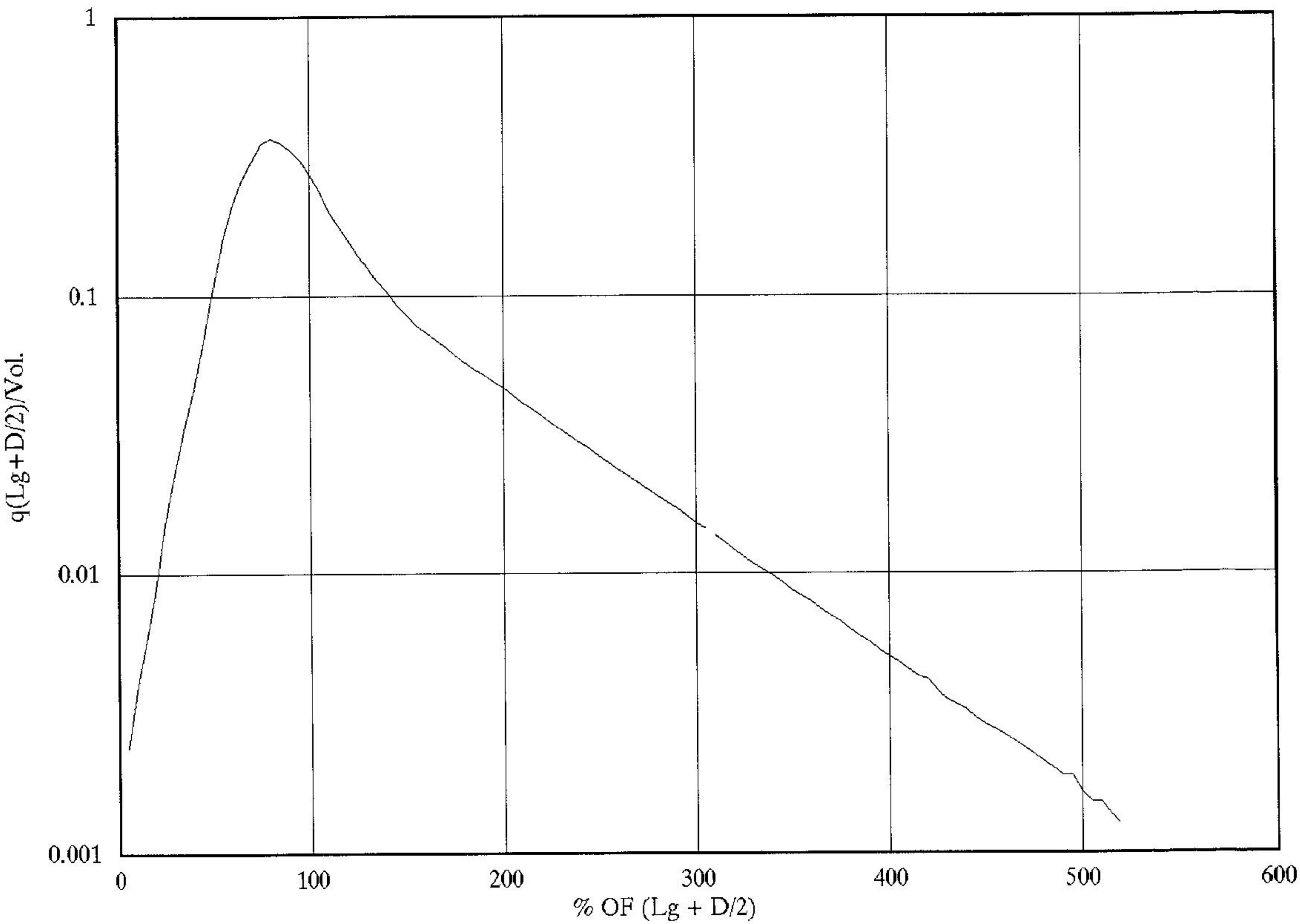
** from Table 3-13, USBR 1987

BALANCED STORM HYETOGRAPH – 24 HR/100YR

MT TAYLOR MINE WATERSHED

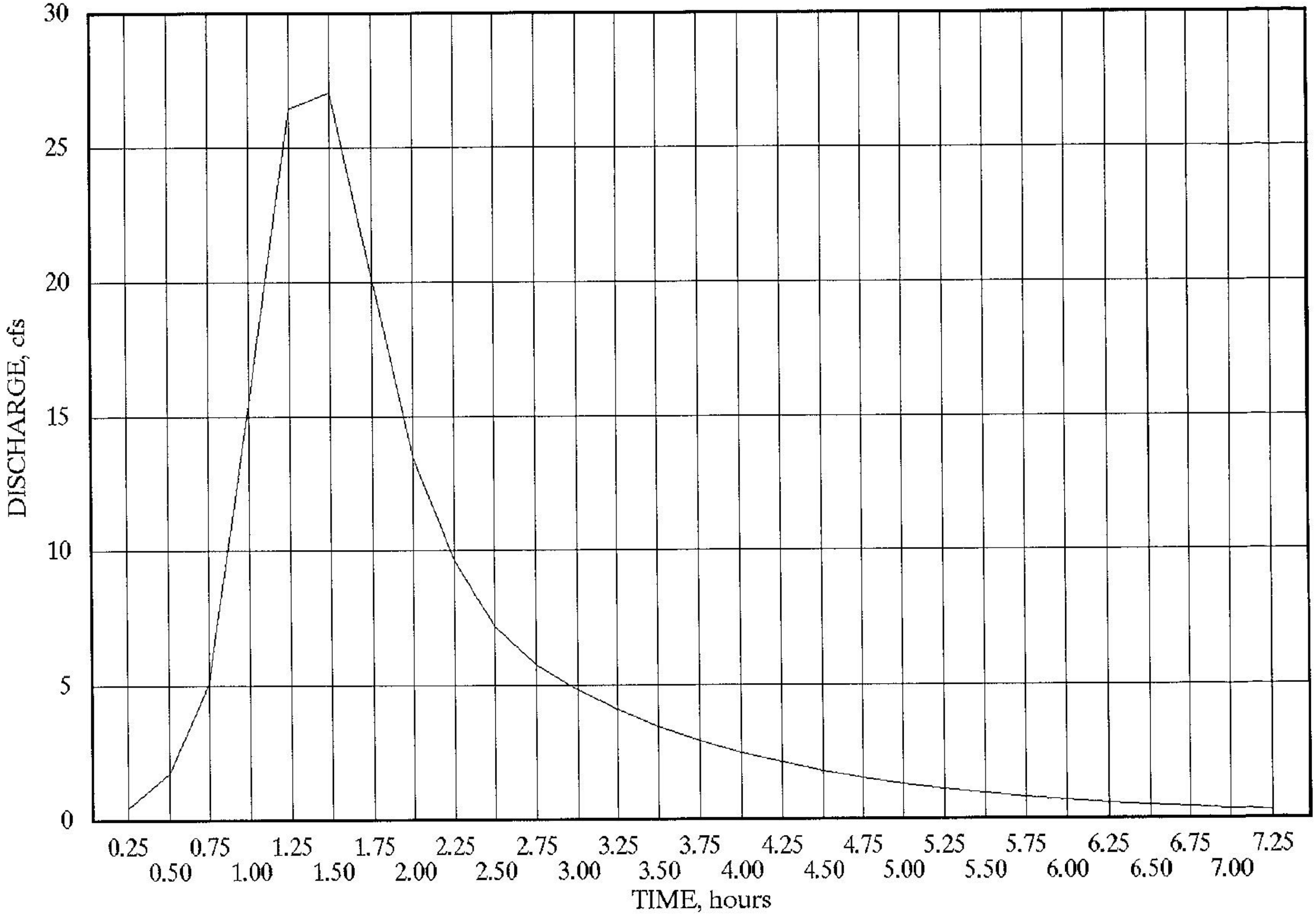


DIMENSIONLESS UNIT HYDROGRAPH FOR MARQUEZ WATERSHED
MT TAYLOR MINE

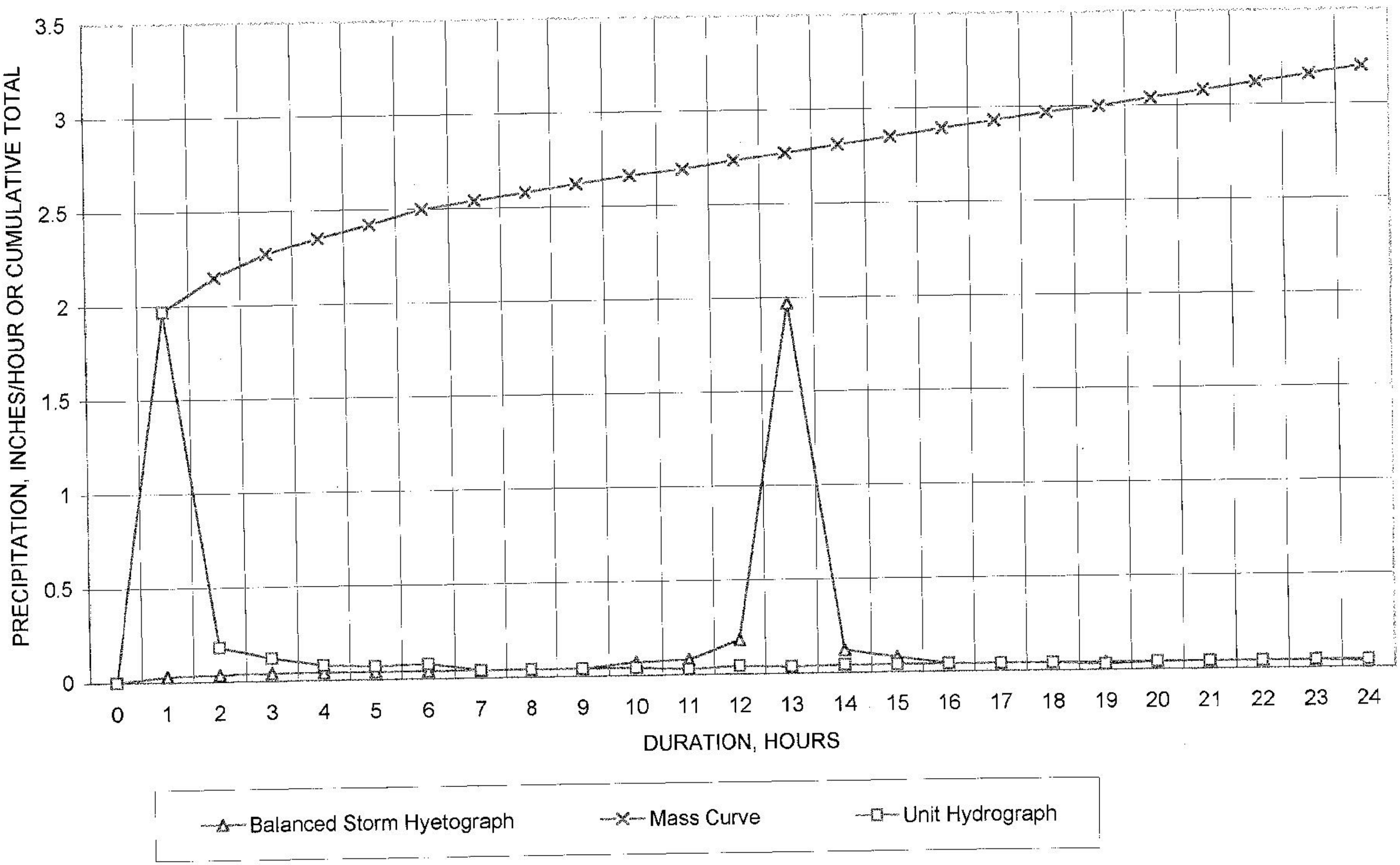


UNIT HYDROGRAPH AT SITE WEST BOUNDARY

MT. TAYLOR MINE – MARQUEZ CANYON WATERSHED



24 HR/100YR RAINFALL DISTRIBUTION
MT TAYLOR MINE - MARQUEZ CANYON WATERSHED



SWHYDATA.XLS

HEC1 S/N: 1343001323 HMVersion: 6.33 Data File: MARQEZ.HC1

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*                                       *
*   FLOOO HYDROGRAPH PACKAGE  (HEC·1)   *
*              MAY  1991                *
*           VERSION 4.0.1E              *
*                                       *
* RUN DATE 09/06/1996 TIME  10:53:37    *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS CALIFORNIA 95616          *
*          (y16) 756-1104               *
*                                       *
*****************************************
```

```
X     X XXXXXXX  XXXXX        X
X     X X       X     X      XX
XXXXXXX XXXX    X         XXXXX   X
X     X X       X             X
X     X X       X     X       X
X     X XXXXXXX  XXXXX       XXX
```

::S:::::::: :::.:::::::::::::::::::::::

Full Microcomputer lrrplementation
by
Haestad Methods, Inc.

37 Brookside Road* Waterbury, Connecticut 06708 * (203) 755-1666

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73}, HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP· AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK· ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS JS THE FORTRAN?? VERSION
NEU OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS;WRJTE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

ID  PREClP DEPTH· AREA SIMULATION FOR MARQUEZ CANYON WATERSHED - MT. TAYLOR HINE
ID  100 YEAR, 24 HOUR STORM EVENT
IT      15       0       0      96
IO       1
JO     3.2    5.02
PI                       1.2    1.70    Z.00     2.1     2.3     2.5     2.7     3.2
KK      10 RUNOFF FROM UPPER MARQUEZ CANYOM TO MARUCA JUNCTION
KO       0
SA    2.76       0
BF       0       0       1
LS       0      71       0
UD     _57
KK    1040 ROUTE MARQUEZ RUNOFF TO JUNCTION
RO   26805    .067     .06            TRAP     4.5     1.9
1(1(    20 RUNOFF FROM MARUCA CANYON
1(0      0
BA    t.63       0
BF       0       0       1
LS       0      71       0
UO     .54
      2040 ROUTE MARUCA RUNOFF TO JUNCTION
1(1( _26-2-1-4  .074   .06            TRAP     4.5     1.9
KK      30 RUNOFF FROM LOWER MARQUEZ CANYON
BA     .63       0
BF       0       0       1
LS       0      78       0
UO     .20
KK      40 COMBINE 10  20,30 RUNOFF
KM  COMBINE RUNOFF FROM UPPER MARQUEZ AND MARUCA CANYONS AND LO'.IER MARQUEZ
KC       3       0
KO       0
KK    4050 ROUTE COMBINED 10,20, ANO 30 RUNOFF TO WEST SIDE OF  !NE PROPERTY
RO    5507    ,068     .06            TRAP     4.5     1.9
Z
```

C1 S/N: 1343001323 HMVersion: 6.33 Data File: MARQEZ.HC1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
!\YDROGRAPH AT	10	990.	12.50	213.	65.	65.	2.76		
ROUTED TO	1040	929.	13.00	210.	63.	63.	2.76		
HYDROGRAPH AT	20	604.	12.50	126.	38.	38.	1.63		
ROOTED TO	2040	593.	13.00	131.	39.	39.	1.63		
HYDROGRAPH AT	30	625.	12.00	73.	22.	22.	0.63		
3 COMBINED AT	40	1579.	13.00	407.	123.	123.	5.02		
ROUTED TO	4050	1502.	13.00	406.	123.	123.	5.02		

100 YEAR- 24 HOUR EVENT

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	3.000	0.00	0.00	0.00	318.50	361.00	320.18	320.18	320.73	232.10	5.94	60.75	23.70
	2.000	800.00	0.00	0.00	331.75	361.00	333.96	333.73	334.43	135.64	5.51	65.48	31.00
	1.000	900.00	0.00	0.00	344.00	361.00	346.37	346.15	346.94	141.74	6.10	59.21	30.32

100 YEAR- 24 HOUR EVENT

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	3.000	361.00	320.18	0.00	0.00	0.00	56.32	0.00
	2.000	361.00	333.96	0.00	13.78	0.00	45.22	800.00
	1.000	361.00	346.37	0.00	12.41	0.00	36.07	900.00

```
 ********.***.****.**********************
 HEC-2 WATER SURFACE PROFILES            *
 Version 4.6.2; May 1991                 *
                                         *
  JN DATE    6SEP96    TIME   10:59:50   *
 *****************************************
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```
 ****************************************
 *  U.S. ARMY CORPS OF ENGINEERS        *
 *  HYDROLOGIC ENGINEERING CENTER       *
 *  609 SECOND STREET, SUITED           *
 *  DAVIS, CALIFORNIA 95616-4687        *
 *        (916) 756-1104                *
 ****************************************
```

```
X     X  XXXXXXX  XXXXX          XXXXX
X     X  X        X     X       X     X
X     X  X        X                   X
XXXXXXX  XXXX     X        XXXXX  XXXXX
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX  XXXXX           XXXXXXX
```

FULL MICRO-COMPUTER IMPLEMENTATION

H A E S T A D M E T H O D S

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

THIS RUN EXECUTED 6SEP96 10:59:50

HEC-2 WATER SURFACE PROFILES

WATER PROFILE ANALYSES FOR MARQUEZ CANYON ARROYO ACROSS MINE SITE
!MT. 1AYLOR MINE, WITHOUT CHANNEL IMPROVEMENTS
: 100 YEAR· 24 HOUR EVENT

ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	0	0	-1	0	0	1579		0

NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLOC	IBW	CKNIM	ITRACE
-1	1	0	0	0	0	-1	0	0	

VARIABLE CODES FOR SUMMARY PRINTOUT

150

LPRNT	NUMSEC	***.****REQUESTED SECTION NUMBERS********
-1	-10	

IHLEO	ICOPY	SUBOJV	STRTOS	RMILE
		0	0	0

C	.03	.03	.040	.1	.3					
1	3	8	10	50	0	0	0	0	0	1
R	270	0	265	10	260	19	257	22	257	28
R	260	35	265	50	267	68				
1	2	11	40	108	1200	1200	1200	0	0	1
R	305	0	300	40	285	50	280	62	277	67
R	276	77	277	87	280	90	285	92	300	108
R	305	118								
1		9	29	80	350	350	350	0	0	1
R	320	29	310	37	300	40	290	49	289	51
R	290	53	300	68	310	77	320	80		

```
CROSS SECTION      1.00
STREAM 100 YEAR- 24 HOUR EVENT
DISCHARGE"'   1579_

PLOTTED POINTS (BY PRIORITY)-B"'BOTTOM BR!DGE,T,,,TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

E.   289.0   294.0   299.0   304.0   309.0   314.0   319.0   324.0   329.0   334.0   339.0

    STA-FEET
 2  29.                                                  • X                              BANK.
    30_                                                   X
    31.X
    32. X
    33.                                              . X
    34. X
    35. X
    36. X
 3  37.                                       X
    38.                                  X
    39.                            X_
 4  40.                  • X E
    41.                     X E
    42.                 XW_  E
    43.             X   W_   E
    44.            X    W.   E
    45.          X      W.   E
    46.        X:       W:   E
    47.         X       W.   E
    48.       X         W.   E
 5  49.: X              W.   E
    50.•  X             W.   E
 6  51. X               W .  E
    52..X                w _E
 7  53.  X              W.   E
    54.   X             1.1. E
    55.    X            W.   E
    56.     X           W:   E
58. 57. X       X_      W.   E
    59.          X      W.   E
    60.         .X      1.1. E
    61.           X     W.   E
    62.            X    W.   E
    63.             X   W.   E
    64.              X  W.   E
    65.              XW.     E
    S6.                X.    E
    67.                .X    E
 8  68.                  X   E
    69. X
    70. X
    71.                          X.
    72.                           .X
    73.X
    74. X
    75.                                 X•
    76. X
 9  77.                                       X
    78.                                             X.
    79. X
10  80.                                                  •  X                             BANK.
```

CROSS SECTION   2.00
STREAM 100 YEAR- 24 HOUR EVENT
DISCHARGE=   1579.

PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,IJ=IJATER SUR,E=ENERGY GRADIENT,C=CRITICAL IJSEL

```
E.    276.0    281.0    286.0    291.0    296.0    301.0    306.0    311.0    316.0    321.0    326.0

    STA-FEET
 2    0.                                                            X
      2.                                                            X
      4.                                                           X
      6.                                                           X
      8.                                                          X
     10.                                                          X
     12.                                                         X
     14.                                                         X
     16.                                                        X
     18.                                                        X
     20.                                                       X
     22.                                                       X
     24.                                                      X
     26.                                                   .   X
     28.                                                    . X
     30.                                                   .X
     32.                                                    X
     34.                                                    X
     36.                                                   X.
     38.                                                   X.
 3   40.                                                  X                                                        BANK.
     42.                                            X
     44.                                      X
     46.                                X
     48.                          X
 4   50.                    X
     52.                  X
     54.                 XE
     56.               X  E
     58_            .XW   E
     60.            X W   E
 5   62.          X  W    E
     64.        X    W    E
 6   66.    X         W   E
     68.. X          W    E
     70..X           W    E
     72..X           W    E
     74. X           W    E
     !6. X           W    E
     78. X           W    E
     80.. X          W    E
     82..X            IJ  E
     84.    X        W    E
 8   86.    X        W    E
     88.        X     IJ  E
 9   90.          X   IJ  E
10   92.                    )(
     94.                        X
     96.                            X
     98.                               X.
    100.                                   X
    102.                                       X
    104.                                          .X
    106.                                             X
11  108.                                                 X .                                                    BANK.
    110.                                                   X
    112.                                                     X
    114.                                                       X
    116.                                                         X
12  118.                                                           X
```

Run Date: 6SEP96 Run Time: 10:59:50 KMVersion: 6.52 Data File: 31MARQUZ.HC2 Page 2

CROSS SECTION 3.00
STREAM 100 YEAR· 24 HOUR EVENT
DISCHARGE= 1579.

P. ED POINTS (BY PRIORITY)·B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,IJ=\JATER SUR,E=ENERGY GRADIENT,C=CRITICAL IJSEL

```
ELEV 257.0    259.0    261.0    263.0    265.0    267.0    269.0    271.0    273.0    275.0    277.0

   STA-FEET
2   0.                                                                X
    2.                                                           X
    4.                                                       X
    6.                                                   X
    8.                                              XE
3  10.                                         X    E                                    BANK.
   12.                                    X IJ      E
   14.                              X.      IJ      E
   16.                        X             W       E
4  18.                 X                    IJ      E
   20.•        X                            W       E
5  22. X                                   W        E
   24. X                                    W       E
   26. X                                    IJ      E
6  28. X                                    W       E
   30.     X                                W       E
   32.          X.                          IJ      E
7  34.               X                      W       E
   36.                  X                   W       E
   38.                       X              W       E
   40.                          X          W        E
   42.                             X        IJ      E
   44.                                 X    IJ      E
   46.                                     XIJ      E
   48.                                        X .   E
8  50.                                         X    E                                    BANK.
   52.                                         .X   E
   54.                                           X  E
   56.                                            X E
   58.                                             XE
   60.                                              X
   62.                                               X
   64.                                                X .
   66.                                                 X .
9  68.                                                  X
```

100 YEAR· 24 HOUR EVENT

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
•	3.000	0.00	0.00	0.00	257.00	1579.00	264.15	264.15	266.10	168.24	11.23	140.58	121.74
	2.000	1200.00	0.00	0.00	276.00	1579.00	282.16	281.77	283.90	132.33	10.60	148.91	137.26
*	1.000	350.00	0.00	0.00	289.00	1579.00	298.49	298.49	301.07	194.22	12.89	122.54	113.30

100 YEAR· 24 HOUR EVENT

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
•	3.000	1579.00	264.15	0.00	0.00	0.00	35.90	0.00
	2.000	1579.00	282.16	0.00	18.01	0.00	34.04	1200.00
*	1.000	1579.00	298.49	0.00	16.34	0.00	24.38	350.00

```
HEC1 S/N: 1343001323        HMVersion: 6.33     Data File: hu1Trller.hc1

*****************************************                                       ****************************************
*                                       *                                       *                                      *
*   FLOOD HYOROGRAPH PACKAGE (HEC·l)    *                                       *     U.S. ARMY CORPS OF ENGINEERS     *
*             MAY  1991                 *                                       *     HYDROLOGIC ENGINEERING CENTER    *
*           VERSION 4.0.1E              *                                       *          609 SECOND STREET           *
*                                       *                                       *       DAVIS CALIFORNIA 95616         *
* RUN DATE 09/06/1996  TIME  15:18:49   *                                       *          (Y16) 756-1104              *
*                                       *                                       *                                      *
*****************************************                                       ****************************************


                    X     X  XXXXXXX   XXXXX          X
                    X     X  X        X     X        XX
                    X     X  X        X               X
                    XXXXXXX  XXXX     X       XXXXX   X
                    X     X  X        X               X
                    X     X  X        X     X         X
                    X     X  XXXXXXX   XXXXX         XXX


                         Full Microcomputer Implementation
                                        by
                              Haestad Methods, Inc.

              37 Brookside Road* Waterbury, Connectlcut  06708 * (203) 755-1666


  THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

  THE DEFINITIONS OF VARIABLES -RTIMP· AND ·RTIOR· HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
  THE DEFINITION OF -AMSKK· ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
  NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
  DSS:REAO TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
  KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM
```

```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10

ID  PRECIP DEPTH- AREA SIMULATION FOR HUMMER WATERSHED - MT. TAYLOR MINE
ID  100 YEAR, 24 HOUR STORM EVENT
IT    15     0      0     96
IO     1
JD   3.2   .54
PH                 1.2     1.70    2.00    2.1     2.3     2.5     2.7     3.2

KK    10 RUNOFF FRa-1 EAST HUMMER
KO     0
BA   .40     0
BF     0     0      1
LS     0    71      0
UD   .22

KK  1030  ROUTE EAST HUMKER RUNOFF TO JUNCTION 30
RD  9513  0.10   •06          TRAP    14     4.0

KK    20  RUNOFF FROM WEST HUMMER
KO     0
BA   .14     0
Bf     0     0      1
LS     0    71      0
UD  0.15

KK  2030  ROUTE WEST HUMMER RUNOFF TO JUNCTION 30
RD  5644  0.088  .06          TRAP    14     4.0

KK    30 COMBINE 10 AND 20 RUNOFF
KM  COMBINE RUNOFF FROM EAST AND WEST HUMMER
HC     2     0
KO     0

KK  3040 ROUTE COMBINED 10 AND 20 RUNOFF TO WEST SIDE OF MINE PROPERTY
RD   968  .036   .03          TRAP    14     4
ZZ
```

r1 S/N: 1343001323 IIMVersion: 6.33 Date File: hU11111er.nc1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	10	226.	12.00	31.	9.	9.	0.40		
ROUTED TO	1030	254.	12.25	35.	10.	to.	0.40		
HYDROGRAPH AT	20	118.	12.00	11.	3.	3.	0.14		
ROUTED TO	2030	107.	12.25	11.	3.	3.	0.14		
2 COMBINED AT	30	361.	12.25	46.	14.	14.	0.54		
ROUTED TO	3040	334.	12.25	46.	14.	14.	0.54		

C2 S/N: 1363001292 HMVersion: 6.52 Data File: HUMMER.HC2

```
************.*****************************
 HEC-2  ATER SURFACE PROFILES            *
 rsion 4.6.2; May 1991                   *
 .,N DATE   6SEP96  TINE   16:05:18      *
****************************** ***********
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGJC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITED           *
*  DAVIS, CALIFORNIA 95616-4687        *
*        (916) 756·1104                *
**.***** ************. .*w..**********
```

```
 X      X XXXXXXX  XXXXX          XXXXX
 X      X X       X     X        X     X
 X      X X       X                    X
 XXXXXXX  XXXX    X        XXXXX   XXXXX
 X      X X       X               X
 X      X X       X     X        X
 X      X XXXXXXX  XXXXX          XXXXXXX
```

FULL MICRO•CCf,tPUTER IMPLEMENTATION

H A E S T A D   M E T H O O S

37 Brookside Road * Uaterbury, Connecticut 06708 * (203) 755·1666

"'In Oate: 6SEP96 Run Time: 16:05:18 HMVersion: 6.52 Data File: HUMMER.HC2 Page

THIS RUN EXECUTED 6SEP96 16:05:18

```
'**********************************
lEC·2 UATER SURFACE PROFILES
l; l•••:* * i•• ft.l l**********
```

WATER PROFILE ANALYSES FOR HUMMER WATERSHED WITHOUT IMPROVEMENTS
'.MT. TAYLOR MINE
100 YEAR· 24 HOUR EVENT

!CHECK	INQ	NIIIV	!DIR	ST R T	METRIC	HVINS	Q	USEL	FQ
	0	0	0		0	0	361		0

NPROf	!PLOT	PRFVS	XSECV	XSECH	HI	ALLDC	IBW	CHNlM	lTRACE
-1		0	0	0	0	-1	0	0	

VARIABLE COOES FOR **SUMMARY** PRINTOUT

150

LPRNT	NU1'1SEC	*******REQUESTED SECTION NUMBERS********
-1	-10	

!HLEQ	!COPY	SUBDTV	STRTDS	RMILE
		0	0	0

.03	.03	.040	.1	.3					
3	7	110	186				0	0	1
325	0	321	80	321	110	318.5	142	318.5	158
321	186	323.7	280						
2	7	85	159	820	790	800	0	0	1
340	0	336	60	336	85	331.75	115	331.75	129
336	159	338.2	280						
1	7	60	130	900	900	900	0	0	1
350	0	352	30	350	60	344	93	344	107
350	130	360	180						

```
CROSS SECTION      1.00
STREAM  100 YEAR- 24 HOUR EVENT
OISCHARGE=    361.

PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL
      344.0     346.0     348.0     350.0     352.0     354.0     356.0     358.0     360.0     362.0     364.0

   STA-FEET
 2   0.                                  X
     5.                                   X
    10.                                    X
    15.                                      X
    20.                                        X
    25.                                         X.
 3  30.                                           X
    35.                                         X
    40.                                        X
    45.                                      X
    50.                                    X
    55.                                 . X                                                                        BANK.
 4  60.                                  X
    65.                             X
    70.                        .X
    75.                    X
    80.              . X  E
    85.         X   .CW   E
    90. .  X        .CW   E
 5  95. X           .CIJ  E
   100. X           . CW  E
 6 105. X           .CW   E
   110.        X    .CW   E
   115.              X    E
   120.                        X
   125.                              X
 7 130.                                  X                                                                         BANK.
   135.                                      X
   140.                                           X
   145.                                                X
   150.                                                     X
   155.                                                          X
   160.                                                               X
   165.                                                                    X
   170.                                                                         X
   175.                                                                              X
 8 180.                                                                                   X
```

```
CROSS SECTION      2.00
STREAM  100 YEAR· 24 HOUR EVENT
DISCHARGE=     361.

PLOTTED POINTS(BY PRIORITY)·B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,U=UATER SUR,E=ENERGY GRADIENT,C=CRITICAL USEL

      331.8     332.8     333.8     334.8     335.8     336.8     337.8     338.8     339.8     340.8     341.8

    STA-FEET

 2    0.                                                                                   X
      5.                                                                               X.
     10.                                                                            X
     15.                                                                         X
     20.                                                                     X.
     25.                                                                  X
     30.                                                               X
     35.                                                           X.
     40.                                                        X
     45.                                                     X
     50.                                                 X:
     55.                                              X
 3   60.                                           X
     65.                                           X
     70.                                           X
     75.                                           X
     80.                                           X                                                              BANK.
 4   85.                                           X
     90.                                   X
     95.                            X
    100.                     XU     E
    105.              X     C U     E
    110.       X           C U     E
 5  115. X                 C U     E
    120. X                 C U     E
    125. X                 C U     E
 6  130. X                 C U     E
    135.        X          C U     E
    140.               X   C U     E
    145.                     XU     EX
    150.                            X
    155.                                   X
 7  160.                                            X                                                             BANK.
    165.                                            X
    170.                                             X
    175.                                             X
    180.                                              X
     15.                                               X
      0.                                                X X.
    195.                                                   X.
    200.                                                   X
    205.                                                .  X
    210.                                                   X
    215.                                                    X
    220.                                                    X
    225.                                                     X
    230.                                                      X
    235.                                                       X
    240.                                                        X
    245.                                                         X
    250.                                                          X.
    255.                                                            X
    260.                                                          . X
    265.                                                            X
    270.                                                             )(
    275.                                                             X
 8  280.                                                               X
```

```
   Run Date;  6SEP96   Run Time: 16:05:18    HMVersion: 6.52    Data File:  HUMMER.HC2                    Page    2
CROSS SECTION    3.00
STREAM  100 YEAR- 24 HOUR EVENT
DISCHARGE=     361.

    'ED POINTS (BY PRIORITY)-B=BOTTOM BRJDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

ELEV 318.5     319.5     320.5     321.5     322.5     323.5     324.5     325.5     326.5     327.5     328.5

    STA·FEET
 2       0.                                                                  X
         5.                                                                X
        10.                                                             X
        15.                                                           X
        20.                                                        X
        25.                                                      X
        30.                                                   X
        35.                                                 X
        40.                                              X
        45.                                            X
        50.                                         X
        55.                                       X
        60.                                    X
        65.                                  X
        70.                               X
        75.                             X
 3      80.                          X
        85.                          X
        90.                          X
        95.                          X
       100.                          X
       105.                          X
 4     110.                          X                                                                                BANK.
       115.                     .XE
       120.                  X    E
       125.              X   W    E
       130.          X.      W    E
       135.      X           W    E
 5     140.  X               W    E
       145.  X               W    E
       150.  X               W    E
       155.  X               W    E
 6     160.  X               W    E
       165.     X            W    E
       170.          X.      W    E
       175.              X   W    E
       180.                   X   E
 i     185.                          X                                                                                BANK.
       190.                           X
       195.                             X .
       200.                              X.
       205.                               .X
       210.                                 X
       215.                                   X
       220.                                    X
       225.                                     X
       230.                                       X .
       235.                                        X.
       240.                                         .X
       245.                                           X
       250.                                             X
       255.                                              X
       260.                                                X
       265.                                                 X .
       270.                                                  X.
       275.                                                   .X
 8     280.                                                   .  X
```

REVISED UNIVERSAL SOIL LOSS EQUATION
INPUT/OUTPUT FILE

File Exit Help Screen

< RUSLE SWCS1.04 >

Conservation Planning Alternatives - Soil Loss Computation Worksheet

filename	R	x	K	x	LS	x	C	x	P	=	A
MTTAYLR2	27		0.12		0.62		0.203		0.50	=	0.2
MTTAYLR1	27		0.12		0.93		0.662		0.57	=	1.1
RGRPILE1	27		0.12		0.07		0.370		0.25	=	0.02
RGRPILE2	27		0.12		0.07		0.008		0.03	=	0
	0		0		0		0		0	=	0
	0		0		0		0		0	=	0
	0		0		0		0		0	=	0
	0		0		0		0		0	=	0
	0		0		0		0		0	=	0
	0		0		0		0		0	=	0

< F4 Calls Factor, Esc Returns to RUSLE Main Menu >

Tab Esc F1 F2 F4 F9
FUNC esc help clr call info

Filename Key:

MTTAYLR2	Reclaimed surface of stockpile and laydown areas east of WSP
MTTAYLR1	Disturbed surface of stockpile and laydown areas east of WSP
RGRPILE1	Pile surface before revegetation
RGRPILE2	Pile surface after revegetation

GEOSYSTEM SLOPE STABILITY PROGRAM
SB-SLOPE

PROJECT DATA:
Project: Mt Taylor Mine Closeout Plan, Old Waste Rock Pile Stability
Location: San Mateo, NM
Filename: RGROLDPI   Description: Old Waste Pile, Max Buildout, Mt. Taylo:

ANALYSIS DATA:

Point No.	Coordinates X	Y
1	550.0	307.0
2	615.0	310.0
3	750.0	346.0
4	775.0	346.0
5	865.0	373.0
6	1050.0	371.0
7	1050.0	330.0
8	0.0	0.0
9	0.0	0.0
10	0.0	0.0
11	0.0	0.0

Line No.	Left Point	Right Point	Soil No.
1	1	2	1
2	2	3	2
3	3	4	2
4	4	5	2
5	5	6	2
6	2	7	1

Soil No.	Density pcf	Cohesion psf	Phi Deg
1	112.0	250	20.0
2	102.0	0	34.0

Seismic coefficient, horizontal = 0.100
vertical = 0.100

Range search; initial parameters:

	min	max	increment
left x	551.0	650.0	10.0
right x	775.0	1050.0	10.0

radius increment is 10.0
minimum perpendicular depth is 15.0
limit at elevation 270.0
OVERALL MINIMUM: x = 686.7, y = 562.5, r = 267.2, FS = 2.418

Range search; initial parameters:

	min	max	increment
left x	551.0	750.0	10.0
right x	775.0	950.0	10.0

radius increment is 10.0
minimum perpendicular depth is 15.0
limit at elevation 270.0
OVERALL MINIMUM: x = 691.5, y = 567.7, r = 281.8, FS = 1.606

GEOSYSTEM SLOPE STABILITY PROGRAM
SB-SLOPE

PROJECT DATA:
Project: Mt Taylor Mine Closeout Plan, New Waste Rock Pile Stability
Location: San Mateo, NM
Filename: RGRNEWPI   Description:

ANALYSIS DATA:

Point No.	Coordinates X	Y	Line No.	Left Point	Right Point	Soil No.
1	1.0	273.0	1	1	2	1
2	95.0	276.0	2	2	3	2
3	180.0	304.0	3	3	4	2
4	205.0	304.0	4	4	5	2
5	287.0	332.0	5	5	6	2
6	312.0	332.0	6	6	7	2
7	395.0	360.0	7	7	8	2
8	545.0	359.0	8	2	9	1
9	110.0	270.0	9	9	10	1
10	545.0	270.0				
11	0.0	0.0				

Soil No.	Density pcf	Cohesion psf	Phi Deg
1	112.0	250	20.0
2	102.0	0	34.0

Seismic coefficient, horizontal = 0.100
vertical = 0.100

OVERALL MINIMUM: x = 180.3, y = 550.9, r = 300.2, FS = 1.585

Range search; initial parameters:

	min	max	increment
left x	2.0	180.0	10.0
right x	312.0	545.0	10.0

radius increment is 10.0
minimum perpendicular depth is 15.0
limit at elevation 250.0
OVERALL MINIMUM: x = 180.3, y = 550.9, r = 300.2, FS = 2.324

RUNOFF AND EROSION PROTECTION ANALYSIS PARAMETERS

MT. TAYLOR MINE

RIO GRANDE RESOURCES

Design Precipitation Events

100 YR, 24 HR.	3.20	inches
100 YR, 1 HR TS	2.00	inches

C, runoff coeff.		0.40	for woodlands on shallow clay over rock - undisturbed surface	(Table 4.5, NUREG/CR-4620)
		0.50	for rolling surface on cultivated clay loam soil, and bare clay	(Table 4.4 and 4.6, NUREG/CR-4620)
		0.40	for clay with light vegetation	(Table 4.6, NUREG/CR-4620)
	use:	0.45	for waste rock surface, unvegetated	
	use:	0.50	for clay cover surface before vegetation is reestablished	

Manning coeff., n,	0.050	for steep natural channels on rock with some vegetation	(Table B-6, USBR Design of Small Dams, 1987)
	0.035	for earth channels and slopes with small growth	(Table B-6, USBR Design of Small Dams, 1987)
	0.02	for sand, sandy loam and other non-colloidal soils (waste rock surface)	(Table 4.2, NUREG/CR-4620)
	0.025	for clays and shales (clay cover)	(Table 4.2, NUREG/CR-4620)

n=0.0456(d50 x S)^0.159 for riprap channels (NUREG/CR-4651)

Cover Factor, **Cf**, for native soil and natural vegetation = 0.5 * 20° 0.1 , for bare surface = 0 (USDA Ag. Handbook 667, Table 3.1)

d75 (USDA Ag. Handbook 667, page 12)

of native CL/SC soils = 0.14 mm, or 0.0055 inches

of waste rock = 0.3 mm, or 0.0118 inches

Soil Grain Roughness, = d75^(1/6)/39, min. of 0.0156 (USDA Ag. Handbook 667, page 12)

for native CL/SC soils = 0.0156 inches

for waste rock = 0.3962 mm, or 0.0156 inches (USDA Ag. Handbook 667, Figure 3.2)

Void Ratio Correction Factor, **Ce** = 1.125 for native clay at 100 pcf d 1.10 for waste rock (SP to SM) (USDA Ag. Handbook 667, page 14)

Allowable shear stress, **Ta**, in psf, (USDA Ag. Handbook 667, Table 3.3)

for native soil CL/SC with PI = 19 0.079 = (1.07 PI^2+14.3 PI+47.7) x 10^-4 x Ce

for waste rock (SP, SM) = 0.02 psf (USDA Ag. Handbook 667, Figure 3.1)

riprap rock = 0.4*d75 = 0.4*1.25*d50 = 0.5*d50

flow concentration factor, F = 3 assumed based on vegetation over 30 % or less of area (p. 68, NUREG/CR-4620)

Stephenson factor, Cs = 0.27 for blasted/ crushed rock (p. 48, NUREG/CR-4620)

rock cover porosity, P = 0.45 (Table B.1, NUREG/CR-4651)

rock spec. gravity, G = 2.65

slope angle, SA (design values)

channel banks 0.33 18.3 degrees, 0.3194 radians

cover slope = 0.30, or 16.7 degrees, 0.2915 radians

friction angle of rock, FA = 40 degrees, 0.6981 radians (Figure 4.8, NUREG/CR-4620)

Sm, factor of safety against rock movement without flow, tan FA/tan SA= 0.00

hydraulic gradient, S

EQUATIONS

tc, time of concentratio 0.00013*(L^0.77/S^0.385), and minimum value is 0.04

i, rainfall intensity = rainfall depth * 60/rainfall duration, inches/hr

q, unit discharge = C*i*a

Q, total runoff = C*i*A

y, max. flow depth = (q*n/1.486*S^.5)^0.6

v, max. flow velocity = (1.486/n)*y^.667*S^.5 for sheet flow = (1.486/n)*R^.667*S^.5 for channelized flow

R = hydraulic radius = cross section area of flow/ wetted perimeter

Tp, peak shear stress = 62.4*S*y * (Ns/n)^2 on bare soil, = 62.4*S*y*(1-Cf)*(Ns/n)^2 on native soil with natural vegetation

Ss, critical slope (limiting value for erosional stability) for sheet flow = ((65*Ta^(5/3))/(i*L*F*n))^(6/7)

d50, mean rock diameter

by Safety Factors Method,

for flow down slopes with gradient < 0.1 , Safety Factor, SF = (cos SA)*(tan FA)/((21*y*S/(G-1)*d50)*(tan FA)+sin SA)

for horizontal flow , Safety Factor, SF = (Sm/2)*((Sm^2*(21*y*S/((G-1)*d50))^2*(sec SA)^2+4)^0.5-
(Sm*(21*y*S/((G-1)*d50))*sec SA))

for slopes with gradients > 0.1

Stephenson Method, d50 = [(q*(tan SA)^7/6*P^1/6)/(Cs*g^.5*((1-P)*(G-1)*(cosSA)*(tanFA-tanSA))^1.667]^.667*12

100-YEAR STORM RUNOFF AND RESULTING PEAK SHEAR STRESSES ON WASTE ROCK PILES

SEGMENT	FLOW PATH PARAMETERS				PEAK RUNOFF PARAMETERS						
	LENGTH ft	GRADIENT S	SLOPE ANGLE degrees	ELEMENT tc hours	RAINFALL WITHIN tc (1)	RAINFALL INTENSITY i in./hr.	RATE q cfs/ft	DEPTH y ft	VELOCITY v fps	SHEAR STRESS psf	ALLOWABLE SHEAR STRESS psf
FLOW OVER WASTE ROCK											
maximum simple top slope >>	400	0.050	2.86	0.042	0.40	9.52	0.21	0.012	0.87	0.02	0.02
design top slope >>	400	0.035	2.00	0.048	0.70	14.69	0.32	0.014	0.81	0.019	0.02
maximum simple side slope >>	80	0.10	5.71	0.042	0.40	9.52	0.04	0.006	0.74	0.02	0.02
design simple side slope >>	80	0.33	18.26	0.042	0.40	9.52	0.04	0.008	1.71	0.10	0.02
FLOW OVER CLAY COVER											
maximum simple top slope >>	1070	0.01	0.57	0.165	1.60	9.72	0.57	0.016	0.37	0.004	0.079
design top slope >>	383	0.010	0.57	0.075	0.85	11.39	0.240	0.009	0.26	0.002	0.079
maximum side slope below design to	92.4	0.33	18.26	0.115	1.10	9.59	0.289	0.029	3.25	0.235	0.079
apron beyond maximum slope	10	0.01	0.57	0.155	1.30	8.41	0.294	0.010	0.28	0.003	0.079
upper west slope	82	0.33	18.26	0.042	0.40	9.52	0.04	0.009	1.51	0.075	0.079
lower west slope	140	0.267	14.95	0.042	0.40	9.52	0.07	0.012	1.62	0.079	0.079
	350	0.010	0.57	0.042	0.92	21.90	0.42	0.013	0.33	0.003	0.079
	89	0.33	18.42	0.084	0.92	10.95	0.48	0.040	3.99	0.321	0.079
maximum simple side slope >>	90	0.33	18.42	0.042	0.40	9.52	0.05	0.010	1.58	0.080	0.079
design simple side slope >>	79	0.33	18.42	0.042	0.40	9.52	0.04	0.009	1.50	0.074	0.079
FLOW TO TOP SURFACE CHANNELS	383	0.01	0.57	0.075	0.40	5.36	0.11	0.006	0.19	0.001	0.079

ROCK SIZES REQUIRED FOR MT TAYLOR WASTE ROCK PILE EROSION PROTECTION

RUNOFF FROM	ELEMENT LENGTH L ft	ELEMENT WIDTH W ft	MAX. ELEV.	MIN. ELEV.	GRADIENT S	SLOPE ANGLE degrees	tc (minimum is 0.042) hours	RAINFALL WITHIN tc (1) inches	i in/hr	Peak Unit Discharge q cfs/ft	d50 for S>0.1, inches	S<0.1, inches	Manning Coeff. n	Peak Flow Depth, y ft	Peak Flow Velocity on Rock v fps	Safety Factor of Rock
OLD WASTE ROCK PILE																
TOP SURFACE SLOPING EAST	383	1	7371	7366.2	0.0100	0.57	0.075	0.80	10.72	0.0942		**0.20**	0.0170	0.10	1.87	1.25
TOP SURFACE SLOPING N & S	350	1	7373	7371	0.0100	0.57	0.070	0.75	10.77	0.0865						
EAST SLOPE WITH RUN-ON	92	1	7366.2	7338	0.3330	18.42	0.081	0.90	11.10	0.0973	**2.7**		0.0448	0.06	3.02	
UPPER SLOPES W/O RUN-ON	82	1	7371	7346	0.3330	18.42	0.042	0.40	9.52	0.0287	**1.2**		0.0394	0.03	2.00	
LOWER SLOPES W/O RUN-ON	140	1	7346	7326	0.2670	14.95	0.042	0.40	9.52	0.0490	**1.2**		0.0381	0.04	2.37	
UPPER SLOPES WITH RUN-ON	90	1	7371	7342.5	0.3330	18.42	0.076	0.80	10.53	0.1213	**3.1**					
NEW WASTE ROCK PILE																
PILE TOP SURFACE	1070	1	7377.5	7376	0.0100	0.57	0.165	1.60	9.72	0.2387		**0.30**	0.0181	0.18	2.62	1.03
EAST SIDE SLOPE	75	1	7376	7351	0.3330	18.42	0.170	1.65	9.70	0.2654	**5.3**		0.0499	0.12	4.25	
OTHER SIDE SLOPES	90	1	7313	7276	0.3330	18.42	0.042	0.40	9.52	0.0315	**1.3**		0.0398	0.03	2.06	
COMPOSITE SIDE SLOPES	210	1			0.3330	18.42	0.054	0.60	11.07	0.0854	**N/A**					

DIVERSION DITCHES AND BENCH CHANNELS

DIVERSION LOCATION	CAPACITY NEEDED cfs	DRAINAGE AREA acres	DITCH DIMENSIONS DEPTH ft	WIDTH ft	LENGTH ft	AREA ft^2	HYDRAULIC PARAMETERS Capacity cfs	R	n	S	PEAK VELOCITY fps	AVERAGE SHEAR psf	ROCK SIZE d_{50} inches
OLD WASTE ROCK PILE													
WEST BENCH	21.54		2	20.00	355	50	11.65	1.62	0.0176	0.01	0.233	1.01	**0.3**
NORTH 7346 BENCH	15.17		2	20.00	250	50	11.65	1.62	0.0176	0.01	0.233	1.01	**0.3**
WEST BENCH OUTFALL	36.70		2	25.00	210	60	20.50	1.68	0.0463	0.205	0.342	21.42	**5.4**
EAST TOE OF TOP SLOPE	27		1	150.00	550	152.5	9.19	0.98	0.0168	0.0111	0.06	0.68	**0.2**
NEW WASTE ROCK PILE													
BENCH DITCHES	8.50		1	20.00	540	22.5	8.56	0.89	0.0160	0.01	0.38	0.55	**0.1**
BENCH CHUTES													
ON BENCHES	8.50		1	10.00	30	13	10.20	0.84	0.0225	0.03	0.78	1.58	**0.4**
ON SLOPES	8.50		1	10.00	90	12.5	15.47	0.81	0.0480	0.33	1.24	16.72	**4.2**
EAST TOE (OUT-OF-BANKS FLOW	31.8		10	150.00	90	1750	32.84	8.58	0.0321	0.029	0.02	15.30	**3.8**
NORTH AND SOUTH TOES	28.47		7	50.00	91	472.5	28.69	5.38	0.0356	0.050	0.06	16.79	**4.2**

APPENDIX C

TECHNICAL SPECIFICATIONS

C.1 SHAFT HEADFRAME AND COLLAR EQUIPMENT DEMOLITION

1 GENERAL TECHNICAL REQUIREMENTS

1.1. Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing Sheet CL00). The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine is on active (operating) status but has initiated closeout of the mine due to the depressed uranium market. The mine extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface:

- Production shaft (24-foot diameter)
- Manway shaft (14-foot diameter)

The shafts are located in the Service and Support Area (Drawing Sheets CL02, CL05, CL06). The manway shaft headframe was demolished in January 2022. As of April 2022, the production shaft head frame remains in place.

The included work consists of demolition of the production shaft headframe and materials within the shaft collar. The required work includes:

- Mobilization and demobilization of contractor's equipment
- Preparation of the work area
- Protection of potentially impacted facilities and structures
- De-energizing and removal of electric lines and equipment
- Dropping the headframe to ground surface
- Cutting and stacking of headframe structural steel into lengths up to 40 feet
- Disposal of non-salvaged demolition debris in shaft below subcollar level.
- Removal of all fittings, equipment, and internal structures in the shaft from collar down to subcollar level, and disposal of selected non-rigid debris below subcollar level.
- Stacking of selected salvaged structural steel within 50 feet of the shaft, for use by others in shaft plug construction

The contractor may salvage the structural steel and other rigid materials for sale and re-use offsite, except for the selected structural steel needed for construction of the shaft plug (Drawing Sheets CL- 05 and CL06).

The work is represented in Drawing Sheets

CL01 - Closeout Plan Task Summary
CL03 – Facility Disposition Plan
CL05 – Shaft Closure - Manway Vent
CLo6 – Shaft Closure – Production Shaft

1.2. Site Survey

Prior to mobilizing to the mine, the Contractor shall perform its own survey of the headframe for the purposes of dimensional and volume measurements, assessment of hazards, and planning the work. The results of this site survey shall be submitted to the Project Manager and to a MSHA or State Mine Inspector- qualified safety officer for review and approval before the work begins.

1.3. Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All Contractor personnel and visitors shall log in and out at the guardhouse. All personnel shall wear the required safety equipment as directed by the site Safety Officer while inside the mine perimeter fence.

1.4. Information on Existing Facilities

The production shaft is 24 feet in diameter below subcollar level with a headframe approximately 180 feet tall. Headframe elevation views of the 24-foot shaft headframe as well as shaft collar general arrangement, plan and section construction drawings are available for contractor use in planning demolition. Attached to this specification are inventories of structural steel in headframe by RGR, Table C.1.1. Some buildings close to the shaft will remain for post-mining land use and must be protected from damage during headframe demolition (Drawing Sheet CL03). The shaft has a reinforced concrete collar that will remain in place and will not be demolished.

1.5. Codes, Standards, and Regulatory Requirements

All work must be performed according to New Mexico State Mine Inspector and/ or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements.

The individual responsible for planning, placing and detonating explosives used in headframe demolition must have a current Blaster's Certificate, recognized in the State of New Mexico.

The contractor shall implement the applicable requirements for worker fall protection including, but not limited to, 29 CFR 1926:

- 1926.501, Duty to have fall protection
- 1926.502, Fall protection systems criteria and practices
- 1926.503, Training requirements (Fall Protection)
- 1926.760, Steel Erection (Fall protection)
- 1926.800, Underground construction

- 1926.1051, General requirements (Stairways and Ladders)

1.6. Site Investigation Reports & Data

Not applicable.

1.7. Health & Safety Practices

1.7.1. Health & Safety Practices

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, Level D PPE is required. All contractor personnel and others within the contractor's working area must be equipped with the required PPE and must comply with the requirements cited in section 1.5.

The contractor shall have a qualified Safety Officer on site during working hours. The Safety Officer shall be responsible for enforcing all safety requirements and shall have the authority to remove anyone not complying with those requirements from the contractor's working area.

1.7.2. Site Safety & Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line at all times. Cell phone service is not reliable at the mine site.

1.7.3. Radiological Materials

The contractor shall implement relevant portions of RGR's Radiation Safety Program Manual (RSPM) and corresponding procedures to provide for the radiation safety of workers, the public and environment. The RSPM and procedures topics include (but are not limited to) radiological work controls, development and use of non-routine procedures, access control and security, radiation monitoring surveys, radiation dose, and response to incidents and emergencies involving radioactive materials. RGR's Radiation Safety Officer and Mine Manager will provide the necessary training and oversight, but the contractor shall ensure worker compliance with the RSPM.

1.8. Field Engineering and Surveying

Not Applicable

1.9. General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer

- Demolition Plan – including methods and equipment to be used, names and qualifications of key personnel, and schedule
- Blasting Plan – if needed

1.10. Construction Facilities and Field Office

1.10.1. Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Coop***.***

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

Explosive materials may not be stored on site. If needed, explosives shall be brought to the site, placed, and ignited in one continuous operation. If left in place between work shifts, the explosives will be placed under protection as required by federal and state law.

1.10.2. Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use (Drawing Sheet CL15). Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3. Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to,

- Fuels, solvents and lubricants storage
- Surface water diversions and erosion control materials
- Dust suppression chemicals containers
- Sanitary wastes containments
- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife.

No firearms may be brought on the mine site.

2 SITE CONSTRUCTION

2.1 Site Preparation

The contractor shall de-energize and remove all electrical equipment and lines on the shaft headframe, in the shaft, and in the shaft tunnels from the subcollar to the first doors in the shaft tunnels.

If the contractor plans to drop the headframe using explosives and/ or heavy equipment to topple them, the contractor shall remove all utilities and above-grade structures in the planned line of fall of the headframe, plus at least 100 feet to each side and beyond the lines of fall. Blasting mats or other protective measures shall be applied over any structures within the potentially impacted zone that cannot be removed.

2.2 Demolition

The contractor shall submit a demolition plan for RGR approval prior to beginning the work. The plan shall include methods and equipment to be used, names and qualifications of key personnel, and schedule. The plan shall also describe any salvage intended by the contractor, including materials and expected values.

2.2.1. Blasting

If the contractor uses blasting to bring down the headframe, it shall prepare a blasting plan. The blasting plan shall include description of types and amount of explosives, delays, initiating methods and equipment, protective measures, and personnel. The plan shall include a figure illustrating the placement of explosives. The person who prepares and executes the plan shall have a current Blaster's Certificate.

2.2.3. Other Methods

Other methods of demolition shall be described in the demolition plan required under section 1.9.

2.2.3. Separation of Salvaged Steel for Shaft Plugs

The contractor shall cut salvaged steel from each headframe for use by others for construction of the shaft plugs and/or for placement in the on-site disposal cell. See Drawing Sheets CL05 and CL06 for quantities. The salvaged steel shall be selected, cut, and handled so that each beam is straight and intact along the entire required length, and the ends shall be cut square. The salvaged steel may be temporarily stacked within 100 feet of the shaft.

2.2.4. Disposal and Salvage

Demolition debris in addition to steel salvaged for shaft plugs shall be salvaged for off-site use or recycling as the first priority. At the time of closeout, market conditions will indicate what materials have re-sale or salvage value. Materials that can be economically re-used or recycled will be stacked separately until they can be removed from the site.

Demolished materials not to be salvaged for off-site use or use in the shaft plug shall be reduced in size sufficiently to be dropped down the shaft and free-fall to the bottom, taking into consideration the cage guides, ducts, and other structures remaining in place below the subcollar. Alternatively, these materials will be placed in the on-site disposal cell. Only non-rigid materials such as wood and rope guides, cables, ducts and flexible sheet metal may be dropped in the shaft. Rigid plate, metal grids, structural steel and similar hard materials shall be removed from the shaft and headframe for re-use or disposal on site.

The contractor shall dispose of demolition debris allowed to free-fall below the subcollar in such sizes and shapes that this debris will not become entangled with shaft structures below the subcollar nor be capable of damaging the shaft liner below subcollar level in the shaft. The nominal distance between cage guides, the narrowest opening in the center of the shaft, is 13 feet in the 24-foot diameter shaft.

The contractor shall submit a description of disposal methods to be used that will be protective of the shaft liner.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

Not applicable

3.2 Inspection Reports

Contractor shall record in writing the structural steel salvaged for use in shaft plug construction as required in section 2.2.3. RGR shall inspect the salvaged steel and confirm or correct the contractor's written records as the basis for payment.

3.3 Test Reports

Not applicable

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has been completed by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met.

The documentation shall bear the signature of the contractor's officer with signatory authority.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

Table C.1.1 24' SHAFT Headframe Structural Steel

H. W, T in inches; L in feet

Description	Description	Description
I BEAMS	**I BEAMS**	**T IRON**
H x W x T x L	H x W x T x L	H x W x T x L
37 x 16 x 1 1/2 x 25	14 x 10 x 3/4 x 8	8 x 8 x 1/2 x 204
14 1/2 x 14 5/8 x 1 x 552	30 x 10 1/2 x 3/4 x 50	
14 x 12 x 3/4 x 330	30 x 8 x 3/4 x 50	
10 x 8 x 1/2 x 668	14 x 7 x 3/4 x 37	
10 x 5 1/2 x 1/2 x 288	16 x 7 x 3/4 x 35	Description
16 x 8 x 1/2 x 162	24 x 9 x 3/4 x 38	**ANGLE IRON**
8 x 6 x 1/2 x 40	21 x 8 x 3/4 x 132	H x W x T x L
14 x 8 x 1/2 x 134	22 x 8 x 5/8 x 66	
14 x 6 3/4 x 1/2 x 80	14 x 8 x 5/8 x 68	6 x 6 x 1/2 x 2423
14 x 6 x 1/2 x 20	24 x 7 x 5/8 x 225	4 x 3 x 1/2 x 552
14 x 7 x 1/2 x 164	14 x 7 x 5/8 x 188	4 x 6 x 1/2 x 616
10 x 6 x 1/2 x 70	8 x 7 x 5/8 x 24	6 x 6 x 3/8 x 184
8 x 8 x 1/2 x 8	16 x 7 x 5/8 x 75	6 x 8 x 5/8 x 80
16 x 6 x 1/2 x 25	8 x 5 x 3/8 x 6	6 x 6 x 5/8 x 64
24 x 6 x 1/2 x 50	6 x 6 x 3/8 x 128	
18 x 7 x 1/2 x 25	10 x 8 x 3/8 x 174	
6 x 6 x 1/2 x 248	10 x 6 x 3/8 x 30	
8 x 6 1/2 x 1/2 x 32		Description
36 x 12 x 1 x 288		**C - CHANNEL**
36 x 14 x 1 x 50		H x W x T x L
36 x 16 x 1 x 25	Description	
14 x 8 x 3/4 x 200	**TUBING**	2 1/2 x 10 x 3/8 x 238
36 x 12 x 3/4 x 208	H x W x T x L	2 1/4 x 8 x 3/8 x 370
24 x 7 x 3/4 x 50		2 1/4 x 8 x 1/2 x 72
24 x 8 x 3/4 x 25	6 x 6 x 1/2 x 255	3 x 12 x 1/2 x 124
12 x 8 x 3/4 x 40	4 x 6 x 1/2 x 312	

C.2 BUILDINGS AND PIPELINE DEMOLITION

1 GENERAL TECHNICAL REQUIREMENTS

1.1. Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing Sheet CL-00). The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine is on active (operating) status but RGR has initiated closeout due to the depressed uranium market. The mine extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface. The mine surface facilities are located on 285.6 acres, of which approximately 175 acres are disturbed land and the remaining acres are undisturbed. The disturbed land consists of:

- Support (Service and Support) Facilities
- Mine Water Treatment Area
- Treated Water Discharge Pipeline
- Ore Stockpile
- Waste Pile
- Storm Water Retention Ponds (2)
- Access Road

The included work consists of demolition of buildings that will have no post-mining use and the treated water discharge pipeline that will be salvaged. Some of the mine buildings and other facilities have already been removed. Buildings and facilities that have post-mining use will not be removed.

Facilities remaining to be removed are listed in Table C.2.

Removal of the production shaft and headframe and the manway shaft are addressed in other specifications in Appendix C.

Scrap materials from demolition, with the exception of concrete, that are not radiologically contaminated and meet the criteria for unrestricted use will be disposed of as scrap or made available for off-site sale. The surface landowner shall have the right to retain any uncontaminated demolition materials, other than concrete, for its own use, including but not limited to on-site use for post-mining applications or for off-site sale. Any demolition materials not retained on site at the written request of the surface landowner prior to demolition shall be removed by the contractor and may be used or sold by the contractor without compensation to RGR or the surface landowner. Subsequent to closeout, removal of remaining salvaged materials from the site will be at the landowners' discretion and cost.

Demolition of these facilities will include the concrete slabs or other foundations. The concrete shall be broken and separated from reinforcement by the contractor, then stockpiled at each location for later recycling by others as riprap in closure of the waste pile or for erosion protection on site. Concrete hydraulic control structures in the mine water treatment ponds shall be removed and the concrete crushed and stockpiled near the waste rock plie as directed by RGR.

The treated water discharge pipeline (Drawing Sheet CL16)) is 1/4 to 3/8 inch thick, 24 inch diameter steel pipe. The in-place and spare lengths total approximately 23,000 feet. This pipe shall be removed from the pipeline corridor and place in the disposal cell adjacent to the waste rock pile.

The required work includes:

- Mobilization and demobilization of contractor's equipment
- Preparation of the work area
- Protection of potentially impacted facilities and structures
- De-energizing and removal of electric lines and equipment in facilities to be removed
- Demolition of the buildings listed in Table C.2.1.
- Separation and stacking of demolition debris at locations on site designated by RGR.

Any demolition materials other than concrete meeting release criteria may be salvaged for sale and re-use offsite by the contractor.

The work is represented in the following drawing sheets:

CL 01 Closeout Plan Task Summary

CL 02 2021 Gamma Survey

CL 03 Facility Disposition Plan

CL 16 Treated Water Discharge Pipeline – Removal and Disposition

1.2. Site Survey

Prior to mobilizing to the mine, the Contractor shall perform its own survey of the facilities to be removed for the purposes of dimensional and volume measurements, assessment of hazards, and planning the work. The results of this site survey shall be submitted to the Project Manager and to a MSHA or NM Mine Inspector-qualified safety officer for review and approval before the work begins.

1.3. Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All Contractor personnel and visitors shall log in and out at the guardhouse. All personnel shall wear the required safety equipment as directed by the site Safety Officer while inside the mine perimeter fence.

1.4. Information on Existing Facilities

Facilities to be removed include the buildings listed in Table C.2.1, the treated water discharge pipeline shown on Figure C.2-1, abandoned on-site water pipes, and hydraulic control structures of the mine water treatment ponds. Locations of these facilities are shown on Drawing Sheet CL 03. Photographs of facilities to be removed will be available to the contractor.

1.5. Codes, Standards, and Regulatory Requirements

All work must be performed according to NM State Mine Inspector or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements.

1.6. Site Investigation Reports & Data

Not applicable.

1.7. Health & Safety Practices

1.7.1. Health & Safety Practices

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, Level D PPE is required. All contractor personnel and others within the contractor's working area must be equipped with the required PPE and must comply with the requirements cited in section 1.5.

The contractor shall have a qualified Safety Officer on site during working hours. The Safety Officer shall be responsible for enforcing all safety requirements and shall have the authority to remove anyone not complying with those requirements from the contractor's working area.

1.7.2. Site Safety & Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line at all times. Cell phone service may not be reliable at the mine site.

1.7.3. Radiological Materials

Radiological contamination levels in most of these facilities do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use and will not require decontamination prior to demolition. However, the ion exchange building and contents may require some decontamination prior to removal. However, the contractor shall implement relevant portions of RGR's Radiation Safety Program Manual (RSPM) and corresponding procedures to provide for the radiation safety of workers, the public and environment. The RSPM and procedures topics include (but are not limited to) radiological work controls, development and use of non-routine procedures, access control and security, radiation monitoring surveys, radiation dose, and response to incidents and emergencies involving radioactive materials. RGR's Radiation Safety Officer and Mine Manager will provide the necessary training and oversight, but the contractor shall ensure worker compliance with the RSPM.

1.8. Field Engineering and Surveying

Not Applicable.

1.9. General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer
- Demolition Plan – Methods of demolition shall be described in the demolition plan required under section 1.9 including methods and equipment to be used, names and qualifications of key personnel, and schedule.

1.10. Construction Facilities and Field Office

1.10.1. Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Co-op**.**

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

1.10.2. Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use. Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3. Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to,

- Fuels, solvents and lubricants storage
- Surface water diversions and erosion control materials
- Dust suppression chemicals containers
- Sanitary wastes containments

- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife.
No firearms may be brought on the mine site.

2 SITE WORK

2.1 Site Preparation

The contractor shall de-energize and remove all electrical equipment and lines in facilities to be removed.
The contractor shall prepare its office, equipment, and laydown areas as approved by RGR so as not to obstruct or interfere with RGR site operations or other contractors' operations.

2.2 Demolition

The contractor shall submit a demolition plan for RGR approval prior to beginning the work per section 1.9. The plan shall include methods and equipment to be used, names and qualifications of key personnel, and schedule. The plan shall also describe any salvage proposed by the contractor, including materials and expected values.

2.2.1. Building and Pipe Removal

The buildings shall be removed by mechanical or manual methods; no explosives may be used. The buildings are steel frame with metal siding and roofs.

No asbestos is known to be present within these facilities. However, the contractor shall perform inspections it considers necessary to confirm that asbestos is not present.

RGR has identified some Transite pipe on site. This pipe shall be handled by personnel trained in handling of asbestos and wrapped or otherwise contained while being removed and transported to the trench within the disposal sell specifically designated by RGR. The Transite pipe and other asbestos material, if found, will be placed in the designated trench and flooded by flowable fill composed of soil, Portland cement and water with a 30-day compressive strength of 75-150 psi.

2.2.2. Debris Sizing and Stacking

The contractor shall prepare demolition debris for disposal. The contractor shall reduce the size of debris and sort it sufficiently for it to be classified and stacked by material type and potential re-use or salvage. With prior approval of RGR, uncontaminated non-rigid materials (other than concrete, structural steel or metal siding/roofing) that have no salvage value may be reduced in size and dropped down the shafts and free-fall to the bottom, taking into consideration the cage guides, ducts, and other structures remaining in place below the subcollar. The nominal distance between cage guides, the narrowest opening in the center of the shaft, is 6 feet in the manway shaft and 13 feet in the production.

Demolition debris other than concrete shall be cut, hauled, and stacked according to shape (e.g.; beams, sheet metal) in disposal cell of the waste pile as determined by RGR. Debris shall be reduced in size to fit into the likely transport vehicle, but in any case not longer than 40 feet.

2.2.3. Concrete Debris

The contractor shall remove the concrete in floor slabs of removed buildings, pond hydraulic control structures, ore bins next to the production shaft, aprons more than 20 feet beyond the shaft collars, and subgrade of mine car rails. Some concrete slabs and foundations (Table C.2.1) will be broken into pieces not exceeding one foot maximum dimension and left in place to be covered with soil. The other concrete slabs and foundations shall be broken into maximum 24-inch size and stacked at the demolition locations for subsequent collection and use by others. Scrap steel from the hydraulic control structures shall be placed in the disposal cell.

2.3 Treated Water Discharge Pipeline

The treated water discharge pipeline is 1/4 to 3/8 inch thick, 24 inch diameter steel pipe. The in-place and spare lengths total approximately 23,000 feet. The pipeline extends from the mine water treatment area approximately 4.3 miles northward to the outfall at San Lucas Canyon. The pipeline runs roughly parallel to, and is accessible from, NM 605 (Figure C.2-1). The contractor shall remove the pipe from the pipeline corridor and place it in the disposal cell as directed by RGR. The contractor shall use methods for cutting, removal and transport of the pipe in pieces not to exceed 40 feet in length.

The steel pipe has rusted to varying degrees along the length of the pipeline, resulting in holes and radiologically-contaminated, loose scale at many locations. The contractor shall take the necessary precautions to minimize further degradation of the pipe while cutting, loading and unloading, and transporting to pipe to the disposal cell. To restrict the release of contamination while moving the pipe, the contractor shall haul the pipe along the pipeline corridor and cover the trailers when both loaded and unloaded.

Concrete supports exist at intervals along the pipeline, and concrete thrust block exist at vertical and horizontal bend in the pipeline. These concrete structures shall be broken up and loaded and hauled to the disposal cell separately from the pipe. Broken concrete that is determined to be free of contamination may be stockpiled separately for subsequent use on site.

Ground disturbances created by accessing and removing the pipeline shall be minimized to the extent practicable. All such disturbances including fence cuts, removal of vegetation and equipment tracks in the soil shall be continuously repaired during pipe removal so that not more than one mile of disturbance accumulates before repairs in fences and soil grade are begun on the disturbed ground.

Revegetation ground preparation and reseeding must be completed on disturbed ground not more than one month after pipeline removal is complete. Revegetation shall conform to the requirements in Technical Specification C.5.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

Not applicable.

3.2 Inspection Reports

Contractor shall record in writing the total length of pipe removed in each truck-load trip ticket, as well as the total length of pipe removed each working day. This record shall be subject to review and independent verification by RGR.

3.3 Test Reports

Not applicable

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has been completed by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met.

The documentation shall bear the signature of the contractor's officer with signatory authority.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

Table C.2.1 Facilities to be Removed

Name	Type	Dimensions	Volume, ft^3
Mine Water Treatment Pond Hydraulic Structures	Reinforced concrete, steel	Various	5400
Car (Maintenance) Shop	Steel frame and siding	150'x100'x30'	450000
Core Storage Building	Steel frame and siding	100x38'x16'	60800
Fan Shop	Steel frame and siding	40' x 30' x 12'	14400
Ion Exchange Plant	Steel frame and siding	140' x 70' x 40'	392000
Ore Loading Pad and Wash Bay	Reinforced concrete	5,664 sf base, 400'x 4' x 1' walls	7500
Sanitary Treatment Plant	Reinforced concrete	70' x 30' x 6', 40' x 20' x 8'	3315
Treated Water Discharge Pipeline	Steel, concrete	4.3 mi. x 24" diameter	71327

- MWTU Ponds #2 and #3 (after ground water abatement is completed)

Figure C.2-1 Treated Water Discharge

C.3 SHAFT PLUGGING AND BACKFILL

1 GENERAL TECHNICAL REQUIREMENTS

1.1. Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing Sheet CL00. The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine is in active (operating) status but has initiated closeout activities due to the continued depressed uranium market. The mine extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface. The water level in the shafts is approximately 820 feet below collar elevation.

The included work consists of disposing of selected demolition debris in the shafts below subcollar level, construction of a plug in each shaft at subcollar level, backfilling to the collar and connected openings, and placement of concrete markers on the shaft caps.

Selected, non-rigid scrap materials from demolition of surface facilities and the headframes, with the exception of concrete, may be disposed of in the shafts by others prior to plugging.

The required work includes:

- Mobilization and demobilization of contractor’s equipment,
- Preparation of the work area,
- Disposal of non-rigid, non-structural demolition debris from within the shaft collars,
- Placement of salvaged or new structural steel as the primary structural component of the shaft plugs,
- Mixing and placement of light weight concrete, cementitious slurry, and cap concrete
- Site cleanup and removal of work debris.

The work is represented in Drawing Sheets:

CL01 Closeout Plan Task Summary-

CL05 Shaft Closure - Manway Vent

CL06 Shaft Closure - Production Shaft

NOTE: THESE DRAWINGS SHOW THE CONCEPTUAL DESIGNS OF SHAFT CLOSURE. DETAILED DESIGN WILL BE COMPLETED BY A LICENSED STRUCTURAL ENGINEER AND MAY ALTER THE PLUG CONFIGURATIONS SHOWN HERE.

1.2. Site Survey

The Contractor shall perform its own survey of the dimensions of the shaft collar, subcollar, and connected openings above subcollar level for the purposes of dimensional and volume measurements, assessment of hazards, and planning the work. This survey shall include an inventory of material in the shaft collars that can be dropped into the shafts and material that must be removed from the shafts for salvage (see section 2.2). The results of this site survey shall be submitted to the Project Manager and to a MSHA or New Mexico State Mine Inspector- qualified safety officer for review and approval before the work begins.

1.3. Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All Contractor personnel and visitors shall log in and out at the guardhouse. All personnel shall wear the required safety equipment as directed by the site Safety Officer while inside the mine perimeter fence.

The contractor's work area shall be enclosed with temporary fencing, selected and provided by the contractor, to restrict access to the shafts to authorized personnel only. The contractor shall prohibit entry to anyone not trained and authorized to enter the enclosed area or accompanied at all times by an authorized person.

1.4. Work Performed by Others

Prior to the commencement of this work, the shafts headframes and shaft collar structures and equipment will be removed by others. Structural steel and other materials from demolition of the headframes will have been cut by others to fit in the shaft and stacked near each shaft. Structural steel to be used for construction of the shaft plugs (Drawing Sheets CL05 and CL06) will have been stacked separately from other steel that will be shipped offsite for salvage or placed in the disposal cell.

1.5. Codes, Standards, and Regulatory Requirements

All work must be performed according to New Mexico State Mine Inspector and/ or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements.

The contractor shall implement the applicable requirements for worker fall protection including, but not limited to, 29 CFR 1926:

- 1926.501, Duty to have fall protection
- 1926.502, Fall protection systems criteria and practices
- 1926.503, Training requirements (Fall Protection)
- 1926.760, Steel Erection (Fall protection)
- 1926.800, Underground construction
- 1926.1051, General requirements (Stairways and Ladders

1.6. Site Investigation Reports & Data

Not applicable.

1.7. Health & Safety Practices

1.7.1. Health & Safety Practices

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, at a minimum Level D PSE is required. In addition, safety measures required under section 1.5 and elsewhere in federal and state regulations shall be implemented.

All contractor personnel and others within the contractor' working area must be equipped with the required PSE and must comply with the requirements cited in section 1.5.

The contractor shall have a qualified Safety Officer on site during working hours. The Safety Officer shall be responsible for enforcing all safety requirements and shall have the authority to remove anyone not complying with those requirements from the contractor's working area.

1.7.2. Site Safety & Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line at all times. Cell phone service is not reliable at the mine site.

1.7.3. Radiological Materials

Radiological contamination levels in the shafts do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. The shafts will not require decontamination prior to demolition. However, the contractor shall implement relevant portions of RGR's Radiation Safety Program Manual (RSPM) and corresponding procedures to provide for the radiation safety of workers, the public and environment. The RSPM and procedures topics include (but are not limited to) radiological work controls, development and use of non-routine procedures, access control and security, radiation monitoring surveys, radiation dose, and response to incidents and emergencies involving radioactive materials. RGR's Radiation Safety Officer and Mine Manager will provide the necessary training and oversight, but the contractor shall ensure worker compliance with the RSPM.

1.8. Field Engineering and Surveying

The contractor shall perform surveys and measurements as required under section 1.2 to verify dimensions of work spaces and construction materials described in this specification and the referenced drawings CL series) as well as the 1974 Dravo design drawings, which will be available to the contractor for planning the work.

1.9. General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer
- Shaft Plug and Backfill Construction Plan – Method of construction shall be described, including methods and equipment to be used, names and qualifications of key personnel, and schedule.

1.10. Construction Facilities and Field Office

1.10.1. Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Coop.

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

1.10.2. Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use (Drawing Sheet CL15). Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3. Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to,

- Fuels, solvents and lubricants storage
- Surface water diversions and erosion control materials
- Dust suppression chemicals containers

- Sanitary wastes containments
- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife.

No firearms may be brought on the mine site.

2 SITE CONSTRUCTION

2.1 Site Preparation

The contractor shall prepare its office, equipment, and laydown areas as approved by RGR so as not to obstruct or interfere with RGR site operations or other contractors' operations. The contractor shall stage and operate its equipment to allow setback distances from the shaft collars that are appropriate for the selected equipment size, weight, and operating radius. The contractor shall prepare its working area and equipment locations to minimize traffic or materials next to the shaft collars.

2.2 Debris Disposal

Prior to disposing of any demolition debris into the shafts, the contractor shall remove structures and equipment within the shaft collars that would obstruct the free-fall of materials discharged into the shafts at the collar. Materials that can be allowed to free-fall are rope and wooden guides, ductwork, electrical cable, pipe and conduit. Material that shall be removed includes sheet metal, fencing, and structural steel that would obstruct either debris discharged to the shafts or shaft plug construction. The referenced Dravo drawings describe some of these features, but the contractor shall perform its own survey and inventory as required under section 1.2.

At the time of closeout, market conditions will indicate what materials have re-sale or salvage value. Materials that can be economically re-used or recycled will be stacked separately until they can be removed from the site.

The contractor shall dispose of demolition debris allowed to free-fall below the subcollar in such sizes and shapes that this debris will not become entangled with shaft structures below the subcollars nor be capable of damaging the shaft liner below subcollar level in each shaft. The nominal distance between cage guides, the narrowest opening in the center of the shaft, is 6 feet in the 14-foot diameter shaft and 13 feet in the 24-foot diameter shaft. The contractor shall dispose of demolition debris in the mine shafts so that each piece is positioned before release to free-fall without hitting equipment, such as ductwork, cage guides, or other obstacles remaining in place below subcollar level.

The contractor shall submit a description of disposal methods to be used that will be protective of the shaft liner.

2.3 Shaft Plug Construction

The following information represents construction of the conceptual plug designs. The actual design and the construction to implement that design provided by a licensed Structural Engineer may be different for this conceptual design and shall supersede or modify this design concept.

Both the 24 ft. diameter production shaft and the 14 ft. diameter manway/ ventilation shaft will be closed in the same way, illustrated on Drawing Sheets CL05 and CL06, in the following sequence after the headframes and collar structures are removed (by others) and the subcollar space has been freed of obstacles per section 2.2.1.

If allowed by the design engineer, selected structural steel I-beams and scrap metal plate, salvaged from headframe and other demolition, shall be welded at ground surface in sections consisting of two or more beams with scrap plate. The plate of each section shall be shaped to fit flush with, or overlap, the plate of the next adjacent section. Each section shall be of a size that can be lowered into the shaft. Each section shall be lowered from ground surface to the subcollar and set onto the shaft subcollar to form the first layer of the support platform for the shaft plug and backfill. A second layer of I-beams shall be placed on top of, and perpendicular to, the lower layer to form an orthogonal support system for the shaft plug and backfill.

A plug of light-weight concrete meeting the requirements of ASTM C 330 shall be poured to encapsulate the platform steel. The concrete shall have an in-place density of 90-115 pcf and a minimum compressive strength of 2500 psi. The concrete shall be placed in not more than three lifts. The first lift shall fully encapsulate and cover the steel beams and shall be vibrated until the concrete level reaches the top of the second layer of I-beams. Successive lifts shall be not more than 1.0 feet thick.

The shaft plug concrete shall be allowed to cure for not less than 28 days before the shaft backfill is placed.

2.4. Shaft Backfill

The remainder of the shaft, as well as connecting tunnels and raises, shall be backfilled with a cementitious slurry of soil, Portland cement, fly ash, and water. The contractor shall determine proportions of these components using test batches of the available materials, for acceptance by RGR before placement. The selected mix shall have a cured compressive strength of not less than 75 pcf.

Sandy waste rock material from the waste pile may be substituted for the soil fraction of the mix.

2.5 Shaft Cap and Marker

The remaining space at the top of the shaft backfill, from top of slurried backfill to adjacent ground surface, shall be capped with not less than 1.0 feet of light-weight concrete, with a marker monument extending above ground surface. The marker monuments shall be pre-cast 2500-psi concrete, at least two feet high and four feet wide and long, with a hand finished top surface. Both shaft markers shall be inscribed with “Mt. Taylor Mine (name) Shaft, Closed (date)”.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

Not applicable

3.2 Daily Reports

Contractor shall prepare a written daily report of each working day. This report shall include a record of the dimensions of the shaft plug components, the volumes of materials used, and any deviations from the drawings or this specification necessitated by conditions encountered. This record shall be subject to review and independent verification by RGR.

3.3 Test Reports

At least one test cylinder shall be cast for each lift of light-weight concrete poured. The contractor shall have each cylinder tested for density (unit weight) and unconfined compressive strength. Records of test cylinder tests shall be submitted to RGR.

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has been completed by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met.

The documentation shall bear the signature of the contractor's officer with signatory authority.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

C.4 EARTHWORK

1 GENERAL TECHNICAL REQUIREMENTS

1.1 Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing MT13-CL-01). The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine is on active (operating) status, but RGR has initiated closeout activities due to the depressed uranium market. The mine extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface. The mine surface facilities are located on 285.6 acres, of which approximately 175 acres are disturbed land and the remaining acres are undisturbed.

The disturbed land consists of:

- Support (Service and Support) Facilities
- Mine Water Treatment Area
- Treated Water Discharge Pipeline - (most beyond the mine surface area)
- Ore Pad
- Waste Pile / Disposal Cell
- Storm Water Retention Ponds (2)
- Access Road and other roads
- Borrow areas

The included work consists of excavation, hauling, placement, and compaction of soil and rippable rock within the mine permit area and nearby affected areas for the purposes removing contaminated soil, stabilizing slopes, and covering mine waste containment structures.

The required work includes:

- Mobilization and demobilization of contractor's equipment,
- Preparation of the work area,
- Excavation of soil contaminated with low levels of radium and uranium originating from the underground mine and mine water,
- Disposal of contaminated soil in the existing mine disposal cell on the waste rock pile, or in the shafts,
- Expanding the disposal cell,
- Reducing rock slopes,
- Backfilling of the mine water treatment ponds,
- Placement of clean soil cover over the waste rock pile and disposal cell,
- Backfilling the mine water treatment ponds, and
- Finish grading of disturbed ground within the mine permit area and affected areas.

The work is represented in Drawing Sheets:

CL01 Closeout Plan Task Summary
CL02 2021 Gamma Survey
CL03 Facility Disposition Plan
CL07A Final Grading Plan - Mine Water Treatment Unit
CLo7B Final Grading Plan – Service and Support Area
CL08 Details – Backfill in Pond areas
CL09 Final Grading Plan – Expanded Disposal Cell
CL10 Disposal Cell Sections – East/West
CL11 Disposal Cell Sections – North/South
CL12 Improvements to South Diversion Channel
CL13 Improvements to North Diversion Channel
CL14 Final Drainage Plan
CL15 Final Site Plan

1.2 Site Survey

The Contractor shall perform its own survey or calculations to determine depths and volumes of excavated soil, field control for line and grade, and depths and volumes of soil placed. The results of this site survey shall be submitted to the Project Manager for review and approval of work performed and for verification of payment quantities.

1.3 Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All Contractor personnel and visitors shall log in and out at the guardhouse. All personnel shall wear the required safety equipment as directed by the site Safety Officer while inside the mine perimeter fence.

1.4 Work Performed by Others

Prior to the commencement of this work, the shaft headframes, hydraulic control structures, selected buildings, the treated water pipeline, mine car rail, and mine water discharge pipe will be removed and the shafts will be plugged and backfilled by others.

1.5 Codes, Standards, and Regulatory Requirements

All work must be performed according to OSHA and/ or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements.

1.6 Site Investigation Reports & Data

RGR has conducted site investigations to characterize the waste rock pile materials, soil contamination, and geotechnical properties of on-site soil. Reports of these studies and related data are included in Appendix D of the Mt. Taylor Mine Closeout/ Closure Plan.

1.7 Health & Safety Practices

1.7.1 Health & Safety Plan

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Site Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, Level D PSE is required. In addition, safety measures required under section 1.5 and elsewhere in federal and state regulations shall be implemented.
All contractor personnel and others within the contractor' working area must be equipped with the required PSE and must comply with the requirements cited in section 1.5.

The contractor shall have a qualified Safety Officer on site during working hours. The Safety Officer shall be responsible for enforcing all safety requirements and shall have the authority to remove from the contractor's working area anyone not complying with those requirements.

1.7.2 Site Safety & Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line at all times. Cell phone service is not reliable at the mine site.

1.7.3 Radiological Materials

Radiological contamination levels on the mine site do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. However, the contractor shall implement relevant portions of RGR's Radiation Safety Program Manual (RSPM) and corresponding procedures to provide for the radiation safety of workers, the public and environment. The RSPM and procedures topics include (but are not limited to) radiological work controls, development and use of non-routine procedures, access control and security, radiation monitoring surveys, radiation dose, and response to incidents and emergencies involving radioactive materials. RGR's Radiation Safety Officer and Mine Manager will provide the necessary training and oversight, but the contractor shall ensure worker compliance with the RSPM.

1.8 Field Engineering and Surveying

The contractor shall perform surveys and measurements as required under section 1.2 to verify dimensions, lines and grades, and construction materials described in this specification and the referenced drawings (MT13-CL series).

1.9 General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer
- Contaminated Soil Excavation Plan – Methods for excavating, hauling, and placing contaminated soil shall be described including measures to be taken to control spillage and fugitive dust release during handling. The plan shall also describe equipment to be used, names and qualifications of key personnel, and schedule.
- Soil Cover and Grading Plan – Method of construction for excavation, hauling, placing and compacting clean fill soil shall be described, including equipment to be used, names and qualifications of key personnel, and schedule. The plan shall also include fugitive dust control and finish line and grade control.
- Stormwater Pollution Prevention Plan (SWPPP) that is compliant with the minimum requirements of EPA's 2012 Construction General Permit under the NPDES.

1.10 Construction Facilities and Field Office

1.10.1 Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Coop*.*

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

1.10.2 Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use (Drawing MT13-CL-04). Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3 Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to,

- Spraying of clean water for dust suppression
- Storage of fuels, solvents and lubricants
- Surface water diversions and erosion control materials
- Sanitary wastes containments
- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife.

No firearms may be brought on the mine site.

2 SITE CONSTRUCTION

2.1 Site Preparation

The contractor shall prepare its office, equipment, and laydown areas as approved by RGR so as not to obstruct or interfere with RGR site operations or other contractors' operations.

2.2 Removal of MWTU Facilities Pond Liner Anchor

The contractor shall remove the HDPE liner system in mine water treatment pond (MWTU) and the remaining hydraulic control structures in MWTU ponds 1-8 and ore pad runoff retention pond. The Pond #2 liner materials and the debris from the hydraulic control structures shall be removed and placed in the disposal cell as directed by RGR

2.3 Excavation and Disposal of Contaminated Soil

The contractor shall submit a Contaminated Soil Excavation Plan for excavating, hauling, and disposal of soil containing more than 6.8 pCi/g of Radium 226. RGR will provide field direction for the contractor in determining the lateral extent and depth of excavation required. Drawing Sheet CL02 represents the existing data on soil radium content and the gamma radiation emanating from that source.

The contaminated soil excavated north of the CR 334 shall be disposed in the disposal cell on the waste rock pile, as directed by RGR. Contaminated soil excavated within the CR 334 right-of-way and on the mine site south of the CR 334 right-of-way shall be placed in the disposal cell, as well... Contaminated soil shall be placed in the disposal cell in lifts not to exceed 1.0 foot loose thickness and spread as needed to fill around obstacles, conform to the final site contours, or limit the design thickness of the entire fill section. Each lift shall be tracked by dozer, CAT D8 or larger, to compact the soil before the next lift is applied

.

The waste pile and some old fill (placed during mine development) contain scrap metal, rock bolts, abandoned pipe and cable, and other debris from mining. The contractor can encountered these materials buried within the waste rock and other locations within the mine area. If such debris is uncovered during reshaping, it shall be removed and reburied in the disposal cell.

RGR will provide radiological screening support to guide the contractor in assessment of soil radium content and determination of areas and depths of excavation for soil removal and for relocation to the disposal cell.

2.4 Construction of Soil Cover

The contractor shall submit for RGR approval a Soil Cover and Grading Plan that describes the methods for excavation, hauling, placing and compacting clean fill soil and finish grading over the mine site. The plan shall include equipment to be used, names and qualifications of key personnel, and schedule. The plan shall also include fugitive dust control and methods to verify finish line and grade control.

Soil to be used for cover on the waste rock pile and disposal cell shall be obtained from existing clean soil in the designated borrow areas and other areas on the mine site where clean soil excavation is required to achieve final grades (Drawing Sheets CL01, CL07, CL08, CL09, and CL15). Clean soil for the disposal cell cover shall be obtained primarily from Borrow Areas A, B, and C. Additional clean soil for use in cover construction may be obtained from other locations on the mine site as approved by RGR. No soil shall be used as cover or for filling depressions that contains competent rock fragments larger than three inches. Cover soil material may be temporarily stockpiled at the location of placement, provided that it is protected from erosion by wind or surface water.

Clay soil placed for disposal cell radon barrier may be spread by any method in lifts not more than 8.0 inches loose thickness. Each lift shall be moisture-conditioned, and then tracked by dozer, CAT D8 or larger, and compacted by tamping (sheepsfoot) compactor to the required density before the next lift is applied. Tolerances for cover thickness may be adjusted to accommodate special circumstances.

Clean soil may also be needed for filling depressions in the areas of contaminated-soil removal.

2.5 Reshaping of Rock Walls and Slopes

The contractor shall reduce existing cut slopes in rock to not steeper than 1H: 1V. Existing slopes steeper than 1H: 1V include the cut slopes between the refrigeration bench (location of buildings #17 and 25-28, Drawing Sheet CL03) and the shafts area and above the refrigeration bench. These slopes can be reduced by mechanical means; no blasting should be necessary. The contractor may achieve the required slopes by excavating the upper half of the slope and placing the excavated rock as a buttress forming the lower half of the slope. The reshaped slope surface may be left rough, resembling natural talus, to encourage rainfall infiltration and wildlife habitat.

Cut slopes capped by basalt may be exempted from the foregoing requirements if the basalt has provided protection against erosion or mass movement of the underlying slope. As an alternative to flattening a basalt-capped slope, loose or unstable rock at the top of the slope may be broken up and placed on the lower slope to form an artificial talus.

2.6 Finish Grading

All disturbed soil surfaces and constructed cover surfaces shall be finish-graded to achieve the lines and grades shown on Drawing Sheets CL07, CL08, CL09, CL14 and CL15. The elevation contours shown on these drawings are representational; final elevations will depend on actual quantities of contaminated soil and clean cover soil excavated and placed.

The finish-graded surface shall conform to the direction (line) and angle of slope (grade) shown on the drawings. Verification of line and grade shall be made by land surveys directed by a New Mexico License Professional Surveyor.

The finish-graded surfaces shall be free of demolition debris and depressions, ridges, rills, and other irregularities more than three inches in amplitude caused by either mining-related activities or closeout activities. On surfaces where rock will be placed for erosion protection (riprap), final grading need not achieve this standard but shall remove all irregularities of amplitude greater than the design thickness of the rock to be placed on such surfaces.

The surfaces of the disturbed areas and covers shall be bladed to provide a) smooth transitions to surrounding soil surfaces, b) gradual transitions in slope gradients, and c) unimpeded drainage of runoff (no depressions deeper than the amplitude of the surface roughness of the soil cover). On the final pass of surface grading, the grading equipment shall run along the contour of the slope, unless slope gradients are prohibitively steep, and shall blend the re-contoured surfaces into adjacent undisturbed areas.

2.7 Erosion Control

2.7.1 General Site Drainage

The primary means of controlling erosion by runoff will be grading per section 2.6. Control of surface water runoff onto or from reclaimed areas will accomplished as part of the re-contouring and final grading. Existing natural drainage courses will be preserved and improved as necessary to remove obstacles and trapped debris. In general, runoff will be directed to natural drainage courses and will follow natural surface gradients so that no control structures or energy dissipaters will be required. New drainage courses and swales will be not less than 10 feet wide at channel bed, not less than two feet deep, with side slopes not steeper than 4H: 1V unless obstructed by natural durable rock. Diversion channels will be required only where actual cover or final slope gradients produce concentrated runoff and/or slope erosion.

If quantities of rock or broken concrete are not durable or abundant enough for erosion control applications, manufactured erosion control materials such as geogrid may be used, with RGR approval, in combination with available rock and broken concrete materials.

2.7.2 Crushing and Screening

The contractor shall collect, crush, screen, and stockpile as necessary broken concrete and rock available on site to be used for riprap. Concrete will be removed from facility demolition locations in the mine area, broken to minus 24 inch size, and stacked at the demolition locations by others. The contractor shall load and haul this broken concrete from the various stack locations on site to a crushing and screening plant to be located by the contractor near the waste rock pile.

If available quantities of sound crushed concrete, free of reinforcing bar or other non-concrete materials, are not sufficient, the contractor shall use durable rock. Suitable basalt cobbles and boulders are available within RGR property limits to the east of the mine site. The contractor may select alternative sources of comparable rock.

The contractor shall crush the broken concrete, and rock if necessary, to sizes needed for crusher fines and riprap as described in sections 2.7.3 and 2.7.4. The riprap and crusher fines shall be stockpiled separately and protected against erosion and release of fugitive dust and water-borne sediment as necessary until these materials are applied to the waste pile cover.

2.7.3 Crusher Fines

Crusher fines (0.38 inch and smaller) shall be applied to the surface of west- and south-facing slopes of the waste pile cover prior to riprap placement. The fines shall be spread at nominal 2 inches thickness over the top of the soil cover and mixed into the top lift (approximately top 0.5 feet) of the cover soil to create rock mulch. The final pass for this mixing shall be parallel to the slope contours, as required in section 2.6.

2.7.4 Riprap

On slopes steeper than 5H:1V on waste pile or disposal cell surfaces, and where the New Mexico Mining and Minerals Division staff determine that vegetation is insufficient to control erosion, the contractor shall place broken concrete or basalt. This riprap material shall be not less than 0.5 feet thick consisting of sound fragments with d_{50} of at least 2.7 inches, maximum of 6.0 inches and minimum of 0.3 inches. Riprap shall be placed by dumping from haul trucks and spreading by dozer or grader.

The contractor shall place large broken concrete and rock (12 to 24 inches) along the north bank of the south diversion channel, adjacent to the waste pile south toe. The riprap shall be placed from the toe of the north bank to not more than 10 vertical feet above the channel thalweg. The riprap thickness shall be not less than two times the average particle diameter and shall extend from the southwest corner of the waste pile eastward to the southeast corner of the waste pile at approximately where the diversion channel crosses E 559450 (Drawing Sheet CL09, CL12, and CL14). Approximately 600 cubic yards of channel protection riprap has been estimated for this application; if suitable quantities of crushed concrete in these sizes are not available, the contractor may harvest cobble and boulder-size basalt from the slopes east of the mine.

The contractor shall measure and record the riprap thickness not less than once every 10,000 square feet of riprap area.

2.7.5 Erosion Control Blanket

The contractor shall procure and install a temporary erosion control blanket on soil cover surfaces steeper than 10H:1V and that are not covered by riprap. The blanket material shall be biodegradable wood fiber or vegetable fiber, seed-free, woven or contained within plastic netting, intended to control soil erosion until a vegetative cover is established.

The contractor shall propose the material to RGR for approval prior to procurement. Curlex ®, Rolled Erosion Control Products, or equivalent may be considered by RGR. The blanket material shall have the following minimum properties:

- Mass - 9.2 oz./ square yard per ASTM D6475
- Thickness – 0.25 inches per ATSM D6525
- Water absorption – 300% per ASTM D1117

Alternatively, the contractor may propose other woven fabric materials, such as tobacco netting, that will provide comparable erosion protection, promote moisture retention in the cover soil, and protect seeds from birds and animals until germination.

The erosion control mat shall be installed by the earthwork contractor in coordination with the revegetation contractor (Specification C.5) and in accordance with the manufacturer's recommendations.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

RGR shall meet with the contractor at the start of work each day to review the previous day's Daily Report and any deliverable from the contractor.

3.2 Daily Reports

Contractor shall prepare a written daily report of each working day. This report shall include a record of the units and quantities of work performed, events or conditions adversely affecting the work, and any deviations from the drawings or this specification necessitated by conditions encountered. This record shall be subject to review and independent verification by RGR.

3.3 Test Reports

The contractor shall measure, record and report in writing the quantities of each size of concrete and rock crushed and screened.

The contractor shall report the measured volumes, locations and thicknesses of soil, rock, and erosion control materials placed each day.

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has been completed by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met.

The documentation shall bear the signature of the contractor's officer with signatory authority.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

C.5 REVEGETATION

1 GENERAL TECHNICAL REQUIREMENTS

1.1. Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing Sheet-CL-00). The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine is on active (operating) status, but RGR has initiated closeout activities due to the depressed uranium market. The mine extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface. The mine surface facilities are located on 285.6 acres, of which approximately 148 acres are disturbed land and the remaining 137.9 acres are undisturbed. The existing disturbed land consists of:

- Support (Service and Support) Facilities
- Mine Water Treatment Area
- Treated Water Discharge Pipeline
- Ore Stockpile
- Waste Pile
- Storm Water Retention Ponds (2)
- Access Road

Closeout activities are anticipated to disturb an additional 27 acres, bringing the total future land disturbance to 175 acres.

The included work consists of providing the equipment, personnel and materials for revegetation of the mine site and pipeline corridor after demolition and earthwork have been performed by others. The required work includes:

- Mobilization and demobilization of contractor's equipment,
- Preparation of the work area,

- Preparation of disturbed soil surfaces for reseeding, including application of amendments and mulch.
- Reseeding of the disturbed soil areas
- Installing or replacing fencing needed to limit access to revegetation areas.

The work is represented in Drawing Sheets:

CL02 Closeout Plan Task Summary

CL03 Facility Disposition Plan

CL07 Final Grading Plan - Mine Water Treatment Pond

CL09 Final Grading Plan – Expanded Disposal Cell

CL14 Final Drainage Plan

CL15 Final Site Plan

and in Figure C.5-1.

All areas that have been disturbed by Mt. Taylor mining operations and soil cleanup and not containing structures retained for post-mining land use (PMLU), approximately 140 acres, shall be revegetated except the storm water pond. Regraded areas, the waste rock pile, the ore stockpile area, mine water treatment pond area, the treated water pipeline corridor, and locations of demolished facilities shall be revegetated.

Preparations for revegetation and the selected seed mix will be directed toward establishing a vegetation community that can thrive at this site and that can support grazing of livestock. Plants native to the general area shall be used as much as possible to provide for long-term stability of the soils and vegetation communities. Plant species that provide rapid initial cover shall be used in the seed mix to achieve initial soil stabilization. Species selected will not necessarily be found in the surrounding undisturbed area, but shall have been approved for use in reclamation by the Natural Resources Conservation Service (NRCS) and other appropriate government agencies.

1.2. Site Survey

The contractor shall perform its own survey to determine soil properties and site conditions that will affect revegetation efforts, native and other existing vegetation in the area, and any conditions that appear to differ from those represented in this specification and accompanying information provided by RGR. The results of this site survey shall be submitted to the Project Manager for review and approval of work performed and for verification of payment quantities.

1.3. Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All contractor personnel and visitors shall log in and out at the guardhouse. All personnel shall wear the required safety equipment as directed by the site Safety Officer while inside the mine perimeter fence

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1.4. Work Performed by Others

Prior to the commencement of this work, the shaft headframes, hydraulic control structures, selected buildings, the treated water pipeline, mine car rail, and mine water discharge pipe will be removed and the shafts will be plugged and backfilled by others. Earthwork to backfill mine water treatment ponds, reshape the waste rock pile, place cover soil over the ponds and waste pile, erosion protection, and final grading will be performed by others.

1.5. Codes, Standards, and Regulatory Requirements

All work must be performed according to OSHA and/ or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements.

1.6. Site Investigation Reports and Data

RGR has conducted site investigations to characterize the waste rock pile materials, soil contamination, and geotechnical properties of on-site soil. Reports of these studies and related data are included in Appendix D of the Mt. Taylor Mine Closeout/ Closure Plan.

1.7. Health & Safety Practices

1.7.1. Health & Safety Practices

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Site Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, Level D PSE is required. In addition, safety measures required under section 1.5 and elsewhere in federal and state regulations shall be implemented.

All contractor personnel and others within the contractor's working area must be equipped with the required PSE and must comply with the requirements cited in section 1.5. The contractor shall have a qualified Safety Officer on site during working hours. The Safety Officer shall be responsible for enforcing all safety requirements and shall have the authority to remove from the contractor's working area anyone not complying with those requirements.

1.7.2. Site Safety and Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line at all times. Cell phone service is not reliable at the mine site.

1.7.3. Radiological Materials

Radiological contamination levels on the mine site do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. Prior to revegetation, contaminated soil and other debris will be removed and contained within the disposal cell, then cover with clean soil, thereby isolating the radiological materials from ground surface.

1.8. Field Engineering and Surveying

The contractor shall perform surveys and measurements as required under section 1.2 to verify dimensions, lines and grades, and revegetation materials described in this specification and the referenced drawings (CL series).

1.9. General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer
- Revegetation Plan – Methods, soil amendments and mulches, and seed mixes to be used for revegetation. The plan shall also describe equipment to be used, names and qualifications of key personnel, and schedule.

1.10. Construction Facilities and Field Office

1.10.1. Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Coop.

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

1.10.2. Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use (Drawing Sheet CL15). Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3. Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to,

- Spraying of clean water for dust suppression
- Storage of fuels, solvents and lubricants
- Surface water diversions and erosion control materials
- Sanitary wastes containments
- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife.

No firearms may be brought on the mine site.

2 SITE CONSTRUCTION

2.1 Site Preparation

The contractor shall prepare its office, equipment, and laydown areas as approved by RGR so as not to obstruct or interfere with RGR site operations or other contractors' operations.

2.2 Runoff Control

During the revegetation period temporary runoff controls will be used as necessary to impede or divert rainfall and snowmelt runoff from revegetated areas. Locations of temporary runoff controls shall be selected by the contractor to retard or divert runoff, trap sediment, and provide improved conditions for germination and plant establishment.

Runoff control during revegetation shall utilize the most appropriate technology available at that time, including methods recognized by the NRCS or the International Association for Erosion Control.

Measures that use present technology include check dams constructed of hay bales, geotextile silt fences secured in shallow trenches, and water bars across the disturbed area and perpendicular to the slope. Tobacco net, Curlex or similar net-and-fiber mats might be used as required for protection of surfaces susceptible to rilling or wind erosion. The specific measures applied to revegetated surfaces shall be selected by the contractor based on the method most appropriate for the seeding method, erodibility and depth of the soils, degree of slope, proportion of large rocks at the surface, roughness of the surface, and anticipated rainfall.

2.3 Seed-Bed Preparation and Seeding

Revegetation of the re-contoured areas will employ a variety of methods, depending principally on the steepness of the slope. A large percentage of the total disturbed area will be revegetated using standard mine reclamation equipment; i.e., tracked and wheeled tractors, rangeland seed drill, and mulch applicator. In areas with slopes of 3H:1V or steeper (natural or cut slopes east of the shafts), a mixture of manual and mechanical application techniques will be used, including hand broadcasting and heavy chains dragged by a tracked dozer to incorporate the seed with the soil.

If applying seed with a seed drill, the contractor shall follow the ground contours as much as possible in order to minimize the development of rills. The contractor shall prepare surfaces for seeding by scarifying, as necessary, the surface finish-graded by others and by creating minor depressions to provide a proper seed bed. Seed shall then be applied by either rangeland drill or broadcast.

Broadcast seed shall be incorporated into the growth medium by hand raking or some mechanical means such as heavy chains dragged behind tracked dozers. The disturbed surfaces shall be reseeded using the seed mix described in Table C.5.1.

The method of reseeding shall be determined according to location and size of area to be reseeded. In general, drill seeding shall be used on flatter slopes covering larger areas. Broadcast seeding shall be used on shorter, steeper slopes. Hand seeding may be required on longer or very steep slopes.

2.4 Revegetation Species

The predominant native grass species in the area is blue grama (NMEI, 1974). Therefore, this species shall be the primary species in the revegetation seed mix if it is readily and economically available at the time of closeout. The seed mix for use at the Mt. Taylor Mine is listed in Table C.5.1. Several cool-season and warm-season grass and shrub species are proposed in this plan to reestablish species that have been severely impacted by grazing and to optimize the chances for successful germination and establishment, regardless of the particular microclimate.

Other species in the mix may be selected or substituted on the basis of their suitability for the terrain and climate, compatibility with native species and nutrient value to livestock. If the contractor proposes other species, additional factors in the selection of species shall include (1) likelihood of becoming a "pest" species in the area, (2) ability to achieve quick cover with a minimum of care and moisture, (3) strength of their root system for stabilizing the soil, and (4) ability to act as a nurse crop for the later establishment of local grasses, shrubs and forbs.

2.5 Seed Origin and Quality

Seed shall be harvested from native stands within 200 miles north, 300 miles south, 200 miles west, and 100 miles east of Mt. Taylor. If seed from native stands is not available, seed of suitable quality grown under appropriate conditions, or seed of released cultivars known to be adapted to the San Mateo area, shall be used. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

2.6 Mulching

After seeding of the soil surface, that surface shall be mulched to slow runoff and provide temporary protection to newly emergent vegetation. Mulching in most cases will be accomplished by a mulch blower and crimped by a tracked dozer. Alternatively, the mulch may be tracked into the soil surface with a dozer, crimped by mechanical crimper, or crimped by hand. If hand application of mulch is required, crimping will be accomplished by hand as well.

Hay mulch will be acceptable, but other mulch types may also be used with prior approval. To reduce the likelihood of introducing small grain species to the area, native grass hay shall be used. Blue grama or similar hay may be available locally and would be preferable since its use would likely provide additional seed source to the revegetated areas. Alfalfa *(Medicago sativa)* shall be used if native grass hay is unavailable or impractical. Hay mulch shall be spread by means of a blower, or by hand on steep slopes, applied at a rate of approximately 1-2.5 ton per acre.

Chipped vegetation may be used as mulch, with approval, after it has been aged. The amount of aging needed to make the chipped vegetation suitable for mulch shall be determined by field observations covering sufficient periods of time to determine aging requirements under the conditions prevailing at the site. Where rock (crusher fines) will be placed over the soil cover, actual organic mulch may be reduced to 80% of the amount that would be needed without rock.

2.7 Fencing

Upon completion of mulching, the contractor will replace fence that was damaged or had to be removed for revegetation. The contractor shall also install 2 ¼ inch mesh chain link fences, eight feet high, to enclose the the waste rock pile. An additional 2000 feet of this fence shall be installed around the mine shafts area (#46 under Area Description in Drawing CL-03) to prevent entry to the shaft areas. Each fenced area shall have one hinged 12-feet wide gate. The materials and construction shall conform to RR-F-191/1D: FEDERAL SPECIFICATION RR-F-191K/GEN. FENCING, WIRE AND POST, METAL.

2.8 Monitoring

Monitoring of revegetated areas shall be conducted on a periodic basis to assess revegetation success against an interim standard (section 2.9). Success of both germination and establishment will be dependent in large part on the moisture received in the summer and winter months and variations from year to year. Monitoring activities shall be designed and scheduled to recognize this.

An annual survey of the revegetated areas shall be conducted to determine species composition and vegetation cover, frequency and density. Since establishment of vegetation is a function of its ability to reproduce, vegetation shall also be assessed for its reproductive status, as well as its overall vigor. The annual survey shall be conducted toward the end of the growing season, no later than September or early October by a qualified vegetation specialist. Survey results shall be analyzed and summarized to aid in determining the need for any changes in management practices or the need for reseeding or other supplementary practices. Less formal monitoring shall be conducted through the year by RGR personnel to identify conditions in the revegetated areas that may require attention.

2.9 Revegetation Success

A technical standard based on range site descriptions has been proposed and is described in Table C.5.2. Range site descriptions were obtained from the Natural Resource Conservation Service (NRCS, 1980) for soil mapping units existing on the mine site.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

RGR shall meet with the contractor at the start of work each day to review the previous day's Daily Report and any deliverable from the contractor.

3.2 Daily Reports

Contractor shall prepare a written daily report of each working day. This report shall include a record of the units and quantities of work performed, events or conditions adversely affecting the work, and any deviations from the drawings or this specification necessitated by conditions encountered. This record shall be subject to review and independent verification by RGR.

3.3 Reports and Certifications

The contractor shall submit certifications from the vendor for all seed to be applied.
The contractor shall conduct and report the results of the annual survey for each year until the New Mexico MMD has determined that the vegetation success standards have been met. These standards will be determined in consultation with the contractor, RGR, and MMD.

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has been completed by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met.

The documentation shall bear the signature of the contractor's officer with signatory authority.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

Figure C.5-1 Treated Water Pipeline

TABLE C.5.1

SEED MIX: SELECTED SPECIES AND PLANTING RATES

1. Cool Season Grass-Western wheatgrass (Agropyron smithii) Rate: 6 PLS/ft2
2. Forb-Winterfat (Ceratoides /anata) Rate: 2 PLS/ft2
3. Warm Season Grass-Blue grama, Galleta, Spike Muhly (Boute/oua gracilis) Rate: 6.0-6.5 PLS/ft2*
4. Warm Season Grass-Vine Mesquite Rate: 2PLS/ft2
5. Warm Season Grass-Alkali Sacaton (Sporobolus airoides) Rate: 3 PLS/ft2
6. Forb-Rabbitbrush, Broom Snakeweed2 PLS/ft2
7. Forb-Fourwing saltbush (Atriplex canescens) Rate: 2 PLS/ft2
8. Forb-(Globemallow) (Sphaeralcea fend/en) Rate: 2 PLS/ft2
9. Forb-(Narrowleaf Penstemon) (Penstemon angustifo/ia) Rate: 2 PLS/ft2
10. Cool Season Grass-Bottlebrush Squirreltail Rate: 2 PLS/ft2
11. Other-(Perennial flower mix) as available, African Daisy, Cornflower, Perennial Gaillardia, Annual Gaillardia, Black-eyed Susan, Evening Primrose, Baby's Breath, Sweet William, Blue Flax, Shasta Daisy, Sweet Alyssum, Corn Poppy, California Poppy, Catchfly, Wall Flower, Siberian, Rocky Mtn. Penstemon, Prairie Coneflower, Spurred Snapdragon, Plains Coneflower, Purple Coneflower Rate: 6-8 lb./acre

* black grama may be substituted for these species. Other variations and substitutions may be made based on cost and availability of seed at the time of closeout.

Seed origin and quality specifications: All seed must be certified, weed-free, and each bag must have attached to it a complete label with certification information. Seed labels or copies of seed labels will be submitted to MMD within 90-calendar days after seeding.

TABLE C.5.2

REVEGETATION SUCCESS STANDARDS

MT. TAYLOR MINE CLOSEOUT PLAN

POTENTIAL PLANT COMMUNITY FROM NRCS RANGE SITE DESCRIPTIONS

Section IIE, Technical Guide

Natural Plant Species	Percentage of Potential Production		
	Clayey Bottomland Mapping Unit 257	Bottomland MappingUnit57	Acceptable Production Range
Western Wheatgrass	35-45	20-30	20-45
Alkali Sacaton	5-10	30-40	5-40
Vine Mesquite	10-15	1-5	1-15
Blue Grama, Spike Mulhy, Galleta	15-25	10-15	10-25
Bottlebrush Squirreltail	1-3	1-5	1-5
Fourwing Saltbush	3-10	3-10	3-10
Winterfat	1-3	1-3	1-3
Rabbitbush, Broom Snakeweed	1-5	1-5	1-5
Forbs	3-8	1-5	1-8
Others	1	9	1-9
Ground Cover, %	50	55	50-55
Production, Ib./acre	1250-3200	1200-3000	1250-3000

C.6 WELL AND CONDUIT PLUGGING

1 GENERAL TECHNICAL REQUIREMENTS

1.1. Summary of Work

Rio Grande Resources Corporation (RGR) is owner and operator of the Mt. Taylor Uranium Mine located in Cibola County, New Mexico in Section 24, T13N, R8W, NMPM (Drawing #MT13-CL-01). The mine site is 1/2 mile northeast of the Village of San Mateo and is accessible from New Mexico State Route 605. At the time of this submittal, the mine remains in active status, but RGR has decided to proceed with mine closure due to the depressed uranium market. The mine previously extracted uranium ore from depths of over 3,000 feet below ground surface that connect to two 3300-foot deep shafts from the mine surface.

The included work consists of providing the equipment, personnel and materials for plugging water wells and utility conduits to depths of more than 3000 feet. The required work includes:

- Mobilization and demobilization of contractor's equipment,
- Preparation of the work area,
- Removing several hundred feet of sand that has infilled the screened-interval of most wells,
- Removing the pumps from the wells,
- Tremie grouting of approximately 20 deep (1000-3300 feet) wells,
- Tremie grouting of shallow abatement monitoring wells
- Tremie grouting of two utility conduits.

The work is represented in Drawing Sheets:

CL01 Closeout Plan Task Summary
CL03 Facility Disposition Plan
CL04 Dewatering Well Disposition Plan

1.2. Site Survey

The Contractor shall perform its own survey to determine access to wells and water.

1.3. Site Restrictions

Access to the site is limited to ingress/ egress through the main gate. All Contractor personnel and visitors shall log in and out at the guardhouse each day of work on site. All personnel shall wear the required safety equipment as directed by the site Safety Officer while on mine property.

1.4. Work Performed by Others

Not applicable.

1.5. Codes, Standards, and Regulatory Requirements

All work must be performed according to OSHA and/ or MSHA requirements. The Contractor is responsible for identifying and complying with the relevant standards and requirements. All work shall be planned and performed or directly supervised by a New Mexico Licensed Well Drilled as required by 19.27.4 NMAC.

1.6. Site Investigation Reports & Data

Not applicable.

1.7. Health & Safety Practices

1.7.1. Health & Safety Practices

Work area safety is the responsibility of the contractor. The contractor shall submit and implement a Site Safety Plan that satisfies federal, state, and RGR requirements for the type of work being performed.

For the work under this specification, Level D PPE is required. In addition, safety measures required under section 1.5 and elsewhere in federal and state regulations shall be implemented.

All contractor personnel and others within the contractor' working area must be equipped with the required PPE and must comply with the requirements cited in section 1.5.

1.7.2. Site Safety & Emergency Communication

The contractor shall post emergency response phone numbers in the worker break area. The contractor shall maintain an active phone line or mobile phone at all times. Cell phone service is not reliable at the mine site.

1.7.3. Radiological Materials

Radiological contamination levels on the mine site do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. However, the contractor shall implement relevant portions of RGR's Radiation Safety Program Manual (RSPM) and corresponding procedures to provide for the radiation safety of workers, the public and environment. The RSPM and procedures topics include (but are not limited to) radiological work controls, development and use of non-routine procedures, access control and security, radiation monitoring surveys, radiation dose, and response to incidents and emergencies involving radioactive materials. RGR's Radiation Safety Officer and Mine Manager will provide the necessary training and oversight, but the contractor shall ensure worker compliance with the RSPM.

1.8. Field Engineering and Surveying

Not applicable.

1.9. General Submittals

Prior to commencing the work, the contractor shall submit, in a format acceptable to RGR, the following:

- Site Safety Plan – including name and qualifications of Safety Officer
- Well Plugging Plan – Equipment, methods, and materials to be used for well and conduit

plugging. The plan shall also describe names and qualifications of key personnel, and schedule for performance of the work. This plan shall be submitted for approval by the State Engineer before well plugging begins.

1.10. Construction Facilities and Field Office

1.10.1. Site Access, Field Office, Storage, and Maintenance

RGR will provide space for the contractor's field office, laydown areas, sanitary facilities, and equipment maintenance. Existing buildings, if any, will not be available for contractor use. If needed, electrical power must be arranged by the contractor with Continental Divide Electrical Co-op**.**

Water, both potable and non-potable, is available on site. The contractor must make arrangements with RGR for pumping, storing, and discharge of water needed by the contractor.

1.10.2. Protection of Existing Facilities

The contractor shall not use, damage, or block access to site buildings and other facilities that are in use at the time of the contractor's work or that are to remain intact for post-mining land use (Drawing Sheet CL15). Any damage or loss of use shall be repaired or compensated at the contractor's cost.

1.10.3. Temporary Environmental Controls

The contractor shall be responsible for emplacing, utilizing, and removing those measures necessary to contain contaminants, surface water and fugitive dust releases generated by the contractor's work. Such measures may include, but are not limited to:

- Spraying of clean water for dust suppression
- Storage of fuels, solvents and lubricants
- Surface water diversions and erosion control materials
- Sanitary wastes containments
- Trash containers
- Fire suppression equipment

Wildlife, including large game animals, frequently enters the site. The contractor's workers shall do nothing to attract, injure, or otherwise interfere with wildlife. Firearms are prohibited on the site.

2 SITE WORK

2.1 *Site Preparation*

The contractor shall prepare its office, equipment, and laydown areas as approved by RGR so as not to obstruct or interfere with RGR site operations or other contractors' operations.

2.2 *Utility Conduit Plugging*

Two vertical utility conduits, 11.5-inch diameter steel casings extending from ground surface to mine level, shall be plugged. Both of these shall be grouted from bottom of casing to ground surface using tremie methods as required by 19.27.4.NMAC. The grout mix shall be 4:1 cement to bentonite; however, the contractor may propose an alternative mix that will develop at least equal properties when solidified.

Grouting shall be continuous in each conduit until the casing is filled to ground surface. Before the contractor leaves the site at the completion of all well plugging, it shall inspect each conduit not soonerthan 24 hours after the tremie filling of each conduit is complete. The contractor shall top off any casingthat does not have a solid column of grout to ground surface.

If this procedure is not consistent with the well plugging plan approved by the Office of the State Engineer (OSE), the OSE-approved plan shall be applied.

2.3 *Well Plugging*

The contractor shall plug the deep wells listed on Table C.6.1. Each shall be grouted from bottom of casing to ground surface using tremie methods as required by 19.27.4.NMAC. The grout mix shall be 4:1 cement to bentonite; however, the contractor may propose an alternative mix that will develop at least equal properties when solidified. Grouting shall be continuous in each well until the wellcasing is filled to ground surface. Before the contractor leaves the site at completion of all well plugging, it shall inspect each well not sooner than 24 hours after the tremie filling of the well is complete. The contractor shall top off any casing that does not have a solid column of grout to ground surface.

Prior to grouting the wells, the wells will likely need to be cleared of sediments. Currently, most deep wells are filled with several hundred feet of sediment covering access to the screened interval. Also, most wells have pumps that will need to be removed prior to grouting activities. Pumps, tubing, pipe, cables and other equipment removed from well, excluding the driller's tool and equipment, shall be turned over to RGR for disposal.

If this procedure is not consistent with the well plugging plan approved by the Office of the State Engineer (OSE), the OSE-approved plan shall apply.

2.4 Abatement Monitoring-Well Plugging

Up to four shallow monitoring wells may remain at the time of closeout. These 2- to 6-inch diameter wells with PVC casing are used as part of the NMED Stage 2 Abatement Plan to observe and extract shallow perched water atthe soil/ bedrock interface at depths up to 60 feet below and west and north of the waste rock pile. These wells will also be used as part of the post-closure monitoring plan. At the time of preparation of this plan, there are 23 monitoring wells on site. Several of these wells, to be selected by RGR, will be decommissioned and plugged prior to mine site closure; those that remain shall be plugged using the same methods and materials used for the deep wells.

3 QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

RGR shall meet with the contractor at the start of work each day to review the previous day's DailyReport and any deliverable from the contractor.

3.2 Reports

Contractor shall prepare a written report documenting the plugging of each well in a form acceptable to the State Engineer. This report shall include a record of the units and quantities of work performed, events or conditions adversely affecting the work, and certification by a licensed well driller that all requirements of 19.27.4 NMAC have been satisfied. This record shall be subject to review and independent verification by RGR.

4 FINAL ACCEPTANCE AND CONTRACT CLOSEOUT

4.1 Substantial Completion

The work will be substantially complete when all work required under sections 2 and 3 has beencompleted by the contractor and accepted by RGR.

4.2 Close-Out Documentation

The contractor shall submit written documentation, in a form acceptable to RGR, that all units of work have been completed in accordance with this specification. This documentation shall include quantities of work performed in accordance with the line items in the contractor's bid schedule that have been approved in writing by RGR. The documentation shall also include the contractor's affirmation that all regulatory requirements and environmental standards applicable to the work have been met. The documentation shall bear the signature of the contractor's officer with signatory authority. The contractor shall submit completed WD-11 to NM OSE for each well abandoned with copies of the forms submitted to RGR. Documentation shall bear a NM-licensed water well driller signature.

4.3 Final Payment

Final payment shall be made after close-out documentation has been accepted and approved by RGR.

Table C.6.1 Conduits to Plug

Conduit	State Plane Coordinates (NAD 83)		Collar Elevation (Feet AMSL)	Depth (feet)	Casing/liner Size
	E	N			
RB-1	2783372	1579215	7378	3300	11 1/2"casing
RB-2	2783367	1579380	7378	3500	11 1/2"casing

See Figure 1-2B

Table C.6.2 Deep Wells to Plug

Well No.	State Plane Coordinates (NAD 83)		Collar Elevation (Feet MSL)	Depth (feet)	Casing/liner Size
	E	N			
2	2782597	1579115	7335	2920	9 5/8" casing
3	2782795	1579008	7347	1150	8 5/8" casing
9	2782983	1579716	7333	2845	9 5/8" casing
10	2782734	1579619	7337	1065	8 5/8" casing
11	2783246	1578843	7442	3028	9 5/8" casing
13	2782068	1579376	7317	3185	10 3/4" casing , 7" liner
15	2782520	1578497	7339	3205	10 3/4" casing , 7" liner
16	2782997	1578315	7388	3275	10 3/4" casing , 7" liner
17	2783566	1578569	7492	3342	10 3/4" casing , 7" liner
18	2783783	1578902	7495	3314	10 3/4" casing , 7" liner
20	2783507	1579942	7381	3223	10 3/4" casing , 7" liner
21	2782967	1580148	7316	3184	10 3/4" casing , 7" liner
22	2782464	1579896	7302	3195	10 3/4" casing , 7" liner
SM 24-38	2783008	1579116	7390	3535	10 3/4" casing , 7" liner
SM 24-43	2782953	1579065	7347	3535	10 3/4" casing , 7" liner
SM 24-23E	2783249	1579711	7342	3077	3 7/8 casing
SM 15-59	2771754	1584519	7738	--	3 7/8 casing
SM 13-74	2783313	1584233	7480	--	3 7/8 casing
SM 24-89	2782908	1578964	7348	3121	3 7/8 casing
SM 31-1-2D	2786914	1584519	7630	--	3 7/8 casing

See Figure 1-4 of the Closeout/Closure for well locations within the permit area. Wells SM15-59, SM 13-74, SM 24-89, SM 31-1-2D are located outside the mine site and are not shown on Figure 1-4.

Table C.6.3 Shallow Monitoring Wells to Plug

Well No.	State Plane Coordinates (NAD 83)		Collar/ Toc Elevation (Feet AMSL)	Depth (Feet bgs)	Casing Type
	E	N			
MW-1	2781541	1580484	7274	65	3"-STEEL
MW-2	2781538	1580191	7275	60	3"-STEEL
MW-3	2781545	1580976	7272	65	3"-STEEL
MW-3A	2781545	1580976	7272	50	2"-PVC
MW-4	2781050	1578580	7284.54	48	4"-PVC
MW-6	2782243	1578620	7338.13	35.2	2"-PVC
WP-4	2781527	1578330	7310.65	56	4"-PVC
WL-2	2782044.92	1578575.43	7338.18	50	6"-PVC
WL-3	2782134.44	1578657.46	7338.78	50	6"-PVC
WL-4	2782172.32	1578535.85	7338.94	50	6"-PVC
WL-5	2782310.40	1578613.6	7342.98	50	6"-PVC
MW-1C	2,783,120.42	1,578,341.89	7,395.52	94	3"-PVC
MW-1J	2,782,712.30	1,579,033.80	7,347.44	58.5	3"-PVC
MW-2F	2,782,577.52	1,578,554.14	7,348.01	60	3"-PVC
MW-4D	2,782,082.84	1,578,849.16	7,341.40	62	3"-PVC
MW-4H	2,782,029.28	1,579,335.56	7,322.52	62.5	3"-PVC
OFMW-2	2780925	1601073	7109.67	91.93	4"-PVC
OFMW-3	2781000	1601250	7101.67	89.26	4"-PVC
OFMW-4	2781403	1601914	7104.67	100.64	4"-PVC

See Figure 1-4 and 1-6 for well locations

APPENDIX D

FIELD SAMPLING AND LABORATORY TEST DATA

D.1 2012 Soil Investigations

D.2 Radiological Investigations

D.3 Laboratory Test Results

D.4 Original Closeout Plan Soil Data

See these reports for sampling and testing data generated from 2014 to 2022:

- CONSTRUCTION QUALITY ASSURANCE REPORT (CQAR), PHASE 1 COMPLETION, MT TAYLOR MINE REACTIVATION, FEBRUARY 2021
- CONSTRUCTION QUALITY CONTROL DATA REPORT MINE WATERTREATMENT POND #2, MT TAYLOR MINE, JULY 2020
- CONSTRUCTION QUALITY CONTROL DATA REPORT, DISPOSAL CELL LINER, MT TAYLOR MINE, FEBRUARY 2020
- CONSTRUCTION QUALITY CONTROL DATA REPORT, MINE WATER TREATMENT POND #3, MT TAYLOR MINE, FEBRUARY 2020
- SOIL AND WATER SAMPLING AND TESTING, WATER AND SEDIMENT IMPOUNDMENT LOCATIONS DOWNSTREAM OF MT TAYLOR MINE WATER OUTFALL 001, JANUARY 2015
- VEGETATION GROWTH REPORT, MT TAYLOR, 2019
- CONSTRUCTION QUALITY CONTROL DATA REPORT, SOUTH STORM WATER POND, MT TAYLOR MINE, JUNE 2019
- RADON FLUX MEASUREMENTS REPORT, WASTE REPOSITORY COVER AT MT. TAYLOR MINE, MAY, 2019

APPENDIX D.1

FIELD SAMPLING AND LABORATORY TEST DATA

2012 Soil Investigations

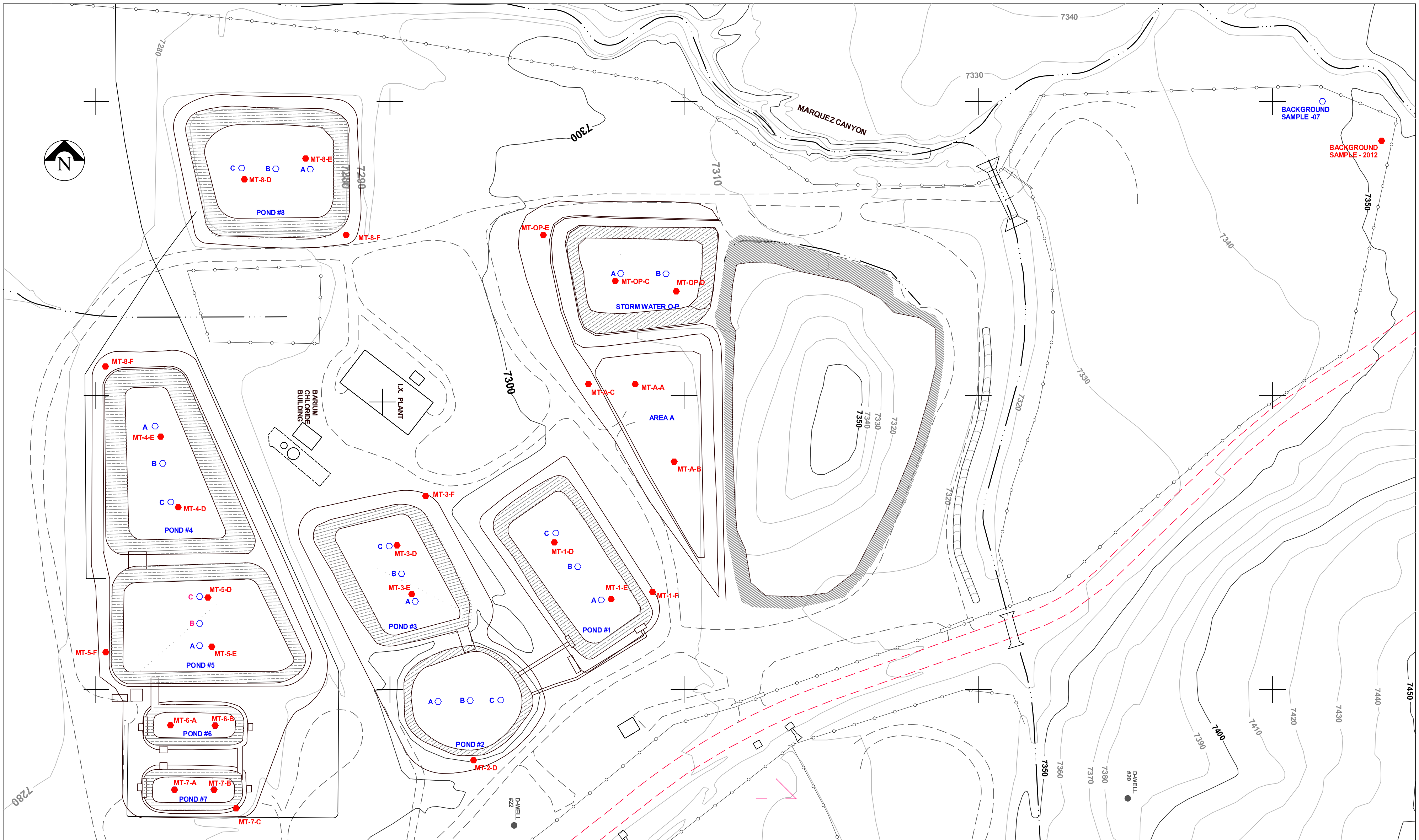

FIGURE 1

PROPOSED SAMPLE LOCATIONS
MARCH 29, 2012 - TASK 7A

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-1-F**

Location Pond # 1 Berm	GPS N 35-20.578'	W 107-38.001'
Location Description	Top edges of Ponds – South East Side of Pond # 1	
Field Engineer: Stan Fitch / Ed Loescher	Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 10:30 am	Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d		

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT - 1- F Depth 6"	Silty Clay, mixed with some coarse sand, trace gravel, dark brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-2-D**

Location Pond #2 berm	GPS N 35-20.541'	W 107-38.057'	
Location Description	Top edges of Ponds – South Side of Pond # 2		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 10:15 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	**Sample #**	**Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)**
0		MT - 2- D Depth 6"	Clayey Silt, some sand, trace roots, medium brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-3-F**
Location Pond # 3 Berm	GPS N 35-20.632'	W 107-38.089'	
Location Description	Top edges of Ponds – North East Corner of Pond # 3		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 11:10 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -3-F Depth 6"	Silty Clay, some sand, trace gravel, dark brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

Mt Taylor Mine - Borrow Test Pit Log		File #	
		Pit #	**MT-4-F**
Location Pond #4 berm	GPS N 35-20.661'	W 107-38.220'	
Location Description	Top edges of Ponds – North West Corner of Pond # 4		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 9:35 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -4-F Depth 6"	Sandy Clay, trace roots, dark brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-5-F**

Location Pond #5 Berm	GPS N 35-20.576'	W 107-38.217'	
Location Description	Top edges of Ponds – South West Corner of Pond # 5		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 9:45 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -5-F Depth 6"	Clayey Silt, some sand, trace roots, medium brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-7-C**

Location Pond #7 Berm	GPS N 35-20.526'	W 107-38.148'	
Location Description	Top edges of Ponds – South East Corner of Pond # 7		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 9:55 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -7-C Depth 6"	Clayey Silt, some sand, trace roots, light brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine - Borrow Test Pit Log		**Pit #**	**MT-8-F**

Location Pond #8 Berm	GPS N 35-20.693'	W 107-38.108'
Location Description	Top edges of Ponds – South West Corner of Pond # 8	

Field Engineer: Stan Fitch / Ed Loescher	Excavation Method: Small Bobcat Backhoe
Date: April - 10-2012 9:50 am	Operator:

Weather and Moisture Conditions: Warm – Sunny – 60 to 70d

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -8-F Depth 6"	Clayey Silt, some sand, trace gravel, brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

Mt Taylor Mine - Borrow Test Pit Log		File # / **Pit #**	**MT-Borrow**
Location: Background borrow area	GPS N 35-20.724'	W 107-38.759'	
Location Description	NE Corner of the Property in the main proposed borrow area.		
Field Engineer: Stan Fitch / Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 8:50 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0			(0-24") Clayey Silt, some sand, trace roots gravel, brown
1			
2		MT -borrow Composite Sample 24"-66"	(24"- 66") Silty Sand with Clay, trace gravel, occasional gray sand seams, brown.
3			
4			
5			
			(66" – 72") Clayey Sand, with silt, trace roots and gravel, brown.
6			
7			
8			

Total Depth: 72" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

File #	
Mt Taylor Mine - Borrow Test Pit Log **Pit #**	**MT-A-C**

Location Pond # Area "A"	GPS N 35-20.650'	W 107-38.046'

Location Description: Top edges of Ponds – North West Corner of Area A

Field Engineer: Stan Fitch / Ed Loescher — Excavation Method: Small Bobcat Backhoe

Date: April - 10-2012 10:55 am — Operator:

Weather and Moisture Conditions: Warm – Sunny – 60 to 70d

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -A-C Depth 6"	Silty Sand, some clay, trace gravel, light brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Sample submitted for Environmental Testing.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

Mt Taylor Mine - Borrow Test Pit Log File #	
Pit #	**MT-OP-E**

Location Pond # OP (Ore Pile Pond) | GPS N 35-20.694' | W 107-38.062'

Location Description Top edges of Ponds – North West Corner of Pond # OP

Field Engineer: Stan Fitch / Ed Loescher | Excavation Method: Small Bobcat Backhoe

Date: April - 10-2012 9:10 am | Operator:

Weather and Moisture Conditions: Warm – Sunny – 60 to 70d

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -OP-E Depth 6"	Sandy Clay, trace gravel, medium brown
1			
2			
3			
4			
5			
6			
7			
8			

Total Depth: 12" DEEP

Comments:

Part of the sample for sent for Geotechnical testing - Part for Environmental Testing.

Checked: Date:

Approved: Date:

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 1

Location	Pond 1	(GPS) N 35°20.579'	W 107°38.023'
Location Description		MT-1-E	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S1-01-01	0-6": Sediment, silty to sandy clay, slightly moist Sample collected at 0-4" bgs at 10:45
1		S1-01-02	6"-26": Clay sediments, trace gravel and cobles, some silt lenses, dark gray, dense, moist Sample collected at 16-18" bgs at 10:50
2			26-67": Sandy clay, hard, moist, brown
3			
4		S1-01-03	Sample collected at 44-48" bgs at 11:00
5			
			TD = 67" bgs
6			
7			
8			

Total Depth: 67" bgs

Comments:
Pond sediments 0-6"
Clay 6-26" bgs
Native soil 26-67" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

					File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log					**Pit #**	**2**
Location	MT-1-D	(GPS) N	W			
Location Description		Distal to inlet				
Field Engineer:	B. Everett		Excavation Method: Backhoe/Shovel			
Date:	4/10/2012		Operator: K. Strickland			
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon				

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		SL-02-01	0-10": Pond sediment, silty sand, friable, mottled brown and gray, moist Sample collected at 0-4" bgs at 11:40
1			10"-30": Silty sand, some clay, friable, yellow-brown, moist
2		SL-02-02	Sample collected at 26-30" at 11:43
3			30-48": Silty sand, some clay, friable, yellow-brown, slightly moist
		SL-02-03	Sample collected at 44-48" bgs at 11:45
4			TD = 48" bgs
5			
6			
7			
8			

Total Depth:	48" bgs		
Comments:	No visible clay or clay liner at this location. Native material at 10-inches		
Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 1

Location	Pond 3	(GPS) N 35°20.592'	W 107°38.02'
Location Description		MT-3-E	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0			0-4": Sediment and organic matter, clayey silt - siltiy sand, light gray, varved lenses of settling
1		S3-01-01	4"-20": Clay and bentonite, dark gray, with lenses of silt, pond liner material Sample collected at 0-12" bgs
		S3-01-02	20"-22": Silt - clayey silt, dense, white, wet. Sample collected at 20-26" bgs at 08:50
2			22"-26": Clayey Silt, brown, wet at 25 ft bgs
3 4 5		S3-01-03	26"-64": Clay, hard, dense, brown, moist, trace gravel and some silt/sand lenses. Sample collected at 26-36" bgs at 09:40
6		S3-01-04	64"-75": Silty Sand, friable, yellow-brown, trace gravel Sample collected at 64-75" bgs at 09:40 TD - 75" bgs
7			
8			

Total Depth: 75" bgs

Comments:
Pond sediments 0-4"
Clay 4-20" bgs
Clayey silt 20-26" bgs
Clay 26-64" bgs
Native material 64" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log		**Pit #**	**2**
Location	Pond 3	(GPS) N 35°20.605'	W 107°38.106'
Location Description		MT-3-D	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S3-02-01	0-13": Sediment, silty to sandy clay, slightly moist Sample collected at 0-12" bgs at 10:05
1			13"-19": Clay sediments, varved white and dark gray, dense, moist
2		S3-02-02	19"-37": Clay, dense brown, moist Sample collected at 26-30" bgs at 10:30
3, 4		S3-02-03	37"-54": Silty sand, friable, yellow-brown, moist, native soil Sample collected at 50-54" bgs at 10:30 TD = 54" bgs
5			
6			
7			
8			

Total Depth: 54" bgs

Comments: Pond sediments 0-19"
Clay 19-37" bgs
Native soil 37-54" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log		**Pit #**	**MT-4-D**
Location Pond #4 bottom	GPS N 35-20.644'	W 107-38.178'	
Location Description	Bottom of Pond – North End		
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 2:00 pm		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0 12"		MT -4-D-S1 Depth 6"	(0"-12") *Pond Sediment* - Sandy Clay with some silt– Dark Brown
1		MT -4-D-S2 Depth 14"	(12"- 42") Soft –fine grained- Sandstone, highly fractured, white, easily excavated with bobcat. (*Natural Soil)*
2			
3 42"			
48"		MT -4-D-S3 Depth 48"	(42"- 48") Sandy Silt Brown – trace gravel (*Natural Soil)*
4			
5			
6			
7			
8			

Total Depth: 48" DEEP

Comments:

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

	File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log	**Pit #**	**MT-4-E**

Location Pond # 4 Bottom	GPS N 35-20.522'	W 107-38.170'	
Location Description	Bottom of Pond – South End		
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 1:35 pm		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60d to 70d			

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0 / 6"		MT-4-E-S1 Depth 4"	(0"-6") *Pond Sediment* - Silty Sand, with some silt lenses – the sand was white/tan and the silt lenses were dark Brown.
1 / 20"		MT -4-E-S2 Depth 10-12"	(6"- 20") Silty Clay, dark brown, moist, hard (*Natural Soil or Possible liner)*
2		MT -4-E-S3 Depth 36"	(20"-48") Sandy Clay, some silt, trace gravel, brown, *(Natural Soil)*
3 / 48"			
4 / 50"		MT-4-E-S4 Depth 48" -50"	(48"- 50") Clayey Sand, trace gravel, brown *(Natural Soil)*
5			
6			
7			
8			

Total Depth: 50" DEEP

Comments:

Possible clay liner from 6 to 20" depth

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 1

Location	Pond 5	(GPS) N 35°20.580'	W 107°38.150'
Location Description		MT-5-E	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0			0-22": Clayey silt with sand, friable, brown, moist
		S5-01-01	Sample collected at 0-12" bgs at 14:05
1			
			22"-37": Silty sand, trace clay, friable, dry
2			
3		S5-01-02	Sample collected at 36-37" bgs at 14:09
			TD = 37" bgs
4			
5			
6			
7			
8			

Total Depth: 37" bgs

Comments:
No clay layer noted
Clayey silt with sand 0-22" bgs
Native soil at 22" bgs
Silty sand with trace clay 22-37" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 2

Location	Pond 5	(GPS) N 35°20.595'	W 107°38.189'
Location Description		MT-5-D	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland

Weather and Moisture Conditions: clear, sunny, warm; cool and windy in afternoon

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S5-02-01	0-10": Silty sand, slightly clayey, brown, mottled with white dense BaCl, friable, slightly damp Sample collected at 0-12" bgs at 14:30
1			10"-17": Clay with white precipate BaCl, varved sediments from settling, dark brown gray and white, dense, some silt
		S5-02-02	17"-24": Silty sand, friable, yellow brown, slightly moist Sample collected 17-24" bgs at 14:15
2			24"- 44": Silty sand, friable yellow brown, slightly damp, trace gravel and cobbles
3		S5-02-03	Sample collected at 40-44" bgs at 14:20
			TD = 45" bgs
4			
5			
6			
7			
8			

Total Depth: 45" bgs

Comments: No liner in this pond. Various construction debris on surface. Moist to 24" bgs, slightly damp below.
Pond sediments 0-17" bgs
Native soil 17-44" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

Mt Taylor Mine Water Treatment Pond Test Pit Log	File #	
	Pit #	MT-6-A

Location Pond # 6 Bottom	GPS N 35-20.557'	W 107-38.157'
Location Description	Bottom of Pond – East end	
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe
Date: April - 10-2012 3:00 pm		Operator:
Weather and Moisture Conditions: Warm – Sunny – 60d to 70d		

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0 12"		MT -6-A-S1 Depth 0-5"	(0"-12") *Pond Sediment* - Sandy Silt, light gray (sand from erosion of pond side-banks)
1 20"		MT -4-D-S2 Depth 12-20	(12"- 20") Silty Clay, dark gray and reddish brown silt seams, moist (Pond sediment) (Hypalon geomembrane liner at 20" depth)
2			(20"-40") River Rocks, rounded, 3"dia to 6"dia.
3 40"			(Hypalon geomembrane liner at 40" depth) 40" - Hit hard rock surface. Appears to be a sandstone layer.
4			
5			
6			
7			
8			

Total Depth: 40" DEEP

Comments:

Hypalon and river-rock liner.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log		Pit #	MT-6-B
Location Pond #6 Bottom	GPS N 35-20.560'	W 107-38.174'	
Location Description	Bottom of Pond West End		
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 2:30 pm		Operator:	
Weather and Moisture Conditions: Warm – Sunny –60d to 70d			

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -6-B-S1 depth 8"- 10"	(0"-16") *Pond Sediment* - Intermittent lenses of silt, sand and sandy Clay, light gray (sand from erosion of pond side banks)
1 / 16"			(Hypalon geomembrane liner at 16" depth) (16"- 28") River Rocks, rounded, 3"dia to 6"dia.
2 / 28"			(Hypalon geomembrane liner at 28" depth)
3 / 42"		MT -6-B-S2 Depth 30"	(28"- 42") Sandy Silt Brown – trace gravel *(Natural Soil)* 42" - Hit hard rock surface. Appears to be a sandstone layer
4			
5			
6			
7			
8			

Total Depth: 42" DEEP

Comments:

Hypalon and river-rock liner.

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 1

Location: Pond 7 (GPS) N 35°20.544 W 107°38.171'

Location Description: MT-7-A

Field Engineer: B. Everett | Excavation Method: Backhoe/Shovel

Date: 4/10/2012 | Operator: K. Strickland

Weather and Moisture Conditions: clear, sunny, warm; cool and windy in afternoon

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S7-01-01	0-10": Sediments, clayey silt, moist, dark brown Sample collected at 0-10" bgs at 15:12
			10"-12": Clay, soft red, moist
1			12"-30.5": Silty clay, dense, dark brown, moist
2		S7-01-02	Sample collected at 24-30" bgs at 15:17
3		S7-01-03	30.5"-35": Silty sand, yellow brown, moist Sample collected at 30.5-34" bgs at 15:22 TD = 35" bgs
4			
5			
6			
7			
8			

Total Depth: 35" bgs

Comments:
Geolayer at 10" bgs, 2" of moist red clay below liner
18" of dark brown clay below red clay
Native soil - silty sand below 30.5" bgs, slightly moist
Bedrock at 35" bgs

Checked: | Date:

Approved: Everett | Date: 5/7/2012

RIO GRANDE RESOURCES CORPORATION

File #			
Mt Taylor Mine Water Treatment Pond Test Pit Log		**Pit #**	**2**
Location	Pond 7	(GPS) N 35°20.544	W 107°38.171'
Location Description		MT-7-B	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	**Graphic Log**	**Sample #**	**Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)**
0			0-23": Silty sand sediments, loose, light tan, some organic material, moist to 12" bgs, dry below 12" bgs
		S7-02-01	Sample collected at 0-12" bgs at 15:45
1			
2			23"-43": Pond sediments, silt varved from settling
		S7-02-02	Sample collected at 23-43" bgs
3			
		S7-02-03	43"-45": Clay, red, moist, soft. Sample collected at 43-46" bgs
			45"-49": Clay and silt, brown, dense, moist
4			49"-50": Sandy silt, yellow brown, dry
			TD =50" bgs
5			
6			
7			
8			

Total Depth: 50" bgs

Comments:
Geolayer at 43" bgs with 2" red clay beneath
Native soil at 49-50" bgs
Bedrock at 50" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 1

Location	Pond 8	(GPS) N 35°20.708	W 107°38.129'
Location Description		MT-8-E	
Field Engineer:	B. Everett	Excavation Method: Backhoe/Shovel	
Date:	4/10/2012	Operator: K. Strickland	
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S8-01-01	0-17": Clayey silt, pliable, brown, moist Sample collected at 0-8" bgs at 13:00
1			
2		S8-01-02	17"-30": Clay, dense, gray brown, with white precipitate BaCl 6" layer from 17-23" bgs Sample collected at 17-30" bgs Increase in brown silty sand 23-30" bgs
3		S8-01-03	30"-40": Silty sand, friable, yellow brown, dry Sample collected at 36-40" bgs at 13:09
			TD = 40" bgs
4			
5			
6			
7			
8			

Total Depth: 40" bgs

Comments: Moist to 20" bgs
BaCl layer 17-23" bgs in clay 17-30" bgs
Native soil yellow brown, silty sand at 30" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

Pit # 2

Location	Pond 8	(GPS) N 35°20.714'	W 107°38.150'
Location Description		MT-8-D	
Field Engineer:	B. Everett	Excavation Method:	Backhoe/Shovel
Date:	4/10/2012	Operator:	K. Strickland
Weather and Moisture Conditions:		clear, sunny, warm; cool and windy in afternoon	

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		S8-02-01	0-18": Silty sand, trace gravel, brown, friable, moist Sample collected at 0-12" bgs at 13:26
1			
		S8-02-02	18"-24": Clayey silt, varved gray and white sediment settling Sample collected 18-24" bgs at 13:36
2			24"-56": Clay, very dense, dark brown, slightly damp to dry
3		S8-02-03	Sample collected at 40-50" bgs at 13:36
4			
5		S8-02-04	56"-62": Silty sand, yellow brown, friable, dry Sample collected 58-62" bgs at 13:39
			TD = 62" bgs
6			
7			
8			

Total Depth: 62" bgs

Comments:
Silty sand, brown, friable, some gravel 0-18" bgs
Clayey silt, gray white, varved pond sediments 18-24" bgs
Clay, very dense, dark brown, dry 24-56" bgs
Native soil, yellow brown, silty sand 56-62" bgs

Checked:		Date:	
Approved:	Everett	Date:	5/7/2012

RIO GRANDE RESOURCES CORPORATION

		File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log		**Pit #**	**MT-A-A**
Location Area "A"	GPS no reading	W no reading	
Location Description	Bottom of Pond –North End		
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 11:45 am		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d			

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
4" 0		MT -A-A-S1 Depth 4"	(0"-4") *Pond Sediment* - Clayey Silt with some silt– Dark Brown
1		MT -A-A-S2 Depth 8"	(4"- 30") Sandy Clay, trace gravel, brown, moist (*Natural Soil)*
30" 2			
36"			(30"-36") Silty Sand, some clay, trace gravel, tan (*Natural Soil)*
3			
4			
5			
6			
7			
8			

Total Depth: 36" DEEP

Comments:

Checked: Date:

Approved: Date:

RIO GRANDE RESOURCES CORPORATION

			File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log			**Pit #**	**MT-A-B**
Location Area "A"	GPS no reading	W no reading		
Location Description	Bottom of Pond –South End			
Field Engineer: Ed Loescher			Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 11:30 am			Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 to 70d				

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0 / 6"		MT -A-B-S1 Depth 4"	(0"-6") *Pond Sediment* - Clayey Silt with some silt– Dark Brown
1		MT -A-B-S2 Depth 8"	(6"- 28") Sandy Clay, trace gravel, brown, moist (*Natural Soil)*
28" 2 / 36"		MT -A-B-S3 Depth 30"	(28"-36") Silty Sand, some clay, trace gravel, brown, moist (*Natural Soil)*
3			
4			
5			
6			
7			
8			

Total Depth: 36" DEEP

Comments:

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

File #	
Mt Taylor Mine Water Treatment Pond Test Pit Log — **Pit #**	**MT-OP-D**

Location OP (ore pile pond)	GPS N 35-20.675'	W 107-38.004'
Location Description	Bottom of Pond – West end	
Field Engineer: Ed Loescher	Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 12:45 pm	Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 -70d		

	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -OP-D-S1 Depth 6"	(*Alluvial Sand* 0-48") **Sand,** trace silt and gravel, tan, loose. (layer of sand from erosion of inlet channel and pond side-banks.)
1			
2			
3 48"			
4		MT -OP-D-S2 Depth 48" -50"	(48"- 72") **Clay**, frequent silt seams, dark gray, moist. (possible original pond sediment from 48"-50" and underlain by a clay liner to 72")
5 72"			
6			(72"-76") **Clayey Sand,** trace gravel, brown, moist *(Natural Soil)*
76"			
7			
8			

Total Depth: 76" DEEP

Comments:

Difficult to determine layering below 48" due to the upper layer of sand caving into excavation.
Upper layer of sand due to erosion from pond inlet and side-banks.
Observed perched water seeping slowly into excavation at 50" depth

Checked:	Date:
Approved:	Date:

RIO GRANDE RESOURCES CORPORATION

Mt Taylor Mine Water Treatment Pond Test Pit Log		Pit #	MT-OP-C
Location OP (ore pile pond)	GPS N 35-20.680'	W 107-38.032'	
Location Description	Bottom of Pond - East end		
Field Engineer: Ed Loescher		Excavation Method: Small Bobcat Backhoe	
Date: April - 10-2012 1:20 pm		Operator:	
Weather and Moisture Conditions: Warm – Sunny – 60 -70d			

Depth	Graphic Log	Sample #	Description (USCS, texture, density, color, moisture, odor, inclusions, etc.)
0		MT -OP-C-S1 Depth 6"	(*Pond Sediment* 0-18") **Mix of Silt and Clay** - Dark Gray- Trace Gravel
1 18"			
2		MT -OP-C-S2 Depth 20"	(18"- 44") **Clayey Sand** with some silt - Brown - Trace Gravel (*Natural Soil)*
3 44"			
4		MT -OP-C-S3 Depth 48" -50"	(44"- 72") **Sandy Clay** - Brown- Some Gravel – moist *(Natural Soil)*
5 72"			
6		MT -OP-C-S4 Depth 72"	(72") **Clayey Sand** - Brown - Some Gravel – moist *(Natural Soil)*
7			
8			

Total Depth: 72" DEEP

Comments:

Checked:	Date:
Approved:	Date:

APPENDIX B

Kleinfelder Laboratory Results

SUMMARY OF LABORATORY ANALYSIS

Project: **Mount Taylor Mine: Settling Pond Evaluations** Location: **San Mateo, New Mexico**
Project Number: **96450**

Boring Number	Depth (ft.)	Soil Classification		Atterberg Limits		Sieve Analysis - Accumulative % Passing														Moisture Content (%)	Dry Density (pcf)	Unconfined Comp. Strength (psi)
		USCS	AASHTO	PI	LL	No. 200	No. 100	No. 50	No. 40	No. 30	No. 16	No. 10	No. 8	No. 4	3/8 in	1/2 in	3/4 in	1 in	1 1/2 in			
Borrow Area	2.0 - 5.5	CL	A-6	13	37	64	78	88	91	93	97	98	99	99	100	100	100	--	--	10.7	--	--
MT-1-F	0.0 - 0.5	SC	A-6	15	35	44	56	74	76	77	81	99	100	100	100	--	--	--	--	13.7	--	--
MT-2-D	0.0 - 0.5	CL	A-6	14	33	56	73	95	97	97	98	99	99	100	100	--	--	--	--	16.4	--	--
MT-3-F	0.0 - 0.5	CL	A-6	17	35	59	77	92	95	96	98	99	99	100	100	--	--	--	--	17.3	--	--
MT-4-F	0.0 - 0.5	CL	A-6	13	34	63	86	90	91	91	91	91	91	91	92	92	96	100	--	10.5	--	--
MT-5-F	0.0 - 0.5	CL	A-6	17	37	67	80	94	96	97	98	99	99	99	100	100	--	--	--	17.6	--	--
MT-7-C	0.0 - 0.5	CL	A-6	17	39	71	80	94	97	98	100	100	100	100	--	--	--	--	--	17.9	--	--
MT-8-F	0.0 - 0.5	SC	A-6	13	27	50	73	95	97	98	99	99	99	100	100	--	--	--	--	12.9	--	--
MT-OP-E	0.0 - 0.5	CL	A-6	12	31	63	79	95	97	98	99	99	99	100	100	--	--	--	--	10.3	--	--
MT-WP-SM1	0.0 -	SC	A-6	24	37	48	67	91	93	94	96	97	97	98	99	99	100	--	--	5.9	--	--
MT-WP-SM2	0.0 -	CL	A-7-6	27	43	70	78	85	86	87	89	91	92	96	98	100	--	--	--	10.9	--	--
MT-WP-SM3	0.0 -	SC	A-6	21	34	46	63	89	93	95	96	97	97	98	98	99	100	--	--	3.0	--	--

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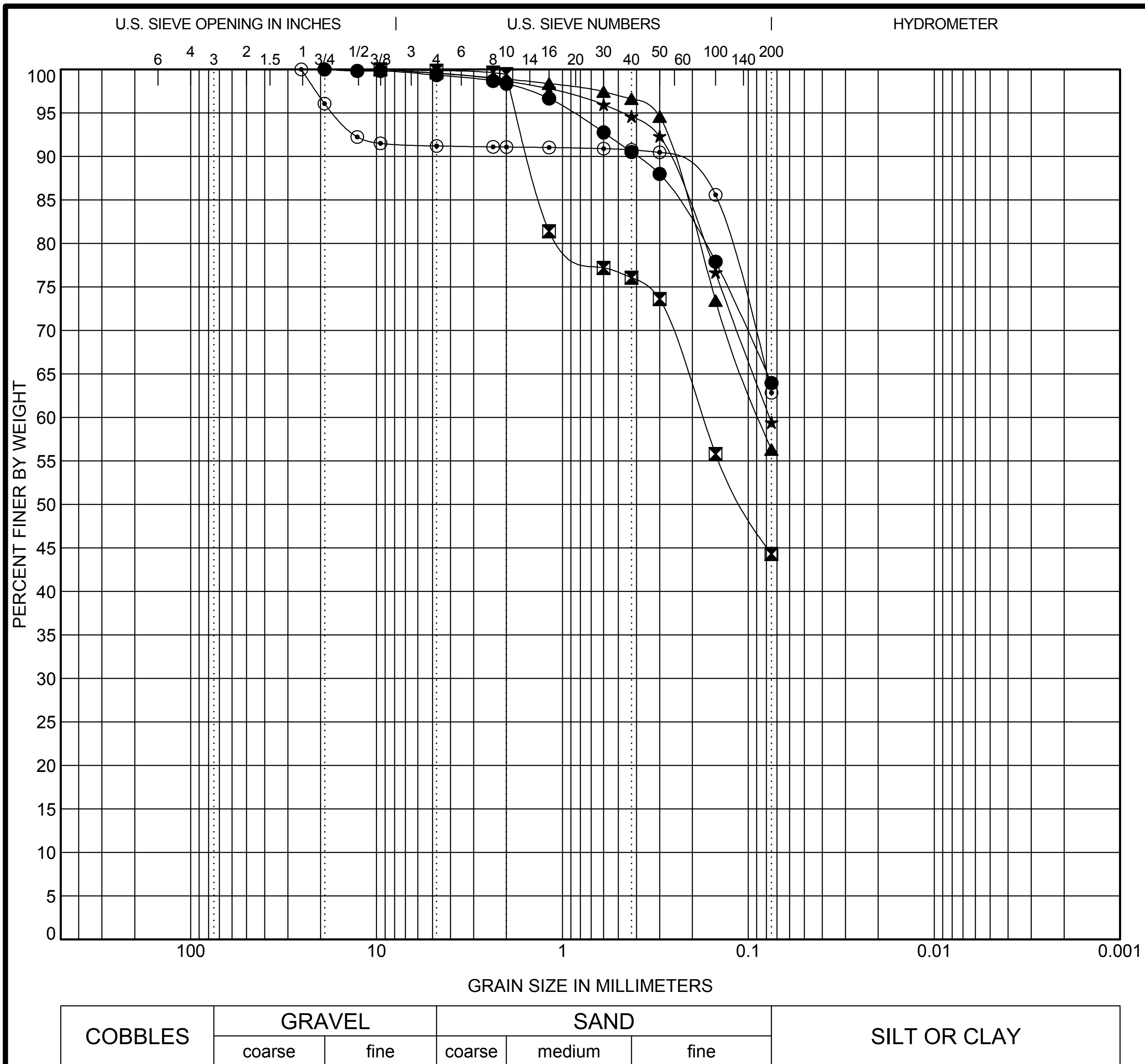

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● Borrow Area	2.0	19.05				0.7	35.4	63.9	
⊠ MT-1-F	0.0	9.525	0.177			0.1	55.6	44.3	
▲ MT-2-D	0.0	9.525	0.087			0.4	43.2	56.3	
★ MT-3-F	0.0	9.525	0.077			0.4	40.1	59.4	
⊙ MT-4-F	0.0	25.4				8.8	28.4	62.8	

ASTM D1140 ASTM C136

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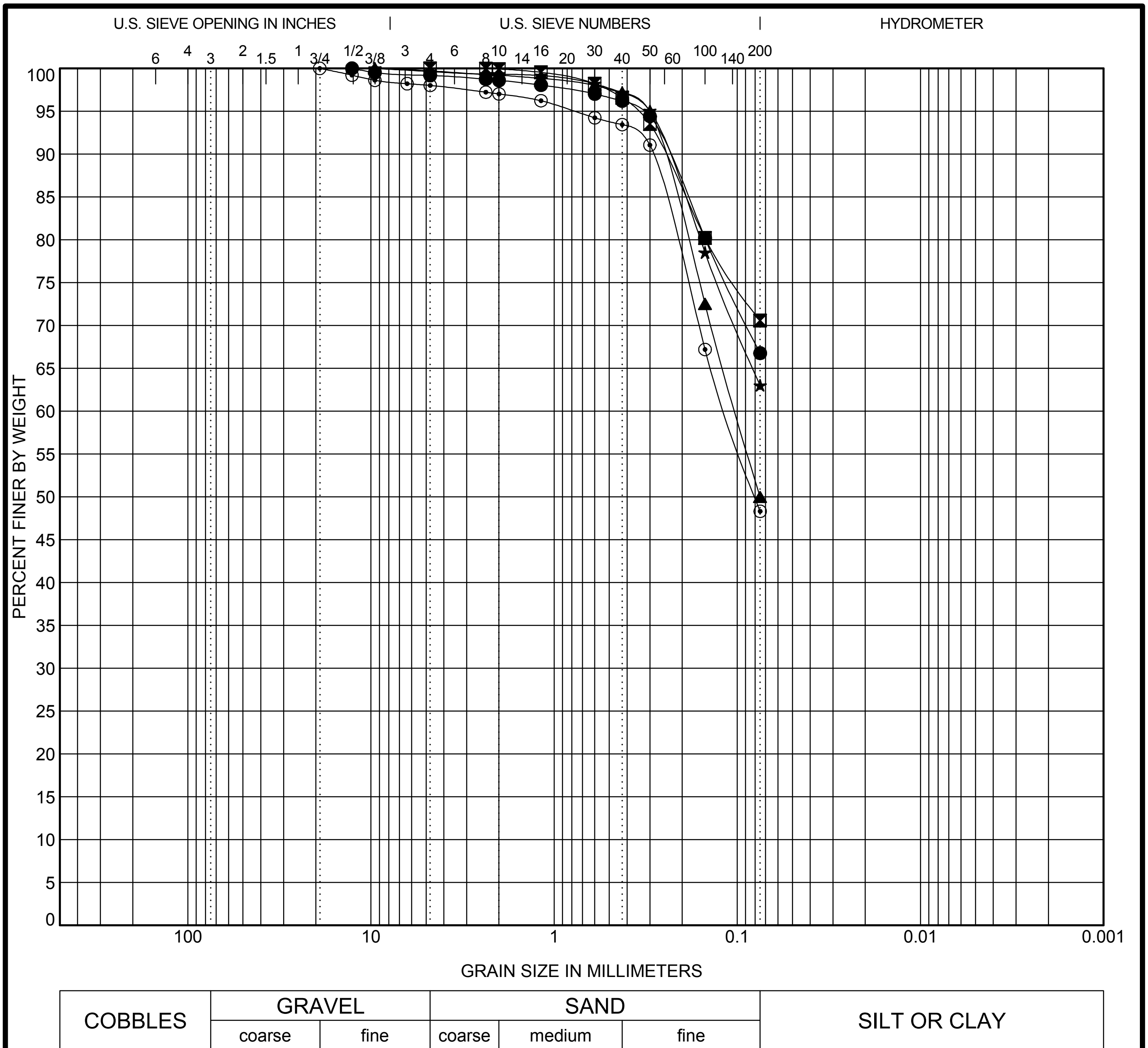
Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● MT-5-F	0.0	12.7				0.8	32.4	66.8	
⊠ MT-7-C	0.0	4.75				0.0	29.4	70.6	
▲ MT-8-F	0.0	9.525	0.102			0.3	49.7	50.0	
★ MT-OP-E	0.0	9.525				0.4	36.6	63.0	
⊙ MT-WP-SM1	0.0	19.05	0.115			2.0	49.7	48.3	

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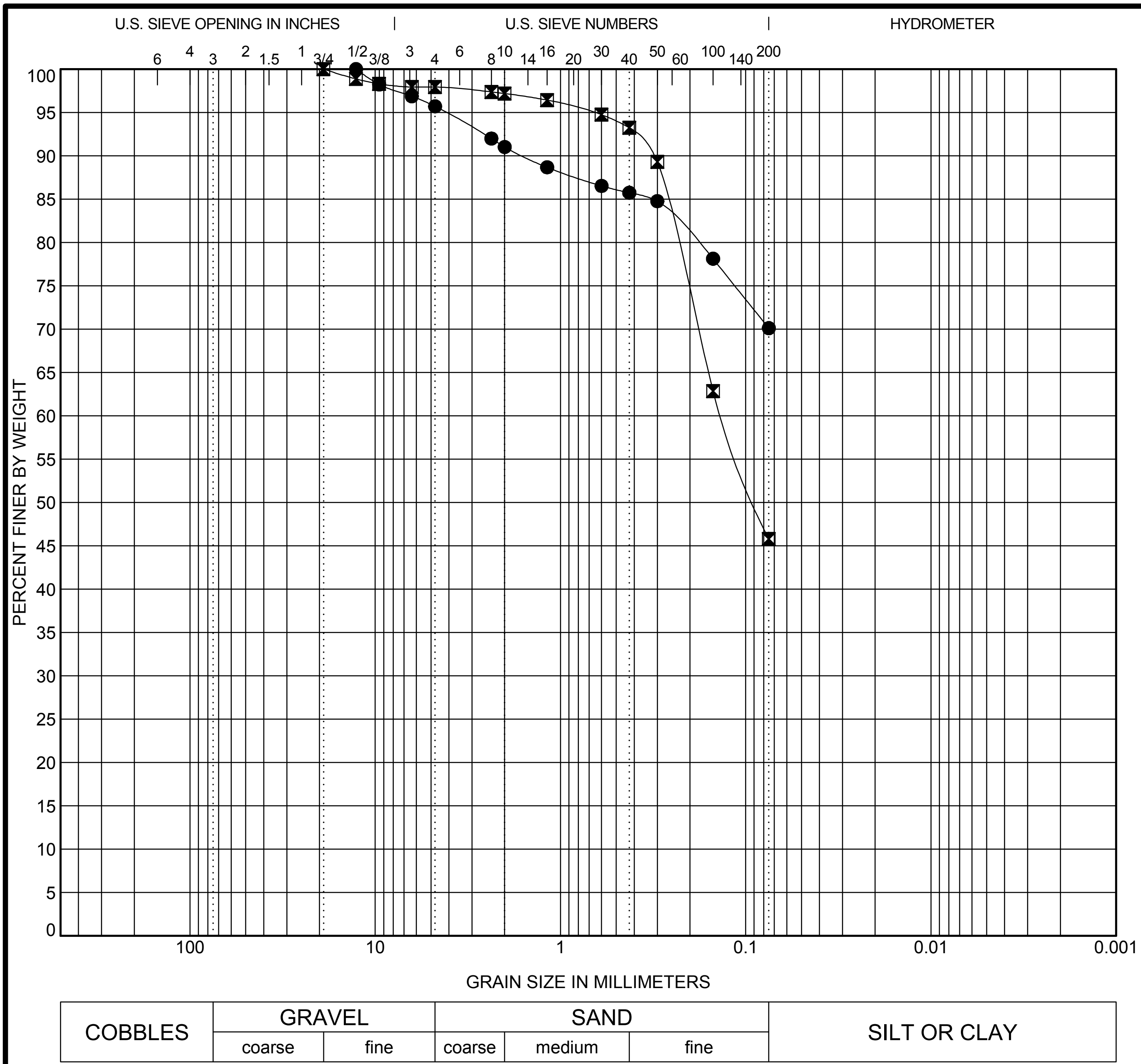
Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● MT-WP-SM2	0.0	12.7				4.3	25.6	70.1	
⊠ MT-WP-SM3	0.0	19.05	0.134			2.1	52.2	45.8	

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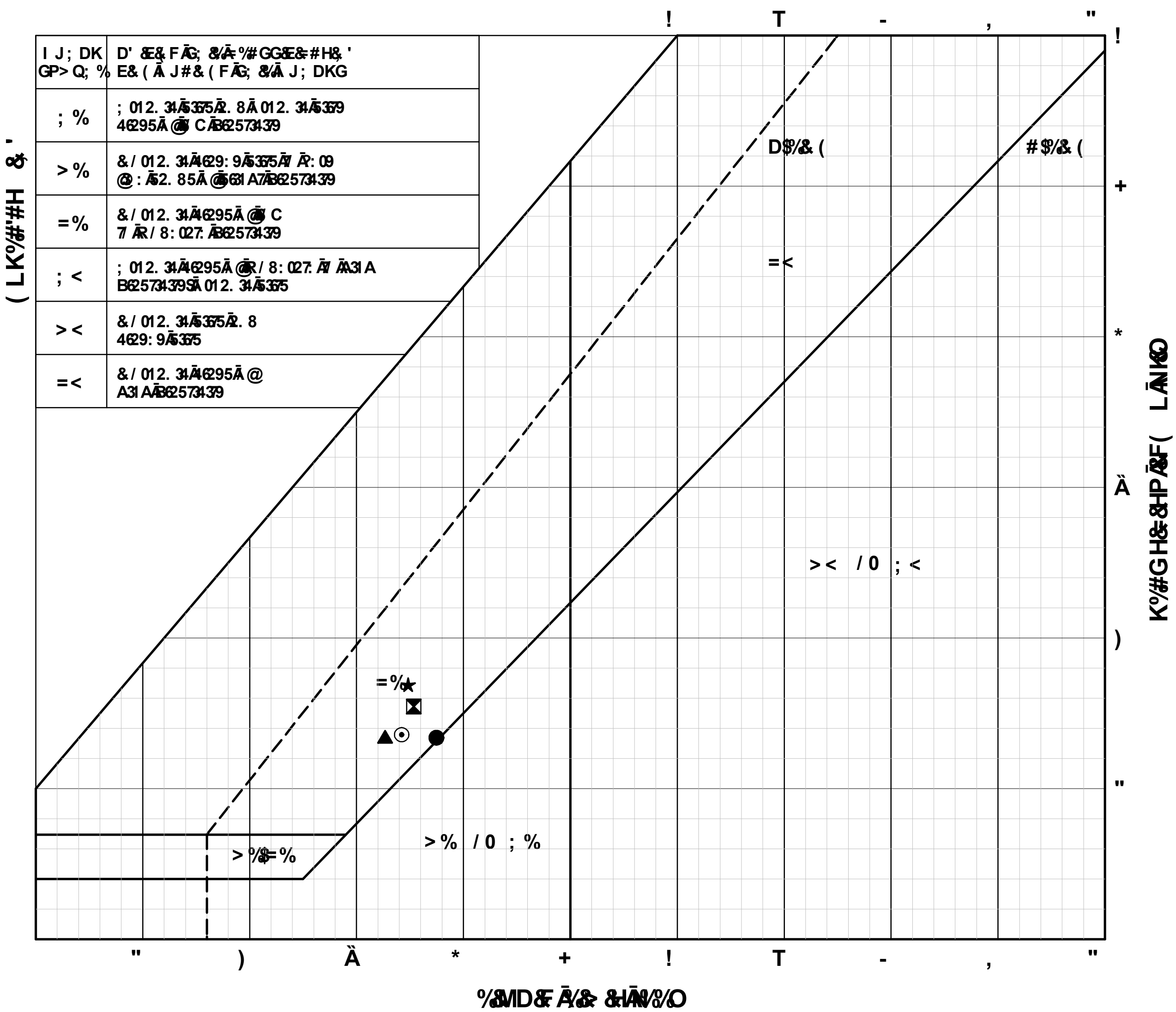
Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

ASTM D4318



Specimen Identification		Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
● Borrow Area	2.0	37	24	13
⧗ MT-1-F	0.0	35	20	15
▲ MT-2-D	0.0	33	19	14
★ MT-3-F	0.0	35	18	17
⊙ MT-4-F	0.0	34	21	13

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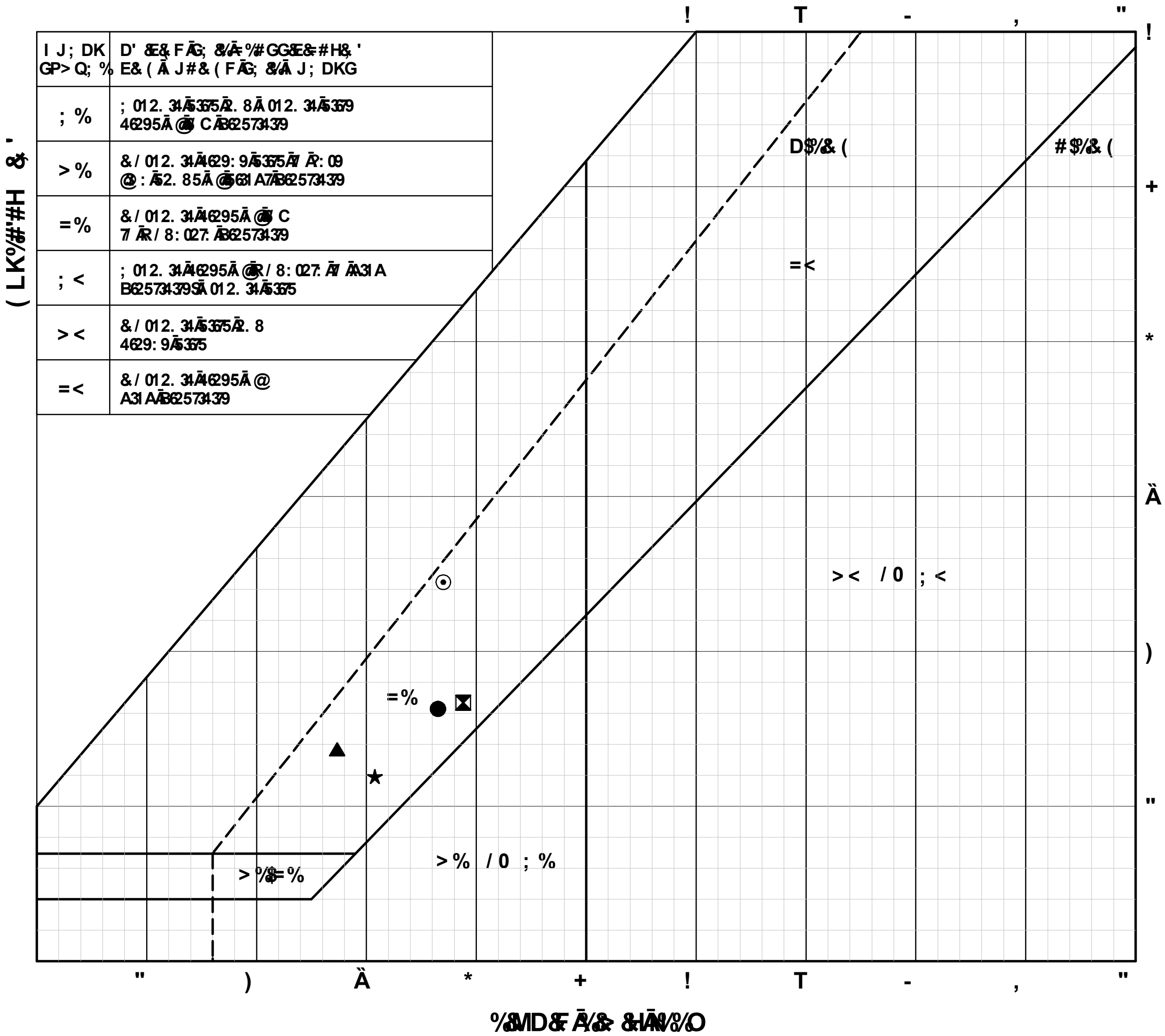
Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

ASTM D4318



	Specimen Identification		Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
●	MT-5-F	0.0	37	20	17
⧗	MT-7-C	0.0	39	22	17
▲	MT-8-F	0.0	27	14	13
★	MT-OP-E	0.0	31	19	12
⊙	MT-WP-SM1	0.0	37	13	24

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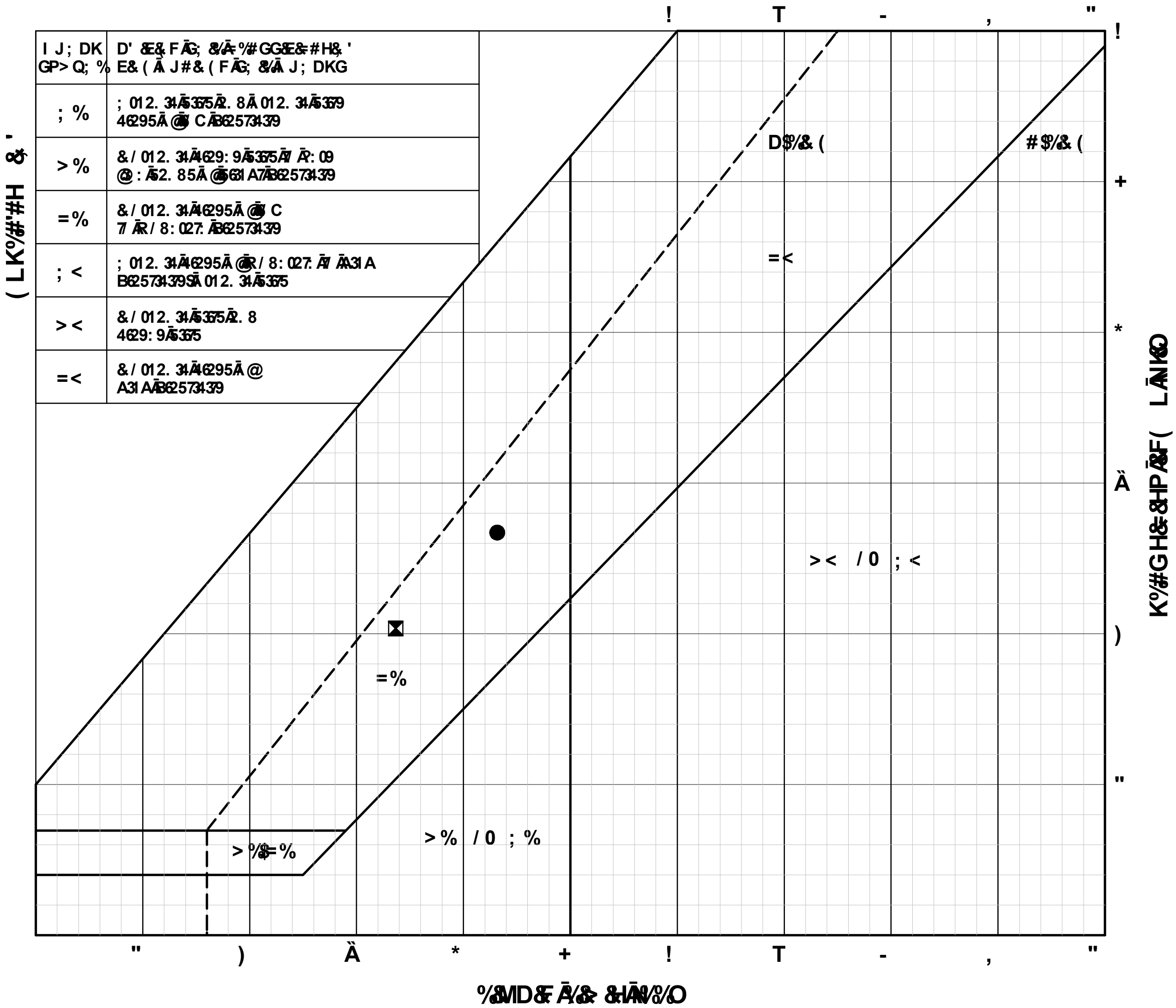
Albuquerque, NM 87113

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

ASTM D4318



	Specimen Identification		Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
●	MT-WP-SM2	0.0	43	16	27
☒	MT-WP-SM3	0.0	34	13	21

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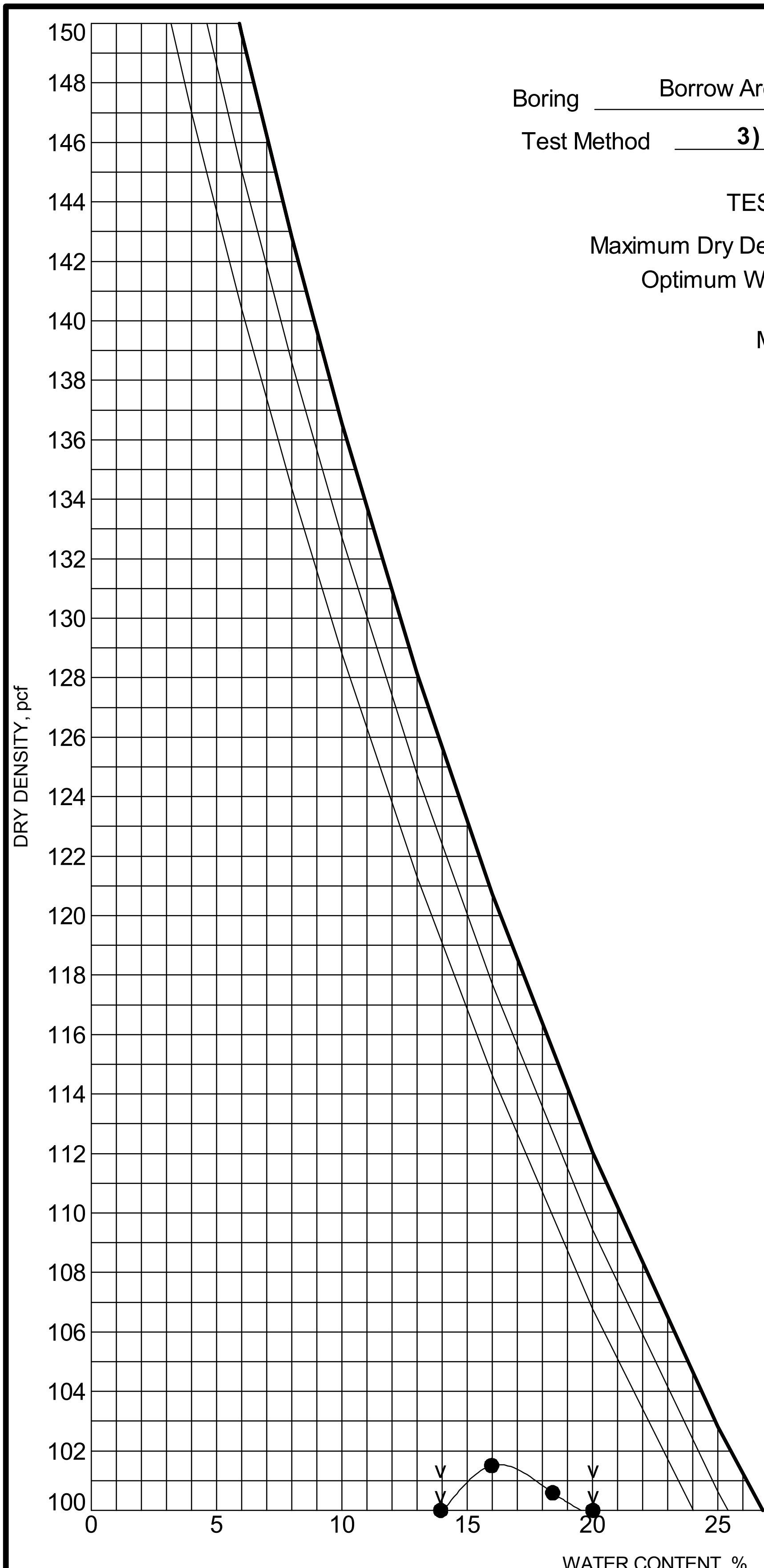
Albuquerque, NM 87113

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Boring: Borrow Area Depth: 2.0 - 5.5

Test Method: 3) * &Ā %6&78 9: ; Ā<

TEST RESULTS

Maximum Dry Density: $ '% 5=>

Optimum Water Content: ! '# Ā

MATERIAL DESCRIPTION

% clay or silt	63.9
% sand	35.4
% gravel	0.7
Liquid Limit	37
Plastic Limit	24
Plasticity Index	13

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

2.80

2.70

2.60

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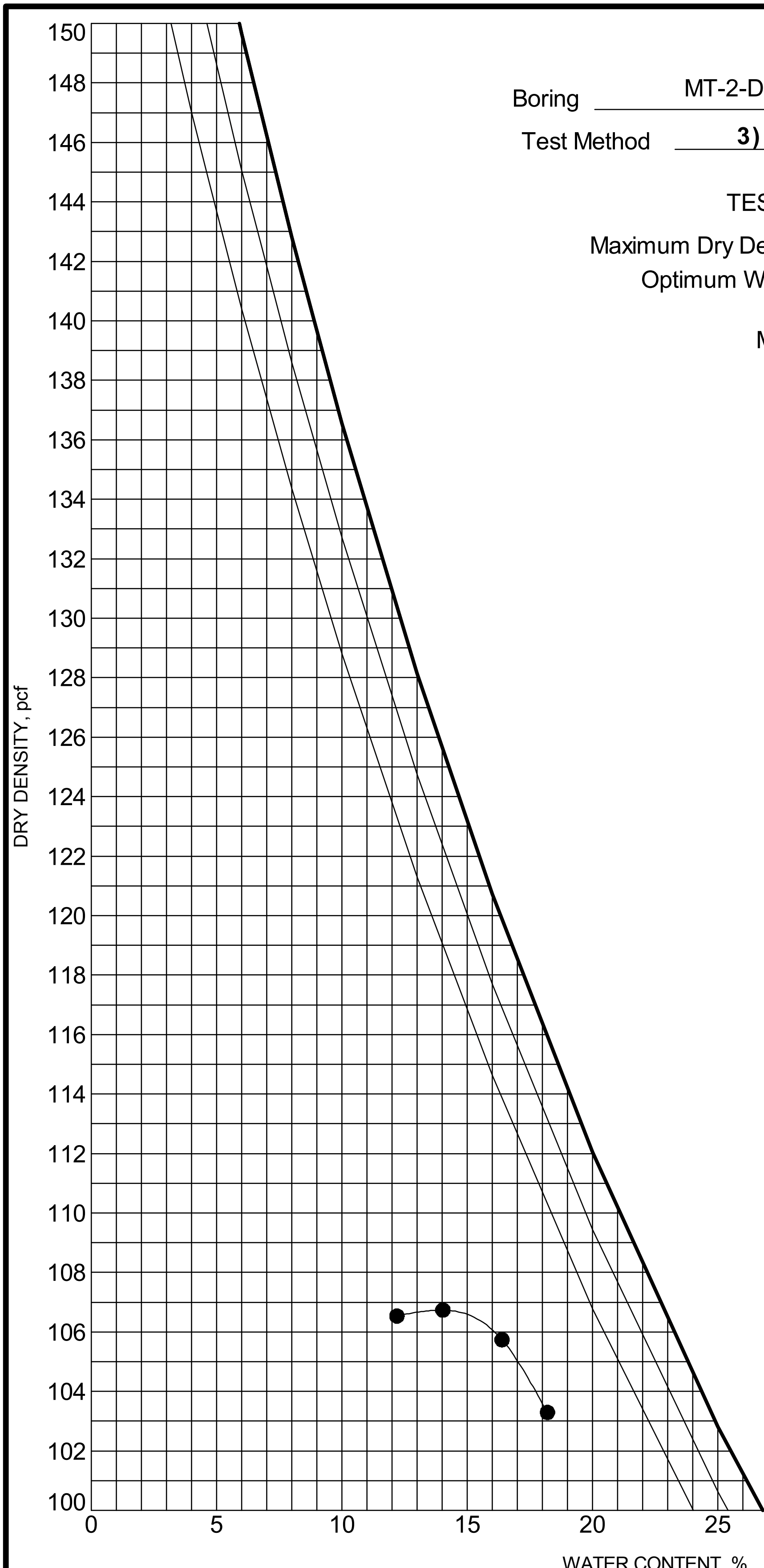
&' () * +, - ./ - 0) (* 1Ā - 23* (' 0) 4(5

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Boring MT-2-D Depth 0.0 - 0.5

Test Method 3) * &Ā %&6 78 9: ; Ā<

TEST RESULTS

Maximum Dry Density $! '6 5=>

Optimum Water Content ? '@Ā

MATERIAL DESCRIPTION

% clay or silt	56.3
% sand	43.2
% gravel	0.4
Liquid Limit	33
Plastic Limit	19
Plasticity Index	14

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

2.80

2.70

2.60

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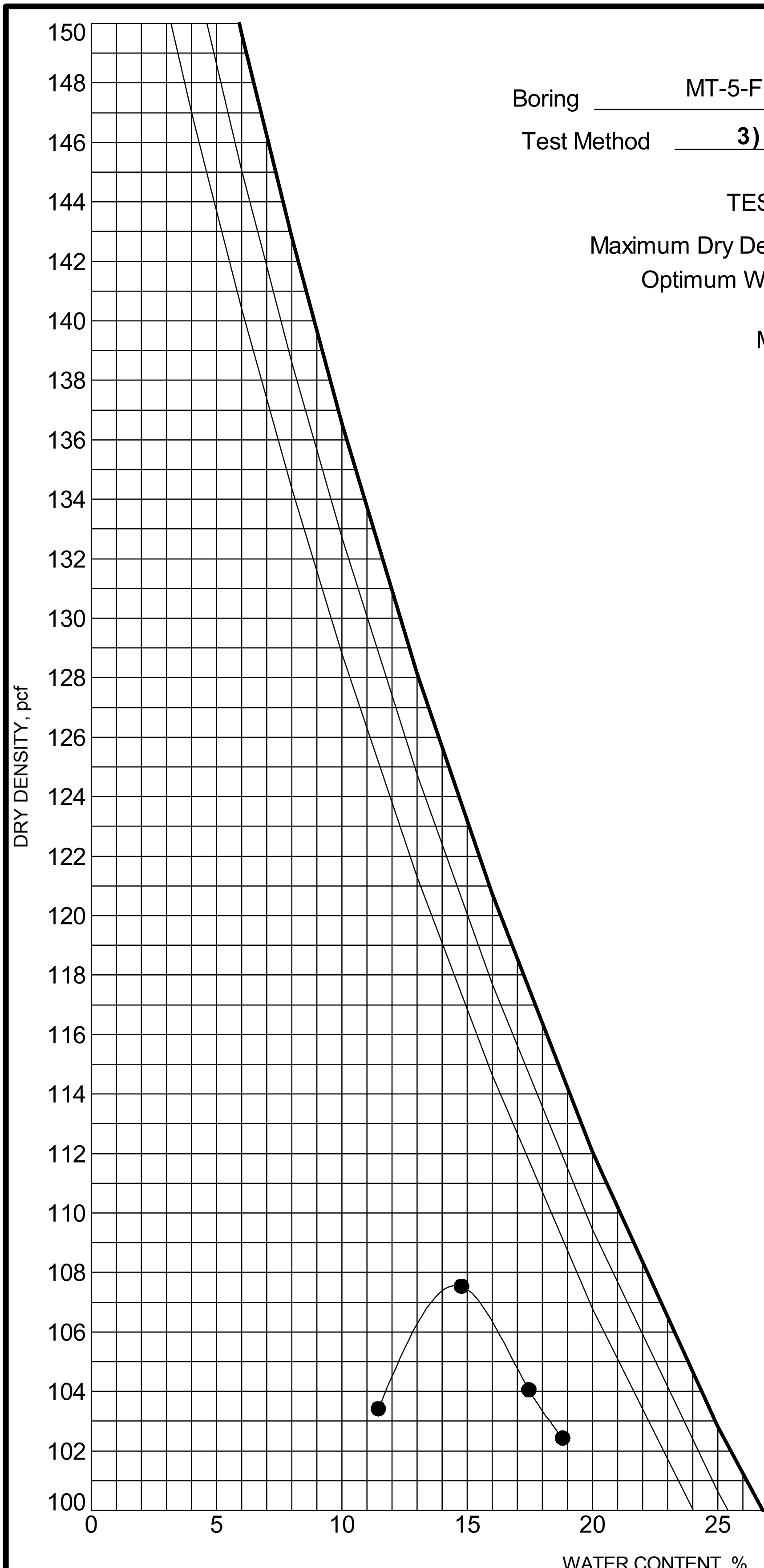
Albuquerque, NM 87113

&' () * +, - ./ - 0) (* 1Ā, - 23 * (' 0) 4 (5

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Boring MT-5-F Depth 0.0 - 0.5

Test Method 3) * &Ā %&6&78 9: ; Ā<

TEST RESULTS

Maximum Dry Density	$ 6'! 5=>
Optimum Water Content	A'! Ā

MATERIAL DESCRIPTION

% clay or silt	66.8
% sand	32.4
% gravel	0.8
Liquid Limit	37
Plastic Limit	20
Plasticity Index	17

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

2.80

2.70

2.60

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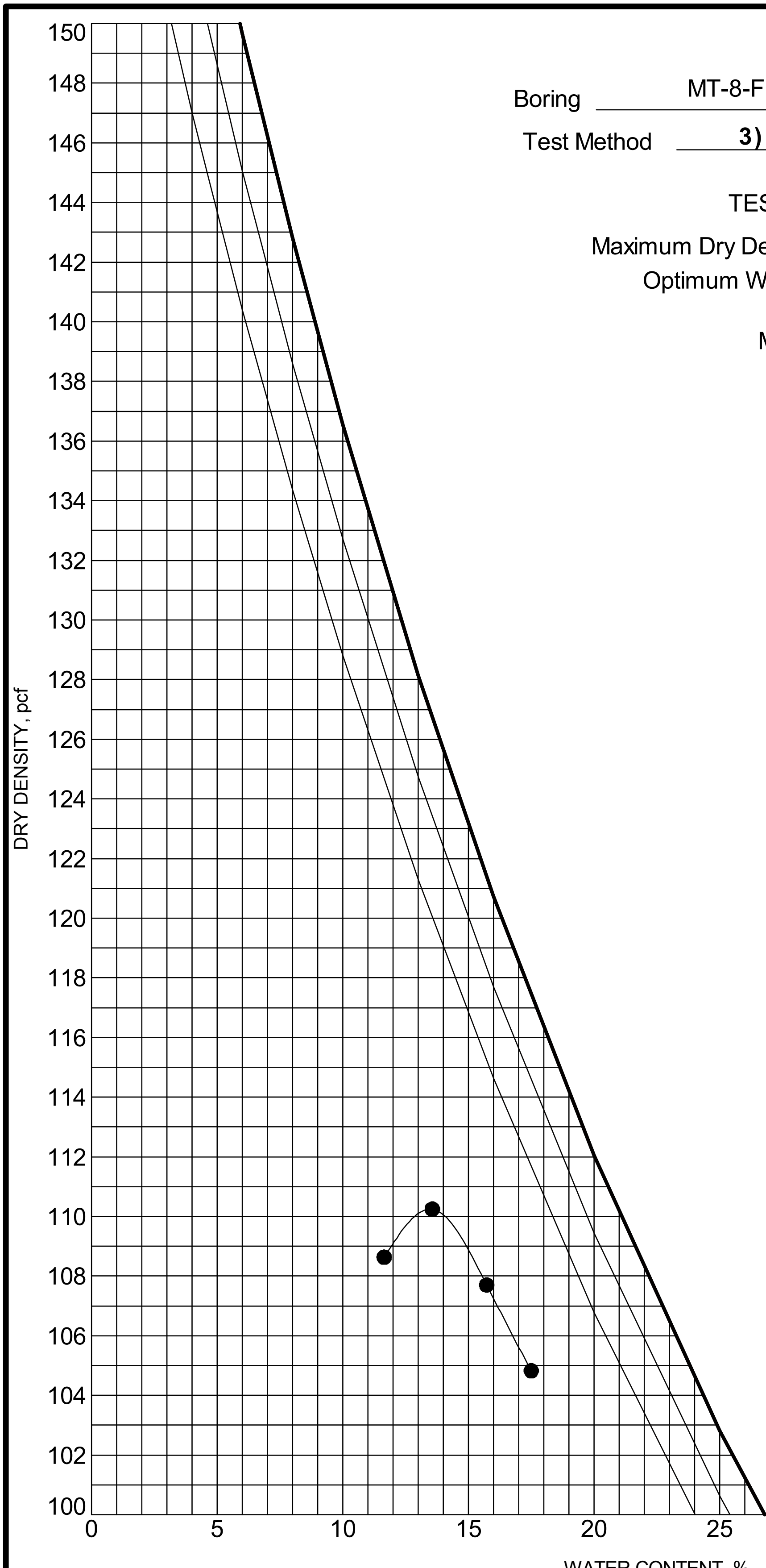
&' () * +, - ./ - 0) (* 1Ā - 23 * (' 0) 4 (5

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



Boring MT-8-F Depth 0.0 - 0.5

Test Method 3) * &Ā %&6&78 9: ; Ā<

TEST RESULTS

Maximum Dry Density $'# 5=>

Optimum Water Content ? '% Ā

MATERIAL DESCRIPTION

% clay or silt	50.0
% sand	49.7
% gravel	0.3
Liquid Limit	27
Plastic Limit	14
Plasticity Index	13

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

2.80

2.70

2.60

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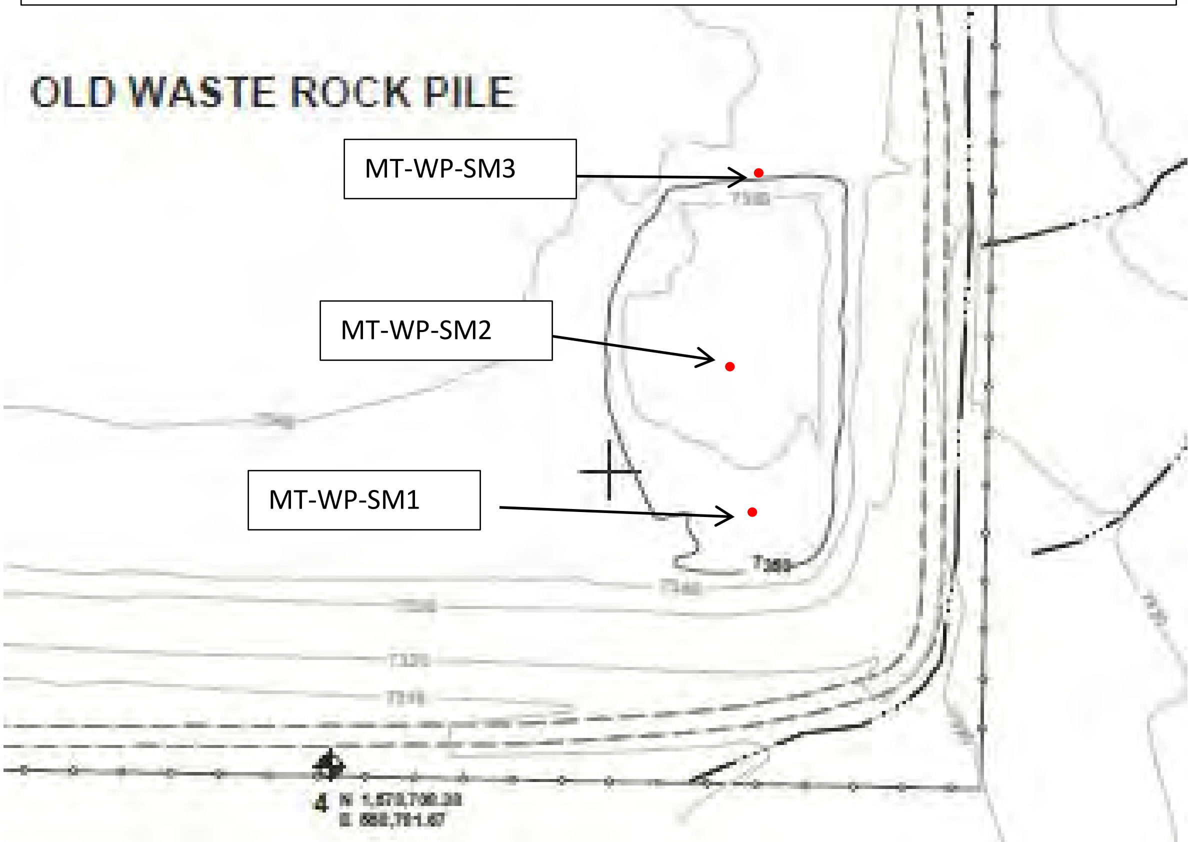
&' () * +, - ./ - 0) (* 1Ā- 23* (' 0) 4(5

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

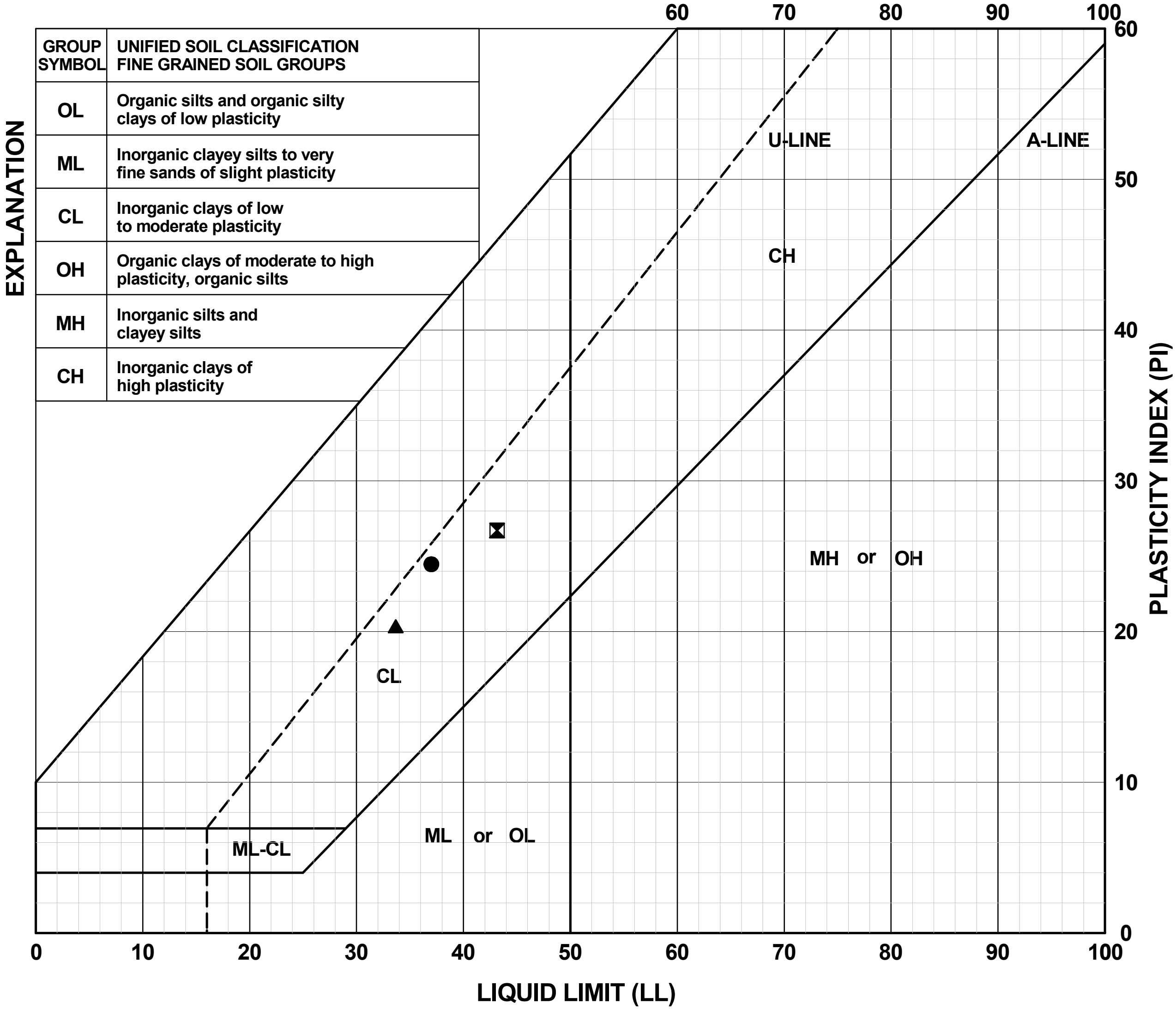
Project Number: 96450

MT TAYLOR MINE SHAFT MUCK SAMPLE LOCATIONS – 5/18/2010



Bulk samples of shaft muck from Mt. Taylor Mine waste rock pile collected on 5/18/2012 by Alan Kuhn. Locations are approximate (+/- 50 ft) based on visual reference to slopes. Splits delivered 5/18/12 to Kleinfelder Albuquerque for grain size analysis and plasticity tests. Other splits left with RGR Mine office for shipment to Energy Labs for testing of U and Ra concentration.

ASTM D4318



	Specimen Identification		Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
●	MT-WP-SM1	0.0	37	13	24
⧗	MT-WP-SM2	0.0	43	16	27
▲	MT-WP-SM3	0.0	34	13	21

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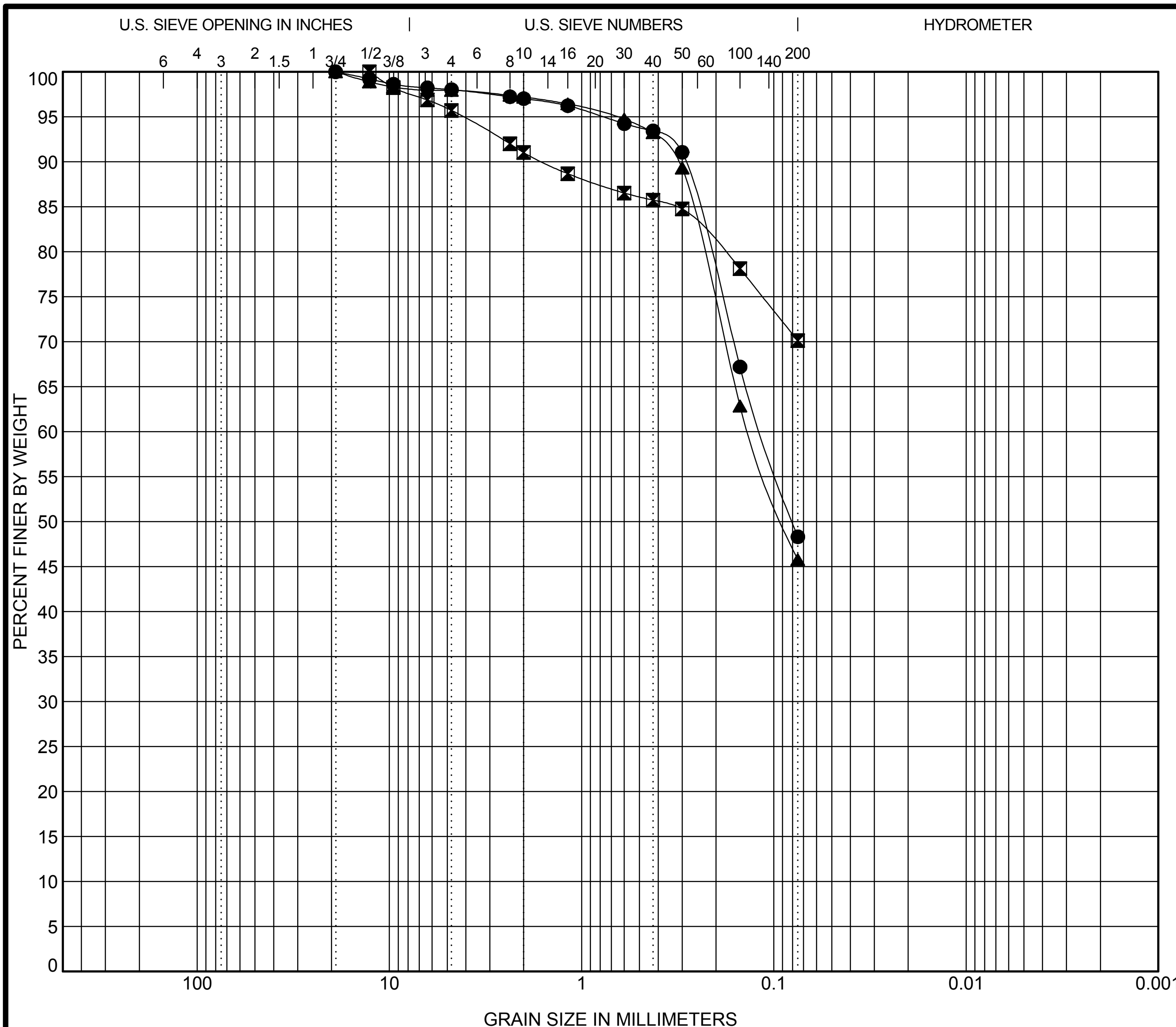
ATTERBERG LIMITS

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	MT-WP-SM1	0.0	19.05	0.115			2.0	49.7	48.3	
⊠	MT-WP-SM2	0.0	12.7				4.3	25.6	70.1	
▲	MT-WP-SM3	0.0	19.05	0.134			2.1	52.2	45.8	

ASTM D1140 ASTM C136

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GRAIN SIZE DISTRIBUTION

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

SUMMARY OF LABORATORY ANALYSIS

Project: **Mount Taylor Mine: Settling Pond Evaluations** Location: **San Mateo, New Mexico**
Project Number: **96450**

Boring Number	Depth (ft.)	Soil Classification		Atterberg Limits		Sieve Analysis - Accumulative % Passing														Moisture Content (%)	Dry Density (pcf)	Unconfined Comp. Strength (psi)
		USCS	AASHTO	PI	LL	No. 200	No. 100	No. 50	No. 40	No. 30	No. 16	No. 10	No. 8	No. 4	3/8 in	1/2 in	3/4 in	1 in	1 1/2 in			
MT-WP-SM1	0.0 -	SC	A-6	24	37	48	67	91	93	94	96	97	97	98	99	99	100	--	--	5.9	--	--
MT-WP-SM2	0.0 -	CL	A-7-6	27	43	70	78	85	86	87	89	91	92	96	98	100	--	--	--	10.9	--	--
MT-WP-SM3	0.0 -	SC	A-6	21	34	46	63	89	93	95	96	97	97	98	98	99	100	--	--	3.0	--	--

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APPENDIX D.2

FIELD SAMPLING AND LABORATORY TEST DATA

Radiological Investigations

MEMORANDUM

Date: June 6, 2012

From: Stanley Fitch, CHP, Radiation Safety Officer

To: Joel Lister, Mine Manager, Mt. Taylor Mine

Subject: April 2012 Soil Investigation

On April 23, 2012, a soil sampling campaign was performed to investigate possible environmental dispersal of uranium and its progeny from the Mt. Taylor Mine. A total of 16 samples were retrieved, 2 background locations and 14 locations along arroyos that drain the mine property. In addition, gamma dose rate measurements were taken.

The purpose of this investigation is to determine background radionuclide concentrations and to evaluate the potential spread of uranium and radium from the mine. To wit, soil samples were taken at various locations adjacent to drainage features (e.g., Marquez Arroyo) and in the thalwegs of these features. The background locations selected are locations MTE-1 (up Marquez Canyon next to the Forest Service Boundary) and MTE-7 (North ¼ Corner of Section 24) for grades above drainage features.

MTE-2 was selected as the background location for the Marquez Canyon drainage. However, because the steepness of the arroyo created a sandy bed with very limited organics that would retain background naturally occurring radioactive material (NORM), it is believed that MTE-2 is a poor representation of the remainder of the drainage.

An aerial map is attached depicting the sample locations. The soil sample locations are also attached in Table 2 (below) with their respective New Mexico State Plane Coordinates and sample analysis results. See also Table 3.

The following observations are made based on the radionuclide data in Table 2:

- There appears to be no discernible dispersal of uranium and uranium progeny off the mine property.

- The concentrations of radionuclides in the Marquez Canyon arroyo adjacent and below Pond 8 (MTE-3, MTE-4, MTE-5, MTE-6) are equivalent to or lower than the background concentrations (MTE-1, MTE-2, MTE-7), indicating: 1) no discernible spread of contamination north of the current boundary; and 2) seasonal water flows purge organics from the Marquez arroyo thalweg that would contain naturally occurring radioactive material (NORM) and radionuclides from the mine (TENORM).

- Radionuclide concentrations in the alluvial deposits north and northeast of San Mateo (MTE-8, MTE-9, MTE-10, MTE-11, MTE-13, MTE-14) are consistent with NORM concentrations typical for this region at locales away from uranium mining operations. There are no identifiable patterns that would indicate the dispersal of uranium and radium into the plain from Mt. Taylor Mine.

- The slightly elevated ambient radiation readings north of Pond 8 were not explained by the soil sample analyses performed for this investigation. Please compare the survey results for MTE-3 and MTE-4 against the survey results for the background locations:

Table 1

Location	Dose Rate µrem/h	U-238 pCi/g	Ra-226 pCi/g
MTE-1 (Surface Grade BKG)	18	1.6	1.7
MTE-7 (Surface Grade BKG)	13	0.6	1.5
MTE-3 (Surface Grade)	26	0.5	1.4

Regressional analysis of the data in Table 2 indicates very poor statistical correlation between the dose rates and the concentrations of Radium-226 in the soil.

The conclusions are that: 1) radiation “shine” from nearby and elevated rock and soils could be affecting the instrument readings; and 2) soil sample analyses must be performed along with dose rate surveys when evaluating remediation requirements.


April 23, 2012
Soil Sample Locations
N
MTE-7
MTE-5
MTE-6
MTE-3
MTE-4
MTE-2
MTE-1
MTE-12
MTE-10
MTE-11
MTE-14
MTE-13
MTE-9
MTE-8
MTE-16
MTE-15

Table 2
RADIATION SURVEY AND SAMPLE RESULTS
April 23, 2012

Location #	Description	Sample Time	NAD 27 Northing	NAD 27 Easting	Dose Rate (μrem/h)	U-238 (pCi/g)	Ra-226 (pCi/g)	Gross Alpha (pCi/g)
MTE-1	Marquez Arroyo Top of Grade; clay	10:20	1580869	561223	18	1.6	1.7	6.8
MTE-2	Marquez Arroyo Thalweg; very sandy	10:25	1580963	561211	15	0.3	0.7	3.7
MTE-3	Marquez Arroyo Top of Grade; clay	10:50	1581289	559191	26	0.5	1.4	7.6
MTE-4	Marquez Arroyo Thalweg; sandy	10:58	1581226	559201	24	0.2	1.2	5.0
MTE-5	Marquez Arroyo Top of Grade; clay	11:05	1581507	558551	18	0.4	1.4	4.6
MTE-6	Marquez Arroyo Thalweg; sandy	11:10	1581479	558532	15	0.4	1.5	8.9
MTE-7	N¼ Corner Section 24; clay	11:30	1582031	558654	13	0.6	1.5	12.4
MTE-8	Drainage Top of Grade; clay	12:37	1579422	555004	14	1.2	2.8	9.8
MTE-9	Drainage Thalweg; clay	12:40	1579428	555009	14	1.1	1.8	7.6
MTE-10	Drainage Top of Grade; clay	12:52	1580023	555383	14	0.3	1.2	5.5
MTE-11	Drainage Thalweg; clay	12:54	1580047	555376	13	0.4	1.2	4.5
MTE-12	Marquez Arroyo fan; clay	13:40	1580724	556946	13	0.9	2.1	12.9
MTE-13	Drainage Thalweg; sandy clay	13:55	1579390	557582	14	1.4	2.7	8.0
MTE-14	Drainage Top of Grade; clay	14:05	1579410	557576	14	0.4	1.1	11.9
MTE-15	Drainage Thalweg; sandy	14:45	1578344	557794	14	1.0	2.0	5.8
MTE-16	Drainage Top of Grade; clay	14:50	1578386	557805	13	0.3	0.8	6.4

Notes:
1. The term "grade" above refers to the natural surface outside of and atop the drainage feature.
2. Dose Rate Instrument: Eberline PRM-7 #182, BKG = 10-12 μrem/h
3. Coordinates reported are New Mexico State Plane Coordinates in the New Mexico West UTM projection.

Table 3
COORDINATE CONVERSIONS

Location #	Description	NAD 83 Coordinates		NAD 27 Coordinates	
		N	E	N	E
MTE-1	Grade on South Side of Marquez Arroyo	1580937	2784129	1580869	561223
MTE-2	Thalweg of Marquez Arroyo	1581031	2784117	1580963	561211
MTE-3	Grade on North Side of Marquez Arroyo	1581357	2782097	1581289	559191
MTE-4	Thalweg of Marquez Arroyo	1581294	2782107	1581226	559201
MTE-5	Grade North Side of Marquez Arroyo	1581575	2781457	1581507	558551
MTE-6	Thalweg of Marquez Arroyo	1581547	2781438	1581479	558532
MTE-7	North 1/4 Corner Section 24	1582099	2781560	1582031	558654
MTE-8	Grade on South Side of Drainage	1579490	2777910	1579422	555004
MTE-9	Thalweg of Drainage	1579496	2777915	1579428	555009
MTE-10	Grade on South Side of Drainage	1580091	2778289	1580023	555383
MTE-11	Thalweg of Drainage	1580115	2778282	1580047	555376
MTE-12	Marquez Arroyo Fan	1580792	2779852	1580724	556946
MTE-13	Thalweg of Drainage	1579458	2780488	1579390	557582
MTE-14	Grade on North Side of Drainage	1579478	2780482	1579410	557576
MTE-15	Thalweg of Drainage	1578412	2780700	1578344	557794
MTE-16	Grade on North Side of Drainage	1578454	2780711	1578386	557805

Note: Coordinates reported are New Mexico State Plane Coordinates in the New Mexico West UTM projection.

ANALYTICAL SUMMARY REPORT

June 01, 2012

Rio Grande Resources Corporation
PO Box 1150
Grants, NM 87020

Workorder No.: C12041338

Project Name: Mt. Taylor Mine

Energy Laboratories, Inc. Casper WY received the following 16 samples for Rio Grande Resources Corporation on 4/30/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12041338-001	MTE-1	04/23/12 10:20	04/30/12	Soil	Digestion For RadioChemistry Gross Alpha, Gross Beta Sample Prep Gamma Sample Preparation Gross Alpha, Gross Beta Gross Gamma Uranium, Isotopic
C12041338-002	MTE-2	04/23/12 10:25	04/30/12	Soil	Same As Above
C12041338-003	MTE-3	04/23/12 10:50	04/30/12	Soil	Same As Above
C12041338-004	MTE-4	04/23/12 10:58	04/30/12	Soil	Same As Above
C12041338-005	MTE-5	04/23/12 11:05	04/30/12	Soil	Same As Above
C12041338-006	MTE-6	04/23/12 11:10	04/30/12	Soil	Same As Above
C12041338-007	MTE-7	04/23/12 11:30	04/30/12	Soil	Same As Above
C12041338-008	MTE-8	04/23/12 12:37	04/30/12	Soil	Same As Above
C12041338-009	MTE-9	04/23/12 12:40	04/30/12	Soil	Same As Above
C12041338-010	MTE-10	04/23/12 12:52	04/30/12	Soil	Same As Above
C12041338-011	MTE-11	04/23/12 12:56	04/30/12	Soil	Same As Above
C12041338-012	MTE-12	04/23/12 13:40	04/30/12	Soil	Same As Above
C12041338-013	MTE-13	04/23/12 13:55	04/30/12	Soil	Same As Above
C12041338-014	MTE-14	04/23/12 14:05	04/30/12	Soil	Same As Above
C12041338-015	MTE-15	04/23/12 14:45	04/30/12	Soil	Same As Above
C12041338-016	MTE-16	04/23/12 14:50	04/30/12	Soil	Same As Above

The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing. Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. Data corrected for moisture content are typically noted as -dry on the report. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Rio Grande Resources Corporation
Project: Mt. Taylor Mine
Sample Delivery Group: C12041338

Report Date: 06/01/12

CASE NARRATIVE

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Virginia: 00057; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 10:20
Lab ID:	C12041338-001	**DateReceived:**	04/30/12
Client Sample ID:	MTE-1	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	6.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	1.7	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	1.6	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	19.2	pCi/g-dry		0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	3.8	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.7	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 10:25
Lab ID:	C12041338-002	**DateReceived:**	04/30/12
Client Sample ID:	MTE-2	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	3.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.06	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	0.7	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 10:50
Lab ID:	C12041338-003	**DateReceived:**	04/30/12
Client Sample ID:	MTE-3	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	7.6	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.6	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	-0.02	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.5	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.4	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 10:58
Lab ID:	C12041338-004	**DateReceived:**	04/30/12
Client Sample ID:	MTE-4	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	5.0	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.5	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.07	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.2	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.2	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.4	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 11:05
Lab ID:	C12041338-005	**DateReceived:**	04/30/12
Client Sample ID:	MTE-5	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	4.6	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.6	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.03	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.4	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 11:10
Lab ID:	C12041338-006	**DateReceived:**	04/30/12
Client Sample ID:	MTE-6	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	8.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.5	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.09	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.5	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 11:30
Lab ID:	C12041338-007	**DateReceived:**	04/30/12
Client Sample ID:	MTE-7	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	12.4	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.6	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.02	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.6	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.5	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 12:37
Lab ID:	C12041338-008	**DateReceived:**	04/30/12
Client Sample ID:	MTE-8	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	9.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	1.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.1	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	1.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	2.8	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.6	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 12:40
Lab ID:	C12041338-009	**DateReceived:**	04/30/12
Client Sample ID:	MTE-9	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	7.6	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	1.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.2	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	1.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.8	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 12:52
Lab ID:	C12041338-010	**DateReceived:**	04/30/12
Client Sample ID:	MTE-10	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	5.5	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.08	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.2	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 12:56
Lab ID:	C12041338-011	**DateReceived:**	04/30/12
Client Sample ID:	MTE-11	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	4.5	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.02	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.2	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.4	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 13:40
Lab ID:	C12041338-012	**DateReceived:**	04/30/12
Client Sample ID:	MTE-12	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	12.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.9	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.07	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.9	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	2.1	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 13:55
Lab ID:	C12041338-013	**DateReceived:**	04/30/12
Client Sample ID:	MTE-13	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	8.0	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	1.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.08	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	1.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	2.7	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine
Lab ID: C12041338-014
Client Sample ID: MTE-14

Report Date: 06/01/12
Collection Date: 04/23/12 14:05
DateReceived: 04/30/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	11.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.9	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.05	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.4	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	1.1	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 14:45
Lab ID:	C12041338-015	**DateReceived:**	04/30/12
Client Sample ID:	MTE-15	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	5.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.7	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.8	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	0.02	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.09	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	2.0	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	06/01/12
Project:	Mt. Taylor Mine	**Collection Date:**	04/23/12 14:50
Lab ID:	C12041338-016	**DateReceived:**	04/30/12
Client Sample ID:	MTE-16	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Gross Alpha	6.4	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Gross Alpha precision (±)	0.8	pCi/g-dry				E900.0	05/02/12 12:00 / ep
Uranium 234	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 234 MDC	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235	-0.01	pCi/g-dry	U			E908.0	05/08/12 08:58 / dmf
Uranium 235 precision (±)	0.06	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238	0.3	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 precision (±)	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
Uranium 238 MDC	0.1	pCi/g-dry				E908.0	05/08/12 08:58 / dmf
RADIONUCLIDES - GAMMA							
Potassium 40	0.0	pCi/g-dry	U	0.5		E901.1	05/22/12 13:10 / dpb
Potassium 40 precision (±)	0.5	pCi/g-dry				E901.1	05/22/12 13:10 / dpb
Radium 226	0.8	pCi/g-dry		0.3		E901.1	05/22/12 13:10 / dpb
Radium 226 precision (±)	0.3	pCi/g-dry				E901.1	05/22/12 13:10 / dpb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation **Report Date:** 06/01/12

Project: Mt. Taylor Mine **Work Order:** C12041338

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.0										Batch: R159328
Sample ID: MB-R159328	2	Method Blank				Run: G5000W_120502A				05/02/12 12:00
Gross Alpha		-0.03	pCi/g-dry							U
Gross Alpha precision (±)		0.6	pCi/g-dry							
Sample ID: LCS-R159328		Laboratory Control Sample				Run: G5000W_120502A				05/02/12 12:00
Gross Alpha		487	pCi/g-dry		96	70	130			
Sample ID: C12040820-001ADUP	2	Sample Duplicate				Run: G5000W_120502A				05/02/12 12:00
Gross Alpha		3.28	pCi/g-dry			70	130	14	20	
Gross Alpha precision (±)		0.660	pCi/g-dry							
- Duplicate RPD for Gross Beta is outside of the acceptance range for this analysis.										
Sample ID: C12041338-010ADUP	2	Sample Duplicate				Run: G5000W_120502A				05/02/12 12:00
Gross Alpha		6.25	pCi/g-dry			70	130	13	20	
Gross Alpha precision (±)		0.750	pCi/g-dry							

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation **Report Date:** 06/01/12

Project: Mt. Taylor Mine **Work Order:** C12041338

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E901.1										Batch: R160127
Sample ID: LCS-R160127		Laboratory Control Sample				Run: GAM-HPGE_120522B				05/22/12 13:10
Bismuth 214		2.30	pCi/g-dry	0.30	89	70	130			
Sample ID: MB-R160127	4	Method Blank				Run: GAM-HPGE_120522B				05/22/12 13:10
Potassium 40		ND	pCi/g-dry							U
Potassium 40 precision (±)		ND	pCi/g-dry							
Radium 226		ND	pCi/g-dry							U
Radium 226 precision (±)		ND	pCi/g-dry							
Sample ID: C12041338-010ADUP	4	Sample Duplicate				Run: GAM-HPGE_120522B				05/22/12 13:10
Potassium 40		ND	pCi/g-dry	0.50					20	U
Potassium 40 precision (±)		ND	pCi/g-dry							
Radium 226		1.80	pCi/g-dry	0.30				40	20	R
Radium 226 precision (±)		0.400	pCi/g-dry							
- Duplicate RPD for Ra226 is outside of the acceptance range for this analysis.										
Sample ID: C12041338-016ADUP	4	Sample Duplicate				Run: GAM-HPGE_120522B				05/22/12 13:10
Potassium 40		ND	pCi/g-dry	0.50					20	U
Potassium 40 precision (±)		ND	pCi/g-dry							
Radium 226		1.00	pCi/g-dry	0.30				22	20	R
Radium 226 precision (±)		0.300	pCi/g-dry							
- Duplicate RPD for Ra226 is outside of the acceptance range for this analysis.										

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation **Report Date:** 06/01/12

Project: Mt. Taylor Mine **Work Order:** C12041338

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 33540
Sample ID: C12041338-016AMS	2	Sample Matrix Spike				Run: EGG-ORTEC_120504B				05/08/12 13:12
Uranium 234		29.3	pCi/g-dry		105	70	130			
Uranium 238		31.8	pCi/g-dry		112	70	130			
Sample ID: C12041338-016AMSD	2	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_120504B				05/08/12 13:12
Uranium 234		30.7	pCi/g-dry		109	70	130	4.3	28.4	
Uranium 238		31.8	pCi/g-dry		111	70	130	0.1	28.1	
Sample ID: LCS-33540	2	Laboratory Control Sample				Run: EGG-ORTEC_120504B				05/08/12 13:12
Uranium 234		2.44	pCi/g-dry		105	80	120			
Uranium 238		2.53	pCi/g-dry		107	80	120			
Sample ID: MB-33540	9	Method Blank				Run: EGG-ORTEC_120504B				05/08/12 13:12
Uranium 234		0.002	pCi/g-dry							U
Uranium 234 precision (±)		0.02	pCi/g-dry							
Uranium 234 MDC		0.03	pCi/g-dry							
Uranium 235		-0.004	pCi/g-dry							U
Uranium 235 precision (±)		0.01	pCi/g-dry							
Uranium 235 MDC		0.03	pCi/g-dry							
Uranium 238		0.0001	pCi/g-dry							U
Uranium 238 precision (±)		0.009	pCi/g-dry							
Uranium 238 MDC		0.02	pCi/g-dry							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

Workorder Receipt Checklist

Rio Grande Resources Corporation

C12041338

Login completed by:	Corinne Wagner	Date Received:	4/30/2012
Reviewed by:	BL2000\cwagner	Received by:	tj
Reviewed Date:	5/2/2012	Carrier name:	Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	14.2°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Rio Grande Resources Corporation #C11115	Mt. Taylor Mine	State: NM	Yes ☒ No ☐

Report Mail Address:	Contact Name:	Phone/Fax:	Email:	Sampler: (Please Print)
PO Box 1150 Grants, NM 87020-1150	Joe Lister, Manager	(505) 287-7971		Stan Fitch

Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:
Rio Grande Resources PO Box 1150 Grants, New mexico 87020	Joe Lister 505-287-7971		Soil Samples

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ________
- ☐ Other: ________
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data)
- **Format:** ________
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers
Sample Type: A W S V B O
Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

SEE ATTACHED

RUSH Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Sample results needed within 30 days.

Shipped by: Ups-G
Cooler ID(s): 3839/29
Receipt Temp 14.2 °C
On Ice: Yes No
Custody Seal Y N
Intact Y N
Signature Match Y N

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Isotopic Uranium	Radium-226	Potassium-40	Gross Alpha						SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1 MTE-1	04/23/12	10:20	soil	X	X	X	X							X	
2 MTE-2	04/23/12	10:25	soil	X	X	X	X							X	
3 MTE-3	04/23/12	10:50	soil	X	X	X	X							X	
4 MTE-4	04/23/12	10:58	soil	X	X	X	X							X	
5 MTE-5	04/23/12	11:05	soil	X	X	X	X							X	
6 MTE-6	04/23/12	11:10	soil	X	X	X	X							X	
7 MTE-7	04/23/12	11:30	soil	X	X	X	X							X	
8 MTE-8	04/23/12	12:37	soil	X	X	X	X							X	
9 MTE-9	04/23/12	12:40	soil	X	X	X	X							X	
10 MTE-10	04/23/12	12:52	soil	X	X	X	X							X	

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Stan Fitch	04/26/12 11:00				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: ______		Lab Disposal: XXXXX	Received by Laboratory: 4-30-12	9:20	Tracy Judge

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corporation #C11115

Project Name, PWS, Permit, Etc.: Mt. Taylor Mine

Sample Origin State: NM

EPA/State Compliance: Yes ☑ No ☐

Report Mail Address: PO Box 1150, Grants, NM 87020-1150

Contact Name: Joe Lister, Manager

Phone/Fax: (505) 287-7971

Email:

Sampler: (Please Print) Stan Fitch

Invoice Address: PO Box 1150, Grants, New Mexico 87020

Invoice Contact & Phone: Joe Lister 505-287-7971

Purchase Order:

Quote/Bottle Order: Soil Samples

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers / Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Isotopic Uranium	Radium-226	Potassium-40	Gross Alpha						SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1	MTE-11	04/23/12	12:56	soil	X	X	X	X							X	
2	MTE-12	04/23/12	13:40	soil	X	X	X	X							X	
3	MTE-13	04/23/12	13:55	soil	X	X	X	X							X	
4	MTE-14	04/23/12	14:05	soil	X	X	X	X							X	
5	MTE-15	04/23/12	14:45	soil	X	X	X	X							X	
6	MTE-16	04/23/12	14:50	soil	X	X	X	X							X	
7																
8																
9																
10																

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Sample results needed within 30 days.

LABORATORY USE ONLY

Shipped by:

Cooler ID(s):

Receipt Temp ______ °C

On Ice: Yes No

Custody Seal Intact Y N

Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Stan Fitch	04/26/12 11:00				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: ______ Lab Disposal: XXXXX

Received by Laboratory: 4-30-12 9:20 Date/Time: Signature: Tracy Judy

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links

Environmental Restoration Group, Inc.
8809 Washington St NE, Suite 150
Albuquerque, NM 87113
ph: (505) 298-4224
www.ERGoffice.com

TECHNICAL MEMORANDUM	
To: Bruce Norquist (RGR)	**Date**: July 06, 2020
From: Randy Whicker (ERG)	**Project**: Mt. Taylor Mine
Direct: 970-556-1174	**Task(s)**: Site closeout/closure Support
Cc: Chuck Farr (ERG)	
Subject: Radiological survey results for discharge pipeline and soils along pipeline corridor.	

Dear Mr. Norquist,

This Technical Memorandum provides the results of radiological surveys of the discharge pipeline and underlying/adjacent soils at the Rio Grande Resources (RGR) Mt. Taylor Mine near San Mateo, New Mexico. This work was conducted June 23-24, 2020 to support mine closeout/closure activities.

Please let me know if you have questions or need more information.

Regards,

Randy Whicker

Randy Whicker, CHP
Radiation Safety Officer
Mt. Taylor Mine

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
Email: RandyWhicker@ergoffice.com

Radiological Surveys of Discharge Pipeline

Contents

Figures

Tables

1. INTRODUCTION

The Mt. Taylor Mine (Site) is a former underground uranium mine in Cibola County near the town of San Mateo, New Mexico. Owned and operated by Rio Grande Resources (RGR), the Site is situated at the foot of Mount Taylor, an extinct volcano. Gulf Mineral Resources Company (Gulf) acquired the property and began mine development in 1971. Ore production occurred between 1979 – 1982, and after a transfer of ownership to Chevron Resources Company (Chevron) in 1985, production resumed through 1990. RGR acquired the mine and other Chevron property in 1991. In 1999 the Mine entered standby status under Mine Permit C1002RE with MMD. On December 29, 2017, the permit changed to an active status, and on December 3, 2019, RGR notified MMD of intentions to begin the Site closeout/closure process.

Discharge permit DP-61 with the New Mexico Environment Department (NMED) was first issued to Gulf in 1979. Mine water was treated to meet applicable water quality standards prior to conveyance through a pipeline and surface discharge at Outfall 001 located 4.3 miles north of the Site in San Lucas Canyon (Figure 1). RGR intends to dismantle and remove the pipeline and remediate any impacted soils along the pipeline corridor, along with impacted sediments at Outfall 001 in the San Lucas Canyon drainage.

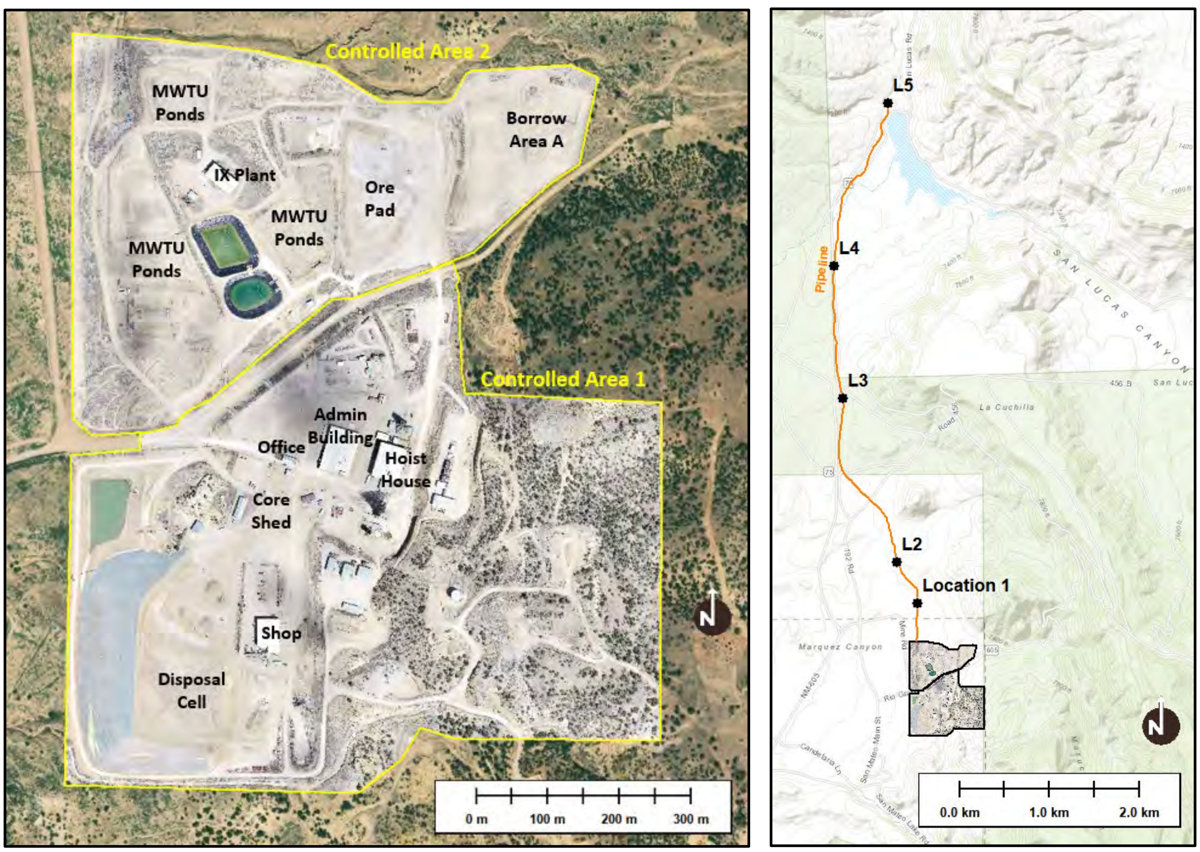


Figure 1: Mine features within operationally Controlled Areas at the Site (left) and the 4.3 mile pipeline for conveyance of treated mine water for discharge at Outfall 001 in San Lucas Canyon under DP-61 (right). Locations for interior/exterior measurements of radiological properties of steel pipeline materials are also shown (right).

Once dismantled and removed, the disposition of steel pipeline materials is dependent on the radiological condition of the material. The status of land areas along the pipeline corridor depends on the magnitude and extent of any radiological impacts to soils underlying and adjacent to the pipeline. This Technical Memorandum provides the results of radiological field screening measurements for pipeline materials (interior and exterior surfaces of steel piping material) at five (5) representative locations along the 4.3 mile length of the discharge pipeline (Figure 1), along with continuous GPS-based gamma scans adjacent to the pipeline to characterize terrestrial gamma radiation emissions from soils along the pipeline corridor.

Characterization survey results are presented in this report and values compared to applicable criteria for clearance or release from current radiological and regulatory controls on these mine-related features. The objective of these surveys was to help inform decisions on the future disposition of pipeline materials and infrastructure, and to estimate the extent of soil remediation that may be required along the pipeline corridor to meet Mine reclamation and closure objectives as specified in the *Mt. Taylor Mine Closeout/Closure Plan* (RGR, 2013).

2. CLEARANCE CRITERIA

2.1 Pipeline Materials and Equipment

The clearance criteria for surface radioactivity levels on pipeline walls and volumetric criteria for loose sediments or scales are based on a national standard published jointly by the American National Standards Institute (ANSI) and the Health Physics Society (ANSI/HPS, 2013). More stringent than the U.S. Nuclear Regulatory Commission's criteria for unrestricted release of materials and equipment (M/E) from uranium recovery facilities (NRC, 2002), the ANSI/HPS standard is designed to protect human health by limiting potential radiological doses from future use of the M/E to a de-minimis value of 1 millirem (mrem)/year.

Clearance in the ANSI/HPS standard is defined as "the removal of items or materials that contain or *may* contain residual levels of radioactive materials within authorized practices from further radiological control for radiation protection purposes." This standard applies to the clearance of M/E from areas controlled to protect individuals from exposure to radiation or radioactive material during or after operations. This dose-based standard provides derived screening levels for surface and volume radioactivity. The derived screening levels that apply are presented in Table 1.

Table 1: Surface activity screening levels for clearance of materials and equipment (adapted from ANSI/HPS, 2013).

Radionuclide Group	Surface Activity Limit	Volumetric Concentration Limit
Group 1: ^{Nat}U, ^{Nat}Th, and associated decay products: Pb210, Po210, Ra226, Ra228, Th228, Th230	600 dpm/100 cm^2	3 pCi/g

The surface activity limit in Table 1 can be partitioned into alpha and beta components for the uranium and thorium decay series as follows:

The uranium decay series has 14 particles emitted, with 8 alphas (57%) and 6 betas (43%)
The thorium decay series has 12 particles emitted, with 7 alphas. (58%) and 5 betas (42%)

Since it is unknown what mixture of primordial decay series radionuclides may be present in any surface contamination on M/E at the Site, it is conservative to assume that all alpha emissions are from uranium decay series radionuclides only and an equivalent alpha screening level, assuming secular equilibrium between all uranium decay series radionuclides, is as follows:

600 dpm / 100 cm^2 * (0.57 α dpm/total dpm) ≈ **340 dpm α / 100 cm^2**

A similar calculation for beta activity gives a conservative beta screening level of 252 dpm β / 100 cm^2, a value that is well below the minimum detectable activity (MDA) achievable with a one-minute static count (the count time needed to meet an MDA of 250 dpm β / 100 cm^2 is on the order of 20-25 minutes). Given the need for a screening level that is practical to measure in the field, a screening level for alpha activity of 340 dpm/100 cm^2 will be used as the primary criterion for determination of compliance with the total surface activity clearance limit given in Table 1. In addition, a maximum alpha reading equivalent to 10 times the screening level (3,400 dpm α / 100 cm^2) for any single measurement (a secondary "hotspot" criterion) will be applied for consistency with related specifications in the ANSI/HPS standard. Individual items may be grouped into similar types of M/E to represent a "survey unit", and alpha readings within each survey unit may be used to determine compliance with both the average and hotspot alpha screening levels.

Because the ANSI clearance criteria in Table 1 were derived from a conservative receptor dose assessment that assumed infinite plane source term conditions (ANSI/HPS, 1999; Annex B), the averaging approach described above is consistent with regulatory guidance for comparison against clearance criteria as provided in MARSAME, the *Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual* (NRC, 2009). In other words, if a receptor were exposed to all M/E within a survey unit where average and maximum surface alpha activities are below respective alpha screening levels, the potential radiological dose to a receptor is conservatively assumed to be less than the de-minimis 1 mrem/year radiation dose limit specified in the ANSI/HPS standard.

If the average for the survey unit is below the primary alpha screening level, and no single measurement is greater than the secondary alpha hotspot criterion, then all M/E within the survey unit can be released from further radiological controls on the future disposition of the M/E. These criteria do not apply to offsite disposal as commercial disposal facilities may have their own radiological acceptance criteria and approved characterization methods for waste profiling. Pipeline materials that do not meet these clearance criteria will be flagged for either decontamination efforts, or for onsite disposal in the engineered waste disposal cell or offsite at an approved industrial waste disposal facility.

2.2 Pipeline Corridor and Outfall Soils/Sediments

With respect to land areas along the pipeline corridor and the San Lucas Canyon drainage below discharge Outfall 001, the release criterion for surface soil or sediment (0-15 cm) is equivalent to a Ra-226 concentration of 5 pCi/g above background based on the "*Joint Guidance for the Cleanup and Reclamation* *of Existing Uranium Mining Operations in New Mexico*" from the Mining and Minerals Division (MMD) and the Mining Environmental and Compliance Section of the New Mexico Environment Department (NMED) (MMD/NMED, 2016). The approved background Ra-226 concentration for the Site is 1.8 pCi/g, giving a total (gross) release criterion of 6.8 pCi/g of Ra-226. In addition, the "*Joint Guidance*" from MMD/NMED describes an additional criterion for ambient gamma radiation called the "post reclamation radiation level" (PRRL). As determined in RGR's "*Work Plan for Post-Mining Radiological Surveys of Permit Area and Impacted Lands Mount Taylor Mine*" (RGR, 2020a), the PRRL for the Mount Taylor Site is equivalent to a gamma exposure rate of 24.5 micro-roentgen per hour (µR/hr). If surface soils along the pipeline corridor or sediments at Outfall 001 have Ra-226 concentrations below 6.8 pCi/g, and ambient gamma exposure rates are below 24.5 µR/hr, respective land areas can be released for the Post-Mining Land Use (PMLU) as described in the *Joint Guidance* (MMD/NMED, 2016). Otherwise, soil excavation will be required until these release criteria are achieved.

3. METHODS

The methods used for the radiological characterization measurements and gamma surveys along the pipeline were based on applicable standard operating procedures (SOPs) provided in the Radiation Protection Program (RPP) Manual for the Mt. Taylor Mine (RGR, 2020b), including:

- SOP-2: Instrument Testing and Calibration
- SOP-3: Radiological Contamination Surveys
- SOP-7: GPS-based Gamma Radiation Surveys
- SOP-8: Soil Sampling for Radiometric Analysis

Total alpha and beta surface radioactivity levels were measured on June 24, 2020 at multiple systematic locations (top, bottom and sides) both inside and outside accessible portions of the pipeline walls at each of the locations shown in Figure 1. In order to access the interior of the pipeline at each location, a welding torch was used to cut a hole through the steel pipeline walls approximately 2 feet in diameter. Swipe (smear) samples were collected at each measurement location to evaluate readily removable surface activity. Gamma exposure rates were also measured inside of the pipeline (center and bottom). Samples of scale/sediment accumulated in the bottom of the pipeline were sampled, then screened onsite to estimate Ra-226 levels based on gross gamma readings inside of a lead-shielded, low-background counting well. These samples were then sent offsite to a qualified commercial laboratory for quantitative determination of U-nat, Th-230, Ra-226, and Pb-210 concentrations.

All field measurement data were recorded in the field logbook. Swipe samples for removable surface activity were measured in the radiation control office and recorded. Instrument quality control (QC) measurements were taken and documented to ensure proper instrument function. Photos were taken of the interior/exterior of the pipeline at each sampling/measurement location. GPS-based gamma transects were walked parallel to the pipeline just adjacent to the pipe and about 5 meters away from the pipeline. Gamma readings were manually monitored while scanning, and locations with evidence of elevated readings (above apparent background) were investigated further with additional scans to identify the outer bounds of potential radiological impacts to soil related to the pipeline.

4. PIPELINE MATERIALS SURVEY RESULTS

The results of alpha/beta surface activity and gamma emission measurements, along with sampling of loose residual solids (scale/sediments) inside the pipeline, are presented in the following Subsections for the five representative pipeline survey locations shown in Figure 1.

4.1 Pipeline Location 1

Table 2A: Alpha/beta surface activity measurement results for pipeline survey Location 1.

Pipeline Location 1	Total Alpha Activity (DPM/100 cm²)	Total Beta Activity (DPM/100 cm²)	Removable Alpha Activity (DPM/100 cm²)	Removable Beta Activity (DPM/100 cm²)
Clearance Criterion	340	252	N/A*	N/A*
Ambient Background	2	345	0	92
Measurement Point	**Net (above background) Surface Activity**			
Outside Top	944	2080	6	0
Outside East	367	1220	17	0
Outside West	33	11560	0	0
Outside Bottom	378	1220	17	0
Inside Top	122	1240	6	0
Inside East	133	1860	0	0
Inside West	44	1960	17	0
Inside Bottom	33	3480	0	0

*Removable activity criteria not applicable under the ANSI/HPS standard. NRC's release criterion for removable natural uranium in equilibrium with its decay progeny is 1,000 DPM/100 cm² (NRC, 2002).

≤ clearance criterion
> clearance criterion

Table 2B: Gamma emission data and radionuclide activity concentrations for residual solids at pipeline survey Location 1.

Gamma Exposure Rate (µR/h)		Residual Solids Concentration (pCi/g)	
Outside Background	16	Ra-226*	118
Interior Center	38	Ra-226	125
Interior Bottom	75	U-nat**	139
		Th-230	24.1
		Pb-210	27.6

*Screening-level estimate from shielded onsite sample counting
** Analytical result from offsite lab = 206 mg/kg

4.2 Pipeline Location 2

Table 3A: Alpha/beta surface activity measurement results for pipeline survey Location 2.

Pipeline Location 2	Total Alpha Activity (DPM/100 cm^2)	Total Beta Activity (DPM/100 cm^2)	Removable Alpha Activity (DPM/100 cm^2)	Removable Beta Activity (DPM/100 cm^2)
Clearance Criterion	340	252	N/A*	N/A*
Ambient Background	2	382	0	92
Measurement Point	**Net (above background) Surface Activity**			
Outside Top	944	3100	6	114
Outside East	211	760	0	0
Outside West	356	1480	11	0
Outside Bottom	89	13760	6	0
Inside Top	89	5200	0	0
Inside East	456	6740	17	14
Inside West	4656	138560	139	443
Inside Bottom	2456	86900	44	57

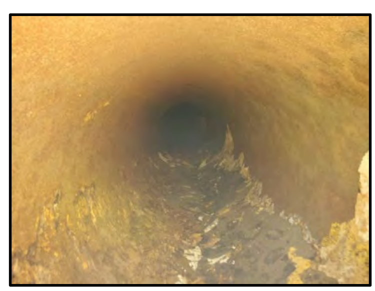
*Removable activity criteria are not applied under the ANSI/HPS standard. NRC's release criterion for removable natural uranium in equilibrium with its decay progeny is 1,000 DPM/100 cm^2 (NRC, 2002).

≤ clearance criterion
> clearance criterion

Table 3B: Gamma emission data and radionuclide activity concentrations for residual solids at pipeline survey Location 2.

Gamma Exposure Rate (µR/h)		Residual Solids Concentration (pCi/g)	
Outside Background	17	Ra-226*	524
Interior Center	60	Ra-226	529
Interior Bottom	100	U-nat**	290
		Th-230	31.6
		Pb-210	91.3

*Screening-level estimate from shielded onsite sample counting
** Analytical result from offsite lab = 428 mg/kg



4.3 Pipeline Location 3

Table 4A: Alpha/beta surface activity measurement results for pipeline survey Location 3.

Pipeline Location 3	Total Alpha Activity (DPM/100 cm^2)	Total Beta Activity (DPM/100 cm^2)	Removable Alpha Activity (DPM/100 cm^2)	Removable Beta Activity (DPM/100 cm^2)
Clearance Criterion	340	252	N/A*	N/A*
Ambient Background	3	319	0	92
Measurement Point	**Net (above background) Surface Activity**			
Outside Top	911	3000	17	29
Outside East	211	620	6	0
Outside West	378	1160	17	0
Outside Bottom	78	7080	6	0
Inside Top	600	7320	17	0
Inside East	1400	12420	39	143
Inside West	444	4420	33	0
Inside Bottom	2700	61320	44	0

*Removable activity criteria are not applied under the ANSI/HPS standard. NRC's release criterion for removable natural uranium in equilibrium with its decay progeny is 1,000 DPM/100 cm^2 (NRC, 2002).

≤ clearance criterion
> clearance criterion

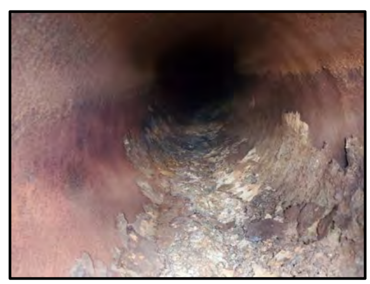


Table 4B: Gamma emission data and radionuclide activity concentrations for residual solids at pipeline survey Location 3.

Gamma Exposure Rate (µR/h)		Residual Solids Concentration (pCi/g)	
Outside Background	15	Ra-226*	340
Interior Center	39	Ra-226	316
Interior Bottom	90	U-nat**	170
		Th-230	16.2
		Pb-210	62.8

*Screening-level estimate from shielded onsite sample counting
** Analytical result from offsite lab = 251 mg/kg

4.4 Pipeline Location 4

Table 5A: Alpha/beta surface activity measurement results for pipeline survey Location 4.

Pipeline Location 4	Total Alpha Activity (DPM/100 cm²)	Total Beta Activity (DPM/100 cm²)	Removable Alpha Activity (DPM/100 cm²)	Removable Beta Activity (DPM/100 cm²)
Clearance Criterion	340	252	N/A*	N/A*
Ambient Background	8	337	0	92
Measurement Point	**Net (above background) Surface Activity**			
Outside Top	822	2880	28	0
Outside East	344	1080	6	0
Outside West	500	2040	6	0
Outside Bottom	N/A	N/A	N/A	N/A
Inside Top	356	5360	0	0
Inside East	167	7500	22	0
Inside West	0	3920	22	0
Inside Bottom	89	12920	0	129

*Removable activity criteria are not applied under the ANSI/HPS standard. NRC's release criterion for removable natural uranium in equilibrium with its decay progeny is 1,000 DPM/100 cm^2 (NRC, 2002).

≤ clearance criterion
> clearance criterion

Table 5B: Gamma emission data and radionuclide activity concentrations for residual solids at pipeline survey Location 4.

Gamma Exposure Rate (µR/h)		Residual Solids Concentration (pCi/g)	
Outside Background	17	Ra-226*	253
Interior Center	45	Ra-226	247
Interior Bottom	100	U-nat**	159
		Th-230	7.7
		Pb-210	41.4

*Screening-level estimate from shielded onsite sample counting
** Analytical result from offsite lab = 235 mg/kg

4.5 Pipeline Location 5

Table 6A: Alpha/beta surface activity measurement results for pipeline survey Location 5.

Pipeline Location 5	Total Alpha Activity (DPM/100 cm²)	Total Beta Activity (DPM/100 cm²)	Removable Alpha Activity (DPM/100 cm²)	Removable Beta Activity (DPM/100 cm²)
Clearance Criterion	340	252	N/A*	N/A*
Ambient Background	4	317	0	92
Measurement Point	**Net (above background) Surface Activity**			
Outside Top	1144	3220	6	57
Outside East	378	120	17	57
Outside West	256	1100	11	0
Outside Bottom	11	6200	11	0
Inside Top	1900	10280	28	386
Inside East	1800	7680	39	29
Inside West	156	3320	100	100
Inside Bottom	989	16160	6	0

*Removable activity criteria are not applied under the ANSI/HPS standard. NRC's release criterion for removable natural uranium in equilibrium with its decay progeny is 1,000 DPM/100 cm^2 (NRC, 2002).

≤ clearance criterion
> clearance criterion

Table 6B: Gamma emission data and radionuclide activity concentrations for residual solids at pipeline survey Location 5.

Gamma Exposure Rate (µR/h)		Residual Solids Concentration (pCi/g)	
Outside Background	15	Ra-226*	314
Interior Center	30	Ra-226	306
Interior Bottom	70	U-nat**	64.3
		Th-230	8.6
		Pb-210	98.3

*Screening-level estimate from shielded onsite sample counting
**Analytical result from offsite lab = 95 mg/kg

5. PIPELINE CORRIDOR GAMMA SURVEY RESULTS

The gamma survey of the pipeline corridor indicates that the vast majority of soils underlying and adjacent to the discharge pipeline have terrestrial gamma emissions consistent with local background conditions (Figure 2). Approximately 7 small, localized areas of elevated gamma radiation, indicative of radiological impacts to surface soils due to historic pipeline operations, are present at various discrete locations along the corridor as depicted by the white boxes in Figure 2. Gamma exposure rate readings for six of these small "hotspots" are shown in closer detail in the insets to Figure 2. These results suggest that the volume of contaminated soil that may require excavation and removal to release pipeline corridor lands to the PRLU as described in the Mine Closeout/Closure Plan (RGR, 2013), is likely to be relatively small, perhaps a few tens to a few hundreds of cubic yards of material that may be contaminated in excess of the 6.8 pCi/g release criterion for Ra-226 concentrations in soil.

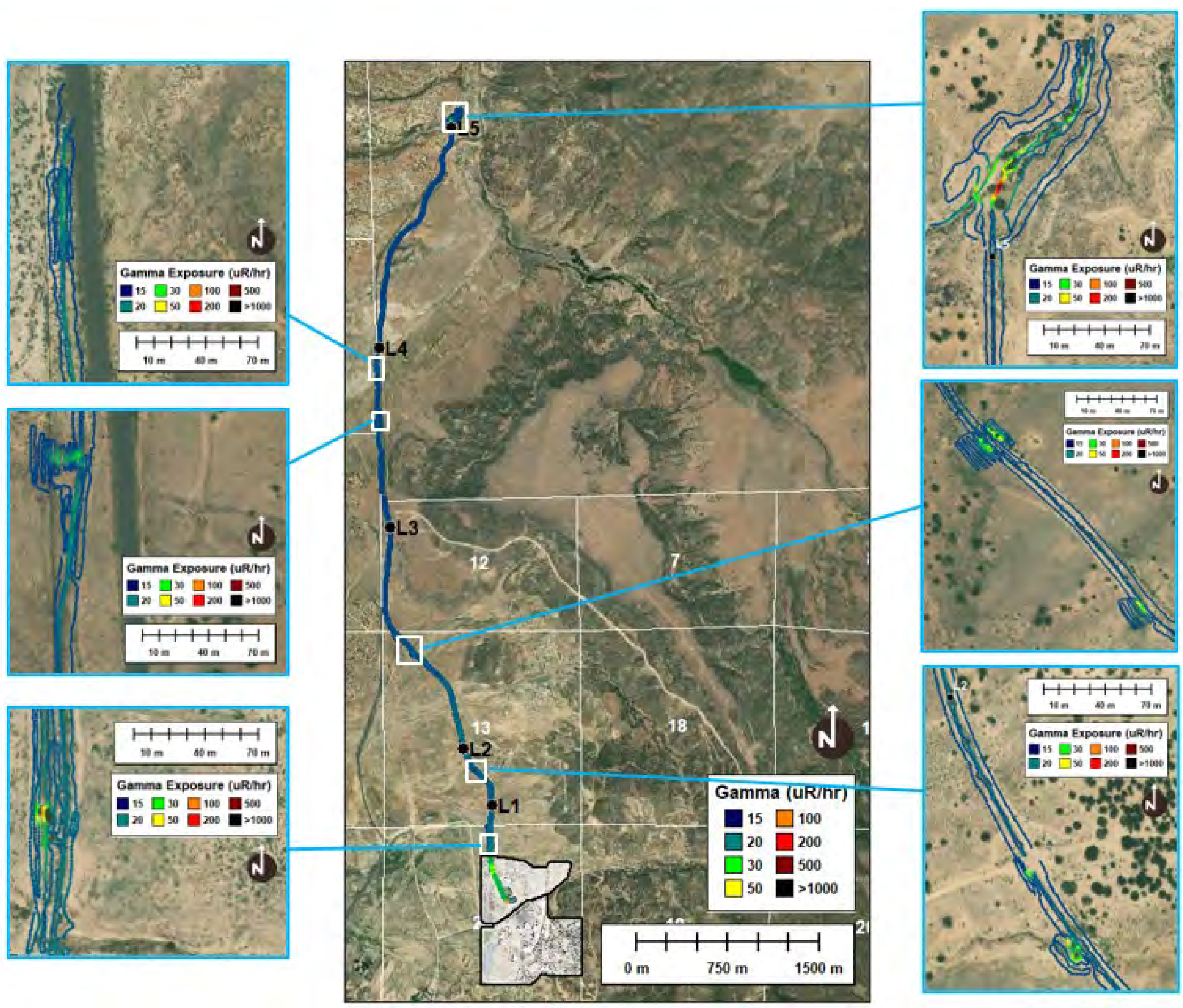


Figure 2: Gamma survey results with detail insets to identify areas of small, localized hotspots that may require some relatively minor soil cleanup to meet the radiological criteria for release to the post remediation land use (PRLU).

6. CONCLUSIONS

The results of the pipeline materials surveys (Section 4) indicate that in general, radiological impacts to the steel pipe along the length of the pipeline corridor exceed conservative, ANSI/HPS criteria for clearance from future radiological controls on access or reuse. Therefore, the options for future disposition of the pipeline materials are currently limited to 1) decontamination until the release criteria are met, or 2) onsite disposal in the engineered waste disposal cell or offsite disposal at an appropriate industrial waste disposal facility.

With respect to radiological impacts to soils, the gamma survey data suggest that spills or leaks were limited and the extent of impacts to soil that may require remediation are relatively small, perhaps involving excavation and removal of a few tens to a few hundreds of cubic yards of material. Removal of these small hotspots should result in compliance with the radiological soil release criteria specified in Section 2 along the entire length of the pipeline (including impacted sediments in the San Lucas drainage below Outfall 001 under DP-61).

7. REFERENCES

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RGR Mt. Taylor Mine
Gamma Radiation Survey
Clean Borrow Pile

Stan Fitch
4/25/2016

Instrument: Eberline PRM-7 #182, BKG = 15 μrem/h, readings waist high

NAD 83 Datum			
Northing	Easting	Dose Rate μrem/h	Notes
1581153	2783831	16	Fence Angle
1581120	2783737	20	
1581085	2783638	22	
1581053	2783536	32	
1581017	2783451	60	East toe of levy
1580986	2783331	60	Crown -- top of pile, west side
1580885	2783375	60	Crown -- top of pile, west side
1580910	2783477	30	East toe of levy
1580942	2783575	26	
1580972	2783678	22	
1580990	2783776	18	
1581020	2783874	18	
1581098	2783955	16	Northeasterly Fence Corner
1580992	2783937	16	Fence Line
1580955	2783843	20	
1580911	2783751	24	
1580867	2783656	25	
1580819	2783560	35	
1580785	2783471	60	East toe of levy
1580759	2783383	60	Crown -- top of pile, west side
1580652	2783371	80	Crown -- top of pile, west side
1580686	2783463	35	East toe of levy
1580709	2783562	30	
1580735	2783664	24	
1580757	2783770	26	
1580792	2783895	20	Fence line
1580703	2783873	16	Southeasterly Fence Corner

ACZ Laboratories, Inc.
2773 Downhill Drive   Steamboat Springs, CO 80487   (800) 334-5493

Analytical Report

April 30, 2018

Report to:
Alan Kuhn
Alan Kuhn Associates LLC
13212 Manitoba Dr NE
Albuquerque, NM 87111

cc: Joe Lister

Bill to:
Alan Kuhn
Alan Kuhn Associates LLC
13212 Manitoba Dr NE
Albuquerque, NM 87111

Project ID: AKA-ACZ-2018.1
ACZ Project ID: L43559

Alan Kuhn:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 05, 2018. This project has been assigned to ACZ's project number, L43559. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L43559. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 30, 2018. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-1

ACZ Sample ID: ***L43559-01***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	520	0.68		*	mg/Kg	0.05	0.1	04/17/18 13:26	bsu
Uranium, total (3050)	M6020 ICP-MS	520	32.9		*	mg/Kg	0.05	0.3	04/17/18 13:26	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	88.5		*	%	0.1	0.5	04/09/18 16:11	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:50	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 9:07	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:15	ajm

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-2

ACZ Sample ID: ***L43559-02***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	515	0.73		*	mg/Kg	0.05	0.1	04/17/18 13:30	bsu
Uranium, total (3050)	M6020 ICP-MS	515	28.6		*	mg/Kg	0.05	0.3	04/17/18 13:30	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	86.2		*	%	0.1	0.5	04/09/18 17:19	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:53	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 9:28	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:19	ajm

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-1

ACZ Sample ID: ***L43559-03***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	510	0.15		*	mg/Kg	0.05	0.1	04/17/18 13:39	bsu
Uranium, total (3050)	M6020 ICP-MS	510	1.30		*	mg/Kg	0.05	0.3	04/17/18 13:39	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.5		*	%	0.1	0.5	04/09/18 18:27	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:57	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 10:30	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:23	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC		ACZ Sample ID:	***L43559-04***
Project ID:	AKA-ACZ-2018.1	Date Sampled:	*04/02/18 15:15*
Sample ID:	SMC2-2	Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	515	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:40	bsu
Uranium, total (3050)	M6020 ICP-MS	515	1.93		*	mg/Kg	0.05	0.3	04/17/18 13:40	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.2		*	%	0.1	0.5	04/09/18 19:35	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:01	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 10:51	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:27	ajm

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-1

ACZ Sample ID: ***L43559-05***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.12		*	mg/Kg	0.05	0.1	04/17/18 13:42	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.73		*	mg/Kg	0.05	0.3	04/17/18 13:42	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	94.6		*	%	0.1	0.5	04/09/18 20:43	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:04	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:11	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:31	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-2

ACZ Sample ID: ***L43559-06***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:44	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.25		*	mg/Kg	0.05	0.3	04/17/18 13:44	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.5		*	%	0.1	0.5	04/09/18 21:51	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:08	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:32	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:35	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-1

ACZ Sample ID: ***L43559-07***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.14		*	mg/Kg	0.05	0.1	04/17/18 13:46	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.26		*	mg/Kg	0.05	0.3	04/17/18 13:46	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.8		*	%	0.1	0.5	04/09/18 22:59	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:12	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:53	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:39	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-2

ACZ Sample ID: ***L43559-08***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.31		*	mg/Kg	0.05	0.1	04/17/18 13:48	bsu
Uranium, total (3050)	M6020 ICP-MS	505	5.99		*	mg/Kg	0.05	0.3	04/17/18 13:48	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	04/10/18 0:06	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:15	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:14	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:43	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC5-1

ACZ Sample ID: ***L43559-09***
Date Sampled: *04/02/18 11:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.19		*	mg/Kg	0.05	0.1	04/17/18 13:49	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.96		*	mg/Kg	0.05	0.3	04/17/18 13:49	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	91.4		*	%	0.1	0.5	04/10/18 1:14	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:19	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:34	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:47	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC5-2

ACZ Sample ID: ***L43559-10***
Date Sampled: *04/02/18 11:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.15		*	mg/Kg	0.05	0.1	04/17/18 13:51	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.98		*	mg/Kg	0.05	0.3	04/17/18 13:51	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.5		*	%	0.1	0.5	04/10/18 2:22	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:23	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:55	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:51	ajm

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC6-1

ACZ Sample ID: ***L43559-11***
Date Sampled: *04/02/18 11:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:53	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.68		*	mg/Kg	0.05	0.3	04/17/18 13:53	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.8		*	%	0.1	0.5	04/10/18 3:30	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:26	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:16	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:55	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC6-2

ACZ Sample ID: ***L43559-12***
Date Sampled: *04/02/18 11:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.29		*	mg/Kg	0.05	0.1	04/17/18 13:58	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.20		*	mg/Kg	0.05	0.3	04/17/18 13:58	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.7		*	%	0.1	0.5	04/10/18 4:38	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:30	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:37	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:59	ajm

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-1

ACZ Sample ID: ***L43559-13***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	500	0.11		*	mg/Kg	0.05	0.1	04/17/18 14:00	bsu
Uranium, total (3050)	M6020 ICP-MS	500	0.44		*	mg/Kg	0.05	0.3	04/17/18 14:00	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	95.0		*	%	0.1	0.5	04/10/18 5:46	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:34	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:57	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:03	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-2

ACZ Sample ID: ***L43559-14***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	500	0.10		*	mg/Kg	0.05	0.1	04/17/18 14:02	bsu
Uranium, total (3050)	M6020 ICP-MS	500	0.51		*	mg/Kg	0.05	0.3	04/17/18 14:02	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	04/10/18 6:54	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:37	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 14:18	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:07	ajm

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC8-1

ACZ Sample ID: ***L43559-15***
Date Sampled: *04/02/18 12:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 14:04	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.78		*	mg/Kg	0.05	0.3	04/17/18 14:04	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.8		*	%	0.1	0.5	04/10/18 8:02	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:41	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 14:39	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:11	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC8-2

ACZ Sample ID: ***L43559-16***
Date Sampled: *04/02/18 12:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.14		*	mg/Kg	0.05	0.1	04/17/18 14:06	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.67		*	mg/Kg	0.05	0.3	04/17/18 14:06	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.3		*	%	0.1	0.5	04/10/18 9:10	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:45	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 15:00	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:15	ajm

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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

REP001.03.15.02

Alan Kuhn Associates LLC ACZ Project ID: ***L43559***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG445528													
WG445528ICV	ICV	04/17/18 13:10	MS180329-2	.05		.04911	mg/L	98	90	110			
WG445528ICB	ICB	04/17/18 13:12				U	mg/L		-0.0003	0.0003			
WG445221PBS	PBS	04/17/18 13:21				U	mg/Kg		-0.15	0.15			
WG445221LCSS	LCSS	04/17/18 13:23	PCN55863	117		117.61	mg/Kg		91.8	141			
WG445221LCSSD	LCSSD	04/17/18 13:25	PCN55863	117		118.42	mg/Kg		91.8	141	1	20	
L43559-02MS	MS	04/17/18 13:32	MS180321-2	12.887875	.73	13.425	mg/Kg	99	75	125			
L43559-02MSD	MSD	04/17/18 13:37	MS180321-2	12.887875	.73	12.827	mg/Kg	94	75	125	5	20	

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG444935													
WG444935PBS	PBS	04/09/18 11:40				U	%		-0.1	0.1			
L43555-01DUP	DUP	04/09/18 13:55			73.8	73.6	%				0	20	

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG445528													
WG445528ICV	ICV	04/17/18 13:10	MS180329-2	.05		.04956	mg/L	99	90	110			
WG445528ICB	ICB	04/17/18 13:12				U	mg/L		-0.0003	0.0003			
WG445221PBS	PBS	04/17/18 13:21				U	mg/Kg		-0.15	0.15			
WG445221LCSS	LCSS	04/17/18 13:23	PCN55863	109		105.36	mg/Kg		83	135			
WG445221LCSSD	LCSSD	04/17/18 13:25	PCN55863	109		107.95	mg/Kg		83	135	2	20	
L43559-02MS	MS	04/17/18 13:32	MS180321-2	12.875	28.6	29.887	mg/Kg	10	75	125			M2
L43559-02MSD	MSD	04/17/18 13:37	MS180321-2	12.875	28.6	32.046	mg/Kg	27	75	125	7	20	M2

Alan Kuhn Associates LLC

ACZ Project ID: ***L43559***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-01	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-02	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-03	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-04	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-05	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-06	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-07	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-08	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-09	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-10	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-11	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-12	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-13	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-14	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-15	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-16	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-1
Locator:

ACZ Sample ID: ***L43559-01***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		11	0.71	0.25	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.13	1.3	1.4	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-02***
Sample ID:	SMC1-2	Date Sampled:	*04/02/18 15:00*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		13	0.72	0.08	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		1.1	1.3	1.3	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-03***
Sample ID:	SMC2-1	Date Sampled:	*04/02/18 15:15*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.81	0.26	0.45	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.31	1.2	1.3	pCi/g	*	jlg

RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-2
Locator:

ACZ Sample ID: ***L43559-04***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.67	0.23	0.53	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.03	1.4	1.5	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-05***
Sample ID:	SMC3-1	Date Sampled:	*04/02/18 10:30*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.73	0.34	0.5	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.12	1.3	1.3	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-06***
Sample ID:	SMC3-2	Date Sampled:	*04/02/18 10:30*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.49	0.3	0.33	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		1.1	1.2	1.2	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-07***
Sample ID:	SMC4-1	Date Sampled:	*04/02/18 10:45*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.2	0.33	0.57	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		-0.27	1.4	1.5	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-2
Locator:

ACZ Sample ID: ***L43559-08***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.96	0.35	0.56	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.22	1.5	1.5	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC5-1
Locator:

ACZ Sample ID: ***L43559-09***
Date Sampled: *04/02/18 11:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.92	0.26	0.19	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.97	1.8	1.9	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-10***
Sample ID:	SMC5-2	Date Sampled:	*04/02/18 11:00*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		4.2	0.5	0.7	pCi/g	*	leb

Radium 228, 3050 Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.68	1.4	1.4	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC6-1
Locator:

ACZ Sample ID: ***L43559-11***
Date Sampled: *04/02/18 11:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.36	0.25	0.31	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.24	1.1	1.2	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-12***
Sample ID:	SMC6-2	Date Sampled:	*04/02/18 11:15*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		2.2	0.35	0.5	pCi/g		leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.01	1.1	1.2	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-1
Locator:

ACZ Sample ID: ***L43559-13***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.5	0.26	0.51	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.76	1.2	1.3	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-14***
Sample ID:	SMC7-2	Date Sampled:	*04/02/18 11:30*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.74	0.24	0.32	pCi/g		leb

Radium 228, 3050 Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.76	1.2	1.2	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-15***
Sample ID:	SMC8-1	Date Sampled:	*04/02/18 12:30*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.2	0.29	0.22	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.43	1.4	1.5	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC8-2
Locator:

ACZ Sample ID: ***L43559-16***
Date Sampled: *04/02/18 12:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.1	0.3	0.18	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		1	1.3	1.4	pCi/g	*	jlg

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Radiochemistry Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

(1) Solid matrices are reported on a dry weight basis.

(2) Preparation method: "Method" indicates preparation defined in analytical method.

(3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.

(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Alan Kuhn Associates LLC ACZ Project ID: ***L43559***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226 (3050) M903.1 **Units:** pCi/g

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG446162																
L43559-04DUP	DUP-RER	04/26/18			0.67	0.23	0.53	1.9	0.28	0.13				3.39	2	RC
WG445113PBS	PBS	04/26/18						.14	0.18	0.15			0.3			
WG445113LCSS	LCSS	04/26/18	PCN54812	40				33	1.1	0.12	83	43	148			
L43559-14MS	MS	04/26/18	PCN54812	40	0.74	0.24	0.32	34	1.2	0.2	83	43	148			
L43559-08DUP	DUP-RER	04/26/18			0.96	0.35	0.56	.25	0.21	0.13				1.74	2	

Radium 228, 3050 M904.0 **Units:** pCi/g

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG445692																
WG445110PBS	PBS	04/18/18						-.75	1.2	1.4			2.8			
WG445110LCSS	LCSS	04/18/18	PCN53179	17.56				17	2	1.3	97	47	123			
L43559-08MS	MS	04/18/18	PCN53179	17.92	0.22	1.5	1.5	36	3.9	2.5	200	47	123			M1
L43559-14DUP	DUP-RER	04/18/18			0.76	1.2	1.2	-.22	1	1.1				0.63	2	
L43559-04DUP	DUP-RER	04/18/18			0.03	1.4	1.5	1.1	1.1	1.1				0.6	2	

Alan Kuhn Associates LLC

ACZ Project ID: ***L43559***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-01	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-02	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-03	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-04	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-05	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-06	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-07	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-08	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-09	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-10	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-11	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-12	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-13	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.

Alan Kuhn Associates LLC ACZ Project ID: ***L43559***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-14	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-15	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-16	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.

Radiochemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.	
Radium 228, 3050	M904.0

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.	
Solids, Percent	D2216-80

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Alan Kuhn Associates LLC
AKA-ACZ-2018.1

ACZ Project ID: L43559
Date Received: 04/05/2018 10:42
Received By:
Date Printed: 4/6/2018

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the Page 1 Sampler's Name. Relinquished By. Page 2 Copy of Report to. Invoice to. Relinquished By Date:Time section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
5350	15.5	NA	17	N/A
NA28102	14.2	NA	13	N/A

Sample Receipt

Alan Kuhn Associates LLC
AKA-ACZ-2018.1

ACZ Project ID:	L43559
Date Received:	04/05/2018 10:42
Received By:	
Date Printed:	4/6/2018

Was ice present in the shipment container(s)?

`No - Wet or gel ice was not present in the shipment container(s).`

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L43559

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates LLC	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505 350 9188

Copy of Report to:

Name: Joe Lister	E-mail: joel.lister@riograndresources.com
Company: Rio Grande Resources	Telephone: 505 287 7971

Invoice to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505 350 9188

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? N/A YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: A. Kuhn **Sampler's Site Information** **State** NM **Zip code** 87020 **Time Zone** MDT

***Sampler's Signature:** Alan Kuhn

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION — ANALYSES REQUESTED *(attach list or use quote number)*

Quote #:

PO#: AKA-ACZ-2018.1

Reporting state for compliance testing: NM

Check box if samples include NRC licensed material? NO

	SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	U	Ra	Se					
1.	SMC1-1	4/2/18 1500	Soil	1								
2.	SMC1-2	4/2/18 1500		1								
3.	SMC2-1	4/2/18 1515		1								
4.	SMC2-2	4/2/18 1515		1								
5.	SMC3-1	4/2/18 1030		1								
6.	SMC3-2	4/2/18 1030		1								
7.	SMC4-1	4/2/18 1045		1								
8.	SMC4-2	4/2/18 1045		1								
9.	SMC5-1	4/2/18 1100		1								
10.	SMC5-2	4/2/18 1100		1								

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Alan Kuhn	4/2/18 1530	Bruce L. Noyes	4/2/18 3:30 P
~~Bruce L. Noyes~~	~~4/3/18 2:00 P~~		

L43559 Chain of Custody

ACZ Laboratories, Inc. L43559

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates LLC	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505-350-9188

Copy of Report to:

Name: Joe Lister	E-mail: joel.lister@riograndaresources.com
Company: Rio Grande Resources	Telephone: 505-287-7971

Invoice to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates LLC	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505-350-9188

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? N/A YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: A. Kuhn **Sampler's Site Information** State NM Zip code 87020 Time Zone MDT

***Sampler's Signature:** Alan Kuhn

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION — ANALYSES REQUESTED *(attach list or use quote number)*

Quote #:

PO#: AKA-ACZ-2018.1

Reporting state for compliance testing: NM

Check box if samples include NRC licensed material? NO

	SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	U	Ra	Se							
11.	SMC6-1	4/2/18 1115	Soil											
12.	SMC6-2	4/2/18 1115												
13.	SMC7-1	4/2/18 1130												
14.	SMC7-2	4/2/18 1130												
15.	SMC8-1	4/2/18 1230												
16.	SMC8-2	4/2/18 1230												

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Alan Kuhn	4/2/18 1530	Bruce R. Norgard	4/3/18 3:30P

ACZ Laboratories, Inc.
Steamboat Springs, CO 80487

(800) 334-5493

No ice

Project Number: L 43559

Cooler Number	Cooler Tag
1	NA28102 10:43 04/05/18 Temp: 14.2 By: bce Rad: 13 uR Seal: N/A
2	5350 10:42 04/05/18 Temp: 15.5 By: bce Rad: 17 uR Seal: N/A
3	
4	
5	
6	
7	
8	
9	
10	

Sample Number	Associated Cooler
1	2
2	2
3	2
4	2
5	2
6	2
7	2
8	2
9	2
10	2
11	1
12	1
13	1
14	1
15	1
16	1
17	
18	
19	
20	

Log-In Order Verified: Initials/Date: [signature] 4.5.18

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

April 30, 2018

Report to:
Alan Kuhn
Alan Kuhn Associates LLC
13212 Manitoba Dr NE
Albuquerque, NM 87111

cc: Joe Lister

Bill to:
Alan Kuhn
Alan Kuhn Associates LLC
13212 Manitoba Dr NE
Albuquerque, NM 87111

Project ID: AKA-ACZ-2018.1
ACZ Project ID: L43559

Alan Kuhn:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 05, 2018. This project has been assigned to ACZ's project number, L43559. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L43559. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 30, 2018. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

Scott Habermehl has reviewed and approved this report.

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-1

ACZ Sample ID: ***L43559-01***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	520	0.68		*	mg/Kg	0.05	0.1	04/17/18 13:26	bsu
Uranium, total (3050)	M6020 ICP-MS	520	32.9		*	mg/Kg	0.05	0.3	04/17/18 13:26	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	88.5		*	%	0.1	0.5	04/09/18 16:11	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:50	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 9:07	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:15	ajm

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-2

ACZ Sample ID: ***L43559-02***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	515	0.73		*	mg/Kg	0.05	0.1	04/17/18 13:30	bsu
Uranium, total (3050)	M6020 ICP-MS	515	28.6		*	mg/Kg	0.05	0.3	04/17/18 13:30	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	86.2		*	%	0.1	0.5	04/09/18 17:19	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:53	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 9:28	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:19	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-1

ACZ Sample ID: ***L43559-03***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	510	0.15		*	mg/Kg	0.05	0.1	04/17/18 13:39	bsu
Uranium, total (3050)	M6020 ICP-MS	510	1.30		*	mg/Kg	0.05	0.3	04/17/18 13:39	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.5		*	%	0.1	0.5	04/09/18 18:27	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 8:57	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 10:30	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:23	ajm

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-2

ACZ Sample ID: ***L43559-04***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	515	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:40	bsu
Uranium, total (3050)	M6020 ICP-MS	515	1.93		*	mg/Kg	0.05	0.3	04/17/18 13:40	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.2		*	%	0.1	0.5	04/09/18 19:35	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:01	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 10:51	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:27	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-1

ACZ Sample ID: ***L43559-05***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.12		*	mg/Kg	0.05	0.1	04/17/18 13:42	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.73		*	mg/Kg	0.05	0.3	04/17/18 13:42	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	94.6		*	%	0.1	0.5	04/09/18 20:43	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:04	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:11	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:31	ajm

** Please refer to Qualifier Reports for details.*

Inorganic Analytical Results

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-2

ACZ Sample ID: ***L43559-06***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:44	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.25		*	mg/Kg	0.05	0.3	04/17/18 13:44	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.5		*	%	0.1	0.5	04/09/18 21:51	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:08	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:32	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:35	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-1

ACZ Sample ID: ***L43559-07***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.14		*	mg/Kg	0.05	0.1	04/17/18 13:46	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.26		*	mg/Kg	0.05	0.3	04/17/18 13:46	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.8		*	%	0.1	0.5	04/09/18 22:59	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:12	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 11:53	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:39	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC
Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-2

ACZ Sample ID: ***L43559-08***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.31		*	mg/Kg	0.05	0.1	04/17/18 13:48	bsu
Uranium, total (3050)	M6020 ICP-MS	505	5.99		*	mg/Kg	0.05	0.3	04/17/18 13:48	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	04/10/18 0:06	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:15	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:14	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:43	ajm

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1

Sample ID: SMC5-1

ACZ Sample ID: ***L43559-09***

Date Sampled: *04/02/18 11:00*

Date Received: *04/05/18*

Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.19		*	mg/Kg	0.05	0.1	04/17/18 13:49	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.96		*	mg/Kg	0.05	0.3	04/17/18 13:49	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	91.4		*	%	0.1	0.5	04/10/18 1:14	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:19	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:34	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:47	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC5-2

ACZ Sample ID: ***L43559-10***
Date Sampled: *04/02/18 11:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.15		*	mg/Kg	0.05	0.1	04/17/18 13:51	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.98		*	mg/Kg	0.05	0.3	04/17/18 13:51	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.5		*	%	0.1	0.5	04/10/18 2:22	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:23	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 12:55	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:51	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC6-1

ACZ Sample ID: ***L43559-11***
Date Sampled: *04/02/18 11:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 13:53	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.68		*	mg/Kg	0.05	0.3	04/17/18 13:53	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.8		*	%	0.1	0.5	04/10/18 3:30	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:26	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:16	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:55	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC6-2

ACZ Sample ID: ***L43559-12***
Date Sampled: *04/02/18 11:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.29		*	mg/Kg	0.05	0.1	04/17/18 13:58	bsu
Uranium, total (3050)	M6020 ICP-MS	505	1.20		*	mg/Kg	0.05	0.3	04/17/18 13:58	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.7		*	%	0.1	0.5	04/10/18 4:38	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:30	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:37	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 10:59	ajm

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Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1

Sample ID: SMC7-1

ACZ Sample ID: ***L43559-13***

Date Sampled: *04/02/18 11:30*

Date Received: *04/05/18*

Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	500	0.11		*	mg/Kg	0.05	0.1	04/17/18 14:00	bsu
Uranium, total (3050)	M6020 ICP-MS	500	0.44		*	mg/Kg	0.05	0.3	04/17/18 14:00	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	95.0		*	%	0.1	0.5	04/10/18 5:46	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:34	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 13:57	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:03	ajm

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-2

ACZ Sample ID: ***L43559-14***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	500	0.10		*	mg/Kg	0.05	0.1	04/17/18 14:02	bsu
Uranium, total (3050)	M6020 ICP-MS	500	0.51		*	mg/Kg	0.05	0.3	04/17/18 14:02	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	93.3		*	%	0.1	0.5	04/10/18 6:54	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:37	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 14:18	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:07	ajm

** Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1

Sample ID: SMC8-1

ACZ Sample ID: ***L43559-15***

Date Sampled: *04/02/18 12:30*

Date Received: *04/05/18*

Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.17		*	mg/Kg	0.05	0.1	04/17/18 14:04	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.78		*	mg/Kg	0.05	0.3	04/17/18 14:04	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	90.8		*	%	0.1	0.5	04/10/18 8:02	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:41	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 14:39	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:11	ajm

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC8-2

ACZ Sample ID: ***L43559-16***
Date Sampled: *04/02/18 12:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Selenium, total (3050)	M6020 ICP-MS	505	0.14		*	mg/Kg	0.05	0.1	04/17/18 14:06	bsu
Uranium, total (3050)	M6020 ICP-MS	505	0.67		*	mg/Kg	0.05	0.3	04/17/18 14:06	bsu

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	92.3		*	%	0.1	0.5	04/10/18 9:10	ajm

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								04/09/18 9:45	ajm
Digestion - Hot Plate	M3050B ICP-MS								04/12/18 15:00	jlw
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								04/10/18 11:15	ajm

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Alan Kuhn Associates LLC ACZ Project ID: ***L43559***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG445528													
WG445528ICV	ICV	04/17/18 13:10	MS180329-2	.05		.04911	mg/L	98	90	110			
WG445528ICB	ICB	04/17/18 13:12				U	mg/L		-0.0003	0.0003			
WG445221PBS	PBS	04/17/18 13:21				U	mg/Kg		-0.15	0.15			
WG445221LCSS	LCSS	04/17/18 13:23	PCN55863	117		117.61	mg/Kg		91.8	141			
WG445221LCSSD	LCSSD	04/17/18 13:25	PCN55863	117		118.42	mg/Kg		91.8	141	1	20	
L43559-02MS	MS	04/17/18 13:32	MS180321-2	12.887875	.73	13.425	mg/Kg	99	75	125			
L43559-02MSD	MSD	04/17/18 13:37	MS180321-2	12.887875	.73	12.827	mg/Kg	94	75	125	5	20	

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG444935													
WG444935PBS	PBS	04/09/18 11:40				U	%		-0.1	0.1			
L43555-01DUP	DUP	04/09/18 13:55			73.8	73.6	%				0	20	

Uranium, total (3050) M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG445528													
WG445528ICV	ICV	04/17/18 13:10	MS180329-2	.05		.04956	mg/L	99	90	110			
WG445528ICB	ICB	04/17/18 13:12				U	mg/L		-0.0003	0.0003			
WG445221PBS	PBS	04/17/18 13:21				U	mg/Kg		-0.15	0.15			
WG445221LCSS	LCSS	04/17/18 13:23	PCN55863	109		105.36	mg/Kg		83	135			
WG445221LCSSD	LCSSD	04/17/18 13:25	PCN55863	109		107.95	mg/Kg		83	135	2	20	
L43559-02MS	MS	04/17/18 13:32	MS180321-2	12.875	28.6	29.887	mg/Kg	10	75	125			M2
L43559-02MSD	MSD	04/17/18 13:37	MS180321-2	12.875	28.6	32.046	mg/Kg	27	75	125	7	20	M2

Alan Kuhn Associates LLC   ACZ Project ID: ***L43559***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-01	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-02	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-03	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-04	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-05	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-06	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-07	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-08	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-09	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-10	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-11	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-12	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-13	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-14	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-15	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-16	WG445528	Selenium, total (3050)	M6020 ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Uranium, total (3050)	M6020 ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC1-1
Locator:

ACZ Sample ID: ***L43559-01***
Date Sampled: *04/02/18 15:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		11	0.71	0.25	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.13	1.3	1.4	pCi/g	*	jlg

ACZ Laboratories, Inc.
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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-02***
Sample ID:	SMC1-2	Date Sampled:	*04/02/18 15:00*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		13	0.72	0.08	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		1.1	1.3	1.3	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-1
Locator:

ACZ Sample ID: ***L43559-03***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.81	0.26	0.45	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.31	1.2	1.3	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC2-2
Locator:

ACZ Sample ID: ***L43559-04***
Date Sampled: *04/02/18 15:15*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.67	0.23	0.53	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.03	1.4	1.5	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-1
Locator:

ACZ Sample ID: ***L43559-05***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.73	0.34	0.5	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.12	1.3	1.3	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC3-2
Locator:

ACZ Sample ID: ***L43559-06***
Date Sampled: *04/02/18 10:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.49	0.3	0.33	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		1.1	1.2	1.2	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC4-1
Locator:

ACZ Sample ID: ***L43559-07***
Date Sampled: *04/02/18 10:45*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.2	0.33	0.57	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		-0.27	1.4	1.5	pCi/g	*	jlg

ACZ Laboratories, Inc.
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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-08***
Sample ID:	SMC4-2	Date Sampled:	*04/02/18 10:45*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.96	0.35	0.56	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.22	1.5	1.5	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-09***
Sample ID:	SMC5-1	Date Sampled:	*04/02/18 11:00*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050) Prep Method:
M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.92	0.26	0.19	pCi/g	*	leb

Radium 228, 3050 Prep Method:
M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 11:08		0.97	1.8	1.9	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC5-2
Locator:

ACZ Sample ID: ***L43559-10***
Date Sampled: *04/02/18 11:00*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		4.2	0.5	0.7	pCi/g	*	leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.68	1.4	1.4	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-11***
Sample ID:	SMC6-1	Date Sampled:	*04/02/18 11:15*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.36	0.25	0.31	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.24	1.1	1.2	pCi/g	*	jlg

ACZ Laboratories, Inc.

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1

Sample ID: SMC6-2

Locator:

ACZ Sample ID: ***L43559-12***

Date Sampled: *04/02/18 11:15*

Date Received: *04/05/18*

Sample Matrix: *Soil*

Radium 226 (3050)

M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		2.2	0.35	0.5	pCi/g		leb

Radium 228, 3050

M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.01	1.1	1.2	pCi/g	*	jlg

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-1
Locator:

ACZ Sample ID: ***L43559-13***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.5	0.26	0.51	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		-0.76	1.2	1.3	pCi/g	*	jlg

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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC7-2
Locator:

ACZ Sample ID: ***L43559-14***
Date Sampled: *04/02/18 11:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		0.74	0.24	0.32	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.76	1.2	1.2	pCi/g	*	jlg

* *Please refer to Qualifier Reports for details.*

Alan Kuhn Associates LLC

Project ID:	AKA-ACZ-2018.1	ACZ Sample ID:	***L43559-15***
Sample ID:	SMC8-1	Date Sampled:	*04/02/18 12:30*
Locator:		Date Received:	*04/05/18*
		Sample Matrix:	*Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.2	0.29	0.22	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		0.43	1.4	1.5	pCi/g	*	jlg

ACZ Laboratories, Inc.
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RadioChemistry Analytical Results

Alan Kuhn Associates LLC

Project ID: AKA-ACZ-2018.1
Sample ID: SMC8-2
Locator:

ACZ Sample ID: ***L43559-16***
Date Sampled: *04/02/18 12:30*
Date Received: *04/05/18*
Sample Matrix: *Soil*

Radium 226 (3050)
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 (3050)	04/26/18 0:00		1.1	0.3	0.18	pCi/g		leb

Radium 228, 3050
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, 3050	04/18/18 13:28		1	1.3	1.4	pCi/g	*	jlg

ACZ Laboratories, Inc.
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Radiochemistry Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	*MS/MSD*	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	*PBS*	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	*PBW*	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

(1) Solid matrices are reported on a dry weight basis.

(2) Preparation method: "Method" indicates preparation defined in analytical method.

(3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.

(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Radiochemistry QC Summary

Alan Kuhn Associates LLC ACZ Project ID: ***L43559***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226 (3050) M903.1 **Units:** pCi/g

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG446162																
L43559-04DUP	DUP-RER	04/26/18			0.67	0.23	0.53	1.9	0.28	0.13				3.39	2	RC
WG445113PBS	PBS	04/26/18						.14	0.18	0.15			0.3			
WG445113LCSS	LCSS	04/26/18	PCN54812	40				33	1.1	0.12	83	43	148			
L43559-14MS	MS	04/26/18	PCN54812	40	0.74	0.24	0.32	34	1.2	0.2	83	43	148			
L43559-08DUP	DUP-RER	04/26/18			0.96	0.35	0.56	.25	0.21	0.13				1.74	2	

Radium 228, 3050 M904.0 **Units:** pCi/g

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG445692																
WG445110PBS	PBS	04/18/18						-.75	1.2	1.4			2.8			
WG445110LCSS	LCSS	04/18/18	PCN53179	17.56				17	2	1.3	97	47	123			
L43559-08MS	MS	04/18/18	PCN53179	17.92	0.22	1.5	1.5	36	3.9	2.5	200	47	123			M1
L43559-14DUP	DUP-RER	04/18/18			0.76	1.2	1.2	-.22	1	1.1				0.63	2	
L43559-04DUP	DUP-RER	04/18/18			0.03	1.4	1.5	1.1	1.1	1.1				0.6	2	

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-01	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-02	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-03	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-04	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-05	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-06	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-07	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-08	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-09	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-10	WG446162	Radium 226 (3050)	M903.1	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-11	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-12	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-13	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.

RadChem Extended Qualifier Report

Alan Kuhn Associates LLC

ACZ Project ID: ***L43559***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L43559-14	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-15	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L43559-16	WG445692	Radium 228, 3050	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.

Radiochemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.	
Radium 228, 3050	M904.0

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.	
Solids, Percent	D2216-80

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Alan Kuhn Associates LLC
AKA-ACZ-2018.1

ACZ Project ID:	L43559
Date Received:	04/05/2018 10:42
Received By:	
Date Printed:	4/6/2018

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	X		

A change was made in the Page 1 Sampler's Name. Relinquished By. Page 2 Copy of Report to. Invoice to. Relinquished By Date:Time section prior to ACZ custody.

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
5350	15.5	NA	17	N/A
NA28102	14.2	NA	13	N/A

Alan Kuhn Associates LLC
AKA-ACZ-2018.1

ACZ Project ID:	L43559
Date Received:	04/05/2018 10:42
Received By:	
Date Printed:	4/6/2018

Was ice present in the shipment container(s)?

`No - Wet or gel ice was not present in the shipment container(s).`

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. / L43559

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates LLC	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505 350 9188

Copy of Report to:

Name: Joe Lister	E-mail: joel.lister@riograndesources.com
Company: Rio Grande Resources	Telephone: 505 287 7971

Invoice to:

Name: Alan Kuhn	Address: 13212 Manitoba Dr NE
Company: Alan Kuhn Associates	Albuquerque NM 87111
E-mail: akkuhn41@gmail.com	Telephone: 505 350 9188

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? N/A YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: A. Kuhn **Sampler's Site Information** State NM Zip code 87020 Time Zone MDT

***Sampler's Signature:** Alan Kuhn *I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION ANALYSES REQUESTED *(attach list or use quote number)*

Quote #:

PO#: AKA-ACZ-2018.1

Reporting state for compliance testing: NM

Check box if samples include NRC licensed material? NO

	SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	U	Ra	Se						
1.	SMC1-1	4/2/18 1500	Soil	1									
2.	SMC1-2	4/2/18 1500		1									
3.	SMC2-1	4/2/18 1515		1									
4.	SMC2-2	4/2/18 1515		1									
5.	SMC3-1	4/2/18 1030		1									
6.	SMC3-2	4/2/18 1030		1									
7.	SMC4-1	4/2/18 1045		1									
8.	SMC4-2	4/2/18 1045		1									
9.	SMC5-1	4/2/18 1100		1									
10.	SMC5-2	4/2/18 1100		1									

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Alan Kuhn	4/2/18 1530	Bruce L. Nogg	4/2/18 3:30 P
~~Bruce L. Nogg~~	~~4/3/18 2:00 P~~		

L43559 Chain of Custody

FRMAD050.06.14.14 L43559-1804300835 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc. L43559

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Alan Kuhn
Company: Alan Kuhn Associates LLC
E-mail: akkuhn41@gmail.com
Address: 13212 Manitoba Dr NE Albuquerque NM 87111
Telephone: 505-350-9188

Copy of Report to:

Name: Joe Lister
Company: Rio Grande Resources
E-mail: joel.lister@riograndresources.com
Telephone: 505-287-7971

Invoice to:

Name: Alan Kuhn
Company: Alan Kuhn Associates LLC
E-mail: akkuhn41@gmail.com
Address: 13212 Manitoba Dr NE Albuquerque NM 87111
Telephone: 505-350-9188

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? N/A YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: A. Kuhn **Sampler's Site Information** **State** NM **Zip code** 87020 **Time Zone** MDT

***Sampler's Signature:** Alan Kuhn

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION — ANALYSES REQUESTED *(attach list or use quote number)*

Quote #:
PO#: AKA-ACZ-2018.1
Reporting state for compliance testing: NM
Check box if samples include NRC licensed material? NO

	SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	U	Ra	Se
11.	SMC6-1	4/2/18 1115	Soil				
12.	SMC6-2	4/2/18 1115					
13.	SMC7-1	4/2/18 1130					
14.	SMC7-2	4/2/18 1130					
15.	SMC8-1	4/2/18 1230					
16.	SMC8-2	4/2/18 1230					

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Alan Kuhn	4/2/18 1530	Bruce R. Norgard	4/3/18 3:30P

ACZ Laboratories, Inc.
Steamboat Springs, CO 80487

No ice

(800) 334-5493

Project Number: L 43559

Cooler Number	Cooler Tag
1	NA28102 10:43 04/05/18 Temp: 14.2 By: bce Rad: 13 uR Seal: N/A
2	5350 10:42 04/05/18 Temp: 15.5 By: bce Rad: 17 uR Seal: N/A
3	
4	
5	
6	
7	
8	
9	
10	

Sample Number	Associated Cooler
1	2
2	2
3	2
4	2
5	2
6	2
7	2
8	2
9	2
10	2
11	1
12	1
13	1
14	1
15	1
16	1
17	
18	
19	
20	

Log-In Order Verified:

Initials/Date: [signature] 4.5.18

RGR Mt. Taylor Mine Stan Fitch
Gamma Radiation Survey 4/25/2016
Waste Pile North/East Delineation
Instrument: Eberline PRM-7 #182, BKG = 10 µrem/h, readings waist high

NAD 83 Datum			
Northing	Easting	Dose Rate µrem/h	Notes
1578877	2782337	80	NW Fence Corner - Car Shop yard
1578747	2782327	70	
1578645	2782320	40	
1578544	2782314	30	
1578467	2782308	27	SW Fence Corner - Car Shop yard
1578363	2782303	20	
1578264	2782295	18	
1578163	2782287	15	
1578063	2782279	11	
1578062	2782181	12	
1578165	2782185	20	
1578263	2782188	30	
1578364	2782192	24	
1578450	2782200	36	
1578564	2782192	110	
1578675	2782197	80	
1578779	2782193	160	
1578880	2782192	150	
1578984	2782188	130	
1579038	2782202	40	Fire Hydrant
1579004	2782130	28	South-Easterly Corner of Fan Shop
1578882	2782090	115	
1578783	2782088	80	
1578683	2782081	100	
1578577	2782084	100	
1578500	2782082	100	
1578377	2782080	30	
1578276	2782081	40	
1578178	2782084	26	
1578179	2781985	110	
1578277	2781992	100	
1578043	2781993	18	
1578275	2782007	90	
1578373	2782012	50	
1578471	2782009	120	
1578571	2782006	110	
1578672	2782000	100	
1578772	2782000	80	
1578871	2782003	110	
1578917	2782011	50	Shoulder of slope
1578962	2782013	30	Natural grade at foot of small hill
1578973	2781898	28	
1578973	2781795	32	
1578974	2781700	44	Inside of southerly end of stormwater pond
1578914	2781717	120	Drainage ditch, near toe

RGR Mt. Taylor Mine Stan Fitch
Gamma Radiation Survey 4/25/2016
Waste Pile North/East Delineation
Instrument: Eberline PRM-7 #182, BKG = 10 μrem/h, readings waist high

NAD 83 Datum			
Northing	Easting	Dose Rate μrem/h	Notes
1578907	2781815	110	Toe of waste pile (at drainage ditch)
1578911	2781896	80	Toe of waste pile (at drainage ditch)
1578911	2781958	50	Toe of waste pile (NE corner of pile)
1578880	2781968	90	Crown -- top of waste pile slope, NE corner
1578864	2781901	110	Crown -- top of waste pile slope
1578862	2781801	110	Crown -- top of waste pile slope
1578836	2781702	120	Crown -- top of waste pile slope, NW corner
1578776	2781682	100	Crown -- top of waste pile slope
1578765	2781795	125	
1578771	2781900	110	
1578670	2781901	80	
1578565	2781900	80	
1578470	2781902	50	
1578369	2781900	50	
1578252	2781899	60	

APPENDIX D.3

FIELD SAMPLING AND LABORATORY TEST DATA

Laboratory Test Results

See Appendix D cover sheet for other documents with data generated 2014-2022

TABLE 1
Soil Physical Properties Analytical Results - April 2012
RIO GRANDE RESOURCES SOIL SAMPLING AND TESTING FOR CLOSEOUT PLAN
MT. TAYLOR MINE, SAN MATEO, NEW MEXICO

Boring ID	Approximate Collection Depth (inches bgs)	Collection Date	Soil Classification	Atterberg Limits		Moisture Content (%)
Analytical Method			USCS	PI	LL	D2216A
MT-WP-SM1	0-6	4/10/2012	SC	24	37	7.1
MT-WP-SM2	0-6	4/10/2012	CL	27	43	7.9
MT-WP-SM3	0-6	4/10/2012	SC	21	34	2.5
BORROW	24-66	4/10/2012	CL	13	37	10.7
MT-1-F	0-6	4/10/2012	SC	15	35	13.7
MT-2-D	0-6	4/10/2012	CL	14	33	16.4
MT-3-F	0-6	4/10/2012	CL	17	35	17.3
MT-4-F	0-6	4/10/2012	CL	13	34	10.5
MT-5-F	0-6	4/10/2012	CL	17	37	17.6
MT-7-C	0-6	4/10/2012	CL	17	39	17.9
MT-8-F	0-6	4/10/2012	SC	13	27	12.9
MT-OP-E	0-6	4/10/2012	CL	12	31	10.3

Notes:
bgs = below ground surface
PI = Plastic Index
LL = Liquid Limit

TABLE 2
Soil Chemical Analytical Results - April 2012
Total Metals by SW 6010/SW 6020 and Radiochemistry by E903.0/RA-05
RIO GRANDE RESOURCES SOIL SAMPLING AND TESTING FOR CLOSEOUT PLAN
MT. TAYLOR MINE, SAN MATEO, NEW MEXICO

Sample ID	Location	Collection Depth (inches bgs)	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Radium 226	Radium 228	Selenium	Silver	Uranium
	CONCENTRATION			mg/L						pCi/g	pCi/g	mg/L		
Analytical Method				SW 6020	SW 6010B	SW 6010B	SW 6010B	SW 6020	SW 7470A	E903.0	RA-05	SW 6020	SW 6020	SW 6020
NMED SSL DAF 1				1.31E-02	3.01E+02	1.37E+00	9.86E+07	NA	5.71E-01	30[3]		9.65E-01	1.57E+00	4.93E+01
S1-01-01	MT-1-E	0-4	4/10/2012	0.014	0.28	<0.001	0.014 B	0.014	<0.002	124	1.8	0.26	<0.002 D	2.2 D
S1-01-02	MT-1-E	16-18	4/10/2012	0.048	3.8	0.001	0.040 B	0.078	<0.002	113	1.3	0.49	<0.002 D	5.3 D
S1-01-03	MT-1-E	44-48	4/10/2012	0.010	0.34	<0.001	0.027 B	0.023	<0.002	12.6	0.8	0.14	0.002 D	0.094 D
S1-02-01	MT-1-D	0-4	4/10/2012	0.023	0.39	<0.001	0.014 B	0.021	<0.002	224	2.3	0.19	<0.002 D	1.5 D
S1-02-02	MT-1-D	26-30	4/10/2012	0.003	<0.05	<0.001	0.007 B	0.004	<0.002	0.9	0.8	0.11	<0.002 D	0.24 D
S1-02-03	MT-1-D	44-48	4/10/2012	0.003	<0.05	<0.001	0.006 B	0.003	<0.002	0.6	0.6	0.012	<0.002 D	0.050 D
S3-01-01	MT-3-E	0-12	4/10/2012	0.007	0.31	0.002	<0.005	0.002	<0.002	21.0	1.5	0.19	<0.001	9.7 B
S3-01-02	MT-3-E	20-26	4/10/2012	0.014	2.3	0.001	0.050	0.064	<0.002	6.2	0.7	0.036	<0.001	5.7 B
S3-01-03	MT-3-E	26-36	4/10/2012	0.005	0.14	<0.001	0.013	0.012	<0.002	4.5	0.8	0.053	<0.001	0.47 B
S3-01-04	MT-3-E	64-75	4/10/2012	0.003	0.07	<0.001	0.011	0.005	<0.002	1.7	0.7	0.032	<0.001	0.036 B
S3-02-01	MT-3-D	0-12	4/10/2012	0.018	6.6	0.002	0.015	0.028	<0.002	6.4	2.2	0.15	<0.001	7.8 B
S3-02-02	MT-3-D	26-30	4/10/2012	0.002	<0.05	<0.001	0.009	0.001	<0.002	3.0	0.7	0.023	<0.001	0.18 B
S3-02-03	MT-3-D	50-54	4/10/2012	0.006	0.27	<0.001	0.018	0.016	<0.002	2.4	0.3	0.003	<0.001	0.022 B
S5-01-01	MT-5-E	0-12	4/10/2012	0.009	5.5	<0.001	0.027 B	0.028	<0.002	11.3	0.3	0.010	<0.002 D	0.11
S5-01-02	MT-5-E	36-37	4/10/2012	0.004	0.07	<0.001	0.012	0.005	<0.002	1.7	0.6	0.004	<0.002	0.0054
S5-02-01	MT-5-D	0-12	4/10/2012	<0.001	0.10	<0.001	0.008	<0.001	<0.002	0.8	0.2	0.40	<0.002	1.5
S5-02-02	MT-5-D	17-24	4/10/2012	<0.001	0.08	<0.001	0.005	<0.001	<0.002	2.1	0.2	0.15	<0.002	1.1
S5-02-03	MT-5-D	40-44	4/10/2012	0.006	0.62	<0.001	0.017	0.013	<0.002	4.1	0.5	0.012	<0.002	0.011 D
S7-01-01	MT-7-A	0-12	4/10/2012	0.004	0.06	<0.001	0.005	<0.001	<0.002	10.4	0.1	0.26	<0.002	0.37
S7-01-02	MT-7-A	24-30	4/10/2012	0.002	0.06	<0.001	0.009	0.003	<0.002	1.1	0.6	0.002	<0.002	0.0047
S7-01-03	MT-7-A	30-35	4/10/2012	<0.001	0.05	<0.001	0.009	0.001	<0.002	1.5	0.2	0.002	<0.002	0.0049
S7-02-01	MT-7-B	0-12	4/10/2012	0.013	0.76	<0.001	0.006	0.001	<0.002	2.6	0.5	0.22	<0.001	0.18
S7-02-02	MT-7-B	23-43	4/10/2012	0.007	0.31	<0.001	0.013	0.020	<0.002	1.9	0.2	0.13	<0.001	0.014
S7-02-03	MT-7-B	43-46	4/10/2012	0.003	0.16	<0.001	0.010	0.005	<0.002	1.1	0.3	0.003	<0.001	0.0053
S8-01-01	MT-8-E	0-8	4/10/2012	0.008	0.91	<0.001	0.012	0.009	<0.002	27.2	0.2	0.007	<0.002	0.016
S8-01-02	MT-8-E	17-30	4/10/2012	0.004	0.09	<0.001	0.006	<0.001	<0.002	2.5	0.6	0.30	0.002	3.8
S8-01-03	MT-8-E	36-40	4/10/2012	0.032	0.16	<0.001	0.010	0.006	<0.002	24.5	0.5	0.036	<0.002	0.022
S8-02-01	MT-8-D	0-12	4/10/2012	0.004	0.12	<0.001	0.009	0.005	<0.002	10.6	0.1	0.22	<0.002	0.12
S8-02-02	MT-8-D	18-24	4/10/2012	0.006	0.06	<0.001	0.006	<0.001	<0.002	1.7	1.5	1.0	<0.002	6.7
S8-02-03	MT-8-D	40-50	4/10/2012	0.011	0.98	<0.001	0.028	0.013	<0.002	14.0	0.2	0.063	<0.002	0.19
S8-02-04	MT-8-D	58-62	4/10/2012	0.004	0.15	<0.001	0.011	0.005	<0.002	2.0	0.6	<0.001	<0.002	0.0056 D
SA-01-01	MT-A-A	0-4	4/10/2012	0.036	0.31	<0.001	0.014 B	0.021	<0.002	152	1.8	0.046	<0.002 D	0.44 D
SA-01-02	MT-A-A	6-8	4/10/2012	0.006	0.11	<0.001	0.010 B	0.009	<0.002	8.7	0.7	0.051	<0.002 D	0.45 D
SA-01-03	MT-A-A	28-30	4/10/2012	0.003	<0.05	<0.001	0.005 B	0.003	<0.002	1.7	0.6	0.095	<0.002 D	0.030 D
SA-02-01	MT-A-B	0-4	4/10/2012	0.025	0.25	<0.001	0.011 B	0.010	<0.002	275	3.5	0.014	<0.002 D	0.37 D
SA-02-02	MT-A-B	8-10	4/10/2012	0.006	0.15	<0.001	0.013 B	0.010	<0.002	5.4	0.7	0.003	<0.002 D	0.11 D
SA-02-03	MT-A-B	30-33	4/10/2012	0.006	0.09	<0.001	0.013 B	0.006	<0.002	29.3	1.3	0.003	<0.002 D	0.088 D
MT-1-F (6" B.G.)	MT-1-F	6	4/10/2012	0.006	0.17	<0.001	0.014	0.016	<0.002	2.0	0.6	0.005	<0.001	0.077 B
MT-2-D (6" B.G.)	MT-2-D	6	4/10/2012	0.002	0.06	<0.001	0.005	0.003	<0.002	0.6	0.6	<0.001	<0.001	0.0098 B
MT-3-F (6" B.G.)	MT-3-F	6	4/10/2012	0.002	<0.05	<0.001	<0.005	0.001	<0.002	0.9	0.5	0.001	<0.002 D	0.0090 D
MT-4-D-S1 (0-6" B.G.)	MT-4-D	0-6	4/10/2012	0.008	1.0	<0.001	0.008	0.003	<0.002	18.1	0.9	0.015	<0.002 D	0.033 D
MT-4-D-S2 (14" B.G.)	MT-4-D	14	4/10/2012	0.007	<0.05	<0.001	0.006	0.001	<0.002	2.8	0.2	0.39	<0.002 D	0.20 D

TABLE 2
Soil Chemical Analytical Results - April 2012
Total Metals by SW 6010/SW 6020 and Radiochemistry by E903.0/RA-05
RIO GRANDE RESOURCES SOIL SAMPLING AND TESTING FOR CLOSEOUT PLAN
MT. TAYLOR MINE, SAN MATEO, NEW MEXICO

Sample ID	Location	Collection Depth (inches bgs)	Collection Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Radium 226	Radium 228	Selenium	Silver	Uranium
	CONCENTRATION			mg/L						pCi/g	pCi/g	mg/L		
Analytical Method				SW 6020	SW 6010B	SW 6010B	SW 6010B	SW 6020	SW 7470A	E903.0	RA-05	SW 6020	SW 6020	SW 6020
NMED SSL DAF 1				1.31E-02	3.01E+02	1.37E+00	9.86E+07	NA	5.71E-01	30[3]		9.65E-01	1.57E+00	4.93E+01
MT-4-D-S3 (48" B.G.)	**MT-4-D**	48	4/10/2012	0.003	0.88	<0.001	0.009	0.003	<0.002	6.7	0.8	0.020	<0.002 D	0.013 D
MT-4-E-S1 (0-4" B.G.)	**MT-4-E**	0-4	4/10/2012	0.034	34	<0.001	0.007	0.008	<0.002	8.7	1.5	0.15	<0.002 D	0.39 D
MT-4-E-S2 (10-12" B.G.)	**MT-4-E**	10-12	4/10/2012	0.005	0.22	<0.001	0.011	0.005	<0.002	4.8	0.4	0.072	<0.002 D	0.014 D
MT-4-E-S3 (36" B.G.)	**MT-4-E**	36	4/10/2012	0.003	0.13	<0.001	0.007	0.003	<0.002	2.9	0.7	0.026	0.003 D	0.0043 D
MT-4-E-S4 (48" B.G.)	**MT-4-E**	48	4/10/2012	0.005 B	0.06	<0.001	0.006	0.002	<0.002	6.2	0.4	0.011	<0.001	0.027
MT-4-F (6" B.G.)	**MT-4-F**	6	4/10/2012	0.005	<0.05	<0.001	<0.005	0.003	<0.002	0.8	1.0	0.002	<0.002 D	0.0027 D
MT-5-F (6" B.G.)	**MT-5-F**	6	4/10/2012	0.002	<0.05	<0.001	<0.005	0.001	<0.002	2.0	0.8	0.001	0.003 D	0.0029 D
MT-6-A-S1 (0-5" B.G.)	**MT-6-A**	0-5	4/10/2012	0.012	7.3	<0.001	0.007	0.016	<0.002	6.4	0.2	0.007	<0.001	0.044
MT-6-A-S2 (12-20" B.G.)	**MT-6-B**	12-20	4/10/2012	0.003 B	0.05	<0.001	0.007	<0.001	<0.002	0.4	0.1	0.15	<0.001	0.26 U
MT-6-B-S1 (8-10" B.G.)	**MT-6-B**	8-10	4/10/2012	0.004 B	0.05	<0.001	0.007	<0.001	<0.002	0.8	0.2	0.16	<0.001	0.26
MT-6-B-S2 (30" B.G.)	**MT-6-B**	30	4/10/2012	0.002 B	0.06	<0.001	<0.005	<0.001	<0.002	4.1	0.8	0.003	<0.001	0.014
MT-7-C (6" B.G.)	**MT-7-C**	6	4/10/2012	0.002	<0.05	<0.001	0.006	0.002	<0.002	0.6	0.8	<0.001	<0.002 D	0.0023 D
MT-8-F (6" B.G.)	**MT-8-F**	6	4/10/2012	0.001	0.05	0.001	0.005	0.001	0.002	-1000	-1000	0.001	0.002 D	0.0006 D
MT-A-C (6" B.G.)	**MT-A-C**	6	4/10/2012	0.003	<0.05	<0.001	<0.005	0.001	<0.002	1.7	0.5	0.044	<0.002 D	0.14
MT-Borrow/Background	**MT-Borrow**	24-66	4/10/2012	0.001	<0.05	<0.001	<0.005	<0.001	<0.002	0.7	0.7	0.001	<0.002 D	0.0007
MT-OP-C-S1 (0-6" B.G.)	**MT-OP-C**	0-6	4/10/2012	0.015	0.05	<0.001	0.010	0.001	<0.002	53.3	2.1	0.052	<0.001	1.8
MT-OP-C-S2 (20" B.G.)	**MT-OP-C**	20	4/10/2012	0.005	0.05	<0.001	0.007	0.002	<0.002	1.7	0.6	0.018	<0.002 D	0.14
MT-OP-C-S3 (48-50' B.G.	**MT-OP-C**	48-50	4/10/2012	0.004	<0.05	<0.001	<0.005	<0.001	<0.002	0.8	0.8	0.028	<0.002 D	0.049
MT-OP-C-S4 (72" B.G.)	**MT-OP-C**	72	4/10/2012	0.004	<0.05	<0.001	<0.005	<0.001	<0.002	1.5	0.6	0.025	<0.002 D	0.0064
MT-OP-D-S1 (0-6" B.G.)	**MT-OP-D**	0-6	4/10/2012	0.013	1.3	<0.001	0.007	0.008	<0.002	51.9	0.5	0.009	<0.002 D	0.23
MT-OP-D-S2 (48-50" B.G.	**MT-OP-D**	48-50	4/10/2012	0.001	0.05	<0.001	<0.005	<0.001	<0.002	1.9	0.6	0.005	<0.002 D	0.10
MT-OP-D-S3 (76" B.G.)	**MT-OP-D**	76	4/10/2012	0.006	0.11	<0.001	0.012	0.009	<0.002	0.6	0.5	0.002	<0.002 D	0.0034
MT-OP-E (6" B.G.)	**MT-OP-E**	6	4/10/2012	0.004	0.05	<0.001	0.006	0.003	<0.002	1.1	0.8	0.005	<0.002 D	0.0056

Notes:
bgs = below ground surface
mg/Kg = milligrams per killogram
DAF=Dilution Attenuation Factor
NA = No DAF values available, NMED 2012, rev6

Total metals concentrations should be compared to background soil sample concentrations before comparing to Soil Screening Levels (SSL). Only metal concentrations above background should be considered for comparison to SSLs.
NMED considers a DAF=20 to be protective of groundwater for a 0.5-acre source. SSL values are included for reference only, as they are applicable for reclamation, not for mines that are active or on stand-by status.
B = The analyte was detected in the method blank.
D = Reporting limit increased due to sample matrix.
U = Not detected at minimum detectable concentration.

TABLE 3
Sediment Analytical Results
Cloride and Sulfate Detections - April 2012
RIO GRANDE RESOURCES SOIL SAMPLING AND TESTING FOR CLOSEOUT PLAN
MT. TAYLOR MINE, SAN MATEO, NEW MEXICO

ClientSampID	Location	Sample Interval (inches below grade)	Method	Analyte	Value (mg/kg)	Analyte	Value (mg/kg)
Berms							
MT-4-F	MT-4-F	6	E300.1	Chloride	51.2	Sulfate	405
MT-5-F	MT-5-F	6	E300.2	Chloride	37.0	Sulfate	183
MT-8F	MT-8F	6	E300.3	Chloride	14.2	Sulfate	28.9
Ponds							
MT-4-D-S1	MT-4-D	0-6	E300.0	Chloride	7.76	Sulfate	77
MT-4-D-S2	MT-4-D	14	E300.0	Chloride	92.00	Sulfate	1840
MT-4-D-S3	MT-4-D	48	E300.0	Chloride	6.49	Sulfate	132
MT-4-E-S1	MT-4-E	0-4	E300.0	Chloride	46.40	Sulfate	853
MT-4-E-S2	MT-4-E	10-12	E300.0	Chloride	34.10	Sulfate	1150
MT-4-E-S3	MT-4-E	36	E300.0	Chloride	13.10	Sulfate	184
MT-4-E-S4	MT-4-E	48	E300.0	Chloride	4.51	Sulfate	131
S5-01-01	MT-5-E	0-12	E300.0	Chloride	9.64	Sulfate	113
S5-01-02	MT-5-E	30-37	E300.0	Chloride	7.87	Sulfate	261
S5-02-01	MT-5-D	0-12	E300.1	Chloride	17.2	Sulfate	2860
S5-02-02	MT-5-D	17-24	E300.2	Chloride	23.1	Sulfate	2530
S5-02-03	MT-5-D	40-44	E300.3	Chloride	5.10	Sulfate	279
S8-01-01	MT-8-E	0-8	E300.0	Chloride	29.3	Sulfate	35.3
S8-01-02	MT-8-E	17-30	E300.0	Chloride	39.6	Sulfate	2750
S8-01-03	MT-8-E	36-40	E300.0	Chloride	12.0	Sulfate	197
S8-02-01	MT-8-D	0-12	E300.0	Chloride	58.6	Sulfate	1660
S8-02-02	MT-8-D	18-24	E300.0	Chloride	44.6	Sulfate	2480
S8-02-03	MT-8-D	40-50	E300.0	Chloride	9.13	Sulfate	536
S8-02-04	MT-8-D	56-62	E300.0	Chloride	3.01	Sulfate	31.2

ANALYTICAL SUMMARY REPORT

July 05, 2012

Rio Grande Resources Corporation
PO Box 1150
Grants, NM 87020

Workorder No.: C12040804 Quote ID: C3778 - Mt Taylor Mine Closure Plan

Project Name: Mt. Taylor Mine Closure Plan

Energy Laboratories, Inc. Casper WY received the following 37 samples for Rio Grande Resources Corporation on 4/13/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12040804-001	S1-01-01	04/10/12 10:45	04/13/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12040804-002	S1-01-02	04/10/12 10:50	04/13/12	Sediment	Same As Above
C12040804-003	S1-01-03	04/10/12 11:00	04/13/12	Sediment	Same As Above
C12040804-004	S1-02-01	04/10/12 11:40	04/13/12	Sediment	Same As Above
C12040804-005	S1-02-02	04/10/12 11:43	04/13/12	Sediment	Same As Above
C12040804-006	S1-02-03	04/10/12 11:45	04/13/12	Sediment	Same As Above
C12040804-007	SA-01-01	04/10/12 11:30	04/13/12	Sediment	Same As Above
C12040804-008	SA-01-02	04/10/12 11:35	04/13/12	Sediment	Same As Above
C12040804-009	SA-01-03	04/10/12 11:45	04/13/12	Sediment	Same As Above
C12040804-010	SA-02-01	04/10/12 11:48	04/13/12	Sediment	Same As Above
C12040804-011	SA-02-02	04/10/12 11:48	04/13/12	Sediment	Same As Above
C12040804-012	SA-02-03	04/10/12 11:48	04/13/12	Sediment	Same As Above
C12040804-013	S8-01-01	04/10/12 13:00	04/13/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability E300.0 Anions Digestion, Total Metals Digestion For RadioChemistry DI Water Soil Extract Radium 226 Radium 228 SPLP Extraction, Regular
C12040804-014	S8-01-02	04/10/12 13:09	04/13/12	Sediment	Same As Above
C12040804-015	S8-01-03	04/10/12 13:09	04/13/12	Sediment	Same As Above
C12040804-016	S8-02-01	04/10/12 13:26	04/13/12	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

C12040804-017	S8-02-02	04/10/12 13:36	04/13/12	Sediment	Same As Above
C12040804-018	S8-02-03	04/10/12 13:36	04/13/12	Sediment	Same As Above
C12040804-019	S8-02-04	04/10/12 13:39	04/13/12	Sediment	Same As Above
C12040804-020	S5-01-01	04/10/12 14:05	04/13/12	Sediment	Same As Above
C12040804-021	S7-01-01	04/10/12 15:12	04/13/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12040804-022	S7-01-02	04/10/12 15:17	04/13/12	Sediment	Same As Above
C12040804-023	S7-01-03	04/10/12 15:22	04/13/12	Sediment	Same As Above
C12040804-024	S5-02-02	04/10/12 14:15	04/13/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability E300.0 Anions Digestion, Total Metals Digestion For RadioChemistry DI Water Soil Extract Radium 226 Radium 228 SPLP Extraction, Regular
C12040804-025	S5-02-03	04/10/12 14:20	04/13/12	Sediment	Same As Above
C12040804-026	S5-02-01	04/10/12 14:30	04/13/12	Sediment	Same As Above
C12040804-027	S5-01-02	04/10/12 14:09	04/13/12	Sediment	Same As Above
C12040804-028	S3-01-01	04/10/12 9:15	04/13/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12040804-029	S3-01-02	04/10/12 8:50	04/13/12	Sediment	Same As Above
C12040804-030	S3-01-03	04/10/12 9:40	04/13/12	Sediment	Same As Above
C12040804-031	S3-02-01	04/10/12 10:22	04/13/12	Sediment	Same As Above
C12040804-032	S3-02-02	04/10/12 10:30	04/13/12	Sediment	Same As Above
C12040804-033	S3-02-03	04/10/12 10:30	04/13/12	Sediment	Same As Above
C12040804-034	S7-02-01	04/10/12 15:45	04/13/12	Sediment	Same As Above
C12040804-035	S7-02-02	04/10/12 15:50	04/13/12	Sediment	Same As Above
C12040804-036	S7-02-03	04/10/12 15:55	04/13/12	Sediment	Same As Above
C12040804-037	S3-01-04	04/10/12 9:46	04/13/12	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Sample Delivery Group: C12040804

Revised Date: 07/05/12
Report Date: 06/13/12

CASE NARRATIVE

REVISED/SUPPLEMENTAL REPORT
The attached analytical report has been revised from a previously submitted report due to the request by the client for the analysis of Radium 226 and Radium 228 on the Sediment on all samples and Chloride and Sulfate on the Sediment on samples -013 through -020 and -024 through -027. The data presented here is from that analysis.

PREP COMMENTS
The prep hold time for Mercury analysis was exceeded by up to 10.2 days.
The prep hold time for Chloride and Sulfate analysis was exceeded by 38.8 days.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Virginia: 00057; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-001	**Collection Date:**	04/10/12 10:45
Client Sample ID:	S1-01-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.014	mg/L		0.001		SW6020	04/20/12 13:36 / smm
Barium	0.28	mg/L		0.05		SW6020	04/20/12 13:36 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:36 / smm
Chromium	0.014	mg/L	B	0.005		SW6020	04/20/12 13:36 / smm
Lead	0.014	mg/L		0.001		SW6020	04/20/12 13:36 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 07:52 / rdw
Selenium	0.26	mg/L		0.001		SW6020	04/20/12 13:36 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:36 / smm
Uranium	2.2	mg/L	D	0.0006		SW6020	04/20/12 13:36 / smm
RADIONUCLIDES							
Radium 226	124	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	1	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	1.8	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-002	**Collection Date:**	04/10/12 10:50
Client Sample ID:	S1-01-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.048	mg/L		0.001		SW6020	04/20/12 12:57 / smm
Barium	3.8	mg/L		0.05		SW6020	04/20/12 12:57 / smm
Cadmium	0.001	mg/L		0.001		SW6020	04/20/12 12:57 / smm
Chromium	0.040	mg/L	B	0.005		SW6020	04/20/12 12:57 / smm
Lead	0.078	mg/L		0.001		SW6020	04/20/12 12:57 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 07:56 / rdw
Selenium	0.49	mg/L		0.001		SW6020	04/20/12 12:57 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 12:57 / smm
Uranium	5.3	mg/L	D	0.0006		SW6020	04/20/12 12:57 / smm
RADIONUCLIDES							
Radium 226	113	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	0.9	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	1.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation		**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan		**Report Date:**	06/13/12
Lab ID:	C12040804-003		**Collection Date:**	04/10/12 11:00
Client Sample ID:	S1-01-03		**DateReceived:**	04/13/12
			Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.010	mg/L		0.001		SW6020	04/20/12 13:14 / smm
Barium	0.34	mg/L		0.05		SW6020	04/20/12 13:14 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:14 / smm
Chromium	0.027	mg/L	B	0.005		SW6020	04/20/12 13:14 / smm
Lead	0.023	mg/L		0.001		SW6020	04/20/12 13:14 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 07:57 / rdw
Selenium	0.14	mg/L		0.001		SW6020	04/20/12 13:14 / smm
Silver	0.002	mg/L	D	0.002		SW6020	04/20/12 13:14 / smm
Uranium	0.094	mg/L	D	0.0006		SW6020	04/20/12 13:14 / smm
RADIONUCLIDES							
Radium 226	12.6	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	0.3	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	0.8	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-004	**Collection Date:**	04/10/12 11:40
Client Sample ID:	S1-02-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.023	mg/L		0.001		SW6020	04/20/12 13:17 / smm
Barium	0.39	mg/L		0.05		SW6020	04/20/12 13:17 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:17 / smm
Chromium	0.014	mg/L	B	0.005		SW6020	04/20/12 13:17 / smm
Lead	0.021	mg/L		0.001		SW6020	04/20/12 13:17 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 07:58 / rdw
Selenium	0.19	mg/L		0.001		SW6020	04/20/12 13:17 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:17 / smm
Uranium	1.5	mg/L	D	0.0006		SW6020	04/20/12 13:17 / smm
RADIONUCLIDES							
Radium 226	224	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	1.3	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	2.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-005
Client Sample ID: S1-02-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:43
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	04/20/12 13:19 / smm
Barium	ND	mg/L		0.05		SW6020	04/20/12 13:19 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:19 / smm
Chromium	0.007	mg/L	B	0.005		SW6020	04/20/12 13:19 / smm
Lead	0.004	mg/L		0.001		SW6020	04/20/12 13:19 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:00 / rdw
Selenium	0.11	mg/L		0.001		SW6020	04/20/12 13:19 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:19 / smm
Uranium	0.24	mg/L	D	0.0006		SW6020	04/20/12 13:19 / smm
RADIONUCLIDES							
Radium 226	0.9	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	0.09	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	0.8	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-006	**Collection Date:**	04/10/12 11:45
Client Sample ID:	S1-02-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	04/20/12 13:22 / smm
Barium	ND	mg/L		0.05		SW6020	04/20/12 13:22 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:22 / smm
Chromium	0.006	mg/L	B	0.005		SW6020	04/20/12 13:22 / smm
Lead	0.003	mg/L		0.001		SW6020	04/20/12 13:22 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:20 / rdw
Selenium	0.012	mg/L		0.001		SW6020	04/20/12 13:22 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:22 / smm
Uranium	0.050	mg/L	D	0.0006		SW6020	04/20/12 13:22 / smm
RADIONUCLIDES							
Radium 226	0.6	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-007	**Collection Date:**	04/10/12 11:30
Client Sample ID:	SA-01-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.036	mg/L		0.001		SW6020	04/20/12 13:25 / smm
Barium	0.31	mg/L		0.05		SW6020	04/20/12 13:25 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:25 / smm
Chromium	0.014	mg/L	B	0.005		SW6020	04/20/12 13:25 / smm
Lead	0.021	mg/L		0.001		SW6020	04/20/12 13:25 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:22 / rdw
Selenium	0.046	mg/L		0.001		SW6020	04/20/12 13:25 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:25 / smm
Uranium	0.44	mg/L	D	0.0006		SW6020	04/20/12 13:25 / smm
RADIONUCLIDES							
Radium 226	152	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 precision (±)	1.1	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/02/12 22:18 / plj
Radium 228	1.8	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-008	**Collection Date:**	04/10/12 11:35
Client Sample ID:	SA-01-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/20/12 13:28 / smm
Barium	0.11	mg/L		0.05		SW6020	04/20/12 13:28 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:28 / smm
Chromium	0.010	mg/L	B	0.005		SW6020	04/20/12 13:28 / smm
Lead	0.009	mg/L		0.001		SW6020	04/20/12 13:28 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:23 / rdw
Selenium	0.051	mg/L		0.001		SW6020	04/20/12 13:28 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:28 / smm
Uranium	0.45	mg/L	D	0.0006		SW6020	04/20/12 13:28 / smm
RADIONUCLIDES							
Radium 226	8.7	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.4	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.7	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-009
Client Sample ID: SA-01-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:45
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	04/20/12 13:31 / smm
Barium	ND	mg/L		0.05		SW6020	04/20/12 13:31 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:31 / smm
Chromium	0.005	mg/L	B	0.005		SW6020	04/20/12 13:31 / smm
Lead	0.003	mg/L		0.001		SW6020	04/20/12 13:31 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:24 / rdw
Selenium	0.095	mg/L		0.001		SW6020	04/20/12 13:31 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:31 / smm
Uranium	0.030	mg/L	D	0.0006		SW6020	04/20/12 13:31 / smm
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-010	**Collection Date:**	04/10/12 11:48
Client Sample ID:	SA-02-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.025	mg/L		0.001		SW6020	04/20/12 13:33 / smm
Barium	0.25	mg/L		0.05		SW6020	04/20/12 13:33 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 13:33 / smm
Chromium	0.011	mg/L	B	0.005		SW6020	04/20/12 13:33 / smm
Lead	0.010	mg/L		0.001		SW6020	04/20/12 13:33 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:26 / rdw
Selenium	0.014	mg/L		0.001		SW6020	04/20/12 13:33 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 13:33 / smm
Uranium	0.37	mg/L	D	0.0006		SW6020	04/20/12 13:33 / smm
RADIONUCLIDES							
Radium 226	275	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	2.0	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	3.5	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-011	**Collection Date:**	04/10/12 11:48
Client Sample ID:	SA-02-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/20/12 14:40 / smm
Barium	0.15	mg/L		0.05		SW6020	04/20/12 14:40 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:40 / smm
Chromium	0.013	mg/L	B	0.005		SW6020	04/20/12 14:40 / smm
Lead	0.010	mg/L		0.001		SW6020	04/20/12 14:40 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:31 / rdw
Selenium	0.003	mg/L		0.001		SW6020	04/20/12 14:40 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:40 / smm
Uranium	0.11	mg/L	D	0.0006		SW6020	04/20/12 14:40 / smm
RADIONUCLIDES							
Radium 226	5.4	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.3	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.7	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-012	**Collection Date:**	04/10/12 11:48
Client Sample ID:	SA-02-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/20/12 14:06 / smm
Barium	0.09	mg/L		0.05		SW6020	04/20/12 14:06 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:06 / smm
Chromium	0.013	mg/L	B	0.005		SW6020	04/20/12 14:06 / smm
Lead	0.006	mg/L		0.001		SW6020	04/20/12 14:06 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:37 / rdw
Selenium	0.003	mg/L		0.001		SW6020	04/20/12 14:06 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:06 / smm
Uranium	0.088	mg/L	D	0.0006		SW6020	04/20/12 14:06 / smm
RADIONUCLIDES							
Radium 226	29.3	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.7	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	1.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-013
Client Sample ID: S8-01-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:00
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	29.3	mg/kg		1.00		E300.0	06/27/12 21:54 / ljl
Chloride, 1:1	0.827	meq/L		0.0282		E300.0	06/27/12 21:54 / ljl
Sulfate	35.3	mg/kg		1.00		E300.0	06/27/12 21:54 / ljl
Sulfate, 1:1	0.735	meq/L		0.0208		E300.0	06/27/12 21:54 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.008	mg/L		0.001		SW6020	04/20/12 14:12 / smm
Barium	0.91	mg/L		0.05		SW6020	04/20/12 14:12 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:12 / smm
Chromium	0.012	mg/L	B	0.005		SW6020	04/20/12 14:12 / smm
Lead	0.009	mg/L		0.001		SW6020	04/20/12 14:12 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:39 / rdw
Selenium	0.007	mg/L		0.001		SW6020	04/20/12 14:12 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:12 / smm
Uranium	0.016	mg/L	D	0.0006		SW6020	04/20/12 14:12 / smm
RADIONUCLIDES							
Radium 226	27.2	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.6	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.04	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-014	**Collection Date:**	04/10/12 13:09
Client Sample ID:	S8-01-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	38.9	mg/kg		1.00		E300.0	06/27/12 22:10 / ljl
Chloride, 1:1	1.10	meq/L		0.0282		E300.0	06/27/12 22:10 / ljl
Sulfate	2750	mg/kg		1.00		E300.0	06/28/12 13:59 / ljl
Sulfate, 1:1	57.2	meq/L		0.0208		E300.0	06/28/12 13:59 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	04/20/12 14:26 / smm
Barium	0.09	mg/L		0.05		SW6020	04/20/12 14:26 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:26 / smm
Chromium	0.006	mg/L	B	0.005		SW6020	04/20/12 14:26 / smm
Lead	ND	mg/L		0.001		SW6020	04/20/12 14:26 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:40 / rdw
Selenium	0.30	mg/L		0.001		SW6020	04/20/12 14:26 / smm
Silver	0.002	mg/L	D	0.002		SW6020	04/20/12 14:26 / smm
Uranium	3.8	mg/L	D	0.0006		SW6020	04/20/12 14:26 / smm
RADIONUCLIDES							
Radium 226	2.5	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-015	**Collection Date:**	04/10/12 13:09
Client Sample ID:	S8-01-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	12.0	mg/kg		1.00		E300.0	06/27/12 22:27 / ljl
Chloride, 1:1	0.340	meq/L		0.0282		E300.0	06/27/12 22:27 / ljl
Sulfate	197	mg/kg		1.00		E300.0	06/27/12 22:27 / ljl
Sulfate, 1:1	4.11	meq/L		0.0208		E300.0	06/27/12 22:27 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.032	mg/L		0.001		SW6020	04/20/12 14:29 / smm
Barium	0.16	mg/L		0.05		SW6020	04/20/12 14:29 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:29 / smm
Chromium	0.010	mg/L	B	0.005		SW6020	04/20/12 14:29 / smm
Lead	0.006	mg/L		0.001		SW6020	04/20/12 14:29 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:41 / rdw
Selenium	0.036	mg/L		0.001		SW6020	04/20/12 14:29 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:29 / smm
Uranium	0.022	mg/L	D	0.0006		SW6020	04/20/12 14:29 / smm
RADIONUCLIDES							
Radium 226	24.5	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.6	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.5	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-016	**Collection Date:**	04/10/12 13:26
Client Sample ID:	S8-02-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	58.6	mg/kg		1.00		E300.0	06/27/12 22:43 / ljl
Chloride, 1:1	1.65	meq/L		0.0282		E300.0	06/27/12 22:43 / ljl
Sulfate	1660	mg/kg		1.00		E300.0	06/27/12 22:43 / ljl
Sulfate, 1:1	34.5	meq/L		0.0208		E300.0	06/27/12 22:43 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	04/20/12 14:32 / smm
Barium	0.12	mg/L		0.05		SW6020	04/20/12 14:32 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:32 / smm
Chromium	0.009	mg/L	B	0.005		SW6020	04/20/12 14:32 / smm
Lead	0.005	mg/L		0.001		SW6020	04/20/12 14:32 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:43 / rdw
Selenium	0.22	mg/L		0.001		SW6020	04/20/12 14:32 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:32 / smm
Uranium	0.12	mg/L	D	0.0006		SW6020	04/20/12 14:32 / smm
RADIONUCLIDES							
Radium 226	10.6	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.4	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	0.1	pCi/g-dry	U			RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-017	**Collection Date:**	04/10/12 13:36
Client Sample ID:	S8-02-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	44.6	mg/kg		1.00		E300.0	06/27/12 23:00 / ljl
Chloride, 1:1	1.26	meq/L		0.0282		E300.0	06/27/12 23:00 / ljl
Sulfate	2480	mg/kg		1.00		E300.0	06/27/12 23:00 / ljl
Sulfate, 1:1	51.7	meq/L		0.0208		E300.0	06/27/12 23:00 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/20/12 14:34 / smm
Barium	0.06	mg/L		0.05		SW6020	04/20/12 14:34 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:34 / smm
Chromium	0.006	mg/L	B	0.005		SW6020	04/20/12 14:34 / smm
Lead	ND	mg/L		0.001		SW6020	04/20/12 14:34 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:44 / rdw
Selenium	1.0	mg/L		0.001		SW6020	04/20/12 14:34 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:34 / smm
Uranium	6.7	mg/L	D	0.0006		SW6020	04/20/12 14:34 / smm
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 226 MDC	0.05	pCi/g-dry				E903.0	07/02/12 23:06 / plj
Radium 228	1.5	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-018	**Collection Date:**	04/10/12 13:36
Client Sample ID:	S8-02-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	9.13	mg/kg		1.00		E300.0	06/27/12 23:49 / ljl
Chloride, 1:1	0.258	meq/L		0.0282		E300.0	06/27/12 23:49 / ljl
Sulfate	536	mg/kg		1.00		E300.0	06/27/12 23:49 / ljl
Sulfate, 1:1	11.2	meq/L		0.0208		E300.0	06/27/12 23:49 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.011	mg/L		0.001		SW6020	04/20/12 14:37 / smm
Barium	0.98	mg/L		0.05		SW6020	04/20/12 14:37 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/20/12 14:37 / smm
Chromium	0.028	mg/L	B	0.005		SW6020	04/20/12 14:37 / smm
Lead	0.013	mg/L		0.001		SW6020	04/20/12 14:37 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:45 / rdw
Selenium	0.063	mg/L		0.001		SW6020	04/20/12 14:37 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/20/12 14:37 / smm
Uranium	0.19	mg/L	D	0.0006		SW6020	04/20/12 14:37 / smm
RADIONUCLIDES							
Radium 226	14.0	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 226 precision (±)	0.3	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 13:54 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 13:54 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 13:54 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-019	**Collection Date:**	04/10/12 13:39
Client Sample ID:	S8-02-04	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	3.01	mg/kg		1.00		E300.0	06/28/12 14:14 / ljl
Chloride, 1:1	0.0850	meq/L		0.0282		E300.0	06/28/12 14:14 / ljl
Sulfate	31.2	mg/kg		1.00		E300.0	06/28/12 14:14 / ljl
Sulfate, 1:1	0.650	meq/L		0.0208		E300.0	06/28/12 14:14 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	04/26/12 19:47 / smm
Barium	0.15	mg/L		0.05		SW6020	04/26/12 19:47 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:47 / smm
Chromium	0.011	mg/L	B	0.005		SW6020	04/26/12 19:47 / smm
Lead	0.005	mg/L		0.001		SW6020	04/26/12 19:47 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:53 / rdw
Selenium	ND	mg/L		0.001		SW6020	04/26/12 19:47 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:47 / smm
Uranium	0.0056	mg/L	D	0.0006		SW6020	05/02/12 14:20 / smm
RADIONUCLIDES							
Radium 226	2.0	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/03/12 01:58 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 12:20 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 12:20 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-020
Client Sample ID: S5-01-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:05
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	9.64	mg/kg		1.00		E300.0	06/28/12 00:22 / ljl
Chloride, 1:1	0.272	meq/L		0.0282		E300.0	06/28/12 00:22 / ljl
Sulfate	113	mg/kg		1.00		E300.0	06/28/12 00:22 / ljl
Sulfate, 1:1	2.35	meq/L		0.0208		E300.0	06/28/12 00:22 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.009	mg/L		0.001		SW6020	04/26/12 19:13 / smm
Barium	5.5	mg/L		0.05		SW6020	04/26/12 19:13 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:13 / smm
Chromium	0.027	mg/L	B	0.005		SW6020	04/26/12 19:13 / smm
Lead	0.028	mg/L		0.001		SW6020	04/26/12 19:13 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:57 / rdw
Selenium	0.010	mg/L		0.001		SW6020	04/26/12 19:13 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:13 / smm
Uranium	0.11	mg/L	D	0.0006		SW6020	05/02/12 14:00 / smm
RADIONUCLIDES							
Radium 226	11.3	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.3	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.3	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-021
Client Sample ID: S7-01-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:12
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	04/26/12 19:18 / smm
Barium	0.06	mg/L		0.05		SW6020	04/26/12 19:18 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:18 / smm
Chromium	0.005	mg/L	B	0.005		SW6020	04/26/12 19:18 / smm
Lead	ND	mg/L		0.001		SW6020	04/26/12 19:18 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 08:59 / rdw
Selenium	0.26	mg/L		0.001		SW6020	04/26/12 19:18 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:18 / smm
Uranium	0.37	mg/L	D	0.0006		SW6020	05/02/12 14:04 / smm
RADIONUCLIDES							
Radium 226	10.4	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.1	pCi/g-dry	U			RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-022
Client Sample ID: S7-01-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:17
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	04/26/12 19:21 / smm
Barium	0.06	mg/L		0.05		SW6020	04/26/12 19:21 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:21 / smm
Chromium	0.009	mg/L	B	0.005		SW6020	04/26/12 19:21 / smm
Lead	0.003	mg/L		0.001		SW6020	04/26/12 19:21 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:00 / rdw
Selenium	0.002	mg/L		0.001		SW6020	04/26/12 19:21 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:21 / smm
Uranium	0.0047	mg/L	D	0.0006		SW6020	05/02/12 14:12 / smm
RADIONUCLIDES							
Radium 226	1.1	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-023	**Collection Date:**	04/10/12 15:22
Client Sample ID:	S7-01-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	ND	mg/L		0.001		SW6020	05/01/12 16:45 / cp
Barium	0.05	mg/L		0.05		SW6020	05/01/12 16:45 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 16:45 / cp
Chromium	0.009	mg/L	B	0.005		SW6020	05/01/12 16:45 / cp
Lead	0.001	mg/L		0.001		SW6020	05/01/12 16:45 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:01 / rdw
Selenium	0.002	mg/L		0.001		SW6020	05/01/12 16:45 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 16:45 / cp
Uranium	0.0049	mg/L	D	0.0006		SW6020	05/01/12 16:45 / cp
RADIONUCLIDES							
Radium 226	1.5	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-024
Client Sample ID: S5-02-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:15
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	23.1	mg/kg		1.00		E300.0	06/28/12 00:38 / ljl
Chloride, 1:1	0.653	meq/L		0.0282		E300.0	06/28/12 00:38 / ljl
Sulfate	2530	mg/kg		1.00		E300.0	06/28/12 00:38 / ljl
Sulfate, 1:1	52.7	meq/L		0.0208		E300.0	06/28/12 00:38 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	ND	mg/L		0.001		SW6020	04/26/12 19:24 / smm
Barium	0.08	mg/L		0.05		SW6020	04/26/12 19:24 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:24 / smm
Chromium	0.005	mg/L	B	0.005		SW6020	04/26/12 19:24 / smm
Lead	ND	mg/L		0.001		SW6020	04/26/12 19:24 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:03 / rdw
Selenium	0.15	mg/L		0.001		SW6020	04/26/12 19:24 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:24 / smm
Uranium	1.1	mg/L	D	0.0006		SW6020	05/02/12 14:14 / smm
RADIONUCLIDES							
Radium 226	2.1	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-025	**Collection Date:**	04/10/12 14:20
Client Sample ID:	S5-02-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	5.10	mg/kg		1.00		E300.0	06/28/12 00:55 / ljl
Chloride, 1:1	0.144	meq/L		0.0282		E300.0	06/28/12 00:55 / ljl
Sulfate	279	mg/kg		1.00		E300.0	06/28/12 00:55 / ljl
Sulfate, 1:1	5.80	meq/L		0.0208		E300.0	06/28/12 00:55 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/26/12 19:38 / smm
Barium	0.62	mg/L		0.05		SW6020	04/26/12 19:38 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:38 / smm
Chromium	0.017	mg/L	B	0.005		SW6020	04/26/12 19:38 / smm
Lead	0.013	mg/L		0.001		SW6020	04/26/12 19:38 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:04 / rdw
Selenium	0.012	mg/L		0.001		SW6020	04/26/12 19:38 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:38 / smm
Uranium	0.011	mg/L	D	0.0006		SW6020	05/02/12 14:15 / smm
RADIONUCLIDES							
Radium 226	4.1	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.5	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-026
Client Sample ID: S5-02-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:30
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	17.2	mg/kg		1.00		E300.0	06/28/12 01:11 / ljl
Chloride, 1:1	0.485	meq/L		0.0282		E300.0	06/28/12 01:11 / ljl
Sulfate	2860	mg/kg		1.00		E300.0	06/28/12 01:11 / ljl
Sulfate, 1:1	59.6	meq/L		0.0208		E300.0	06/28/12 01:11 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	ND	mg/L		0.001		SW6020	04/26/12 19:41 / smm
Barium	0.10	mg/L		0.05		SW6020	04/26/12 19:41 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:41 / smm
Chromium	0.008	mg/L	B	0.005		SW6020	04/26/12 19:41 / smm
Lead	ND	mg/L		0.001		SW6020	04/26/12 19:41 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:08 / rdw
Selenium	0.40	mg/L		0.001		SW6020	04/26/12 19:41 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:41 / smm
Uranium	1.5	mg/L	D	0.0006		SW6020	05/02/12 14:17 / smm
RADIONUCLIDES							
Radium 226	0.8	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/02/12 23:59 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-027	**Collection Date:**	04/10/12 14:09
Client Sample ID:	S5-01-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	7.87	mg/kg		1.00		E300.0	06/28/12 01:44 / ljl
Chloride, 1:1	0.222	meq/L		0.0282		E300.0	06/28/12 01:44 / ljl
Sulfate	261	mg/kg		1.00		E300.0	06/28/12 01:44 / ljl
Sulfate, 1:1	5.43	meq/L		0.0208		E300.0	06/28/12 01:44 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	04/26/12 19:44 / smm
Barium	0.07	mg/L		0.05		SW6020	04/26/12 19:44 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/26/12 19:44 / smm
Chromium	0.012	mg/L	B	0.005		SW6020	04/26/12 19:44 / smm
Lead	0.005	mg/L		0.001		SW6020	04/26/12 19:44 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:09 / rdw
Selenium	0.004	mg/L		0.001		SW6020	04/26/12 19:44 / smm
Silver	ND	mg/L	D	0.002		SW6020	04/26/12 19:44 / smm
Uranium	0.0054	mg/L	D	0.0006		SW6020	05/02/12 14:19 / smm
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-028	**Collection Date:**	04/10/12 09:15
Client Sample ID:	S3-01-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.007	mg/L		0.001		SW6020	04/25/12 20:23 / smm
Barium	0.31	mg/L		0.05		SW6020	04/25/12 20:23 / smm
Cadmium	0.002	mg/L		0.001		SW6020	04/25/12 20:23 / smm
Chromium	ND	mg/L		0.005		SW6020	04/25/12 20:23 / smm
Lead	0.002	mg/L		0.001		SW6020	04/25/12 20:23 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:15 / rdw
Selenium	0.19	mg/L		0.001		SW6020	04/25/12 20:23 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 20:23 / smm
Uranium	9.7	mg/L	B	0.0003		SW6020	04/25/12 20:23 / smm
RADIONUCLIDES							
Radium 226	21.0	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.4	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	1.5	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-029	**Collection Date:**	04/10/12 08:50
Client Sample ID:	S3-01-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.014	mg/L		0.001		SW6020	04/25/12 20:37 / smm
Barium	2.3	mg/L		0.05		SW6020	04/25/12 20:37 / smm
Cadmium	0.001	mg/L		0.001		SW6020	04/25/12 20:37 / smm
Chromium	0.050	mg/L		0.005		SW6020	04/25/12 20:37 / smm
Lead	0.064	mg/L		0.001		SW6020	04/25/12 20:37 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:19 / rdw
Selenium	0.036	mg/L		0.001		SW6020	04/25/12 20:37 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 20:37 / smm
Uranium	5.7	mg/L	B	0.0003		SW6020	04/25/12 20:37 / smm
RADIONUCLIDES							
Radium 226	6.2	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.7	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-030
Client Sample ID: S3-01-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:40
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.005	mg/L		0.001		SW6020	04/25/12 20:41 / smm
Barium	0.14	mg/L		0.05		SW6020	04/25/12 20:41 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 20:41 / smm
Chromium	0.013	mg/L		0.005		SW6020	04/25/12 20:41 / smm
Lead	0.012	mg/L		0.001		SW6020	04/25/12 20:41 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:20 / rdw
Selenium	0.053	mg/L		0.001		SW6020	04/25/12 20:41 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 20:41 / smm
Uranium	0.47	mg/L	B	0.0003		SW6020	04/25/12 20:41 / smm
RADIONUCLIDES							
Radium 226	4.5	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.8	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-031
Client Sample ID: S3-02-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:22
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.018	mg/L		0.001		SW6020	04/25/12 21:04 / smm
Barium	6.6	mg/L		0.05		SW6020	04/25/12 21:04 / smm
Cadmium	0.002	mg/L		0.001		SW6020	04/25/12 21:04 / smm
Chromium	0.015	mg/L		0.005		SW6020	04/25/12 21:04 / smm
Lead	0.028	mg/L		0.001		SW6020	04/25/12 21:04 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:24 / rdw
Selenium	0.15	mg/L		0.001		SW6020	04/25/12 21:04 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:04 / smm
Uranium	7.8	mg/L	B	0.0003		SW6020	04/25/12 21:04 / smm
RADIONUCLIDES							
Radium 226	6.4	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	2.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-032
Client Sample ID: S3-02-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:30
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	04/25/12 21:08 / smm
Barium	ND	mg/L		0.05		SW6020	04/25/12 21:08 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:08 / smm
Chromium	0.009	mg/L		0.005		SW6020	04/25/12 21:08 / smm
Lead	0.001	mg/L		0.001		SW6020	04/25/12 21:08 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:25 / rdw
Selenium	0.023	mg/L		0.001		SW6020	04/25/12 21:08 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:08 / smm
Uranium	0.18	mg/L	B	0.0003		SW6020	04/25/12 21:08 / smm
RADIONUCLIDES							
Radium 226	3.0	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.7	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-033
Client Sample ID: S3-02-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:30
DateReceived: 04/13/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/25/12 21:13 / smm
Barium	0.27	mg/L		0.05		SW6020	04/25/12 21:13 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:13 / smm
Chromium	0.018	mg/L		0.005		SW6020	04/25/12 21:13 / smm
Lead	0.016	mg/L		0.001		SW6020	04/25/12 21:13 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:27 / rdw
Selenium	0.003	mg/L		0.001		SW6020	04/25/12 21:13 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:13 / smm
Uranium	0.022	mg/L	B	0.0003		SW6020	04/25/12 21:13 / smm
RADIONUCLIDES							
Radium 226	2.4	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-034	**Collection Date:**	04/10/12 15:45
Client Sample ID:	S7-02-01	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.013	mg/L		0.001		SW6020	04/25/12 21:17 / smm
Barium	0.76	mg/L		0.05		SW6020	04/25/12 21:17 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:17 / smm
Chromium	0.006	mg/L		0.005		SW6020	04/25/12 21:17 / smm
Lead	0.001	mg/L		0.001		SW6020	04/25/12 21:17 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:28 / rdw
Selenium	0.22	mg/L		0.001		SW6020	04/25/12 21:17 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:17 / smm
Uranium	0.18	mg/L	B	0.0003		SW6020	04/25/12 21:17 / smm
RADIONUCLIDES							
Radium 226	2.6	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.5	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-035	**Collection Date:**	04/10/12 15:50
Client Sample ID:	S7-02-02	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.007	mg/L		0.001		SW6020	04/25/12 21:22 / smm
Barium	0.31	mg/L		0.05		SW6020	04/25/12 21:22 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:22 / smm
Chromium	0.013	mg/L		0.005		SW6020	04/25/12 21:22 / smm
Lead	0.020	mg/L		0.001		SW6020	04/25/12 21:22 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:29 / rdw
Selenium	0.13	mg/L		0.001		SW6020	04/25/12 21:22 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:22 / smm
Uranium	0.014	mg/L	B	0.0003		SW6020	04/25/12 21:22 / smm
RADIONUCLIDES							
Radium 226	1.9	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.2	pCi/g-dry	U			RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-036	**Collection Date:**	04/10/12 15:55
Client Sample ID:	S7-02-03	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	04/25/12 21:26 / smm
Barium	0.16	mg/L		0.05		SW6020	04/25/12 21:26 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:26 / smm
Chromium	0.010	mg/L		0.005		SW6020	04/25/12 21:26 / smm
Lead	0.005	mg/L		0.001		SW6020	04/25/12 21:26 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:31 / rdw
Selenium	0.003	mg/L		0.001		SW6020	04/25/12 21:26 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:26 / smm
Uranium	0.0053	mg/L	B	0.0003		SW6020	04/25/12 21:26 / smm
RADIONUCLIDES							
Radium 226	1.1	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 precision (±)	0.09	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 01:40 / plj
Radium 228	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-037	**Collection Date:**	04/10/12 09:46
Client Sample ID:	S3-01-04	**DateReceived:**	04/13/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/18/12 08:51 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	04/25/12 21:31 / smm
Barium	0.07	mg/L		0.05		SW6020	04/25/12 21:31 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:31 / smm
Chromium	0.011	mg/L		0.005		SW6020	04/25/12 21:31 / smm
Lead	0.005	mg/L		0.001		SW6020	04/25/12 21:31 / smm
Mercury	ND	mg/L		0.002		SW7470A	05/19/12 09:32 / rdw
Selenium	0.032	mg/L		0.001		SW6020	04/25/12 21:31 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:31 / smm
Uranium	0.036	mg/L	B	0.0003		SW6020	04/25/12 21:31 / smm
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 228	0.7	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/05/12
Report Date: 06/13/12
Work Order: C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC2-C_120626A
Sample ID: ICV-062612-10	2	Initial Calibration Verification Standard								06/26/12 15:31
Chloride		9.60	mg/L	1.0	96	90	110			
Sulfate		38.7	mg/L	1.0	97	90	110			
Method: E300.0										Batch: 34002
Sample ID: MB-34002	2	Method Blank				Run: IC2-C_120626A				06/27/12 21:21
Chloride		ND	mg/kg	1.0						
Sulfate		0.0820	mg/kg	1.0						
Sample ID: LCS1-34002	2	Laboratory Control Sample				Run: IC2-C_120626A				06/27/12 21:37
Chloride		42.9	mg/kg	1.0	121	70	130			
Sulfate		1910	mg/kg	1.0	105	70	130			
Sample ID: C12040804-026CPDS	2	Post Digestion/Distillation Spike				Run: IC2-C_120626A				06/28/12 01:27
Chloride		487	mg/kg	1.0	94	80	120			
Sulfate		4670	mg/kg	1.0	90	80	120			
Sample ID: C12040804-027CDUP	2	Sample Duplicate				Run: IC2-C_120626A				06/28/12 02:00
Chloride		7.34	mg/kg	1.0				6.9	20	
Sulfate		251	mg/kg	1.0				3.8	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12
Report Date: 06/13/12
Work Order: C12040804

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: 34003
Sample ID: MB-34003	3	Method Blank				Run: BERTHOLD 770-1_120620B				07/02/12 22:18
Radium 226		0.003	pCi/g-dry							U
Radium 226 precision (±)		0.005	pCi/g-dry							
Radium 226 MDC		0.007	pCi/g-dry							
Sample ID: LCS-34003		Laboratory Control Sample				Run: BERTHOLD 770-1_120620B				07/02/12 22:18
Radium 226		2.4	pCi/g-dry		793	70	130			S
- LCS response is outside of the acceptance range for this analysis due to a very small amount of the precipitate from C12040804-001B being transferred to the planchet. Since the MB, MS, and MSD are acceptable the batch is approved.										
Sample ID: C12040804-019BMS		Sample Matrix Spike				Run: BERTHOLD 770-1_120620B				07/03/12 01:58
Radium 226		3.2	pCi/g-dry		83	70	130			
Sample ID: C12040804-019BMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_120620B				07/03/12 01:58
Radium 226		3.3	pCi/g-dry		90	70	130	2.6	19.7	
Method: E903.0										Batch: 34004
Sample ID: MB-34004	3	Method Blank				Run: BERTHOLD 770-2_120620A				07/02/12 23:59
Radium 226		0.1	pCi/g-dry							
Radium 226 precision (±)		0.03	pCi/g-dry							
Radium 226 MDC		0.02	pCi/g-dry							
Sample ID: LCS-34004		Laboratory Control Sample				Run: BERTHOLD 770-2_120620A				07/02/12 23:59
Radium 226		1.4	pCi/g-dry		87	70	130			
Sample ID: C12041044-003BMS		Sample Matrix Spike				Run: BERTHOLD 770-2_120620A				07/03/12 03:34
Radium 226		2.5	pCi/g-dry		104	70	130			
Sample ID: C12041044-003BMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_120620A				07/03/12 03:34
Radium 226		2.2	pCi/g-dry		87	70	130	12	20.8	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation

Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/05/12

Report Date: 06/13/12

Work Order: C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: 34003
Sample ID: LCS-34003		Laboratory Control Sample				Run: TENNELEC-3_120620A				06/25/12 12:20
Radium 228		1.5	pCi/g-dry		104	70	130			
Sample ID: MB-34003	3	Method Blank				Run: TENNELEC-3_120620A				06/25/12 12:20
Radium 228		-0.02	pCi/g-dry							U
Radium 228 precision (±)		0.2	pCi/g-dry							
Radium 228 MDC		0.3	pCi/g-dry							
Sample ID: C12040804-019BMS		Sample Matrix Spike				Run: TENNELEC-3_120620A				06/25/12 12:20
Radium 228		2.1	pCi/g-dry		109	70	130			
Sample ID: C12040804-019BMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_120620A				06/25/12 12:20
Radium 228		1.9	pCi/g-dry		94	70	130	10	33.9	
Method: RA-05										Batch: 34004
Sample ID: LCS-34004		Laboratory Control Sample				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.5	pCi/g-dry		104	70	130			
Sample ID: MB-34004	3	Method Blank				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		0.07	pCi/g-dry							U
Radium 228 precision (±)		0.2	pCi/g-dry							
Radium 228 MDC		0.3	pCi/g-dry							
Sample ID: C12041044-003BMS		Sample Matrix Spike				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.8	pCi/g-dry		93	70	130			
Sample ID: C12041044-003BMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.9	pCi/g-dry		101	70	130	6.0	33.5	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020							Analytical Run: ICPMS2-C_120420A			
Sample ID: ICV	8	Initial Calibration Verification Standard							04/20/12 12:15	
Arsenic		0.0502	mg/L	0.0010	100	90	110			
Barium		0.0500	mg/L	0.0010	100	90	110			
Cadmium		0.0501	mg/L	0.0010	100	90	110			
Chromium		0.0508	mg/L	0.0010	102	90	110			
Lead		0.0492	mg/L	0.0010	98	90	110			
Selenium		0.0513	mg/L	0.0010	103	90	110			
Silver		0.0206	mg/L	0.0010	103	90	110			
Uranium		0.0506	mg/L	0.00030	101	90	110			
Sample ID: ICSA	8	Interference Check Sample A							04/20/12 12:18	
Arsenic		2.10E-05	mg/L	0.0010						
Barium		2.84E-05	mg/L	0.0010						
Cadmium		4.02E-05	mg/L	0.0010						
Chromium		0.000116	mg/L	0.0010						
Lead		3.52E-05	mg/L	0.0010						
Selenium		-0.000115	mg/L	0.0010						
Silver		0.000711	mg/L	0.0010						
Uranium		8.01E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB							04/20/12 12:21	
Arsenic		0.0101	mg/L	0.0010	101	70	130			
Barium		1.24E-05	mg/L	0.0010						
Cadmium		0.0102	mg/L	0.0010	102	70	130			
Chromium		0.0102	mg/L	0.0010	102	70	130			
Lead		1.20E-05	mg/L	0.0010						
Selenium		5.51E-05	mg/L	0.0010						
Silver		0.0101	mg/L	0.0010	101	70	130			
Uranium		2.09E-05	mg/L	0.00030						
Method: SW6020									Batch: 33385	
Sample ID: MB-33385	8	Method Blank				Run: ICPMS2-C_120420A			04/20/12 12:46	
Arsenic		0.0007	mg/L	6E-05						
Barium		0.002	mg/L	3E-05						
Cadmium		ND	mg/L	1E-05						
Chromium		0.005	mg/L	4E-05						
Lead		0.0001	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Silver		0.001	mg/L	3E-05						
Uranium		5E-05	mg/L	1E-05						
Sample ID: LCS3-33385	8	Laboratory Control Sample				Run: ICPMS2-C_120420A			04/20/12 12:49	
Arsenic		0.47	mg/L	0.0010	95	80	120			
Barium		0.50	mg/L	0.050	99	80	120			
Cadmium		0.24	mg/L	0.0010	98	80	120			
Chromium		0.49	mg/L	0.0050	98	80	120			
Lead		0.51	mg/L	0.0010	102	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33385
Sample ID: LCS3-33385	8	Laboratory Control Sample				Run: ICPMS2-C_120420A				04/20/12 12:49
Selenium		0.46	mg/L	0.0010	91	80	120			
Silver		0.052	mg/L	0.0020	101	80	120			
Uranium		0.52	mg/L	0.00060	105	80	120			
Sample ID: LCSD3-33385	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120420A				04/20/12 12:52
Arsenic		0.48	mg/L	0.0010	96	80	120	1.3	20	
Barium		0.50	mg/L	0.050	100	80	120	1.0	20	
Cadmium		0.25	mg/L	0.0010	98	80	120	0.7	20	
Chromium		0.50	mg/L	0.0050	98	80	120	0.4	20	
Lead		0.52	mg/L	0.0010	104	80	120	1.2	20	
Selenium		0.46	mg/L	0.0010	92	80	120	1.2	20	
Silver		0.053	mg/L	0.0020	105	80	120	3.3	20	
Uranium		0.53	mg/L	0.00060	106	80	120	0.9	20	
Sample ID: C12040804-002ADIL	8	Serial Dilution				Run: ICPMS2-C_120420A				04/20/12 13:00
Arsenic		0.052	mg/L	0.0050		0	0	8.3	20	
Barium		4.0	mg/L	0.050		0	0	5.3	20	
Cadmium		0.0015	mg/L	0.0050		0	0		20	N
Chromium		0.044	mg/L	0.0050		0	0	9.3	20	
Lead		0.080	mg/L	0.0050		0	0	1.4	20	
Selenium		0.57	mg/L	0.0050		0	0	14	20	
Silver		ND	mg/L	0.010		0	0		20	
Uranium		5.3	mg/L	0.0030		0	0	1.4	20	
Sample ID: C12040804-001AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120420A				04/20/12 13:50
Arsenic		0.49	mg/L	0.0010	96	75	125			
Barium		1.8	mg/L	0.050	303	75	125			S
Cadmium		0.25	mg/L	0.0010	99	75	125			
Chromium		0.49	mg/L	0.0050	96	75	125			
Lead		0.57	mg/L	0.0010	111	75	125			
Selenium		0.71	mg/L	0.0010	90	75	125			
Silver		0.054	mg/L	0.0020	22	75	125			S
Uranium		4.5	mg/L	0.00060		75	125			A
Method: SW6020										Batch: 33386
Sample ID: MB-33386	8	Method Blank				Run: ICPMS2-C_120420A				04/20/12 13:56
Arsenic		0.0006	mg/L	6E-05						
Barium		0.003	mg/L	3E-05						
Cadmium		2E-05	mg/L	1E-05						
Chromium		0.006	mg/L	4E-05						
Lead		0.0001	mg/L	3E-05						
Selenium		0.0002	mg/L	0.0002						
Silver		0.0009	mg/L	3E-05						
Uranium		0.0004	mg/L	1E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33386
Sample ID: LCS3-33386	8	Laboratory Control Sample				Run: ICPMS2-C_120420A				04/20/12 13:58
Arsenic		0.49	mg/L	0.0010	98	80	120			
Barium		0.51	mg/L	0.050	101	80	120			
Cadmium		0.25	mg/L	0.0010	100	80	120			
Chromium		0.50	mg/L	0.0050	100	80	120			
Lead		0.52	mg/L	0.0010	105	80	120			
Selenium		0.48	mg/L	0.0010	95	80	120			
Silver		0.054	mg/L	0.0020	105	80	120			
Uranium		0.53	mg/L	0.00060	106	80	120			
Sample ID: LCSD3-33386	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120420A				04/20/12 14:01
Arsenic		0.49	mg/L	0.0010	97	80	120	0.2	20	
Barium		0.51	mg/L	0.050	102	80	120	0.4	20	
Cadmium		0.25	mg/L	0.0010	100	80	120	0.1	20	
Chromium		0.50	mg/L	0.0050	100	80	120	0.0	20	
Lead		0.53	mg/L	0.0010	105	80	120	0.6	20	
Selenium		0.48	mg/L	0.0010	95	80	120	0.2	20	
Silver		0.055	mg/L	0.0020	107	80	120	2.1	20	
Uranium		0.54	mg/L	0.00060	107	80	120	0.9	20	
Sample ID: C12040804-012ADIL	8	Serial Dilution				Run: ICPMS2-C_120420A				04/20/12 14:09
Arsenic		0.0075	mg/L	0.0050		0	0		20	N
Barium		0.094	mg/L	0.050		0	0	4.2	20	
Cadmium		0.00049	mg/L	0.0050		0	0		20	N
Chromium		0.013	mg/L	0.0050		0	0	4.1	20	
Lead		0.0069	mg/L	0.0050		0	0	9.6	20	
Selenium		0.0044	mg/L	0.0050		0	0		20	N
Silver		ND	mg/L	0.010		0	0		20	
Uranium		0.086	mg/L	0.0030		0	0	1.5	20	
Sample ID: C12040804-011AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120420A				04/20/12 14:43
Arsenic		0.49	mg/L	0.0010	98	75	125			
Barium		0.61	mg/L	0.050	92	75	125			
Cadmium		0.25	mg/L	0.0010	101	75	125			
Chromium		0.49	mg/L	0.0050	95	75	125			
Lead		0.53	mg/L	0.0010	104	75	125			
Selenium		0.48	mg/L	0.0010	96	75	125			
Silver		0.053	mg/L	0.0020	21	75	125			S
Uranium		0.62	mg/L	0.00060	100	75	125			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_120426A
Sample ID: ICV	7	Initial Calibration Verification Standard								04/26/12 16:00
Arsenic		0.0480	mg/L	0.0010	96	90	110			
Barium		0.0492	mg/L	0.0010	98	90	110			
Cadmium		0.0490	mg/L	0.0010	98	90	110			
Chromium		0.0481	mg/L	0.0010	96	90	110			
Lead		0.0491	mg/L	0.0010	98	90	110			
Selenium		0.0483	mg/L	0.0010	97	90	110			
Silver		0.0200	mg/L	0.0010	100	90	110			
Sample ID: ICSA	7	Interference Check Sample A								04/26/12 16:03
Arsenic		7.41E-05	mg/L	0.0010						
Barium		5.47E-05	mg/L	0.0010						
Cadmium		4.03E-05	mg/L	0.0010						
Chromium		7.06E-05	mg/L	0.0010						
Lead		4.98E-05	mg/L	0.0010						
Selenium		0.000241	mg/L	0.0010						
Silver		0.000479	mg/L	0.0010						
Sample ID: ICSAB	7	Interference Check Sample AB								04/26/12 16:06
Arsenic		0.0107	mg/L	0.0010	107	70	130			
Barium		2.06E-05	mg/L	0.0010						
Cadmium		0.0108	mg/L	0.0010	107	70	130			
Chromium		0.0106	mg/L	0.0010	106	70	130			
Lead		1.68E-05	mg/L	0.0010						
Selenium		0.000166	mg/L	0.0010						
Silver		0.0101	mg/L	0.0010	101	70	130			
Method: SW6020										Batch: 33455
Sample ID: MB-33455	7	Method Blank				Run: ICPMS2-C_120426A				04/26/12 19:02
Arsenic		0.0002	mg/L	6E-05						
Barium		0.007	mg/L	3E-05						
Cadmium		2E-05	mg/L	1E-05						
Chromium		0.005	mg/L	4E-05						
Lead		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Silver		0.001	mg/L	3E-05						
Sample ID: LCS3-33455	7	Laboratory Control Sample				Run: ICPMS2-C_120426A				04/26/12 19:05
Arsenic		0.46	mg/L	0.0010	91	80	120			
Barium		0.50	mg/L	0.050	99	80	120			
Cadmium		0.23	mg/L	0.0010	92	80	120			
Chromium		0.49	mg/L	0.0050	96	80	120			
Lead		0.51	mg/L	0.0010	102	80	120			
Selenium		0.42	mg/L	0.0010	83	80	120			
Silver		0.050	mg/L	0.0020	97	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12
Client: Rio Grande Resources Corporation **Report Date:** 06/13/12
Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33455
Sample ID: LCSD3-33455	7	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120426A				04/26/12 19:07
Arsenic		0.44	mg/L	0.0010	89	80	120	2.9	20	
Barium		0.49	mg/L	0.050	97	80	120	2.8	20	
Cadmium		0.23	mg/L	0.0010	90	80	120	1.6	20	
Chromium		0.47	mg/L	0.0050	94	80	120	2.4	20	
Lead		0.49	mg/L	0.0010	98	80	120	3.6	20	
Selenium		0.40	mg/L	0.0010	80	80	120	3.7	20	
Silver		0.050	mg/L	0.0020	96	80	120	1.0	20	
Sample ID: C12040804-020ADIL	7	Serial Dilution				Run: ICPMS2-C_120426A				04/26/12 19:16
Arsenic		0.0094	mg/L	0.0050		0	0	7.4	20	
Barium		5.7	mg/L	0.050		0	0	4.0	20	
Cadmium		0.00065	mg/L	0.0050		0	0		20	N
Chromium		0.030	mg/L	0.0050		0	0	11	20	
Lead		0.027	mg/L	0.0050		0	0	1.5	20	
Selenium		0.011	mg/L	0.0050		0	0		20	N
Silver		ND	mg/L	0.010		0	0		20	
Sample ID: C12040804-019AMS3	7	Sample Matrix Spike				Run: ICPMS2-C_120426A				04/26/12 19:49
Arsenic		0.45	mg/L	0.0010	89	75	125			
Barium		0.65	mg/L	0.050	100	75	125			
Cadmium		0.23	mg/L	0.0010	93	75	125			
Chromium		0.45	mg/L	0.0050	87	75	125			
Lead		0.51	mg/L	0.0010	102	75	125			
Selenium		0.41	mg/L	0.0010	81	75	125			
Silver		0.049	mg/L	0.0020	20	75	125			S

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_120501A
Sample ID: ICV	8	Initial Calibration Verification Standard								05/01/12 13:14
Arsenic		0.0490	mg/L	0.0010	98	90	110			
Barium		0.0486	mg/L	0.0010	97	90	110			
Cadmium		0.0491	mg/L	0.0010	98	90	110			
Chromium		0.0501	mg/L	0.0010	100	90	110			
Lead		0.0483	mg/L	0.0010	97	90	110			
Selenium		0.0501	mg/L	0.0010	100	90	110			
Silver		0.0207	mg/L	0.0010	103	90	110			
Uranium		0.0485	mg/L	0.00030	97	90	110			
Sample ID: ICSA	8	Interference Check Sample A								05/01/12 13:16
Arsenic		0.0103	mg/L	0.0010						
Barium		3.16E-05	mg/L	0.0010						
Cadmium		0.0104	mg/L	0.0010						
Chromium		0.0104	mg/L	0.0010						
Lead		3.39E-05	mg/L	0.0010						
Selenium		8.30E-06	mg/L	0.0010						
Silver		0.0108	mg/L	0.0010						
Uranium		6.80E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								05/01/12 13:19
Arsenic		0.0103	mg/L	0.0010	103	70	130			
Barium		4.64E-05	mg/L	0.0010						
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Chromium		0.0105	mg/L	0.0010	105	70	130			
Lead		3.92E-05	mg/L	0.0010						
Selenium		1.39E-05	mg/L	0.0010						
Silver		0.0107	mg/L	0.0010	107	70	130			
Uranium		1.47E-05	mg/L	0.00030						
Method: SW6020										Batch: 33487
Sample ID: MB-33487	8	Method Blank				Run: ICPMS2-C_120501A				05/01/12 16:23
Arsenic		0.0005	mg/L	6E-05						
Barium		0.008	mg/L	3E-05						
Cadmium		0.0001	mg/L	1E-05						
Chromium		0.006	mg/L	4E-05						
Lead		0.0006	mg/L	3E-05						
Selenium		0.0003	mg/L	0.0002						
Silver		0.001	mg/L	3E-05						
Uranium		0.002	mg/L	1E-05						
Sample ID: LCS3-33487	8	Laboratory Control Sample				Run: ICPMS2-C_120501A				05/01/12 16:37
Arsenic		0.48	mg/L	0.0010	95	80	120			
Barium		0.52	mg/L	0.050	102	80	120			
Cadmium		0.25	mg/L	0.0010	99	80	120			
Chromium		0.50	mg/L	0.0050	98	80	120			
Lead		0.52	mg/L	0.0010	103	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33487
Sample ID: LCS3-33487	8	Laboratory Control Sample				Run: ICPMS2-C_120501A				05/01/12 16:37
Selenium		0.45	mg/L	0.0010	90	80	120			
Silver		0.058	mg/L	0.0020	113	80	120			
Uranium		0.52	mg/L	0.00060	105	80	120			
Sample ID: LCSD3-33487	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120501A				05/01/12 16:40
Arsenic		0.47	mg/L	0.0010	93	80	120	2.4	20	
Barium		0.52	mg/L	0.050	102	80	120	0.7	20	
Cadmium		0.24	mg/L	0.0010	97	80	120	2.0	20	
Chromium		0.49	mg/L	0.0050	98	80	120	0.3	20	
Lead		0.51	mg/L	0.0010	101	80	120	1.6	20	
Selenium		0.44	mg/L	0.0010	89	80	120	1.9	20	
Silver		0.056	mg/L	0.0020	109	80	120	3.5	20	
Uranium		0.51	mg/L	0.00060	102	80	120	2.2	20	
Sample ID: C12040804-023ADIL	8	Serial Dilution				Run: ICPMS2-C_120501A				05/01/12 16:48
Arsenic		0.0014	mg/L	0.0050		0	0		20	N
Barium		0.060	mg/L	0.050		0	0	10	20	
Cadmium		0.00043	mg/L	0.0050		0	0		20	N
Chromium		0.011	mg/L	0.0050		0	0	19	20	
Lead		0.0016	mg/L	0.0050		0	0		20	N
Selenium		0.0027	mg/L	0.0050		0	0		20	N
Silver		ND	mg/L	0.010		0	0		20	
Uranium		0.0056	mg/L	0.0030		0	0	13	20	
Sample ID: C12040804-023AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120501A				05/01/12 16:51
Arsenic		0.56	mg/L	0.0010	112	75	125			
Barium		0.65	mg/L	0.050	119	75	125			
Cadmium		0.29	mg/L	0.0010	115	75	125			
Chromium		0.57	mg/L	0.0050	112	75	125			
Lead		0.60	mg/L	0.0010	119	75	125			
Selenium		0.53	mg/L	0.0010	105	75	125			
Silver		0.063	mg/L	0.0020	25	75	125			S
Uranium		0.52	mg/L	0.00060	102	75	125			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/05/12
Report Date: 06/13/12
Work Order: C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_120502A
Sample ID: ICV		Initial Calibration Verification Standard								05/02/12 11:37
Uranium		0.0486	mg/L	0.00030	97	90	110			
Method: SW6020										Batch: 33505
Sample ID: MB-33505		Method Blank				Run: ICPMS2-C_120502A				05/02/12 13:54
Uranium		0.002	mg/L	1E-05						
Sample ID: LCS3-33505		Laboratory Control Sample				Run: ICPMS2-C_120502A				05/02/12 13:55
Uranium		0.47	mg/L	0.00060	93	80	120			
Sample ID: LCSD3-33505		Laboratory Control Sample Duplicate				Run: ICPMS2-C_120502A				05/02/12 13:57
Uranium		0.48	mg/L	0.00060	96	80	120	2.7	20	
Sample ID: C12040804-020ADIL		Serial Dilution				Run: ICPMS2-C_120502A				05/02/12 14:02
Uranium		0.12	mg/L	0.0030		0	0	1.9	20	
Sample ID: C12040804-019AMS3		Sample Matrix Spike				Run: ICPMS2-C_120502A				05/02/12 14:22
Uranium		0.50	mg/L	0.00060	98	75	125			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS4-C_120425B
Sample ID: ICV	8	Initial Calibration Verification Standard								04/25/12 11:08
Arsenic		0.0486	mg/L	0.0010	97	90	110			
Barium		0.0497	mg/L	0.0010	99	90	110			
Cadmium		0.0501	mg/L	0.0010	100	90	110			
Chromium		0.0491	mg/L	0.0010	98	90	110			
Lead		0.0497	mg/L	0.0010	99	90	110			
Selenium		0.0485	mg/L	0.0010	97	90	110			
Silver		0.0193	mg/L	0.0010	97	90	110			
Uranium		0.0481	mg/L	0.00030	96	90	110			
Sample ID: ICSA	8	Interference Check Sample A								04/25/12 11:12
Arsenic		2.21E-05	mg/L	0.0010						
Barium		2.39E-05	mg/L	0.0010						
Cadmium		4.21E-05	mg/L	0.0010						
Chromium		2.05E-05	mg/L	0.0010						
Lead		1.30E-05	mg/L	0.0010						
Selenium		7.84E-05	mg/L	0.0010						
Silver		-0.000229	mg/L	0.0010						
Uranium		2.36E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								04/25/12 11:17
Arsenic		0.0113	mg/L	0.0010	113	70	130			
Barium		1.46E-05	mg/L	0.0010						
Cadmium		0.0109	mg/L	0.0010	109	70	130			
Chromium		0.0115	mg/L	0.0010	115	70	130			
Lead		5.40E-06	mg/L	0.0010						
Selenium		7.00E-07	mg/L	0.0010						
Silver		0.00988	mg/L	0.0010	99	70	130			
Uranium		8.30E-06	mg/L	0.00030						
Method: SW6020										Batch: 33440
Sample ID: MB-33440	8	Method Blank				Run: ICPMS4-C_120425B				04/25/12 19:38
Arsenic		0.0004	mg/L	7E-05						
Barium		0.01	mg/L	0.0001						
Cadmium		0.0001	mg/L	4E-05						
Chromium		ND	mg/L	0.001						
Lead		0.0002	mg/L	3E-05						
Selenium		0.0001	mg/L	6E-05						
Silver		0.001	mg/L	2E-05						
Uranium		0.004	mg/L	5E-05						
Sample ID: LCS3-33440	8	Laboratory Control Sample				Run: ICPMS4-C_120425B				04/25/12 19:43
Arsenic		0.46	mg/L	0.0010	91	80	120			
Barium		0.50	mg/L	0.050	98	80	120			
Cadmium		0.24	mg/L	0.0010	97	80	120			
Chromium		0.50	mg/L	0.0050	101	80	120			
Lead		0.51	mg/L	0.0010	103	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33440
Sample ID: LCS3-33440	8	Laboratory Control Sample				Run: ICPMS4-C_120425B				04/25/12 19:43
Selenium		0.44	mg/L	0.0010	87	80	120			
Silver		0.053	mg/L	0.0010	104	80	120			
Uranium		0.50	mg/L	0.00030	99	80	120			
Sample ID: LCSD3-33440	8	Laboratory Control Sample Duplicate				Run: ICPMS4-C_120425B				04/25/12 20:05
Arsenic		0.47	mg/L	0.0010	94	80	120	2.8	20	
Barium		0.50	mg/L	0.050	99	80	120	1.0	20	
Cadmium		0.25	mg/L	0.0010	98	80	120	1.0	20	
Chromium		0.52	mg/L	0.0050	104	80	120	3.4	20	
Lead		0.51	mg/L	0.0010	103	80	120	0.0	20	
Selenium		0.44	mg/L	0.0010	89	80	120	1.5	20	
Silver		0.054	mg/L	0.0010	106	80	120	1.7	20	
Uranium		0.51	mg/L	0.00030	100	80	120	1.0	20	
Sample ID: C12041044-002ADIL	8	Serial Dilution				Run: ICPMS4-C_120425B				04/25/12 20:19
Arsenic		0.0017	mg/L	0.0010		0	0		20	N
Barium		0.065	mg/L	0.050		0	0	2.8	20	
Cadmium		ND	mg/L	0.0010		0	0		20	
Chromium		ND	mg/L	0.011		0	0		20	
Lead		0.0028	mg/L	0.0010		0	0		20	N
Selenium		ND	mg/L	0.0010		0	0		20	
Silver		ND	mg/L	0.0010		0	0		20	
Uranium		0.010	mg/L	0.00052		0	0	5.8	20	
Sample ID: C12040804-028AMS3	8	Sample Matrix Spike				Run: ICPMS4-C_120425B				04/25/12 20:28
Arsenic		0.49	mg/L	0.0010	97	75	125			
Barium		0.77	mg/L	0.050	91	75	125			
Cadmium		0.25	mg/L	0.0010	101	75	125			
Chromium		0.54	mg/L	0.0050	107	75	125			
Lead		0.53	mg/L	0.0010	105	75	125			
Selenium		0.68	mg/L	0.0010	97	75	125			
Silver		0.054	mg/L	0.0010	22	75	125			S
Uranium		11	mg/L	0.00030		75	125			A
Sample ID: C12041044-001AMS3	8	Sample Matrix Spike				Run: ICPMS4-C_120425B				04/25/12 21:40
Arsenic		0.48	mg/L	0.0010	94	75	125			
Barium		0.68	mg/L	0.050	102	75	125			
Cadmium		0.25	mg/L	0.0010	98	75	125			
Chromium		0.55	mg/L	0.0050	107	75	125			
Lead		0.54	mg/L	0.0010	105	75	125			
Selenium		0.46	mg/L	0.0010	92	75	125			
Silver		0.053	mg/L	0.0010	21	75	125			S
Uranium		0.60	mg/L	0.00030	104	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/05/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7470A										Analytical Run: CVAA_C203_120519A
Sample ID: ICV		Initial Calibration Verification Standard								05/19/12 07:43
Mercury		0.00500	mg/L	0.00010	100	90	110			
Method: SW7470A										Batch: 33699
Sample ID: MB-33699		Method Blank				Run: CVAA_C203_120519A				05/19/12 07:48
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33699		Laboratory Control Sample				Run: CVAA_C203_120519A				05/19/12 07:49
Mercury		0.0052	mg/L	0.0020	103	85	115			
Sample ID: LCSD-33699		Laboratory Control Sample Duplicate				Run: CVAA_C203_120519A				05/19/12 07:50
Mercury		0.0052	mg/L	0.0020	104	85	115	0.9	10	
Sample ID: C12040804-001ASD		Serial Dilution				Run: CVAA_C203_120519A				05/19/12 07:53
Mercury		ND	mg/L	0.0020					10	
Sample ID: C12040804-001AMS		Sample Matrix Spike				Run: CVAA_C203_120519A				05/19/12 07:54
Mercury		0.0051	mg/L	0.0020	102	85	115			
Method: SW7470A										Batch: 33700
Sample ID: MB-33700		Method Blank				Run: CVAA_C203_120519A				05/19/12 08:27
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33700		Laboratory Control Sample				Run: CVAA_C203_120519A				05/19/12 08:28
Mercury		0.0050	mg/L	0.0020	100	85	115			
Sample ID: LCSD-33700		Laboratory Control Sample Duplicate				Run: CVAA_C203_120519A				05/19/12 08:29
Mercury		0.0053	mg/L	0.0020	107	85	115	6.0	10	
Sample ID: C12040804-011ASD		Serial Dilution				Run: CVAA_C203_120519A				05/19/12 08:32
Mercury		ND	mg/L	0.0020					10	
Sample ID: C12040804-011AMS		Sample Matrix Spike				Run: CVAA_C203_120519A				05/19/12 08:36
Mercury		0.0050	mg/L	0.0020	101	85	115			
Method: SW7470A										Batch: 33701
Sample ID: MB-33701		Method Blank				Run: CVAA_C203_120519A				05/19/12 08:47
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33701		Laboratory Control Sample				Run: CVAA_C203_120519A				05/19/12 08:48
Mercury		0.0050	mg/L	0.0020	100	85	115			
Sample ID: LCSD-33701		Laboratory Control Sample Duplicate				Run: CVAA_C203_120519A				05/19/12 08:52
Mercury		0.0050	mg/L	0.0020	100	85	115	0.0	10	
Sample ID: C12040804-019ASD		Serial Dilution				Run: CVAA_C203_120519A				05/19/12 08:55
Mercury		ND	mg/L	0.0020					10	
Sample ID: C12040804-019AMS		Sample Matrix Spike				Run: CVAA_C203_120519A				05/19/12 08:56
Mercury		0.0053	mg/L	0.0020	105	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/05/12
Report Date: 06/13/12
Work Order: C12040804

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7470A										Batch: 33702
Sample ID: MB-33702		Method Blank				Run: CVAA_C203_120519A				05/19/12 09:11
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33702		Laboratory Control Sample				Run: CVAA_C203_120519A				05/19/12 09:12
Mercury		0.0051	mg/L	0.0020	103	85	115			
Sample ID: LCSD-33702		Laboratory Control Sample Duplicate				Run: CVAA_C203_120519A				05/19/12 09:13
Mercury		0.0051	mg/L	0.0020	101	85	115	1.8	10	
Sample ID: C12040804-028ASD		Serial Dilution				Run: CVAA_C203_120519A				05/19/12 09:16
Mercury		ND	mg/L	0.0020					10	
Sample ID: C12040804-028AMS		Sample Matrix Spike				Run: CVAA_C203_120519A				05/19/12 09:17
Mercury		0.0052	mg/L	0.0020	103	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Rio Grande Resources Corporation   C12040804

Login completed by:	Kristy Gisse	Date Received:	4/13/2012
Reviewed by:	BL2000\tedwards	Received by:	kg
Reviewed Date:	4/24/2012	Carrier name:	FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	18.2℃		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

C3888

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp

Project Name, PWS, Permit, Etc.: Mt. Taylor Mine Closure Plan

Sample Origin State: NM

EPA/State Compliance: Yes ☒ No ☐

Report Mail Address: PO Box 1150, Grants, NM 87020
Additional e-mail copy to beverett@kleinfelder.com

Contact Name: Barbara Everett (Kleinfelder)

Phone/Fax: (505) 344-7373, (505) 280-1079 (Cell)

Email: beverett@kleinfelder.com

Sampler: (Please Print) Barbara Everett, Ed Loescher

Invoice Address: PO Box 1150, Grants, NM 87020

Invoice Contact & Phone: Jeanette Lister 505-287-7971

Purchase Order:

Quote/Bottle Order: C3778
Kerry Schoeder 888-235-0515

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☒ State: NM
- ☐ Other: ____
- ☐ A2LA
- ☒ EDD/EDT (Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED

R U S H — Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: FED EX TRACK # 8735 9342 9785 (KW)

Shipped by: FE-EX
Cooler ID(s):
Receipt Temp 18.2 °C
On Ice: Yes (No)
Custody Seal Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	~~RCI~~ BG 4/11/12	SEE ATTACHED	Normal Turnaround (TAT)
1	S1-01-01	4-10-12	10:45	Sediment	X	X	X				x
2	S1-01-02	4-10-12	10:50	Sediment	X	X	X				x
3	S1-01-03	4-10-12	11:00	Sediment	X	X	X				x
4	S1-02-01	4-10-12	11:40	Sediment	X	X	X				x
5	S1-02-02	4-10-12	11:43	Sediment	X	X	X				x
6	S1-02-03	4-10-12	11:45	Sediment	X	X	X				x
7	SA-01-01	4-10-12	11:30	Sediment	X	X	X				x
8	SA-01-02	4-10-12	11:35	Sediment	X	X	X				x
9	SA-01-03	4-10-12	11:45	Sediment	X	X	X				x
10	SA-02-01	4-10-12	11:48	Sediment	X	X	X				x

LABORATORY USE ONLY
C12040804

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
BARBARA EVERETT	4/11/12 12:00	[signature]	KENTOU WATTS	4-12-12 @ 0700	[signature]
KENTOU WATTS	4-12-12 @ 0930	[signature]			

Sample Disposal: Return to Client: ____ Lab Disposal: X

Received by Laboratory: Date/Time: Kris Gesse 4-13-12 9:40 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule...

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

C-3888

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☒ State: NM
- ☐ Other: ______
- ☐ A2LA
- ☒ EDD/EDT (Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED — SEE ATTACHED — Normal Turnaround (TAT)

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: FED EX TRACK # 8735 9342 9785 (KW)

Shipped by: FE-Ex
Cooler ID(s):
Receipt Temp 18.2 °C
On Ice: Yes (No)
Custody Seal Y N
Intact Y N
Signature Match Y N

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	~~RCI~~	Normal Turnaround (TAT)
1	SA-02-02	4/10/12	11:48	Sediment	X	X	X			x
2	SA-02-03	4/10/12	11:48	Sediment	X	X	X			x
3	S8-01-01	4/10/12	13:00	Sediment	X	X	X	X		x
4	S8-01-02	4/10/12	13:09	Sediment	X	X	X	X		x
5	S8-01-03	4/10/12	13:09	Sediment	X	X	X	X		x
6	S8-02-01	4/10/12	13:26	Sediment	X	X	X	X		x
7	S8-02-02	4/10/12	13:36	Sediment	X	X	X	X		x
8	S8-02-03	4/10/12	13:36	Sediment	X	X	X	X		x
9	S8-02-04	4/10/12	13:39	Sediment	X	X	X	X		x
10	S5-01-01	4/10/12	14:05	Sediment	X	X	X	X		x

LABORATORY USE ONLY: C12040804

Custody Record MUST be Signed

Relinquished by (print): BARBARA EVERETT	Date/Time: 4/11/12 12:00	Signature: [signature]	Received by (print): KENTON WATTS	Date/Time: 4-12-12 @ 0700	Signature: [signature]
Relinquished by (print): KENTON WATTS	Date/Time: 4-12-12 @ 0930	Signature: [signature]	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: ____	Lab Disposal: Y		Received by Laboratory:	Date/Time: 4-13-12 9:40	Signature: Kris Gase

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record C2496

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☒ State: NM
- ☐ Other: ______
- ☐ A2LA
- ☒ EDD/EDT(Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers
Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	~~RCI~~					SEE ATTACHED	Normal Turnaround (TAT)
1	S7-01-01	4/10/12	15:12	Sediment	X	X	X								x
2	S7-01-02	4/10/12	15:17	Sediment	X	X	X								x
3	S7-01-03	4/10/12	15:22	Sediment	X	X	X								x
4	S5-02-02	4/10/12	14:15	Sediment	X	X	X	X							x
5	S5-02-03	4/10/12	14:20	Sediment	X	X	X	X							x
6	S5-02-01	4/10/12	14:30	Sediment	X	X	X	X							x
7	~~S5-02~~			~~Sediment~~											x
8	S5-01-02	4/10/12	14:05	Sediment	X	X	X	X							x
9				Sediment											x
10				Sediment											x

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: FEDEX TRACK # 8747 6695 1300

Shipped by: FE - EX
Cooler ID(s):
Receipt Temp 18.2 °C
On Ice: Yes No
Custody Seal Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

C12040804

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BARBARA EVERETT	4/11/12 12:00	[signature]	KENTON WATTS	4-12-12 @0700	[signature]
KENTON WATTS	4-12-12 @ 0930	[signature]			

Sample Disposal: Return to Client: ______ Lab Disposal: X

Received by Laboratory: Date/Time: 4.13.12 9:40 Signature: Kris 6.5c

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

C2496

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☑ State: NM
- ☐ Other:
- ☐ A2LA
- ☒ EDD/EDT (Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: FED EX TRACK # 8747 6695 1300

Shipped by: FE-Ex
Cooler ID(s):
Receipt Temp 12.2 °C
On Ice: Yes No (circled)
Custody Seal Intact Y N (N circled)
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI					SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	S3-01-01	4/10/12	0915	Sediment	X	X	X								x			
2	S3-01-02	4/10/12	0850	Sediment	X	X	X								x			
3	S3-01-03	4/10/12	0940	Sediment	X	X	X								x			
4	S3-02-01	4/10/12	10:22	Sediment	X	X	X								x			
5	S3-02-02	4/10/12	10:30	Sediment	X	X	X								x			
6	S3-~~03~~ 02-03 (KW) PER LABEL	4/10/12	10:30	Sediment	X	X	X								x			
7	S7-02-01	4/10/12	15:45	Sediment	X	X	X								x			C12040804
8	S7-02-02	4/10/12	15:50	Sediment	X	X	X								x			
9	S7-02-03	4/10/12	15:55	Sediment	X	X	X								x			
10	S3-01-04	4/10/12	0946	Sediment	X	X	X								x		HOLD PENDING CONFIRM. BY B. EVERETT (KW)	

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
BARBARA EVERETT	4/11/12	[signature]	KENTON WATTS	4-12-12 @ 0700	KW
KENTON WATTS	4-12-12 @ 0930	KW			

Sample Disposal: Return to Client: ____ Lab Disposal: X

Received by Laboratory: Date/Time: 4-13-12 9:40 Signature: Kris Gass C

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

July 10, 2012

Rio Grande Resources Corporation
PO Box 1150
Grants, NM 87020

Workorder No.: C12041044 Quote ID: C3778 - Mt Taylor Mine Closure Plan

Project Name: Mt. Taylor Mine Closure Plan

Energy Laboratories, Inc. Casper WY received the following 28 samples for Rio Grande Resources Corporation on 4/20/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12041044-001	MT-1-F (6" B.G.)	04/10/12 10:45	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12041044-002	MT-2-D (6" B.G.)	04/10/12 10:15	04/20/12	Sediment	Same As Above
C12041044-003	MT-3-F (6" B.G.)	04/10/12 11:10	04/20/12	Sediment	Same As Above
C12041044-004	MT-4-F (6" B.G.)	04/10/12 9:35	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability E300.0 Anions Digestion, Total Metals Digestion For RadioChemistry DI Water Soil Extract Radium 226 Radium 228 SPLP Extraction, Regular
C12041044-005	MT-5-F (6" B.G.)	04/10/12 10:00	04/20/12	Sediment	Same As Above
C12041044-006	MT-7-C (6" B.G.)	04/10/12 9:45	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12041044-007	MT-OP-E (6" B.G.)	04/10/12 9:00	04/20/12	Sediment	Same As Above
C12041044-008	MT-A-C (6" B.G.)	04/10/12 10:55	04/20/12	Sediment	Same As Above
C12041044-009	MT-Borrow/Background	04/10/12 11:00	04/20/12	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

C12041044-010	MT-4-D-S1 (0-6" B.G.)	04/10/12 14:05	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability E300.0 Anions Digestion, Total Metals Digestion For RadioChemistry DI Water Soil Extract Radium 226 Radium 228 SPLP Extraction, Regular
C12041044-011	MT-4-D-S2 (14" B.G.)	04/10/12 14:10	04/20/12	Sediment	Same As Above
C12041044-012	MT-4-D-S3 (48" B.G.)	04/10/12 14:20	04/20/12	Sediment	Same As Above
C12041044-013	MT-4-E-S1 (0-4" B.G.)	04/10/12 13:35	04/20/12	Sediment	Same As Above
C12041044-014	MT-4-E-S2 (10-12" B.G.)	04/10/12 13:40	04/20/12	Sediment	Same As Above
C12041044-015	MT-4-E-S3 (36" B.G.)	04/10/12 13:42	04/20/12	Sediment	Same As Above
C12041044-016	MT-4-E-S4 (48" B.G.)	04/10/12 13:45	04/20/12	Sediment	Same As Above
C12041044-017	MT-6-A-S1 (0-5" B.G.)	04/10/12 15:05	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability Digestion, Total Metals Digestion For RadioChemistry Radium 226 Radium 228 SPLP Extraction, Regular
C12041044-018	MT-6-A-S2 (12-20" B.G.)	04/10/12 15:10	04/20/12	Sediment	Same As Above
C12041044-019	MT-6-B-S1 (8-10" B.G.)	04/10/12 14:30	04/20/12	Sediment	Same As Above
C12041044-020	MT-6-B-S2 (30" B.G.)	04/10/12 14:35	04/20/12	Sediment	Same As Above
C12041044-021	MT-OP-C-S1 (0-6" B.G.)	04/10/12 13:20	04/20/12	Sediment	Same As Above
C12041044-022	MT-OP-C-S2 (20" B.G.)	04/10/12 13:25	04/20/12	Sediment	Same As Above
C12041044-023	MT-OP-C-S3 (48-50' B.G.)	04/10/12 13:25	04/20/12	Sediment	Same As Above
C12041044-024	MT-OP-C-S4 (72" B.G.)	04/10/12 13:30	04/20/12	Sediment	Same As Above
C12041044-025	MT-OP-D-S1 (0-6" B.G.)	04/10/12 12:45	04/20/12	Sediment	Same As Above
C12041044-026	MT-OP-D-S2 (48-50" B.G.)	04/10/12 12:45	04/20/12	Sediment	Same As Above
C12041044-027	MT-OP-D-S3 (76" B.G.)	04/10/12 12:50	04/20/12	Sediment	Same As Above
C12041044-028	MT-8-F (6" B.G.)	04/10/12 9:25	04/20/12	Sediment	Metals, SPLP Extractable Mercury, SPLP Mercury Analysis Prep Filterability E300.0 Anions Digestion, Total Metals Digestion For RadioChemistry DI Water Soil Extract Radium 226 Radium 228 SPLP Extraction, Regular

ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Sample Delivery Group: C12041044

Revised Date: 07/10/12
Report Date: 06/13/12

CASE NARRATIVE

REVISED/SUPPLEMENTAL REPORT
The attached analytical report has been revised from a previously submitted report due to the request by the client for the analysis of Radium 226 and Radium 228 on the Sediment on all samples and Chloride and Sulfate on the Sediment on samples -004 through -005, -010 through -016, and -028. The data presented here is from that analysis.

PREP COMMENTS
The prep hold time for the SPLP extraction was exceeded by up to 6 days.
The prep hold time for Chloride and Sulfate analysis was exceeded by 39 days.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4℃ (±2℃)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Virginia: 00057; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-001	**Collection Date:**	04/10/12 10:45
Client Sample ID:	MT-1-F (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	04/25/12 21:35 / smm
Barium	0.17	mg/L		0.05		SW6020	04/25/12 21:35 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 21:35 / smm
Chromium	0.014	mg/L		0.005		SW6020	04/25/12 21:35 / smm
Lead	0.016	mg/L		0.001		SW6020	04/25/12 21:35 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/26/12 12:36 / rdw
Selenium	0.005	mg/L		0.001		SW6020	04/25/12 21:35 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 21:35 / smm
Uranium	0.077	mg/L	B	0.0003		SW6020	04/25/12 21:35 / smm
RADIONUCLIDES							
Radium 226	2.0	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.6	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-002	**Collection Date:**	04/10/12 10:15
Client Sample ID:	MT-2-D (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	04/25/12 20:14 / smm
Barium	0.06	mg/L		0.05		SW6020	04/25/12 20:14 / smm
Cadmium	ND	mg/L		0.001		SW6020	04/25/12 20:14 / smm
Chromium	0.005	mg/L		0.005		SW6020	04/25/12 20:14 / smm
Lead	0.003	mg/L		0.001		SW6020	04/25/12 20:14 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/26/12 12:43 / rdw
Selenium	ND	mg/L		0.001		SW6020	04/25/12 20:14 / smm
Silver	ND	mg/L		0.001		SW6020	04/25/12 20:14 / smm
Uranium	0.0098	mg/L	B	0.0003		SW6020	04/25/12 20:14 / smm
RADIONUCLIDES							
Radium 226	0.6	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 228	0.6	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 17:32 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 17:32 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-003	**Collection Date:**	04/10/12 11:10
Client Sample ID:	MT-3-F (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	05/01/12 14:24 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 14:24 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:24 / cp
Chromium	ND	mg/L		0.005		SW6020	05/01/12 14:24 / cp
Lead	0.001	mg/L		0.001		SW6020	05/01/12 14:24 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:16 / rdw
Selenium	0.001	mg/L		0.001		SW6020	05/01/12 14:24 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 14:24 / cp
Uranium	0.0090	mg/L	D	0.0006		SW6020	05/01/12 14:24 / cp
RADIONUCLIDES							
Radium 226	0.9	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 03:34 / plj
Radium 228	0.5	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	06/25/12 15:52 / plj
Radium 228 MDC	0.3	pCi/g-dry				RA-05	06/25/12 15:52 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-004	**Collection Date:**	04/10/12 09:35
Client Sample ID:	MT-4-F (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	51.2	mg/kg		1.00		E300.0	06/28/12 03:22 / ljl
Chloride, 1:1	1.44	meq/L		0.0282		E300.0	06/28/12 03:22 / ljl
Sulfate	405	mg/kg		1.00		E300.0	06/28/12 03:22 / ljl
Sulfate, 1:1	8.43	meq/L		0.0208		E300.0	06/28/12 03:22 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.005	mg/L		0.001		SW6020	05/01/12 13:55 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 13:55 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 13:55 / cp
Chromium	ND	mg/L		0.005		SW6020	05/02/12 21:42 / smm
Lead	0.003	mg/L		0.001		SW6020	05/01/12 13:55 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:20 / rdw
Selenium	0.002	mg/L		0.001		SW6020	05/01/12 13:55 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 13:55 / cp
Uranium	0.0027	mg/L	D	0.0006		SW6020	05/01/12 13:55 / cp
RADIONUCLIDES							
Radium 226	0.8	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	1.0	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-005	**Collection Date:**	04/10/12 10:00
Client Sample ID:	MT-5-F (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	37.0	mg/kg		1.00		E300.0	06/28/12 03:39 / ljl
Chloride, 1:1	1.04	meq/L		0.0282		E300.0	06/28/12 03:39 / ljl
Sulfate	183	mg/kg		1.00		E300.0	06/28/12 03:39 / ljl
Sulfate, 1:1	3.82	meq/L		0.0208		E300.0	06/28/12 03:39 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	05/01/12 14:12 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 14:12 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:12 / cp
Chromium	ND	mg/L		0.005		SW6020	05/02/12 22:05 / smm
Lead	0.001	mg/L		0.001		SW6020	05/01/12 14:12 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:22 / rdw
Selenium	0.001	mg/L		0.001		SW6020	05/01/12 14:12 / cp
Silver	0.003	mg/L	D	0.002		SW6020	05/01/12 14:12 / cp
Uranium	0.0029	mg/L	D	0.0006		SW6020	05/01/12 14:12 / cp
RADIONUCLIDES							
Radium 226	2.0	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.8	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-006	**Collection Date:**	04/10/12 09:45
Client Sample ID:	MT-7-C (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L		0.001		SW6020	05/01/12 14:15 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 14:15 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:15 / cp
Chromium	0.006	mg/L		0.005		SW6020	05/01/12 14:15 / cp
Lead	0.002	mg/L		0.001		SW6020	05/01/12 14:15 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:23 / rdw
Selenium	ND	mg/L		0.001		SW6020	05/01/12 14:15 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 14:15 / cp
Uranium	0.0023	mg/L	D	0.0006		SW6020	05/01/12 14:15 / cp
RADIONUCLIDES							
Radium 226	0.6	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.8	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-007	**Collection Date:**	04/10/12 09:00
Client Sample ID:	MT-OP-E (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	05/01/12 14:18 / cp
Barium	0.05	mg/L		0.05		SW6020	05/01/12 14:18 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:18 / cp
Chromium	0.006	mg/L		0.005		SW6020	05/01/12 14:18 / cp
Lead	0.003	mg/L		0.001		SW6020	05/01/12 14:18 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:24 / rdw
Selenium	0.005	mg/L		0.001		SW6020	05/01/12 14:18 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 14:18 / cp
Uranium	0.0056	mg/L	D	0.0006		SW6020	05/01/12 14:18 / cp
RADIONUCLIDES							
Radium 226	1.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.8	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-008	**Collection Date:**	04/10/12 10:55
Client Sample ID:	MT-A-C (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	05/01/12 14:21 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 14:21 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:21 / cp
Chromium	ND	mg/L		0.005		SW6020	05/01/12 14:21 / cp
Lead	0.001	mg/L		0.001		SW6020	05/01/12 14:21 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:28 / rdw
Selenium	0.044	mg/L		0.001		SW6020	05/01/12 14:21 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 14:21 / cp
Uranium	0.14	mg/L	D	0.0006		SW6020	05/01/12 14:21 / cp
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.5	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:06 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:06 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-009	**Collection Date:**	04/10/12 11:00
Client Sample ID:	MT-Borrow/Background	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.001	mg/L		0.001		SW6020	05/01/12 15:27 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 15:27 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:27 / cp
Chromium	ND	mg/L		0.005		SW6020	05/01/12 15:27 / cp
Lead	ND	mg/L		0.001		SW6020	05/01/12 15:27 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:34 / rdw
Selenium	0.001	mg/L		0.001		SW6020	05/01/12 15:27 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 15:27 / cp
Uranium	0.0007	mg/L	D	0.0006		SW6020	05/01/12 15:27 / cp
RADIONUCLIDES							
Radium 226	0.7	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.7	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-010
Client Sample ID: MT-4-D-S1 (0-6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:05
DateReceived: 04/20/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	7.76	mg/kg		1.00		E300.0	06/28/12 03:55 / ljl
Chloride, 1:1	0.219	meq/L		0.0282		E300.0	06/28/12 03:55 / ljl
Sulfate	77.0	mg/kg		1.00		E300.0	06/28/12 03:55 / ljl
Sulfate, 1:1	1.60	meq/L		0.0208		E300.0	06/28/12 03:55 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.008	mg/L		0.001		SW6020	05/01/12 14:56 / cp
Barium	1.0	mg/L		0.05		SW6020	05/01/12 14:56 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 14:56 / cp
Chromium	0.008	mg/L		0.005		SW6020	05/01/12 14:56 / cp
Lead	0.003	mg/L		0.001		SW6020	05/01/12 14:56 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:38 / rdw
Selenium	0.015	mg/L		0.001		SW6020	05/01/12 14:56 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 14:56 / cp
Uranium	0.033	mg/L	D	0.0006		SW6020	05/01/12 14:56 / cp
RADIONUCLIDES							
Radium 226	18.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.3	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.9	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-011	**Collection Date:**	04/10/12 14:10
Client Sample ID:	MT-4-D-S2 (14" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	92.0	mg/kg		1.00		E300.0	06/28/12 04:12 / ljl
Chloride, 1:1	2.60	meq/L		0.0282		E300.0	06/28/12 04:12 / ljl
Sulfate	1840	mg/kg		1.00		E300.0	06/28/12 04:12 / ljl
Sulfate, 1:1	38.2	meq/L		0.0208		E300.0	06/28/12 04:12 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.007	mg/L		0.001		SW6020	05/01/12 15:02 / cp
Barium	ND	mg/L		0.05		SW6020	05/01/12 15:02 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:02 / cp
Chromium	0.006	mg/L		0.005		SW6020	05/01/12 15:02 / cp
Lead	0.001	mg/L		0.001		SW6020	05/01/12 15:02 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:39 / rdw
Selenium	0.39	mg/L		0.001		SW6020	05/01/12 15:02 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 15:02 / cp
Uranium	0.20	mg/L	D	0.0006		SW6020	05/01/12 15:02 / cp
RADIONUCLIDES							
Radium 226	2.8	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 13:40 / trs
Radium 228	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

		Revised Date:	07/10/12
Client:	Rio Grande Resources Corporation	**Report Date:**	06/13/12
Project:	Mt. Taylor Mine Closure Plan	**Collection Date:**	04/10/12 14:20
Lab ID:	C12041044-012	**DateReceived:**	04/20/12
Client Sample ID:	MT-4-D-S3 (48" B.G.)	**Matrix:**	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	6.49	mg/kg		1.00		E300.0	06/28/12 04:44 / ljl
Chloride, 1:1	0.183	meq/L		0.0282		E300.0	06/28/12 04:44 / ljl
Sulfate	132	mg/kg		1.00		E300.0	06/28/12 04:44 / ljl
Sulfate, 1:1	2.74	meq/L		0.0208		E300.0	06/28/12 04:44 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	05/01/12 15:05 / cp
Barium	0.88	mg/L		0.05		SW6020	05/01/12 15:05 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:05 / cp
Chromium	0.009	mg/L		0.005		SW6020	05/01/12 15:05 / cp
Lead	0.003	mg/L		0.001		SW6020	05/01/12 15:05 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:41 / rdw
Selenium	0.020	mg/L		0.001		SW6020	05/01/12 15:05 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 15:05 / cp
Uranium	0.013	mg/L	D	0.0006		SW6020	05/01/12 15:05 / cp
RADIONUCLIDES							
Radium 226	6.7	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.8	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-013
Client Sample ID: MT-4-E-S1 (0-4" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:35
DateReceived: 04/20/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	46.4	mg/kg		1.00		E300.0	06/28/12 05:01 / ljl
Chloride, 1:1	1.31	meq/L		0.0282		E300.0	06/28/12 05:01 / ljl
Sulfate	853	mg/kg		1.00		E300.0	06/28/12 05:01 / ljl
Sulfate, 1:1	17.8	meq/L		0.0208		E300.0	06/28/12 05:01 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.034	mg/L		0.001		SW6020	05/01/12 15:08 / cp
Barium	34	mg/L		0.05		SW6020	05/01/12 15:08 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:08 / cp
Chromium	0.007	mg/L		0.005		SW6020	05/02/12 22:19 / smm
Lead	0.008	mg/L		0.001		SW6020	05/01/12 15:08 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:48 / rdw
Selenium	0.15	mg/L		0.001		SW6020	05/01/12 15:08 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 15:08 / cp
Uranium	0.39	mg/L	D	0.0006		SW6020	05/01/12 15:08 / cp
RADIONUCLIDES							
Radium 226	8.7	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	1.5	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb

- Sample matrix interference resulted in high chemical recoveries which has likely biased the Ra226 and Ra228 results low.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-014	**Collection Date:**	04/10/12 13:40
Client Sample ID:	MT-4-E-S2 (10-12" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	34.1	mg/kg		1.00		E300.0	06/28/12 05:17 / ljl
Chloride, 1:1	0.963	meq/L		0.0282		E300.0	06/28/12 05:17 / ljl
Sulfate	1150	mg/kg		1.00		E300.0	06/28/12 05:17 / ljl
Sulfate, 1:1	23.8	meq/L		0.0208		E300.0	06/28/12 05:17 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.005	mg/L		0.001		SW6020	05/01/12 15:10 / cp
Barium	0.22	mg/L		0.05		SW6020	05/01/12 15:10 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:10 / cp
Chromium	0.011	mg/L		0.005		SW6020	05/01/12 15:10 / cp
Lead	0.005	mg/L		0.001		SW6020	05/01/12 15:10 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:49 / rdw
Selenium	0.072	mg/L		0.001		SW6020	05/01/12 15:10 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/01/12 15:10 / cp
Uranium	0.014	mg/L	D	0.0006		SW6020	05/01/12 15:10 / cp
RADIONUCLIDES							
Radium 226	4.8	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.4	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-015
Client Sample ID: MT-4-E-S3 (36" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:42
DateReceived: 04/20/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	13.1	mg/kg		1.00		E300.0	06/28/12 05:34 / ljl
Chloride, 1:1	0.371	meq/L		0.0282		E300.0	06/28/12 05:34 / ljl
Sulfate	184	mg/kg		1.00		E300.0	06/28/12 05:34 / ljl
Sulfate, 1:1	3.84	meq/L		0.0208		E300.0	06/28/12 05:34 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	05/01/12 15:24 / cp
Barium	0.13	mg/L		0.05		SW6020	05/01/12 15:24 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/01/12 15:24 / cp
Chromium	0.007	mg/L		0.005		SW6020	05/01/12 15:24 / cp
Lead	0.003	mg/L		0.001		SW6020	05/01/12 15:24 / cp
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 15:51 / rdw
Selenium	0.026	mg/L		0.001		SW6020	05/01/12 15:24 / cp
Silver	0.003	mg/L	D	0.002		SW6020	05/01/12 15:24 / cp
Uranium	0.0043	mg/L	D	0.0006		SW6020	05/01/12 15:24 / cp
RADIONUCLIDES							
Radium 226	2.9	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.7	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:57 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-016	**Collection Date:**	04/10/12 13:45
Client Sample ID:	MT-4-E-S4 (48" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	4.51	mg/kg		1.00		E300.0	06/28/12 05:50 / ljl
Chloride, 1:1	0.127	meq/L		0.0282		E300.0	06/28/12 05:50 / ljl
Sulfate	131	mg/kg		1.00		E300.0	06/28/12 05:50 / ljl
Sulfate, 1:1	2.72	meq/L		0.0208		E300.0	06/28/12 05:50 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.005	mg/L	B	0.001		SW6020	05/02/12 21:10 / smm
Barium	0.06	mg/L		0.05		SW6020	05/02/12 21:10 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 21:10 / smm
Chromium	0.006	mg/L		0.005		SW6020	05/02/12 21:10 / smm
Lead	0.002	mg/L		0.001		SW6020	05/02/12 21:10 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:01 / rdw
Selenium	0.011	mg/L		0.001		SW6020	05/02/12 21:10 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 21:10 / smm
Uranium	0.027	mg/L		0.0003		SW6020	05/02/12 21:10 / smm
RADIONUCLIDES							
Radium 226	6.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.4	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb
Radium 228 MDC	0.1	pCi/g-dry				RA-05	07/05/12 22:57 / gb

- Sample matrix interference resulted in high chemical recoveries which has likely biased the Ra226 and Ra228 results low.

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-017	**Collection Date:**	04/10/12 15:05
Client Sample ID:	MT-6-A-S1 (0-5" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.012	mg/L		0.001		SW6020	05/02/12 20:29 / smm
Barium	7.3	mg/L		0.05		SW6020	05/02/12 20:29 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 20:29 / smm
Chromium	0.007	mg/L		0.005		SW6020	05/02/12 20:29 / smm
Lead	0.016	mg/L		0.001		SW6020	05/02/12 20:29 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:05 / rdw
Selenium	0.007	mg/L		0.001		SW6020	05/02/12 20:29 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 20:29 / smm
Uranium	0.044	mg/L		0.0003		SW6020	05/02/12 20:29 / smm
RADIONUCLIDES							
Radium 226	6.4	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 MDC	0.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-018	**Collection Date:**	04/10/12 15:10
Client Sample ID:	MT-6-A-S2 (12-20" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L	B	0.001		SW6020	05/02/12 20:33 / smm
Barium	0.05	mg/L		0.05		SW6020	05/02/12 20:33 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 20:33 / smm
Chromium	0.007	mg/L		0.005		SW6020	05/02/12 20:33 / smm
Lead	ND	mg/L		0.001		SW6020	05/02/12 20:33 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:06 / rdw
Selenium	0.15	mg/L		0.001		SW6020	05/02/12 20:33 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 20:33 / smm
Uranium	0.26	mg/L		0.0003		SW6020	05/02/12 20:33 / smm
RADIONUCLIDES							
Radium 226	0.4	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.05	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.1	pCi/g-dry	U			RA-05	07/05/12 22:56 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

		Revised Date:	07/10/12
Client:	Rio Grande Resources Corporation	**Report Date:**	06/13/12
Project:	Mt. Taylor Mine Closure Plan	**Collection Date:**	04/10/12 14:30
Lab ID:	C12041044-019	**DateReceived:**	04/20/12
Client Sample ID:	MT-6-B-S1 (8-10" B.G.)	**Matrix:**	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L	B	0.001		SW6020	05/02/12 20:38 / smm
Barium	0.05	mg/L		0.05		SW6020	05/02/12 20:38 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 20:38 / smm
Chromium	0.007	mg/L		0.005		SW6020	05/02/12 20:38 / smm
Lead	ND	mg/L		0.001		SW6020	05/02/12 20:38 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:08 / rdw
Selenium	0.16	mg/L		0.001		SW6020	05/02/12 20:38 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 20:38 / smm
Uranium	0.26	mg/L		0.0003		SW6020	05/02/12 20:38 / smm
RADIONUCLIDES							
Radium 226	0.8	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-020	**Collection Date:**	04/10/12 14:35
Client Sample ID:	MT-6-B-S2 (30" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.002	mg/L	B	0.001		SW6020	05/02/12 20:43 / smm
Barium	0.06	mg/L		0.05		SW6020	05/02/12 20:43 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 20:43 / smm
Chromium	ND	mg/L		0.005		SW6020	05/02/12 20:43 / smm
Lead	ND	mg/L		0.001		SW6020	05/02/12 20:43 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:09 / rdw
Selenium	0.003	mg/L		0.001		SW6020	05/02/12 20:43 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 20:43 / smm
Uranium	0.014	mg/L		0.0003		SW6020	05/02/12 20:43 / smm
RADIONUCLIDES							
Radium 226	4.1	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.2	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	0.8	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
B - The analyte was detected in the method blank.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-021	**Collection Date:**	04/10/12 13:20
Client Sample ID:	MT-OP-C-S1 (0-6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.015	mg/L		0.001		SW6020	05/02/12 21:06 / smm
Barium	0.05	mg/L		0.05		SW6020	05/02/12 21:06 / smm
Cadmium	ND	mg/L		0.001		SW6020	05/02/12 21:06 / smm
Chromium	0.010	mg/L		0.005		SW6020	05/02/12 21:06 / smm
Lead	0.001	mg/L		0.001		SW6020	05/02/12 21:06 / smm
Mercury	ND	mg/L		0.002		SW7470A	04/30/12 16:10 / rdw
Selenium	0.052	mg/L		0.001		SW6020	05/02/12 21:06 / smm
Silver	ND	mg/L		0.001		SW6020	05/02/12 21:06 / smm
Uranium	1.8	mg/L		0.0003		SW6020	05/02/12 21:06 / smm
RADIONUCLIDES							
Radium 226	53.3	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 precision (±)	0.6	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 14:44 / trs
Radium 228	2.1	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 precision (±)	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 22:56 / gb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-022	**Collection Date:**	04/10/12 13:25
Client Sample ID:	MT-OP-C-S2 (20" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.005	mg/L		0.001		SW6020	05/04/12 14:22 / cp
Barium	0.05	mg/L		0.05		SW6020	05/04/12 14:22 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:22 / cp
Chromium	0.007	mg/L		0.005		SW6020	05/04/12 14:22 / cp
Lead	0.002	mg/L		0.001		SW6020	05/04/12 14:22 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:26 / rdw
Selenium	0.018	mg/L		0.001		SW6020	05/04/12 14:22 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:22 / cp
Uranium	0.14	mg/L	D	0.0006		SW6020	05/04/12 14:22 / cp
RADIONUCLIDES							
Radium 226	1.7	pCi/g-dry				E903.0	07/10/12 16:03 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/10/12 16:03 / trs
Radium 226 MDC	0.03	pCi/g-dry				E903.0	07/10/12 16:03 / trs
Radium 228	0.6	pCi/g-dry				RA-05	07/05/12 21:05 / gb
Radium 228 precision (±)	0.1	pCi/g-dry				RA-05	07/05/12 21:05 / gb
Radium 228 MDC	0.2	pCi/g-dry				RA-05	07/05/12 21:05 / gb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-023	**Collection Date:**	04/10/12 13:25
Client Sample ID:	MT-OP-C-S3 (48-50' B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	05/04/12 14:41 / cp
Barium	ND	mg/L		0.05		SW6020	05/04/12 14:41 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:41 / cp
Chromium	ND	mg/L		0.005		SW6020	05/04/12 14:41 / cp
Lead	ND	mg/L		0.001		SW6020	05/04/12 14:41 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:29 / rdw
Selenium	0.028	mg/L		0.001		SW6020	05/04/12 14:41 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:41 / cp
Uranium	0.049	mg/L	D	0.0006		SW6020	05/04/12 14:41 / cp
RADIONUCLIDES							
Radium 226	0.8	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.07	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.8	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.09	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.1	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-024	**Collection Date:**	04/10/12 13:30
Client Sample ID:	MT-OP-C-S4 (72" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.004	mg/L		0.001		SW6020	05/04/12 14:44 / cp
Barium	ND	mg/L		0.05		SW6020	05/04/12 14:44 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:44 / cp
Chromium	ND	mg/L		0.005		SW6020	05/04/12 14:44 / cp
Lead	ND	mg/L		0.001		SW6020	05/04/12 14:44 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:30 / rdw
Selenium	0.025	mg/L		0.001		SW6020	05/04/12 14:44 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:44 / cp
Uranium	0.0064	mg/L	D	0.0006		SW6020	05/04/12 14:44 / cp
RADIONUCLIDES							
Radium 226	1.5	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.6	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.09	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.1	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-025
Client Sample ID: MT-OP-D-S1 (0-6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 12:45
DateReceived: 04/20/12
Matrix: Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.013	mg/L		0.001		SW6020	05/04/12 14:47 / cp
Barium	1.3	mg/L		0.05		SW6020	05/04/12 14:47 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:47 / cp
Chromium	0.007	mg/L		0.005		SW6020	05/04/12 14:47 / cp
Lead	0.008	mg/L		0.001		SW6020	05/04/12 14:47 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:31 / rdw
Selenium	0.009	mg/L		0.001		SW6020	05/04/12 14:47 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:47 / cp
Uranium	0.23	mg/L	D	0.0006		SW6020	05/04/12 14:47 / cp
RADIONUCLIDES							
Radium 226	51.9	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.5	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.5	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.07	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.09	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-026	**Collection Date:**	04/10/12 12:45
Client Sample ID:	MT-OP-D-S2 (48-50" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.001	mg/L		0.001		SW6020	05/04/12 14:49 / cp
Barium	0.05	mg/L		0.05		SW6020	05/04/12 14:49 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:49 / cp
Chromium	ND	mg/L		0.005		SW6020	05/04/12 14:49 / cp
Lead	ND	mg/L		0.001		SW6020	05/04/12 14:49 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:35 / rdw
Selenium	0.005	mg/L		0.001		SW6020	05/04/12 14:49 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:49 / cp
Uranium	0.10	mg/L	D	0.0006		SW6020	05/04/12 14:49 / cp
RADIONUCLIDES							
Radium 226	1.9	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.6	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.09	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.1	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-027	**Collection Date:**	04/10/12 12:50
Client Sample ID:	MT-OP-D-S3 (76" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.006	mg/L		0.001		SW6020	05/04/12 14:52 / cp
Barium	0.11	mg/L		0.05		SW6020	05/04/12 14:52 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:52 / cp
Chromium	0.012	mg/L		0.005		SW6020	05/04/12 14:52 / cp
Lead	0.009	mg/L		0.001		SW6020	05/04/12 14:52 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:37 / rdw
Selenium	0.002	mg/L		0.001		SW6020	05/04/12 14:52 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:52 / cp
Uranium	0.0034	mg/L	D	0.0006		SW6020	05/04/12 14:52 / cp
RADIONUCLIDES							
Radium 226	0.6	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.5	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.08	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.1	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-028	**Collection Date:**	04/10/12 09:25
Client Sample ID:	MT-8-F (6" B.G.)	**DateReceived:**	04/20/12
		Matrix:	Sediment

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE EXTRACT							
Chloride	14.2	mg/kg		1.00		E300.0	06/28/12 06:07 / ljl
Chloride, 1:1	0.402	meq/L		0.0282		E300.0	06/28/12 06:07 / ljl
Sulfate	28.9	mg/kg		1.00		E300.0	06/28/12 06:07 / ljl
Sulfate, 1:1	0.602	meq/L		0.0208		E300.0	06/28/12 06:07 / ljl
PHYSICAL CHARACTERISTICS							
Filterable	No					SW1311	04/24/12 16:14 / dcj
METALS - SPLP EXTRACTABLE							
Arsenic	0.003	mg/L		0.001		SW6020	05/04/12 14:55 / cp
Barium	ND	mg/L		0.05		SW6020	05/04/12 14:55 / cp
Cadmium	ND	mg/L		0.001		SW6020	05/04/12 14:55 / cp
Chromium	ND	mg/L		0.005		SW6020	05/04/12 14:55 / cp
Lead	0.002	mg/L		0.001		SW6020	05/04/12 14:55 / cp
Mercury	ND	mg/L		0.002		SW7470A	05/02/12 11:38 / rdw
Selenium	0.002	mg/L		0.001		SW6020	05/04/12 14:55 / cp
Silver	ND	mg/L	D	0.002		SW6020	05/04/12 14:55 / cp
Uranium	0.010	mg/L	D	0.0006		SW6020	05/04/12 14:55 / cp
RADIONUCLIDES							
Radium 226	2.3	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 precision (±)	0.1	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	07/03/12 05:26 / trs
Radium 228	0.6	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 precision (±)	0.09	pCi/g-dry				RA-05	06/26/12 17:02 / plj
Radium 228 MDC	0.1	pCi/g-dry				RA-05	06/26/12 17:02 / plj

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC2-C_120626A
Sample ID: ICV-062612-10	2	Initial Calibration Verification Standard								06/26/12 15:31
Chloride		9.60	mg/L	1.0	96	90	110			
Sulfate		38.7	mg/L	1.0	97	90	110			
Method: E300.0										Batch: 34007
Sample ID: MB-34007	2	Method Blank				Run: IC2-C_120626A				06/28/12 02:17
Chloride		ND	mg/kg	0.04						
Sulfate		0.08	mg/kg	0.06						
Sample ID: LCS1-34007	2	Laboratory Control Sample				Run: IC2-C_120626A				06/28/12 02:33
Chloride		35.9	mg/kg	1.0	101	70	130			
Sulfate		1730	mg/kg	1.0	95	70	130			
Sample ID: C12041044-011CPDS	2	Post Digestion/Distillation Spike				Run: IC2-C_120626A				06/28/12 04:28
Chloride		280	mg/kg	1.0	94	80	120			
Sulfate		2570	mg/kg	1.0	92	80	120			
Sample ID: C12041044-028CDUP	2	Sample Duplicate				Run: IC2-C_120626A				06/28/12 06:23
Chloride		14.0	mg/kg	1.0				1.8	20	
Sulfate		28.1	mg/kg	1.0				2.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12

Client: Rio Grande Resources Corporation

Report Date: 06/13/12

Project: Mt. Taylor Mine Closure Plan

Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: 34025
Sample ID: C12041044-023BMS		Sample Matrix Spike				Run: BERTHOLD 770-1_120621B				07/03/12 05:26
Radium 226		2.9	pCi/g-dry		85	70	130			
Sample ID: C12041044-023BMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_120621B				07/03/12 05:26
Radium 226		2.8	pCi/g-dry		85	70	130	3.6	22.9	
Sample ID: LCS-34025		Laboratory Control Sample				Run: BERTHOLD 770-1_120621B				07/03/12 05:26
Radium 226		0.41	pCi/g-dry		85	70	130			
Sample ID: MB-34025	3	Method Blank				Run: BERTHOLD 770-1_120621B				07/03/12 07:45
Radium 226		0.0009	pCi/g-dry							U
Radium 226 precision (±)		0.004	pCi/g-dry							
Radium 226 MDC		0.006	pCi/g-dry							
Method: E903.0										Batch: 34023
Sample ID: C12041044-022BMS		Sample Matrix Spike				Run: BERTHOLD 770-1_120621C				07/10/12 16:03
Radium 226		3.6	pCi/g-dry		80	70	130			
Sample ID: C12041044-022BMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_120621C				07/10/12 16:03
Radium 226		3.7	pCi/g-dry		85	70	130	2.9	22.7	
Sample ID: LCS-34023		Laboratory Control Sample				Run: BERTHOLD 770-1_120621C				07/10/12 16:03
Radium 226		0.33	pCi/g-dry		69	70	130			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
Sample ID: MB-34023	3	Method Blank				Run: BERTHOLD 770-1_120621C				07/10/12 16:03
Radium 226		-0.002	pCi/g-dry							U
Radium 226 precision (±)		0.006	pCi/g-dry							
Radium 226 MDC		0.01	pCi/g-dry							
Method: E903.0										Batch: 34004
Sample ID: MB-34004	3	Method Blank				Run: BERTHOLD 770-2_120620A				07/02/12 23:59
Radium 226		0.1	pCi/g-dry							
Radium 226 precision (±)		0.03	pCi/g-dry							
Radium 226 MDC		0.02	pCi/g-dry							
Sample ID: LCS-34004		Laboratory Control Sample				Run: BERTHOLD 770-2_120620A				07/02/12 23:59
Radium 226		1.4	pCi/g-dry		87	70	130			
Sample ID: C12041044-003BMS		Sample Matrix Spike				Run: BERTHOLD 770-2_120620A				07/03/12 03:34
Radium 226		2.5	pCi/g-dry		104	70	130			
Sample ID: C12041044-003BMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_120620A				07/03/12 03:34
Radium 226		2.2	pCi/g-dry		87	70	130	12	20.8	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: 34004
Sample ID: LCS-34004		Laboratory Control Sample				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.5	pCi/g-dry		104	70	130			
Sample ID: MB-34004	3	Method Blank				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		0.07	pCi/g-dry							U
Radium 228 precision (±)		0.2	pCi/g-dry							
Radium 228 MDC		0.3	pCi/g-dry							
Sample ID: C12041044-003BMS		Sample Matrix Spike				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.8	pCi/g-dry		93	70	130			
Sample ID: C12041044-003BMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_120620B				06/25/12 15:52
Radium 228		1.9	pCi/g-dry		101	70	130	6.0	33.5	
Method: RA-05										Batch: 34025
Sample ID: LCS-34025		Laboratory Control Sample				Run: TENNELEC-3_120621B				06/26/12 17:02
Radium 228		0.24	pCi/g-dry		83	70	130			
Sample ID: MB-34025	3	Method Blank				Run: TENNELEC-3_120621B				06/26/12 17:02
Radium 228		0.002	pCi/g-dry							U
Radium 228 precision (±)		0.03	pCi/g-dry							
Radium 228 MDC		0.04	pCi/g-dry							
Sample ID: C12041044-028BMS		Sample Matrix Spike				Run: TENNELEC-3_120621B				06/26/12 17:02
Radium 228		1.7	pCi/g-dry		71	70	130			
Sample ID: C12041044-028BMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_120621B				06/26/12 17:02
Radium 228		1.7	pCi/g-dry		78	70	130	3.0	32.3	
Method: RA-05										Batch: Ra228-4136
Sample ID: LCS-34023		Laboratory Control Sample				Run: TENNELEC-3_120621D				07/05/12 21:05
Radium 228		0.36	pCi/g-dry		129	70	130			
Sample ID: MB-34023	3	Method Blank				Run: TENNELEC-3_120621D				07/05/12 21:05
Radium 228		-0.010	pCi/g-dry							U
Radium 228 precision (±)		0.04	pCi/g-dry							
Radium 228 MDC		0.06	pCi/g-dry							
Sample ID: C12041044-022BMS		Sample Matrix Spike				Run: TENNELEC-3_120621D				07/05/12 21:06
Radium 228		1.7	pCi/g-dry		80	70	130			
Sample ID: C12041044-022BMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_120621D				07/05/12 21:06
Radium 228		2.1	pCi/g-dry		110	70	130	19	36.9	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12
Client: Rio Grande Resources Corporation **Report Date:** 06/13/12
Project: Mt. Taylor Mine Closure Plan **Work Order:** C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_120501A
Sample ID: ICV	8	Initial Calibration Verification Standard								05/01/12 13:14
Arsenic		0.0490	mg/L	0.0010	98	90	110			
Barium		0.0486	mg/L	0.0010	97	90	110			
Cadmium		0.0491	mg/L	0.0010	98	90	110			
Chromium		0.0501	mg/L	0.0010	100	90	110			
Lead		0.0483	mg/L	0.0010	97	90	110			
Selenium		0.0501	mg/L	0.0010	100	90	110			
Silver		0.0207	mg/L	0.0010	103	90	110			
Uranium		0.0485	mg/L	0.00030	97	90	110			
Sample ID: ICSA	8	Interference Check Sample A								05/01/12 13:16
Arsenic		0.0103	mg/L	0.0010						
Barium		3.16E-05	mg/L	0.0010						
Cadmium		0.0104	mg/L	0.0010						
Chromium		0.0104	mg/L	0.0010						
Lead		3.39E-05	mg/L	0.0010						
Selenium		8.30E-06	mg/L	0.0010						
Silver		0.0108	mg/L	0.0010						
Uranium		6.80E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								05/01/12 13:19
Arsenic		0.0103	mg/L	0.0010	103	70	130			
Barium		4.64E-05	mg/L	0.0010						
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Chromium		0.0105	mg/L	0.0010	105	70	130			
Lead		3.92E-05	mg/L	0.0010						
Selenium		1.39E-05	mg/L	0.0010						
Silver		0.0107	mg/L	0.0010	107	70	130			
Uranium		1.47E-05	mg/L	0.00030						
Method: SW6020										Batch: 33469
Sample ID: MB-33469	8	Method Blank				Run: ICPMS2-C_120501A				05/01/12 13:45
Arsenic		ND	mg/L	6E-05						
Barium		0.005	mg/L	3E-05						
Cadmium		0.0001	mg/L	1E-05						
Chromium		0.002	mg/L	4E-05						
Lead		0.0001	mg/L	3E-05						
Selenium		0.0002	mg/L	0.0002						
Silver		0.002	mg/L	3E-05						
Uranium		0.001	mg/L	1E-05						
Sample ID: LCS3-33469	8	Laboratory Control Sample				Run: ICPMS2-C_120501A				05/01/12 13:47
Arsenic		0.47	mg/L	0.0010	93	80	120			
Barium		0.51	mg/L	0.050	100	80	120			
Cadmium		0.24	mg/L	0.0010	96	80	120			
Chromium		0.49	mg/L	0.0050	98	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33469
Sample ID: LCS3-33469	8	Laboratory Control Sample				Run: ICPMS2-C_120501A				05/01/12 13:47
Lead		0.51	mg/L	0.0010	101	80	120			
Selenium		0.43	mg/L	0.0010	86	80	120			
Silver		0.054	mg/L	0.0020	104	80	120			
Uranium		0.51	mg/L	0.00060	101	80	120			
Sample ID: LCSD3-33469	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120501A				05/01/12 13:50
Arsenic		0.47	mg/L	0.0010	94	80	120	0.9	20	
Barium		0.51	mg/L	0.050	101	80	120	1.1	20	
Cadmium		0.24	mg/L	0.0010	96	80	120	0.1	20	
Chromium		0.49	mg/L	0.0050	97	80	120	0.4	20	
Lead		0.51	mg/L	0.0010	102	80	120	0.8	20	
Selenium		0.43	mg/L	0.0010	86	80	120	0.6	20	
Silver		0.055	mg/L	0.0020	106	80	120	2.1	20	
Uranium		0.51	mg/L	0.00060	101	80	120	0.0	20	
Sample ID: C12041044-004ADIL	8	Serial Dilution				Run: ICPMS2-C_120501A				05/01/12 13:58
Arsenic		0.0054	mg/L	0.0050		0	0		20	N
Barium		0.037	mg/L	0.050		0	0		20	
Cadmium		0.00042	mg/L	0.0050		0	0		20	N
Chromium		0.0071	mg/L	0.0050		0	0	5.0	20	
Lead		0.0028	mg/L	0.0050		0	0		20	N
Selenium		0.0026	mg/L	0.0050		0	0		20	N
Silver		0.00070	mg/L	0.010		0	0		20	N
Uranium		0.0029	mg/L	0.0030		0	0		20	
Sample ID: C12041044-003AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120501A				05/01/12 14:26
Arsenic		0.47	mg/L	0.0010	94	75	125			
Barium		0.53	mg/L	0.050	103	75	125			
Cadmium		0.24	mg/L	0.0010	98	75	125			
Chromium		0.50	mg/L	0.0050	98	75	125			
Lead		0.52	mg/L	0.0010	103	75	125			
Selenium		0.44	mg/L	0.0010	88	75	125			
Silver		0.054	mg/L	0.0020	22	75	125			S
Uranium		0.54	mg/L	0.00060	106	75	125			
Method: SW6020										Batch: 33470
Sample ID: MB-33470	8	Method Blank				Run: ICPMS2-C_120501A				05/01/12 14:35
Arsenic		0.0003	mg/L	6E-05						
Barium		0.005	mg/L	3E-05						
Cadmium		0.0001	mg/L	1E-05						
Chromium		0.004	mg/L	4E-05						
Lead		9E-05	mg/L	3E-05						
Selenium		0.0003	mg/L	0.0002						
Silver		0.0006	mg/L	3E-05						
Uranium		0.0006	mg/L	1E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33470
Sample ID: LCS3-33470	8	Laboratory Control Sample				Run: ICPMS2-C_120501A				05/01/12 14:49
Arsenic		0.47	mg/L	0.0010	95	80	120			
Barium		0.52	mg/L	0.050	102	80	120			
Cadmium		0.24	mg/L	0.0010	98	80	120			
Chromium		0.49	mg/L	0.0050	97	80	120			
Lead		0.51	mg/L	0.0010	103	80	120			
Selenium		0.45	mg/L	0.0010	89	80	120			
Silver		0.057	mg/L	0.0020	112	80	120			
Uranium		0.52	mg/L	0.00060	104	80	120			
Sample ID: LCSD3-33470	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120501A				05/01/12 14:51
Arsenic		0.47	mg/L	0.0010	94	80	120	1.1	20	
Barium		0.52	mg/L	0.050	103	80	120	0.4	20	
Cadmium		0.24	mg/L	0.0010	98	80	120	0.0	20	
Chromium		0.49	mg/L	0.0050	98	80	120	1.0	20	
Lead		0.51	mg/L	0.0010	103	80	120	0.2	20	
Selenium		0.44	mg/L	0.0010	89	80	120	0.3	20	
Silver		0.056	mg/L	0.0020	110	80	120	1.9	20	
Uranium		0.52	mg/L	0.00060	103	80	120	0.7	20	
Sample ID: C12041044-010ADIL	8	Serial Dilution				Run: ICPMS2-C_120501A				05/01/12 14:59
Arsenic		0.0083	mg/L	0.0050		0	0	8.8	20	
Barium		1.1	mg/L	0.050		0	0	3.4	20	
Cadmium		0.00051	mg/L	0.0050		0	0		20	N
Chromium		0.0088	mg/L	0.0050		0	0	10	20	
Lead		0.0032	mg/L	0.0050		0	0		20	N
Selenium		0.019	mg/L	0.0050		0	0		20	N
Silver		ND	mg/L	0.010		0	0		20	
Uranium		0.033	mg/L	0.0030		0	0	0.5	20	
Sample ID: C12041044-009AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120501A				05/01/12 15:30
Arsenic		0.47	mg/L	0.0010	95	75	125			
Barium		0.54	mg/L	0.050	103	75	125			
Cadmium		0.25	mg/L	0.0010	99	75	125			
Chromium		0.49	mg/L	0.0050	98	75	125			
Lead		0.51	mg/L	0.0010	102	75	125			
Selenium		0.45	mg/L	0.0010	90	75	125			
Silver		0.054	mg/L	0.0020	21	75	125			S
Uranium		0.52	mg/L	0.00060	105	75	125			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12

Client: Rio Grande Resources Corporation **Report Date:** 06/13/12

Project: Mt. Taylor Mine Closure Plan **Work Order:** C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_120504A
Sample ID: ICV	8	Initial Calibration Verification Standard								05/04/12 13:40
Arsenic		0.0494	mg/L	0.0010	99	90	110			
Barium		0.0500	mg/L	0.0010	100	90	110			
Cadmium		0.0497	mg/L	0.0010	99	90	110			
Chromium		0.0490	mg/L	0.0010	98	90	110			
Lead		0.0497	mg/L	0.0010	99	90	110			
Selenium		0.0498	mg/L	0.0010	100	90	110			
Silver		0.0209	mg/L	0.0010	105	90	110			
Uranium		0.0510	mg/L	0.00030	102	90	110			
Sample ID: ICSA	8	Interference Check Sample A								05/04/12 13:43
Arsenic		0.0106	mg/L	0.0010						
Barium		8.40E-06	mg/L	0.0010						
Cadmium		0.0106	mg/L	0.0010						
Chromium		0.0105	mg/L	0.0010						
Lead		3.57E-05	mg/L	0.0010						
Selenium		0.000221	mg/L	0.0010						
Silver		0.0109	mg/L	0.0010						
Uranium		6.77E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								05/04/12 13:46
Arsenic		0.0104	mg/L	0.0010	104	70	130			
Barium		7.45E-05	mg/L	0.0010						
Cadmium		0.0104	mg/L	0.0010	104	70	130			
Chromium		0.0104	mg/L	0.0010	104	70	130			
Lead		3.87E-05	mg/L	0.0010						
Selenium		3.16E-05	mg/L	0.0010						
Silver		0.0106	mg/L	0.0010	105	70	130			
Uranium		1.56E-05	mg/L	0.00030						
Method: SW6020										Batch: 33541
Sample ID: MB-33541	8	Method Blank				Run: ICPMS2-C_120504A				05/04/12 14:11
Arsenic		0.0005	mg/L	6E-05						
Barium		0.006	mg/L	3E-05						
Cadmium		0.0001	mg/L	1E-05						
Chromium		0.003	mg/L	4E-05						
Lead		0.0002	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Silver		0.002	mg/L	3E-05						
Uranium		0.0003	mg/L	1E-05						
Sample ID: LCS3-33541	8	Laboratory Control Sample				Run: ICPMS2-C_120504A				05/04/12 14:14
Arsenic		0.46	mg/L	0.0010	93	80	120			
Barium		0.49	mg/L	0.050	96	80	120			
Cadmium		0.23	mg/L	0.0010	94	80	120			
Chromium		0.48	mg/L	0.0050	95	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33541
Sample ID: LCS3-33541	8	Laboratory Control Sample				Run: ICPMS2-C_120504A				05/04/12 14:14
Lead		0.49	mg/L	0.0010	97	80	120			
Selenium		0.44	mg/L	0.0010	89	80	120			
Silver		0.051	mg/L	0.0020	97	80	120			
Uranium		0.50	mg/L	0.00060	99	80	120			
Sample ID: LCSD3-33541	8	Laboratory Control Sample Duplicate				Run: ICPMS2-C_120504A				05/04/12 14:16
Arsenic		0.48	mg/L	0.0010	95	80	120	2.6	20	
Barium		0.50	mg/L	0.050	98	80	120	1.9	20	
Cadmium		0.24	mg/L	0.0010	96	80	120	2.3	20	
Chromium		0.49	mg/L	0.0050	98	80	120	3.7	20	
Lead		0.50	mg/L	0.0010	100	80	120	2.8	20	
Selenium		0.46	mg/L	0.0010	91	80	120	2.4	20	
Silver		0.053	mg/L	0.0020	101	80	120	4.0	20	
Uranium		0.50	mg/L	0.00060	99	80	120	0.1	20	
Sample ID: C12041044-022AMS3	8	Sample Matrix Spike				Run: ICPMS2-C_120504A				05/04/12 14:25
Arsenic		0.48	mg/L	0.0010	94	75	125			
Barium		0.55	mg/L	0.050	100	75	125			
Cadmium		0.24	mg/L	0.0010	96	75	125			
Chromium		0.48	mg/L	0.0050	95	75	125			
Lead		0.50	mg/L	0.0010	100	75	125			
Selenium		0.47	mg/L	0.0010	91	75	125			
Silver		0.050	mg/L	0.0020	20	75	125			S
Uranium		0.64	mg/L	0.00060	100	75	125			
Sample ID: C12041044-028ADIL	8	Serial Dilution				Run: ICPMS2-C_120504A				05/04/12 14:58
Arsenic		0.0038	mg/L	0.0050		0	0		20	N
Barium		0.029	mg/L	0.050		0	0		20	
Cadmium		0.00016	mg/L	0.0050		0	0		20	N
Chromium		0.0040	mg/L	0.0050		0	0		20	N
Lead		0.0018	mg/L	0.0050		0	0		20	N
Selenium		0.0079	mg/L	0.0050		0	0		20	N
Silver		ND	mg/L	0.010		0	0		20	
Uranium		0.011	mg/L	0.0030		0	0	5.0	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS4-C_120425B
Sample ID: ICV	8	Initial Calibration Verification Standard								04/25/12 11:08
Arsenic		0.0486	mg/L	0.0010	97	90	110			
Barium		0.0497	mg/L	0.0010	99	90	110			
Cadmium		0.0501	mg/L	0.0010	100	90	110			
Chromium		0.0491	mg/L	0.0010	98	90	110			
Lead		0.0497	mg/L	0.0010	99	90	110			
Selenium		0.0485	mg/L	0.0010	97	90	110			
Silver		0.0193	mg/L	0.0010	97	90	110			
Uranium		0.0481	mg/L	0.00030	96	90	110			
Sample ID: ICSA	8	Interference Check Sample A								04/25/12 11:12
Arsenic		2.21E-05	mg/L	0.0010						
Barium		2.39E-05	mg/L	0.0010						
Cadmium		4.21E-05	mg/L	0.0010						
Chromium		2.05E-05	mg/L	0.0010						
Lead		1.30E-05	mg/L	0.0010						
Selenium		7.84E-05	mg/L	0.0010						
Silver		-0.000229	mg/L	0.0010						
Uranium		2.36E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								04/25/12 11:17
Arsenic		0.0113	mg/L	0.0010	113	70	130			
Barium		1.46E-05	mg/L	0.0010						
Cadmium		0.0109	mg/L	0.0010	109	70	130			
Chromium		0.0115	mg/L	0.0010	115	70	130			
Lead		5.40E-06	mg/L	0.0010						
Selenium		7.00E-07	mg/L	0.0010						
Silver		0.00988	mg/L	0.0010	99	70	130			
Uranium		8.30E-06	mg/L	0.00030						
Method: SW6020										Batch: 33440
Sample ID: MB-33440	8	Method Blank				Run: ICPMS4-C_120425B				04/25/12 19:38
Arsenic		0.0004	mg/L	7E-05						
Barium		0.01	mg/L	0.0001						
Cadmium		0.0001	mg/L	4E-05						
Chromium		ND	mg/L	0.001						
Lead		0.0002	mg/L	3E-05						
Selenium		0.0001	mg/L	6E-05						
Silver		0.001	mg/L	2E-05						
Uranium		0.004	mg/L	5E-05						
Sample ID: LCS3-33440	8	Laboratory Control Sample				Run: ICPMS4-C_120425B				04/25/12 19:43
Arsenic		0.46	mg/L	0.0010	91	80	120			
Barium		0.50	mg/L	0.050	98	80	120			
Cadmium		0.24	mg/L	0.0010	97	80	120			
Chromium		0.50	mg/L	0.0050	101	80	120			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan

Revised Date: 07/10/12
Report Date: 06/13/12
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33440
Sample ID: LCS3-33440	8	Laboratory Control Sample				Run: ICPMS4-C_120425B				04/25/12 19:43
Lead		0.51	mg/L	0.0010	103	80	120			
Selenium		0.44	mg/L	0.0010	87	80	120			
Silver		0.053	mg/L	0.0010	104	80	120			
Uranium		0.50	mg/L	0.00030	99	80	120			
Sample ID: LCSD3-33440	8	Laboratory Control Sample Duplicate				Run: ICPMS4-C_120425B				04/25/12 20:05
Arsenic		0.47	mg/L	0.0010	94	80	120	2.8	20	
Barium		0.50	mg/L	0.050	99	80	120	1.0	20	
Cadmium		0.25	mg/L	0.0010	98	80	120	1.0	20	
Chromium		0.52	mg/L	0.0050	104	80	120	3.4	20	
Lead		0.51	mg/L	0.0010	103	80	120	0.0	20	
Selenium		0.44	mg/L	0.0010	89	80	120	1.5	20	
Silver		0.054	mg/L	0.0010	106	80	120	1.7	20	
Uranium		0.51	mg/L	0.00030	100	80	120	1.0	20	
Sample ID: C12041044-002ADIL	8	Serial Dilution				Run: ICPMS4-C_120425B				04/25/12 20:19
Arsenic		0.0017	mg/L	0.0010		0	0		20	N
Barium		0.065	mg/L	0.050		0	0	2.8	20	
Cadmium		ND	mg/L	0.0010		0	0		20	
Chromium		ND	mg/L	0.011		0	0		20	
Lead		0.0028	mg/L	0.0010		0	0		20	N
Selenium		ND	mg/L	0.0010		0	0		20	
Silver		ND	mg/L	0.0010		0	0		20	
Uranium		0.010	mg/L	0.00052		0	0	5.8	20	
Sample ID: C12041044-001AMS3	8	Sample Matrix Spike				Run: ICPMS4-C_120425B				04/25/12 21:40
Arsenic		0.48	mg/L	0.0010	94	75	125			
Barium		0.68	mg/L	0.050	102	75	125			
Cadmium		0.25	mg/L	0.0010	98	75	125			
Chromium		0.55	mg/L	0.0050	107	75	125			
Lead		0.54	mg/L	0.0010	105	75	125			
Selenium		0.46	mg/L	0.0010	92	75	125			
Silver		0.053	mg/L	0.0010	21	75	125			S
Uranium		0.60	mg/L	0.00030	104	75	125			

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12

Client: Rio Grande Resources Corporation
Report Date: 06/13/12

Project: Mt. Taylor Mine Closure Plan
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS4-C_120502A
Sample ID: ICV	8	Initial Calibration Verification Standard								05/02/12 11:40
Arsenic		0.0474	mg/L	0.0010	95	90	110			
Barium		0.0493	mg/L	0.0010	99	90	110			
Cadmium		0.0496	mg/L	0.0010	99	90	110			
Chromium		0.0478	mg/L	0.0010	96	90	110			
Lead		0.0491	mg/L	0.0010	98	90	110			
Selenium		0.0481	mg/L	0.0010	96	90	110			
Silver		0.0199	mg/L	0.0010	99	90	110			
Uranium		0.0480	mg/L	0.00030	96	90	110			
Sample ID: ICSA	8	Interference Check Sample A								05/02/12 11:44
Arsenic		0.00936	mg/L	0.0010						
Barium		2.85E-05	mg/L	0.0010						
Cadmium		0.00986	mg/L	0.0010						
Chromium		0.00959	mg/L	0.0010						
Lead		2.17E-05	mg/L	0.0010						
Selenium		5.69E-05	mg/L	0.0010						
Silver		0.00979	mg/L	0.0010						
Uranium		2.50E-05	mg/L	0.00030						
Sample ID: ICSAB	8	Interference Check Sample AB								05/02/12 11:49
Arsenic		0.0100	mg/L	0.0010	100	70	130			
Barium		4.90E-05	mg/L	0.0010						
Cadmium		0.00995	mg/L	0.0010	99	70	130			
Chromium		0.0102	mg/L	0.0010	102	70	130			
Lead		8.90E-06	mg/L	0.0010						
Selenium		1.01E-05	mg/L	0.0010						
Silver		0.00963	mg/L	0.0010	96	70	130			
Uranium		4.30E-06	mg/L	0.00030						
Method: SW6020										Batch: 33486
Sample ID: MB-33486	8	Method Blank				Run: ICPMS4-C_120502A				05/02/12 20:11
Arsenic		0.001	mg/L	7E-05						
Barium		0.004	mg/L	0.0001						
Cadmium		0.0001	mg/L	4E-05						
Chromium		0.003	mg/L	0.001						
Lead		0.0001	mg/L	3E-05						
Selenium		0.0001	mg/L	6E-05						
Silver		0.0002	mg/L	2E-05						
Uranium		0.0004	mg/L	5E-05						
Sample ID: LCS3-33486	8	Laboratory Control Sample				Run: ICPMS4-C_120502A				05/02/12 20:16
Arsenic		0.47	mg/L	0.0010	94	80	120			
Barium		0.52	mg/L	0.050	102	80	120			
Cadmium		0.26	mg/L	0.0010	103	80	120			
Chromium		0.53	mg/L	0.0050	104	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12
Client: Rio Grande Resources Corporation
Report Date: 06/13/12
Project: Mt. Taylor Mine Closure Plan
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 33486
Sample ID: LCS3-33486	8	Laboratory Control Sample				Run: ICPMS4-C_120502A				05/02/12 20:16
Lead		0.54	mg/L	0.0010	108	80	120			
Selenium		0.45	mg/L	0.0010	90	80	120			
Silver		0.052	mg/L	0.0010	104	80	120			
Uranium		0.51	mg/L	0.00030	101	80	120			
Sample ID: LCSD3-33486	8	Laboratory Control Sample Duplicate				Run: ICPMS4-C_120502A				05/02/12 20:20
Arsenic		0.50	mg/L	0.0010	101	80	120	6.7	20	
Barium		0.54	mg/L	0.050	107	80	120	4.1	20	
Cadmium		0.27	mg/L	0.0010	106	80	120	3.5	20	
Chromium		0.58	mg/L	0.0050	115	80	120	9.7	20	
Lead		0.57	mg/L	0.0010	114	80	120	4.6	20	
Selenium		0.48	mg/L	0.0010	96	80	120	7.2	20	
Silver		0.055	mg/L	0.0010	110	80	120	5.5	20	
Uranium		0.52	mg/L	0.00030	104	80	120	3.0	20	
Sample ID: C12041044-016AMS3	8	Sample Matrix Spike				Run: ICPMS4-C_120502A				05/02/12 21:15
Arsenic		0.50	mg/L	0.0010	99	75	125			
Barium		0.60	mg/L	0.050	108	75	125			
Cadmium		0.26	mg/L	0.0010	106	75	125			
Chromium		0.57	mg/L	0.0050	113	75	125			
Lead		0.56	mg/L	0.0010	112	75	125			
Selenium		0.49	mg/L	0.0010	96	75	125			
Silver		0.054	mg/L	0.0010	21	75	125			S
Uranium		0.56	mg/L	0.00030	106	75	125			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12

Client: Rio Grande Resources Corporation

Report Date: 06/13/12

Project: Mt. Taylor Mine Closure Plan

Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7470A							Analytical Run: CVAA_C203_120426A			
Sample ID: ICV		Initial Calibration Verification Standard							04/26/12 11:49	
Mercury		0.00526	mg/L	0.00010	105	90	110			
Method: SW7470A									Batch: 33421	
Sample ID: MB-33421		Method Blank				Run: CVAA_C203_120426A			04/26/12 12:32	
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33421		Laboratory Control Sample				Run: CVAA_C203_120426A			04/26/12 12:33	
Mercury		0.0053	mg/L	0.0020	106	85	115			
Sample ID: LCSD-33421		Laboratory Control Sample Duplicate				Run: CVAA_C203_120426A			04/26/12 12:35	
Mercury		0.0054	mg/L	0.0020	108	85	115	1.1	10	
Sample ID: C12041044-001ASD		Serial Dilution				Run: CVAA_C203_120426A			04/26/12 12:37	
Mercury		ND	mg/L	0.0020						
Method: SW7470A							Analytical Run: CVAA_C203_120430A			
Sample ID: ICV		Initial Calibration Verification Standard							04/30/12 13:50	
Mercury		0.00522	mg/L	0.00010	104	90	110			
Method: SW7470A									Batch: 33433	
Sample ID: MB-33433		Method Blank				Run: CVAA_C203_120430A			04/30/12 15:12	
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33433		Laboratory Control Sample				Run: CVAA_C203_120430A			04/30/12 15:14	
Mercury		0.00520	mg/L	0.0020	104	85	115			
Sample ID: C12041044-003AMS		Sample Matrix Spike				Run: CVAA_C203_120430A			04/30/12 15:19	
Mercury		0.00519	mg/L	0.0020	104	85	115			
Method: SW7470A									Batch: 33434	
Sample ID: MB-33434		Method Blank				Run: CVAA_C203_120430A			04/30/12 15:30	
Mercury		ND	mg/L	3E-05						
Sample ID: C12041044-009AMS		Sample Matrix Spike				Run: CVAA_C203_120430A			04/30/12 15:36	
Mercury		0.00996	mg/L	0.0020	100	85	115			
Sample ID: LCS-33434		Laboratory Control Sample				Run: CVAA_C203_120430A			04/30/12 15:45	
Mercury		0.00504	mg/L	0.0020	101	85	115			
Method: SW7470A									Batch: 33465	
Sample ID: MB-33465		Method Blank				Run: CVAA_C203_120430A			04/30/12 15:52	
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33465		Laboratory Control Sample				Run: CVAA_C203_120430A			04/30/12 15:55	
Mercury		0.00497	mg/L	0.0020	99	85	115			
Sample ID: C12041044-016AMS		Sample Matrix Spike				Run: CVAA_C203_120430A			04/30/12 16:04	
Mercury		0.0105	mg/L	0.0020	105	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 07/10/12
Client: Rio Grande Resources Corporation
Report Date: 06/13/12
Project: Mt. Taylor Mine Closure Plan
Work Order: C12041044

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7470A										Analytical Run: CVAA_C203_120502A
Sample ID: ICV		Initial Calibration Verification Standard								05/02/12 10:05
Mercury		0.00516	mg/L	0.00010	103	90	110			
Method: SW7470A										Batch: 33523
Sample ID: MB-33523		Method Blank				Run: CVAA_C203_120502A				05/02/12 11:22
Mercury		ND	mg/L	3E-05						
Sample ID: LCS-33523		Laboratory Control Sample				Run: CVAA_C203_120502A				05/02/12 11:23
Mercury		0.00530	mg/L	0.0020	106	85	115			
Sample ID: LCSD-33523		Laboratory Control Sample Duplicate				Run: CVAA_C203_120502A				05/02/12 11:25
Mercury		0.00541	mg/L	0.0020	108	85	115	2.1	10	
Sample ID: C12041044-022AMS		Sample Matrix Spike				Run: CVAA_C203_120502A				05/02/12 11:27
Mercury		0.00534	mg/L	0.0020	107	85	115			
Sample ID: C12041044-028ADIL		Serial Dilution				Run: CVAA_C203_120502A				05/02/12 11:39
Mercury		ND	mg/L	0.0020					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Rio Grande Resources Corporation C12041044

Login completed by:	Kristy Gisse	Date Received:	4/20/2012
Reviewed by:	BL2000\kschroeder	Received by:	kg
Reviewed Date:	4/26/2012	Carrier name:	FedEx

	Yes	No	Other
Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☐	No ☑	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	11.2°C No Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

Sample MT-6-A-S3 insufficient volume for testing. Cancelled per phone conversation with Barbara Everett.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page 1 of 3

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: NM
- ☐ Other: ______
- ☐ A2LA
- ☒ EDD/EDT(Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers / Sample Type: A W S V B O / Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments
1	MT-1-F	4-10-12	10:45	~~Sediment~~ Soil	X	X	X				x		6" B.G.
2	MT-2-D	4-10-12	10:15	~~Sediment~~ Soil	X	X	X				x		6" B.G.
3	MT-3-F	4-10-12	11:10	~~Sediment~~ Soil	X	X	X				x		6" B.6
4	MT-4-F	4-10-12	9:35	~~Sediment~~ Soil	X	X	X	X			x		6" B.G
5	MT-5-F	4-10-12	10:00	~~Sediment~~ Soil	X	X	X	X			x		6" B.G.
6	MT-7-C	4-10-12	9:45	~~Sediment~~ Soil	X	X	X				x		6" B.G.
7	MT-OP-E	4-10-12	9:00	~~Sediment~~ Soil	X	X	X				x		6" B.G.
8	MT-A-C	4-10-12	10:55	~~Sediment~~ Soil	X	X	X				x		6" B.G.
9	MT-Borrow/Backyard	4-10-12	1~~4~~:00	~~Sediment~~ Soil	X	X	X				x		6" B.G.
10				~~Sediment~~ Soil							x		~~6" B.G.~~

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: FE-NOA
Cooler ID(s): 6 Buckets
Receipt Temp 11.2 °C
On Ice: Yes No
Custody Seal Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
ED LOESCHER	4/11/2012	[signature]	Barbara Everett	4/11/2012 15:00	[signature]
BARBARA EVERETT	4/19/2012 16:00	[signature]			

Sample Disposal: Return to Client: ______ Lab Disposal: X

Received by Laboratory: Date/Time: 4-20-12 9:45 Signature: Kris Gross

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: NM
- ☐ Other: ______
- ☐ A2LA
- ☒ EDD/EDT (Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED — SEE ATTACHED

R U S H — Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI	Normal Turnaround (TAT)	Comments
2	1 MT4D-S1	4-10-12	2:05	Sediment	X	X	X	X		x	0-6" B.G.
2	2 MT-4-D-S2	4-10-12	2:10	Sediment	X	X	X	X		x	14" B.G.
2	3 MT-4-D-S3	4-10-12	2:20	Sediment	X	X	X	X		x	48" B.G.
3	4 MT-4-E-S1	4-10-12	1:35	Sediment	X	X	X	X		x	0-4" B.G.
3	5 MT-4-E-S2	4-10-12	1:40	Sediment	X	X	X	X		x	10-12" B.G
3	6 MT-4-E-S3	4-10-12	1:42	Sediment	X	X	X	X		x	36" B.G.
3	7 MT-4-E-S4	4-10-12	1:45	Sediment	X	X	X	X		x	48" B.G
	8 MT-6-A-S1	4-10-12	3:05	Sediment	X	X	X			x	0"-5" B.G.
	9 MT-6-A-S2	4-10-12	3:10	Sediment	X	X	X			x	12"-20" B.G.
	10 MT-6-A-S3	4-10-12	3:15	~~Sediment~~	X	X	X			x	Rock chip

Shipped by: FE-NOA
Cooler ID(s): 6 Buckets
Receipt Temp: 11.2 °C
On Ice: Yes No
Custody Seal Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Ed Loescher	Date/Time: 4/11/12	Signature: [signature]	Received by (print): BARBARA EVERETT Date/Time: 4/11/12 15:00 Signature: [signature]
Relinquished by (print): BARBARA EVERETT	Date/Time: 4/19/1600	Signature: [signature]	Received by (print): Date/Time: Signature:
Sample Disposal: Return to Client: ______		Lab Disposal: X	Received by Laboratory: Date/Time: 4-20-12 7:45 Signature: Kris Geissz

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information...

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corp	Project Name, PWS, Permit, Etc. Mt. Taylor Mine Closure Plan	Sample Origin State: NM	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 1150 Grants, NM 87020 Additional e-mail copy to beverett@kleinfelder.com	Contact Name: Barbara Everett (Kleinfelder) Phone/Fax: (505) 344-7373 (505) 280-1079 (Cell)	Email: beverett@kleinfelder.com	Sampler: (Please Print) Barbara Everett Ed Loescher
Invoice Address: PO Box 1150 Grants, NM 87020	Invoice Contact & Phone: Jeanette Lister 505-287-7971	Purchase Order:	Quote/Bottle Order: C3778

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: NM
- ☐ Other:
- ☐ A2LA
- ☒ EDD/EDT (Electronic Data) Format: excel
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED — SEE ATTACHED

RUSH — Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Containers	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI	Normal Turnaround (TAT)	Comments
1	1 MT-6-B-S1	4-10-12	2:30	Sediment	X	X	X			x	8"-10" B.G.
1	2 MT-6-B-S2	4-10-12	2:35	Sediment	X	X	X			x	30" B.G.
1	3 MT-OP-C-S1	4-10-12	1:20	Sediment	X	X	X			x	0"-6" B.G.
1	4 MT-OP-C-S2	4-10-12	1:25	Sediment	X	X	X			x	28" B.G.
1	5 MT-OP-C-S3	4-10-12	1:25	Sediment	X	X	X			x	48"-50" B.G.
1	6 MT-OP-C-S4	4-10-12	1:30	Sediment	X	X	X			x	72" B.G.
2	7 MT-OP-D-S1	4-10-12	12:45	Sediment	X	X	X			x	0-6" B.G.
2	8 MT-OP-D-S2	4-10-12	12:45	Sediment	X	X	X			x	48-50" B.G.
2	9 MT-OP-D-S3	4-10-12	12:50	Sediment	X	X	X			x	76" B.G.
4	10 MT-Q-F	4-10-12	09:25	Sediment	X	X	X	X		x	6" B.G.

LABORATORY USE ONLY: Shipped by: FE-MDA; Cooler ID(s): 6 buckets; Receipt Temp 11.2 °C; On Ice: Yes No (circled); Custody Seal Y N (N circled); Intact Y N; Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print): ED LOESCHER	Date/Time: 4-11-12	Signature: [signed]	Received by (print): BARBARA EVERETT	Date/Time: 4/11/12 15:00	Signature: [signed]
Relinquished by (print): BARBARA EVERETT	Date/Time: 4/19/12 16:00	Signature: [signed]	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client:	Lab Disposal: X		Received by Laboratory:	Date/Time: 4-20-12 9:45	Signature: [signed]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links…

ANALYTICAL SUMMARY REPORT

July 05, 2012

Rio Grande Resources Corporation
PO Box 1150
Grants, NM 87020

Workorder No.: C12050924

Project Name: Mt. Taylor Mine

Energy Laboratories, Inc. Casper WY received the following 3 samples for Rio Grande Resources Corporation on 5/24/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12050924-001	MT-WP-SM1	05/18/12 9:30	05/24/12	Soil	Digestion For RadioChemistry Radium 226 Uranium, Isotopic
C12050924-002	MT-WP-SM2	05/18/12 9:40	05/24/12	Soil	Same As Above
C12050924-003	MT-WP-SM3	05/18/12 10:00	05/24/12	Soil	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

Stephanie D Waldrop
Reporting Supervisor

Digitally signed by
Stephanie Waldrop
Date: 2012.07.05 16:09:59 -06:00

CLIENT: Rio Grande Resources Corporation
Project: Mt. Taylor Mine
Sample Delivery Group: C12050924

Report Date: 07/05/12

CASE NARRATIVE

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4℃ (±2℃)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Virginia: 00057; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Rio Grande Resources Corporation	**Report Date:**	07/05/12
Project:	Mt. Taylor Mine	**Collection Date:**	05/18/12 09:30
Lab ID:	C12050924-001	**DateReceived:**	05/24/12
Client Sample ID:	MT-WP-SM1	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Radium 226	0.7	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 MDC	0.04	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Uranium 234	0.6	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235	0.03	pCi/g-dry	U			E908.0	06/18/12 08:39 / dmf
Uranium 235 precision (±)	0.09	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238	0.6	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine
Lab ID: C12050924-002
Client Sample ID: MT-WP-SM2

Report Date: 07/05/12
Collection Date: 05/18/12 09:40
DateReceived: 05/24/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Radium 226	0.7	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 MDC	0.03	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Uranium 234	0.8	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 MDC	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235	0.1	pCi/g-dry	U			E908.0	06/18/12 08:39 / dmf
Uranium 235 precision (±)	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235 MDC	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238	0.4	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 precision (±)	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 MDC	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine
Lab ID: C12050924-003
Client Sample ID: MT-WP-SM3

Report Date: 07/05/12
Collection Date: 05/18/12 10:00
DateReceived: 05/24/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES							
Radium 226	1.1	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 precision (±)	0.09	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Radium 226 MDC	0.03	pCi/g-dry				E903.0	06/20/12 01:37 / dmf
Uranium 234	1.1	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 precision (±)	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 234 MDC	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235	-0.02	pCi/g-dry	U			E908.0	06/18/12 08:39 / dmf
Uranium 235 precision (±)	0.09	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 235 MDC	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238	0.9	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 precision (±)	0.3	pCi/g-dry				E908.0	06/18/12 08:39 / dmf
Uranium 238 MDC	0.2	pCi/g-dry				E908.0	06/18/12 08:39 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation **Report Date:** 07/05/12

Project: Mt. Taylor Mine **Work Order:** C12050924

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: R161002
Sample ID: LCS-33822		Laboratory Control Sample				Run: BERTHOLD 770-1_120612A				06/20/12 01:37
Radium 226		0.29	pCi/g-dry		60	70	130			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
Sample ID: MB-33822	3	Method Blank				Run: BERTHOLD 770-1_120612A				06/20/12 01:37
Radium 226		-0.003	pCi/g-dry							U
Radium 226 precision (±)		0.003	pCi/g-dry							
Radium 226 MDC		0.006	pCi/g-dry							
Sample ID: C12050924-003AMS		Sample Matrix Spike				Run: BERTHOLD 770-1_120612A				06/20/12 01:37
Radium 226		4.6	pCi/g-dry		72	70	130			
Sample ID: C12050924-003AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_120612A				06/20/12 01:37
Radium 226		4.5	pCi/g-dry		71	70	130	2.5	23.8	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Rio Grande Resources Corporation **Report Date:** 07/05/12

Project: Mt. Taylor Mine **Work Order:** C12050924

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: R160930
Sample ID: C12050924-003AMS	2	Sample Matrix Spike				Run: EGG-ORTEC_120614A				06/18/12 08:39
Uranium 234		52.2	pCi/g-dry		115	70	130			
Uranium 238		53.1	pCi/g-dry		115	70	130			
Sample ID: C12050924-003AMSD	2	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_120614A				06/18/12 08:39
Uranium 234		51.9	pCi/g-dry		110	70	130	0.6	28	
Uranium 238		54.9	pCi/g-dry		114	70	130	3.3	27.8	
Sample ID: LCS-33822	2	Laboratory Control Sample				Run: EGG-ORTEC_120614A				06/18/12 08:39
Uranium 234		2.52	pCi/g-dry		108	80	120			
Uranium 238		2.59	pCi/g-dry		109	80	120			
Sample ID: MB-33822	9	Method Blank				Run: EGG-ORTEC_120614A				06/18/12 08:39
Uranium 234		0.01	pCi/g-dry							U
Uranium 234 precision (±)		0.02	pCi/g-dry							
Uranium 234 MDC		0.03	pCi/g-dry							
Uranium 235		0.0009	pCi/g-dry							U
Uranium 235 precision (±)		0.01	pCi/g-dry							
Uranium 235 MDC		0.03	pCi/g-dry							
Uranium 238		0.007	pCi/g-dry							U
Uranium 238 precision (±)		0.01	pCi/g-dry							
Uranium 238 MDC		0.03	pCi/g-dry							

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Rio Grande Resources Corporation — C12050924

Login completed by: Brian H. Cody — Date Received: 5/24/2012

Reviewed by: BL2000\kschroeder — Received by: kg

Reviewed Date: 5/25/2012 — Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	22.3°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Rio Grande Resources Corporation - NM #C11115	Project Name, PWS, Permit, Etc. MT. TAYLOR MINE	Sample Origin State: NM	EPA/State Compliance: Yes ☑ No ☐
Report Mail Address: PO Box 1150, Grants, New Mexico 87020	Contact Name: Joe Lister - Mine Manage Phone/Fax: (505)287-7971	Email: joe.lister@riograndereso	Sampler: (Please Print) Joel Lister/AK
Invoice Address: Rio grande Resources Corporation, PO Box 1150, Grants, new Mexico 87020	Invoice Contact & Phone: Joe Lister - Mine Managr	Purchase Order:	Quote/Bottle Order: Soil Samples

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT(Electronic Data) **Format:** ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers / Sample Type: A W S V B O / Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Isotopic Uranium	Radium 226								SEE ATTACHED	Normal Turnaround (TAT)
1	MT - WP - SM1	05/18/12	09:30	soil	X	X									
2	MT - WP - SM2	05/18/12	09:40	soil	X	X									
3	MT - WP - SM3	05/18/12	10:00	soil	X	X									
4															
5															
6															
7															
8															
9															
10															

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: UPS-6
Cooler ID(s): BOT
Receipt Temp 22.3 °C
On Ice: Yes No
Custody Seal Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

C12050924

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Joe Lister	05/22/12 09:19	Joel Lister			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: ______		Lab Disposal: XXXXX	Received by Laboratory:	5-24-12 9:15	Kos6:55

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

MT. TAYLOR ORE CHEMICAL ANALYSIS
MARCH 18, 1986

% BY WEIGHT

Sodium	1.62
Magnesium	0.605
Aluminum	< 0.01
Silicon	33.40
Sulfur	0.118
Chlorine	0.030
Calcium	1.06
Titanium	0.149
Vanadium	0.091
Chromium	< 0.01
Manganese	0.03
Iron	1.52
Cobalt	< 0.01
Nickel	< 0.01
Copper	< 0.01
Zinc	< 0.01
Arsenic	< 0.01
Selenium	0.009
Bromide	< 0.01
Rubidium	0.016
Strontium	0.012
Zirconium	0.009
Molybdenum	0.003
Lead	0.012
Thorium	0.009
Uranium	0.420

APPENDIX D.4

FIELD SAMPLING AND LABORATORY TEST DATA

Original Closeout Plan Soil Data

Vinyard & Associates, Inc.

4415-D Hawkins, NE
Albuquerque, New Mexico 87109
(505) 345-1937

Geotechnical Engineering • Materials Testing • Environmental Engineering

November 6, 1995

AK GeoConsult, Inc.
13212 Manitoba Drive, NE
Albuquerque, NM 87111

Attn: Mr. Alan K. Kuhn, PhD, PE

Subject: Mt. Taylor Mine Soil Samples
V & A Project No. 95-1-245

Gentlemen:

Attached are copies of the Proctor, Sieve Analysis and Atterberg Limits Test Results for the Mt. Taylor Mine Soil Samples.

Should you have any questions regarding this data, please do not hesitate to call.

Sincerely,

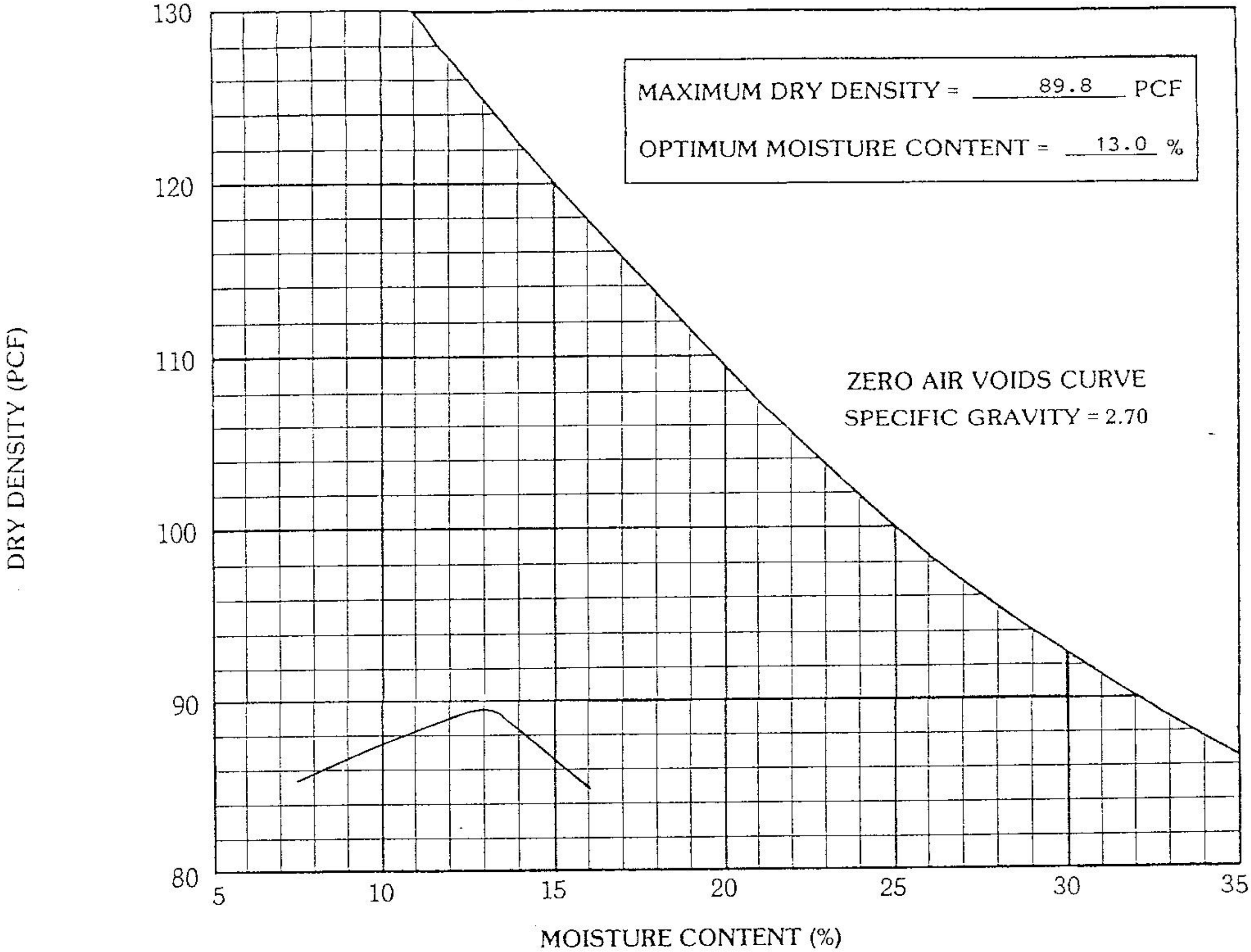
Martin D. Vinyard, PE

Attachments: Data Sheets (10)

cc: Addressee (1)

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-1

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

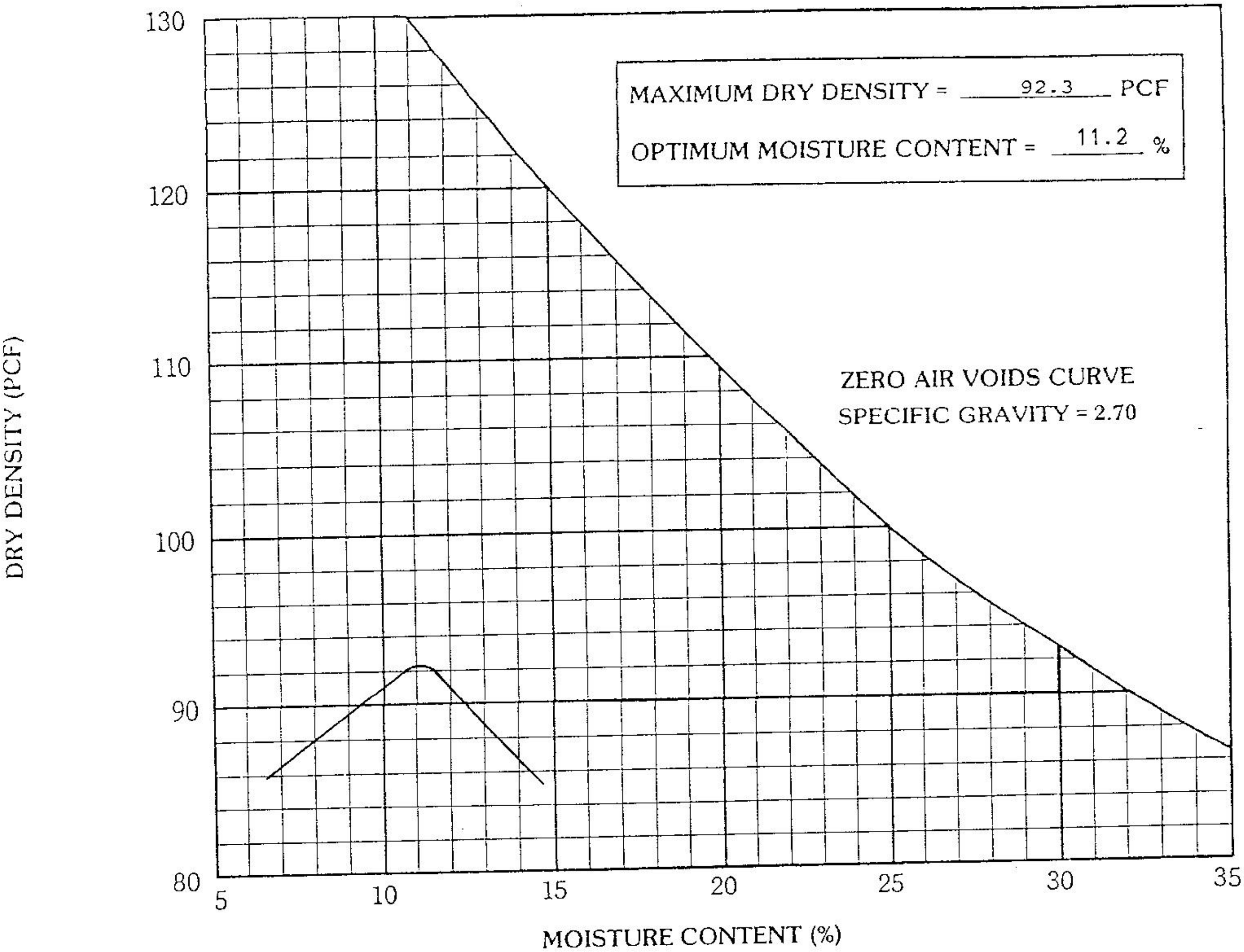
ATTERBERG LIMITS: LL 38 % PI 18 %

SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
					100	99	96	79	66.4

Project No: 95-1-245
Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-4A

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

ATTERBERG LIMITS: LL 39 % PI 21 %

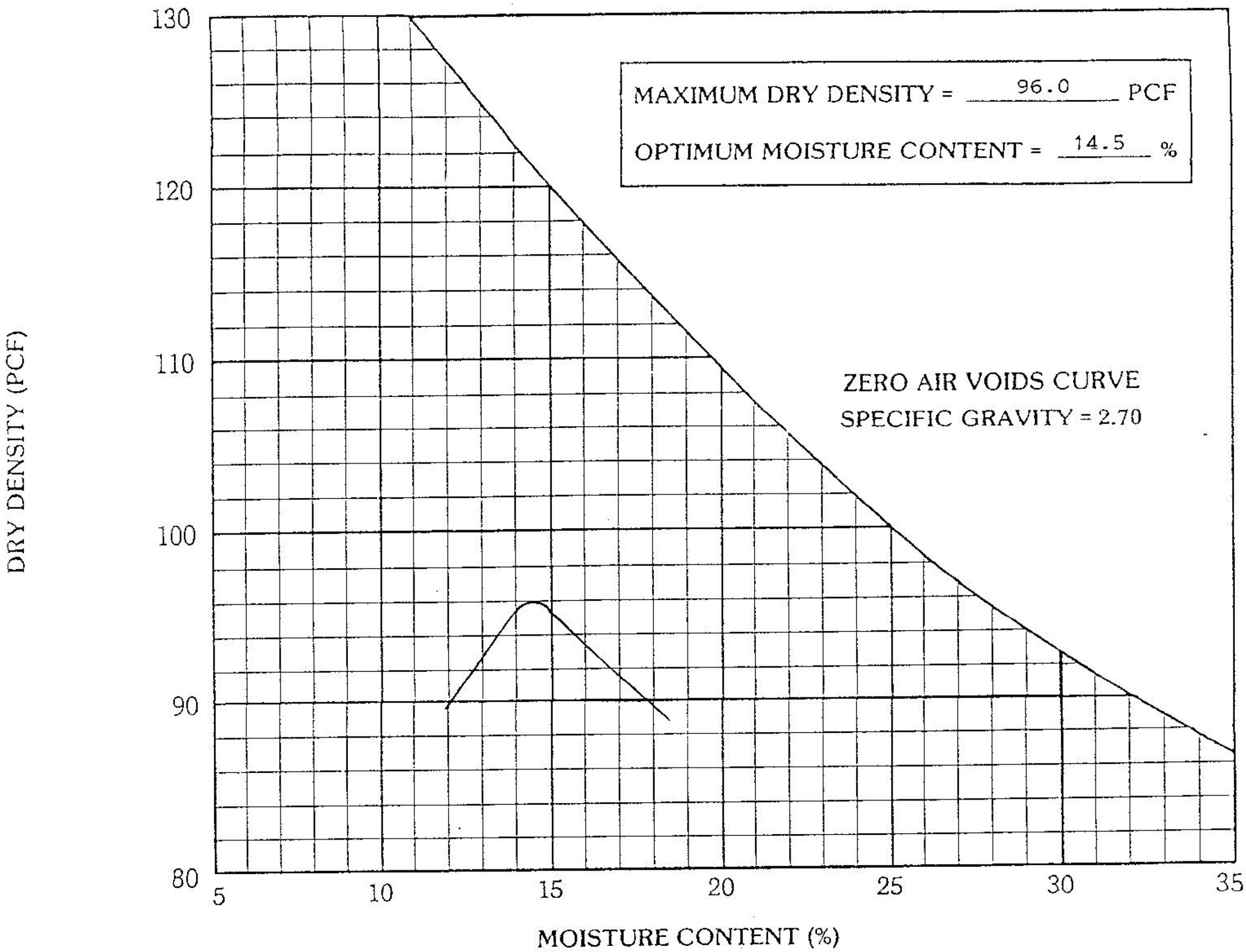
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
				100	99	97	94	80	69.4

Project No: 95-1-245

Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-6

SOIL DESCRIPTION: SAND, very clayey

UNIFIED SOIL CLASSIFICATION: (SC)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

ATTERBERG LIMITS: LL 29 % PI 14 %

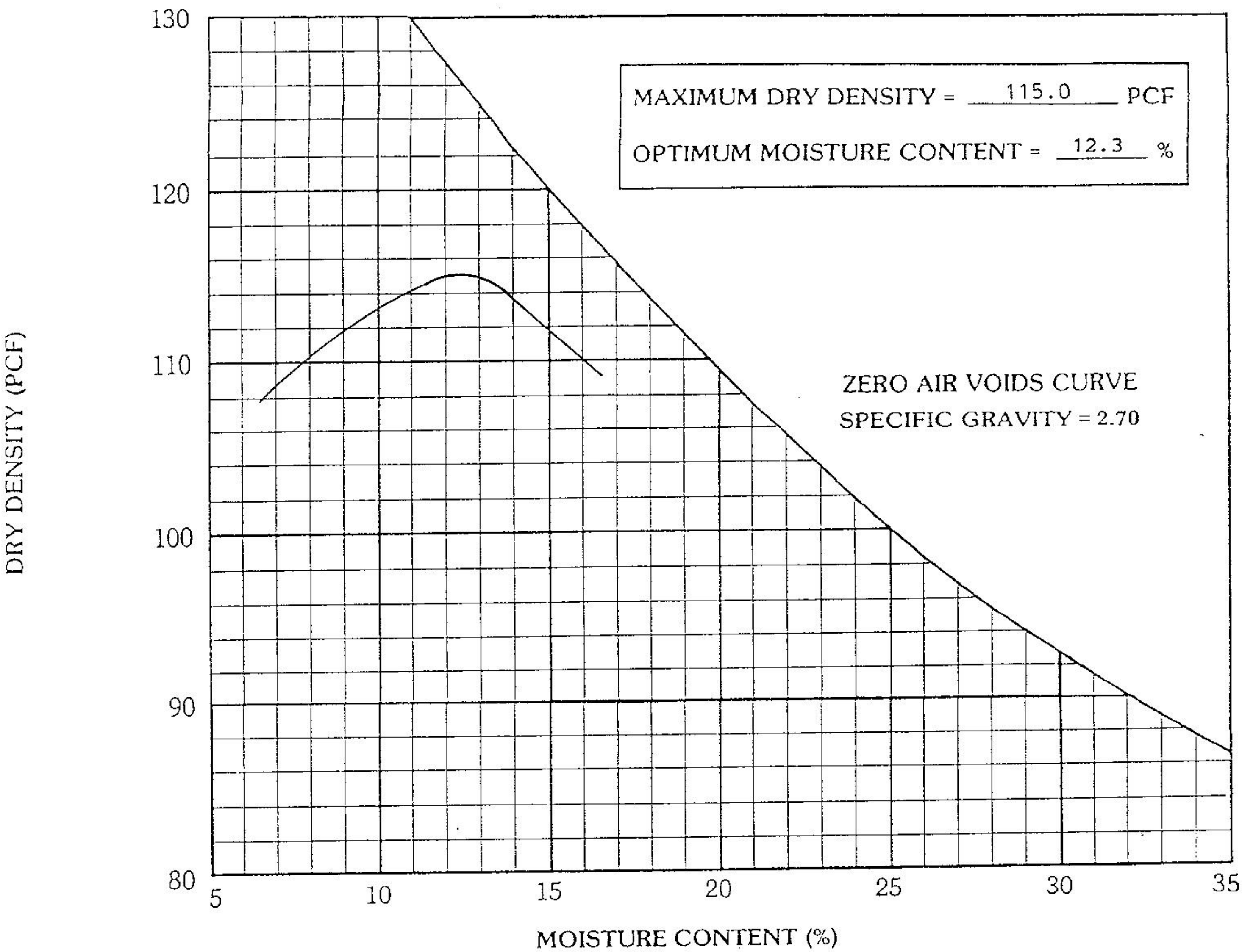
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
		100	99	98	95	93	89	63	48.5

Project No: 95-1-245

Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-7

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

ATTERBERG LIMITS: LL 38 % PI 21 %

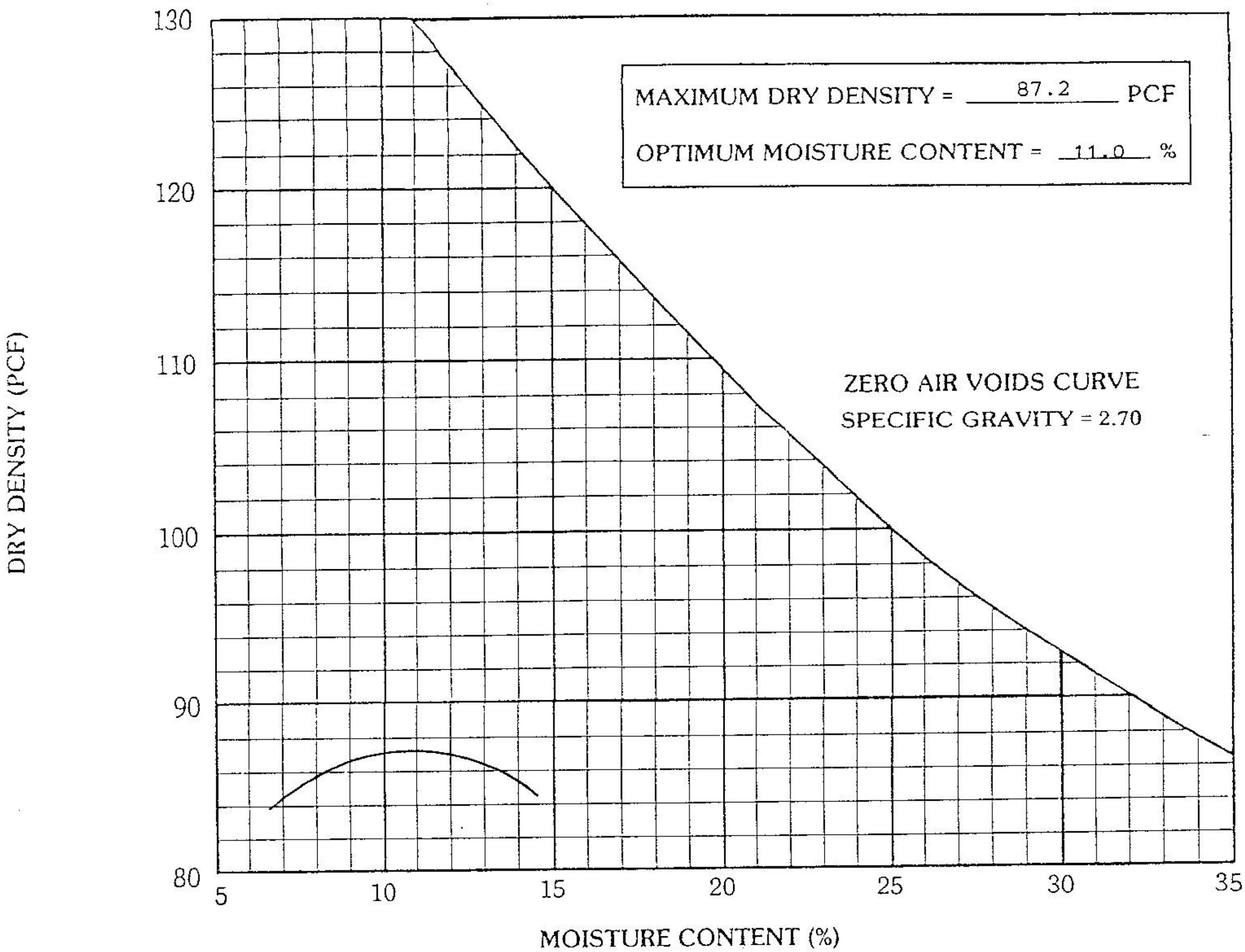
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
				100	99	96	92	76	67.3

Project No: 95-1-245

Figure

COMPACTION TEST RESULTS

V & A



SAMPLE LOCATION: TP-8

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

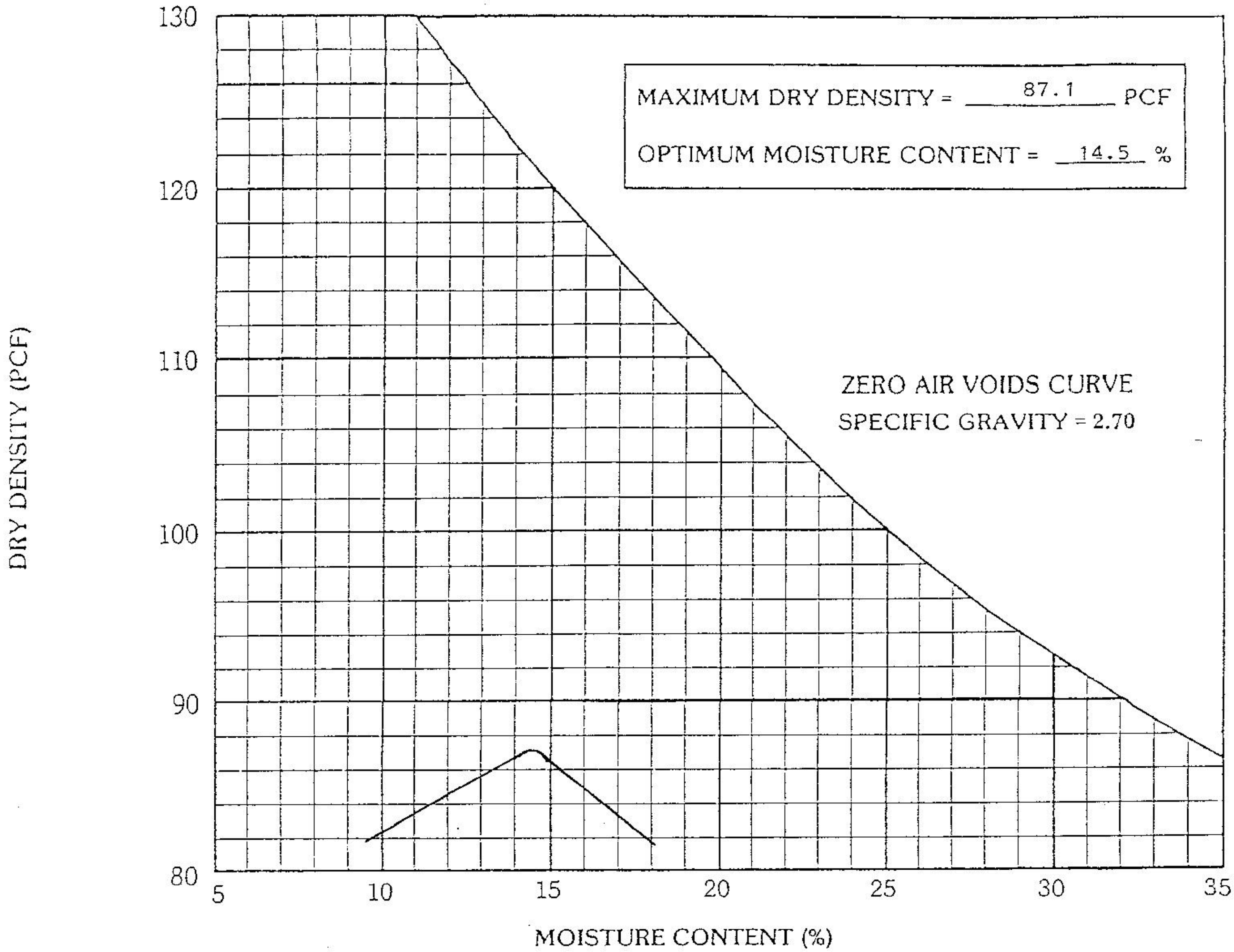
ATTERBERG LIMITS: LL 37 % PI 20 %

SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
				100	99	97	94	78	63.3

Project No: 95-1-245
Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-9

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

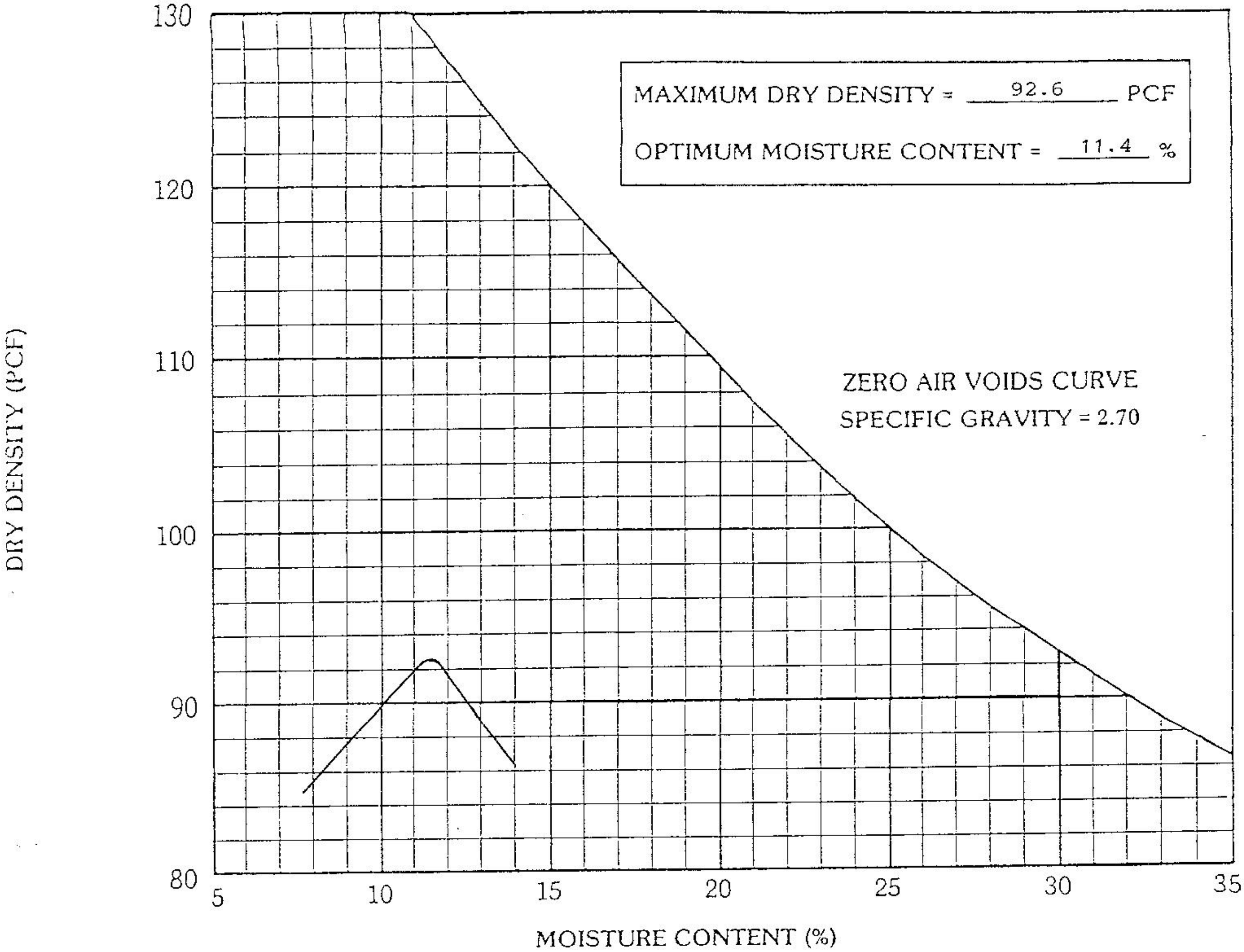
ATTERBERG LIMITS: LL 44 % PI 26 %

SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
					100	99	97	90	79.5

Project No: 95-1-245
Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-10

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

ATTERBERG LIMITS: LL 34 % PI 19 %

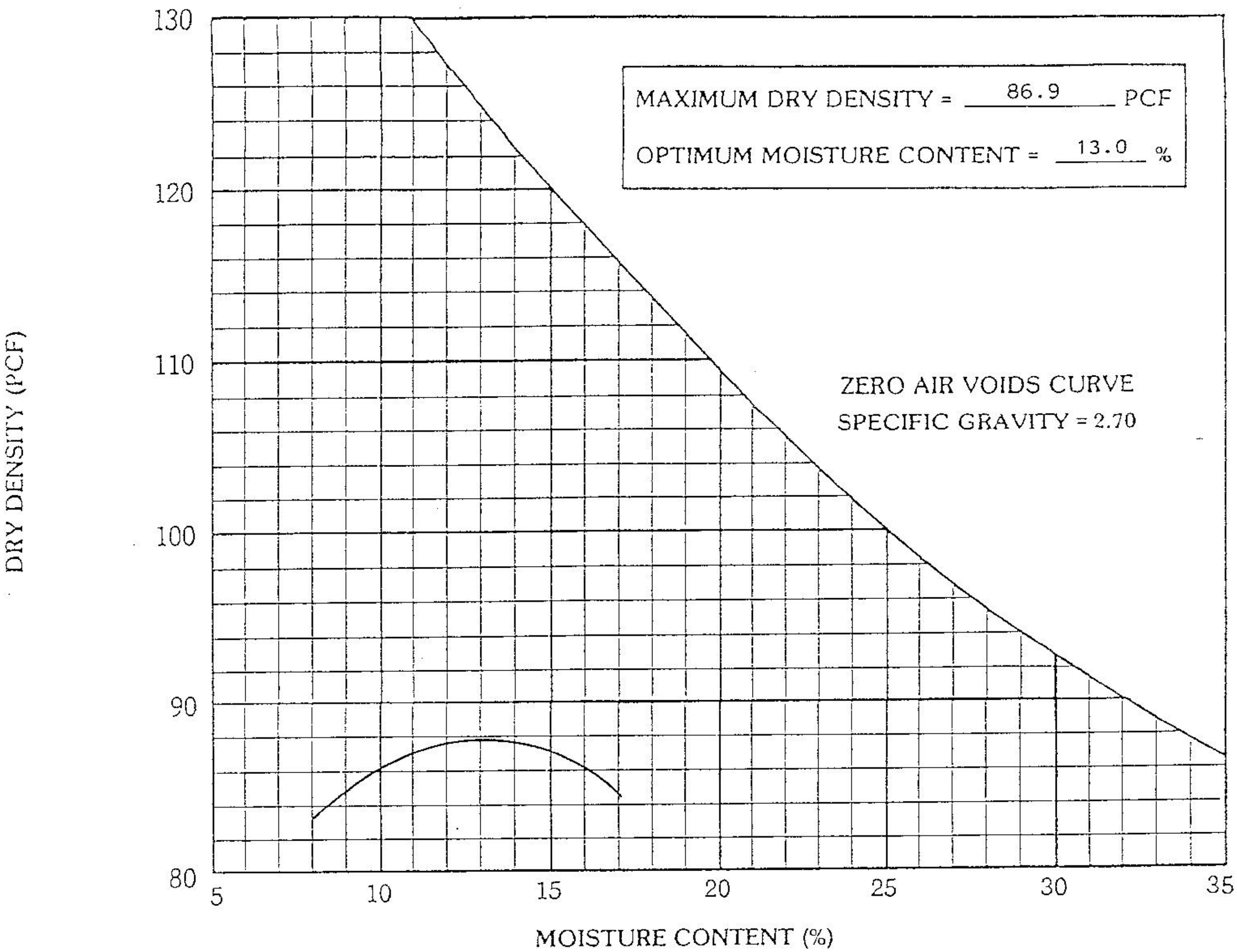
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
			100	99	99	98	95	82	72.8

Project No: 95-1-245

Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-11

SOIL DESCRIPTION: CLAY, sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

ATTERBERG LIMITS: LL 44 % PI 25 %

SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
					100	99	97	90	80.3

Project No: 95-1-245

Figure

V & A

SUMMARY OF LABORATORY TEST DATA

Test Hole No.	Depth (Feet)	Unified Classi-fication	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS % PASSING BY WEIGHT										DESCRIPTION
					LL	PI	1½"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
TP1	-	-	-	-	38	18	-	-	-	-	-	100	99	96	79	66.4	CLAY, very sandy
TP2	-	-	-	-	28	11	-	-	100	99	98	97	96	91	60	45.3	SAND, very clayey
TP3	-	-	-	-	28	13	-	-	-	100	99	99	98	94	68	51.9	CLAY, very sandy
TP4A	-	-	-	-	39	21	-	-	-	-	100	99	97	94	80	69.4	CLAY, very sandy
TP4B	-	-	-	-	38	21	-	-	-	-	100	99	98	97	88	75.7	CLAY, very sandy
TP5	-	-	-	-	30	16	-	-	-	-	100	99	98	94	77	65.0	CLAY, very sandy
TP6	-	-	-	-	29	14	-	-	100	99	98	95	93	89	63	48.5	SAND, very clayey
TP7	-	-	-	-	38	21	-	-	-	-	100	99	96	92	76	67.3	CLAY, very sandy
TP8	-	-	-	-	37	20	-	-	-	-	100	99	97	94	78	63.3	CLAY, very sandy
TP9	-	-	-	-	44	26	-	-	-	-	-	100	99	97	90	79.5	CLAY, very sandy
TP10	-	-	-	-	34	19	-	-	-	100	99	99	98	95	82	72.8	CLAY, very sandy
TP11	-	-	-	-	44	25	-	-	-	-	-	100	99	97	90	80.3	CLAY, very sandy

Project No. 95-1-245
Table

V
&
A

SIEVE ANALYSIS TEST RESULTS

Sieve Size	Percent Passing Following Scalping over a 3/4" Sieve WP-1	WP-2
3/4"	100	100
3/8"	94	98
No. 4	91	95
No. 8	89	93
No. 16	87	91
No. 30	81	87
No. 50	43	65
No. 100	23	37
No. 200	17.8	27.7

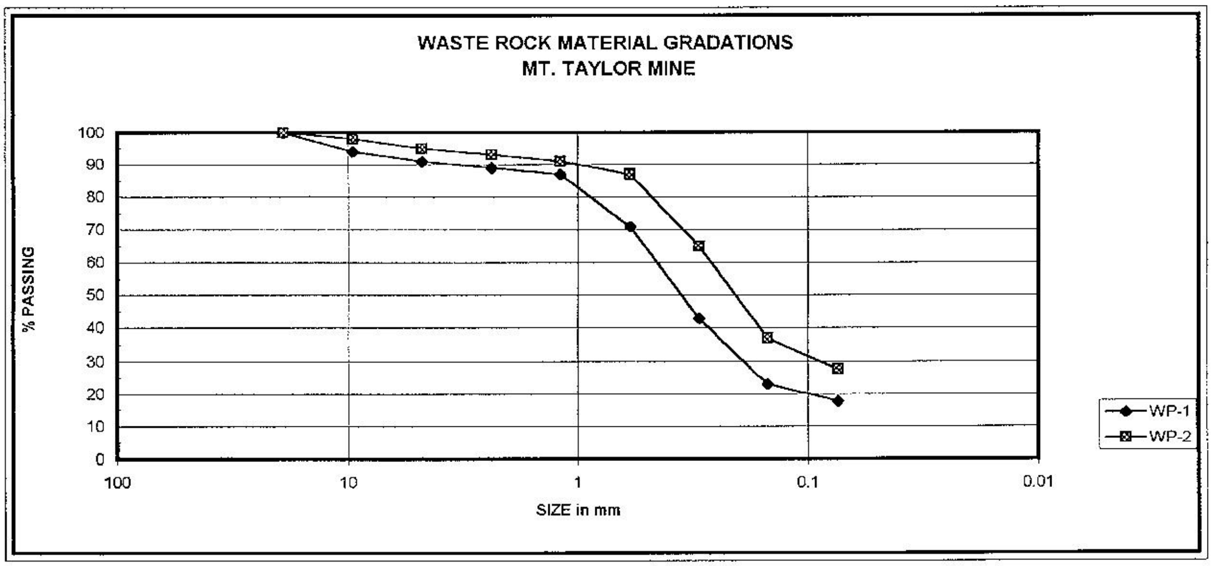
WP-1 + 3/4" material = 2.7% of total sample weight

WP-2 + 3/4" material = 6.8% of total sample weight

WASTE ROCK CHARACTERISTICS
MT. TAYLOR MINE

SIZE GRADATIONS

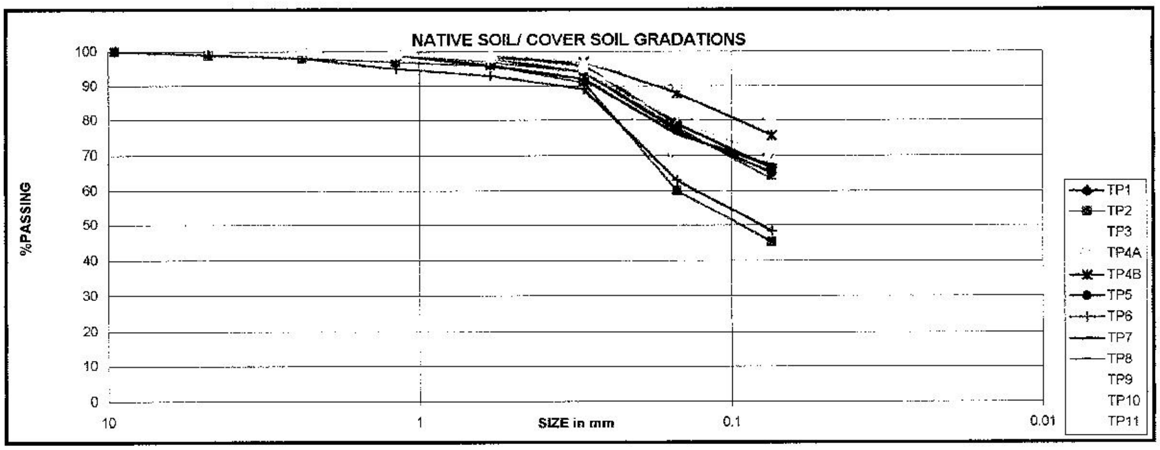
SIEVE #	SIZE in mm	% PASSING WP-1	WP-2
3/4"	19.1	100	100
3/8"	9.52	94	98
4	4.76	91	95
8	2.38	89	93
16	1.19	87	91
30	0.59	71	87
50	0.297	43	65
100	0.149	23	37
200	0.074	17.8	27.7



NATIVE SOIL - COVER SOIL CHARACTERISTICS
MT. TAYLOR MINE

SIZE GRADATIONS

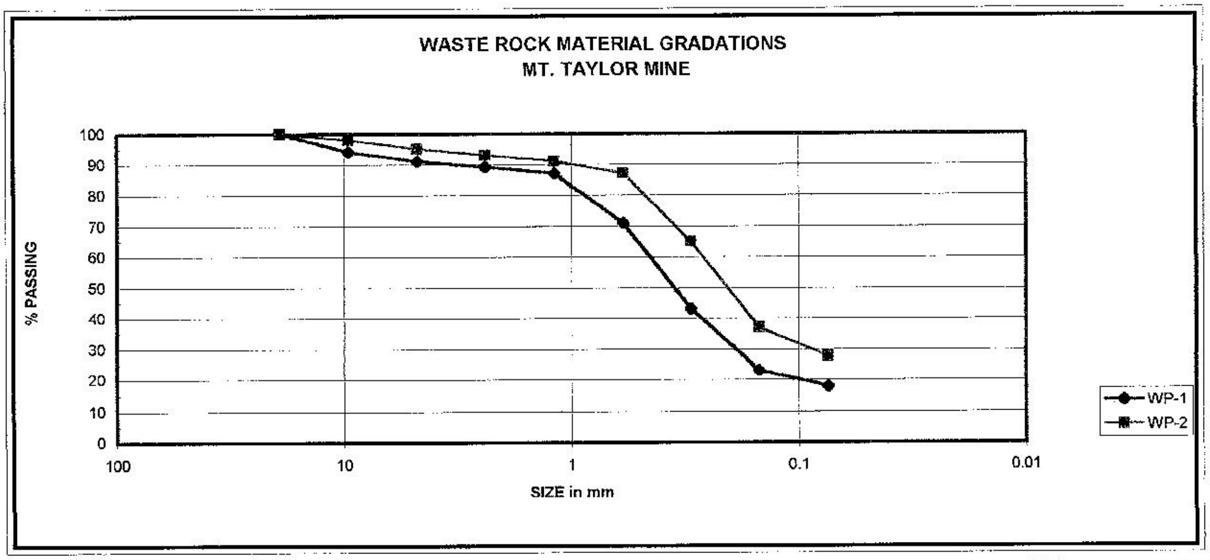
SIEVE #	SIZE in mm	% PASSING FOR SAMPLE #:												
		TP1	TP2	TP3	TP4A	TP4B	TP5	TP6	TP7	TP8	TP9	TP10	TP11	AVERAGE
3/4"	19.1													
3/8"	9.52		100					100						100
4	4.76		99	100				99						99
8	2.38		98	99	100	100	100	98	100	100		100		99
16	1.19	100	97	99	99	99	99	95	99	99	100	99	100	99
30	0.59	99	96	98	97	98	98	93	96	97	99	98	99	97
50	0.297	96	91	94	94	97	94	89	92	94	97	95	97	94
100	0.149	79	60	68	80	88	77	63	76	78	90	82	90	78
200	0.074	66.4	45.3	51.9	69.4	75.7	65	48.5	67.3	63.3	79.5	72.6	80.3	65
USCS =		CL	SC	CL	CL	CL	CL	SC	CL	CL	CL	CL	CL	CL
LL =		38	28	28	39	38	30	29	38	37	44	34	44	36
PI =		18	11	13	21	21	16	14	21	20	26	19	25	19
d75 =		0.15	0.2	0.19	0.1	0.06	0.13	0.2	0.14	0.15	0.05	0.09	0.18	0.14



WASTE ROCK CHARACTERISTICS
MT. TAYLOR MINE

SIZE GRADATIONS

SIEVE #	SIZE in mm	% PASSING WP-1	WP-2	AVERAGE		
3/4"	19.1	100	100	100		
3/8"	9.52	94	98	96	d75 =	0.5mm
4	4.76	91	95	93	d50 =	0.3mm
8	2.38	89	93	91		
16	1.19	87	91	89		
30	0.59	71	87	79		
50	0.297	43	65	54		
100	0.149	23	37	30		
200	0.074	17.8	27.7	23		



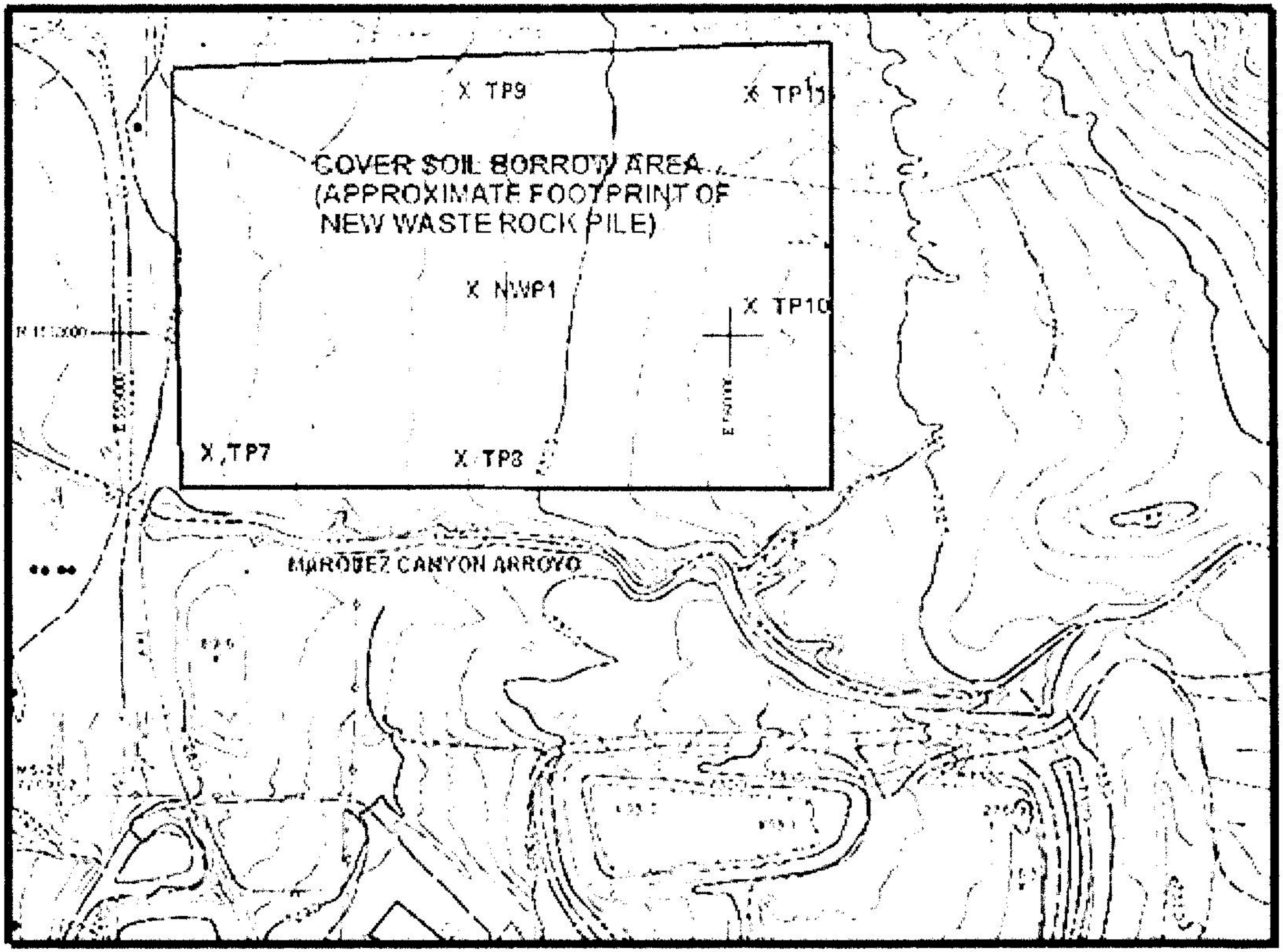


FIGURE A-1 LOCATIONS OF SOIL SAMPLES WITHIN DESIGNATED COVER SOIL BORROW AREA

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: Rio Grande Resources Corp.
Project: Mt. Taylor Mine
Sample ID: Composite
Lab ID: 0398S05459
Matrix:
Condition:

Date Received: 09/16/98
Date Reported: 09/17/98
Date Sampled: NG

Parameter	Analytical Result	Units	Units
PH	9.2	s.u.	
Solids - Total Dissolved	170	mg/L	
Nitrogen - Nitrate	0.17	mg/L	
Sulfate	11	mg/L	
Arsenic	0.013	mg/L	
Cadmium	<0.004	mg/L	
Chromium	<0.01	mg/L	
Iron	0.92	mg/L	
Lead	<0.05	mg/L	
Molybdenum	0.02	mg/L	
Selenium	0.034	mg/L	
Zinc	0.10	mg/L	

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.

Reviewed By: ______________________

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	Rio Grande Resources Corp.			
Project:	Mt. Taylor Mine			
Sample ID:	WP #3 NW		**Date Received:**	08/20/98
Lab ID:	0398S04751		**Date Reported:**	09/17/98
Matrix:	Soil		**Date Sampled:**	08/19/98
Condition:	Cool/Intact		**Time Sampled:**	1000

Parameter	Analytical Result	Units		Units
Sulfur forms - Total	0.00	%		
Acid Base-TS	0.0	t/kt		
Neutralization Potential (NP)	10	t/kt		
Acid Base Potential-TS	10.2	t/kt		

Reference:

Reviewed By: ____________________

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: Rio Grande Resources Corp.
Project: Mt. Taylor Mine
Sample ID: WP #1 SW
Lab ID: 0398S04749
Matrix: Soil
Condition: Cool/Intact

Date Received: 08/20/98
Date Reported: 09/17/98
Date Sampled: 08/19/98
Time Sampled: 0930

Parameter	Analytical Result	Units	Units
Sulfur forms - Total	0.01	%	
Acid Base-TS	0.31	t/kt	
Neutralization Potential (NP)	30	t/kt	
Acid Base Potential-TS	29.9	t/kt	

Reference:

Reviewed By: ____________

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: **Rio Grande Resources Corp.**
Project: **Mt. Taylor Mine**
Sample ID: WP #2 Center
Lab ID: 0398S04750
Matrix: Soil
Condition: Cool/Intact

Date Received: 08/20/98
Date Reported: 09/17/98
Date Sampled: 08/19/98
Time Sampled: 0945

Parameter	Analytical Result	Units		Units
Sulfur forms - Total	0.03	%		
Acid Base-TS	0.94	t/kt		
Neutralization Potential (NP)	24	t/kt		
Acid Base Potential-TS	23.1	t/kt		

Reference:

Reviewed By: ______________________

APPENDIX F

REVEGETATION AND WEED MANAGEMENT

PLAN MT. TAYLOR MINE

RIO GRANDE RESOURCES

June 2022

PURPOSE AND SCOPE

This Plan, part of the Closeout/ Closure Plan (CCP) for the Mt. Taylor Mine, describes the measures that Rio Grande Resources (RGR) will take to re-establish vegetation on disturbed areas within the mine permit area that will minimize additional disturbance, mitigate impacts to affected environmental resources, rehabilitate disturbed areas to support post- mining land use (PMLU), and provide protection of soil and runoff comparable to the natural conditions in the local area.

The requirements of this Plan will be implemented primarily by a contractor at the time of mine closeout. The mine surface facilities are located on 285.6 acres, of which approximately 148 acres are currently disturbed land and the remaining 137.9 acres are undisturbed. Closeout activities are anticipated to disturb an additional 27 acres, bringing the total land disturbance to 175 acres.

Affected areas, to be identified before RGR commences final reclamation, will also be revegetated according to this plan. The affected areas known at this time to be revegetated include Borrow Area B and the areas of the Treated Water Discharge Pipeline outside of the Right-of-Way.:

The areas to be revegetated include:

- Support (Service and Support) Facilities – 56 acres
- Mine Water Treatment Area - 28 acres
- Treated Water Discharge Pipeline beyond the mine surface area - 15 acres
- Ore Stockpile Pad and Runoff Retention Pond – 6.8
- Waste Pile - 25 acres
- Affected Areas
    - Borrow Area B (and access road) – 6.7 acres
    - Continental Divide Substation Area (depending on the Utilities wishes)
    - County Road 334 -4.7 acres (Access Road, non-driving surfaces)
    - Area of the Treated Water Discharge Pipeline outside of the Right-of-Way

The remainder of the disturbed area not to be revegetated includes the Continental Divide Substation, PMLU buildings, road surfaces, storm water pond, diversion channels, and rock slopes.

GROUND PREPARATION

To prepare the mine site ground surfaces for revegetation, mine facilities not preserved for PMLU will be removed (Specification C.2) and the disturbed areas within the mine permit area will be regraded (Section 2.9, Finish Grading, Technical Specification C.4), including backfill of mine water treatment pond basins to approximate original grades.

Regraded material will be placed to minimize potential adverse effects to surface water, ground water and natural conditions of areas outside of the mine area. All surfaces will be graded to a final surface configuration which will support the approved post-mining land use, which will be grazing, or where appropriate, commercial. Temporary runoff and erosion controls, specified in the Stormwater Pollution Prevention Plan (SWPPP), will be employed to manage sediment generated during closeout earthwork.

Grading operations will be performed by dozers, scrapers, graders or other equipment. An excavator with hydraulic hammer may be used to reduce high walls to 1H:1V slope, where appropriate. Finish grading will create the grades and slope directions shown on the drawings sheets CL 07, CL 09, CL 14 and CL 15), which may include shallow depressions and will have a roughened surface suitable for seed nesting and resistance to erosion.

REVEGETATION

Revegetation will be performed in accordance with this Plan and Technical Specification C.5 of the CCP. Details of the execution of the following activities are provided in Specification C.5.

Growth Media Characteristics and Sources

At the Mt. Taylor Mine, the bedrock outcrops in many places, or is covered with a thin blanket of colluvial, alluvial, or residual soil. The soil profile is typically 0-24 inches of “A” horizon over “C” horizon (bedrock). The exception is the buried paleochannels where alluvial soil with “A” horizon characteristics overlies bedrock. Consequently, the topsoil, referred to here as growth media, consists of “A” horizon soils. All site soils fit this definition of growth media and will be suitable for plant growth, even though textures, horizons and properties may vary. The agronomic descriptions of these soils are given in the CCP, Section 4.4.

Growth media does not exist in sufficient quantity or quality on the mine site to be harvested and preserved separately. The soil that is intended to be used for the growth medium that will cover the radon barrier of the waste pile and disposal cell is classified as SC, CL and CH per the Unified Soil Classification System (USCS) and as loam, sandy loam and clay loam per the USDA classification system (HEAL, 2014). It occurs as a residual soil derived from weathering of Mesaverde sedimentary rock or colluvial/ alluvial soil from erosion of up-slope rock outcrops, including basalt. Based on Table 1 of the MMD MARP (1996) Closeout Plan Guidelines Attachment #1, Soil and Topsoil Suitability Ratings, this soil is rated as:

- Good for pH, moisture content at saturation, Boron and Selenium content
- Good to Fair for texture

During mine construction, site soils were excavated to create pond basins and other surficial features on the site. Most of the excavated soil was used to construct pond berms and to adjust grades for mine surface facilities. Excess excavated soil was stockpiled in the borrow area east of the ore stockpile (Drawing Sheet CL 04). Local soils will be used for the growth media, and will be obtained primarily from existing borrow areas and borrow soil piles, by excavations on site or borrow areas adjacent to the mine site, and regrading of pond berms or other grading performed during ground preparation. Table 4.3 (CCP) lists the available soil volumes versus borrow soil required for closeout; ample soil is available from these various sources, all on site.

Growth Medium for Waste Rock Pile and Disposal Cell Cover

Growth Medium (seeding medium) is loam soil placed on top of the radon barrier, 12 inches to 24 inches thick depending on location and consisting of textures approved by MMD (Figure 1). The loam soil will fall within the “acceptable materials” (red) boundary shown in Figure 1 and will be obtained from on-site borrow sources. During placement, only light compaction of the loam will occur as a result of equipment movement used to place, spread, and grade the loam soil. Soil textures for the growth medium will follow the USDA classification system. The acceptable soils for the growth medium are defined by the red boundary shown in Figure 1

Growth media soil cover will be placed on the disposal cell by truck and spread primarily by dozer or motor-grader. The appropriate soil thickness will be achieved by GPS-guided equipment following the soil cover grading plan.

The thickness of the placed loam cover is verified by sampling of soil depth using hand-augered holes through the completed growth medium. Thickness verification measurements will be made at least every ¼ acre. RGR will utilize an independent QA/QC contractor to obtain these measurements and validate the growth media layer thicknesses.

For each location, the measurements will be documented and reviewed to ensure that the minimum thickness of growth media is attained. Where growth media layer thicknesses are insufficient, additional material will be placed to correct the deficiencies.

Growth Media for Contaminated Soil Clean-up Areas

When the excavation of contaminated soil has been finished, RGR will determine whether at least six inches of clean soil remains in place in areas to be revegetated. Where additional soil is needed to provide this minimum soil thickness, the excess borrow soil (Table 4.3 of the CCP) will be applied as necessary. Soils that do not meet textural requirements may be blended to required growth medium textures when necessary, should suitable growth medium be insufficient in quantity.

The nutrient level in the growth media will be determined through soils analysis. Where needed, custom fertilizer blends or amendments will be applied to the growth media to enhance deficient nutrient levels based on this testing. Fertilizer or amendment will be applied using either a spreader or broadcaster, or mixed with the seed before placement. Fertilization will occur during the season most conducive to application of the elements involved. For instance, stable elements may be applied during the second or third growing season. Application rate and timing will be chosen to maximize the effectiveness of the nutrient being applied. Any growth media soils that have been stockpiled for over a year will be analyzed for nutrient content. Any fertilizers or amendments deemed necessary to enhance plant growth will be distributed and incorporated into the growth media.

The surfaces of the areas where growth media is placed will be scarified or disced as necessary to prepare for application of amendments and seeding. Traffic on the prepared surfaces will be limited to equipment directly engaged in revegetation work.

Amendments

Soil amendments will be applied on a location-specific basis, taking into consideration the properties of the soil at that source. The material specifics and applications rates for the proposed Soil Amendment Package are:

- Soil Amendment Package-Agricultural grade Terra Pro or Perfect Blend Organic fertilizer will be applied at a rate of 1 ton per acre along with seeding
- Commercial grade Terra Pro will be incorporated at a rate of 44 bags per acre with hydroseeding if needed.
- 50 grams of Biopack Microbial Consortium and ½ lb of Endomaxima per acre will be added to seeding box

This amendment package will be used on all areas to be revegetated in accordance with the data and MSDS sheets (Appendix B-Data, and Appendix C-SDS). This technology was created in New Mexico and has proven to be successful in arid environments.

Revegetation Species and Planting Rates

Species of plants selected for seeding are climax vegetation community species found in the ecological site description which are compatible with the pre-mining and post-mining land use of grazing (USDA- NRCS). Seed for the dominant species of grasses and shrubs that are indigenous to the mine area are available commercially and will be secured through such sources. The reclaimed mine surfaces, except the areas approved as commercial PMLU, will be reseeded using the proposed seed mix and planting rates in Table F.1.

Methods of Revegetation

Revegetation methods will follow established techniques and basic agronomic principles. Primary revegetation methods objectives are to:

- reduce plant competition and prepare a good seedbed;
- provide sufficient plant nutrients;
- seed at the proper time and depth; and
- supplement the moisture regime to supply sufficient water.

Seedbed preparation will be conducted on the contour to reduce erosion. Before seed is applied, the ground surfaces will be scarified to provide a proper seed bed. Discing will be utilized to:

- ameliorate compaction of the growth media to facilitate penetration of roots by seedlings;
- prevent surface crusting of the growth media; and
- eliminate large clods of soil.

Seeding will employ a variety of methods, depending principally on the steepness of the slope. A large percentage of the total disturbed area will be seeded using standard mine reclamation equipment; i.e., tracked and wheeled tractors, rangeland seed drill, and mulch applicator where slopes are 3H:1V or flatter.

In areas with slopes of 3H:1V or steeper (natural or cut slopes east of the shafts), a mixture of manual and mechanical application techniques will be used, including hand broadcasting and heavy chains, where practicable, dragged by a tracked dozer to incorporate the seed with the soil, or through the use of hydroseeding. Where applied, broadcast seed will be incorporated into the growth medium by hand raking or mechanical means.

The disturbed surfaces will be reseeded using the seed mix described in Table F.1. The method of reseeding will be determined according to location and size of area to be reseeded. In general, drill seeding will be used on flatter slopes covering larger areas. Broadcast seeding will be used on shorter, steeper slopes. Hand seeding may be required on longer or very steep slopes.

All reseeded areas on slopes of 3H:1V or flatter, will be mulched utilizing native grass mulch, straw or other acceptable mulch material at an application rate of 1.0 to 2.0 tons per acre. The mulch will be mechanically applied and subsequently crimped to reduce wind loss and stacking.

The benefits from the utilization of mulch include:

- great reduction in wind and water erosion of soil, especially prior to the establishment of vegetation;

- increased infiltration and enhanced retention of soil moisture levels to facilitate germination of seed; and
- reduction of soil surface temperatures.

Runoff Control

During the revegetation period, temporary runoff controls will be used as necessary to impede or divert rainfall and snowmelt runoff from revegetated areas. Locations of temporary runoff controls will be selected to retard or divert runoff, trap sediment, and provide improved conditions for germination and plant establishment.

Runoff control during revegetation will include methods recognized by the NRCS or the International Association for Erosion Control. Measures that use present technology include check dams constructed of hay bales, geotextile silt fences secured in willow trenches, and water bars across the disturbed area and perpendicular to the slope. Tobacco net, Curlex or similar net-and-fiber mats might be used as required for protection of surfaces susceptible to rilling or wind erosion. The specific measures applied to revegetated surfaces will be based on the method most appropriate for the seeding method, erodibility and depth of the soils, degree of slope, proportion of large rocks at the surface, roughness of the surface, and anticipated rainfall.

REVEGETATION SUCCESS

Revegetation success will be evaluated using a technical standard based on range site descriptions described in Tables F.2. The revegetation success will be considered successful upon meeting standards proposed in Table F2 in accordance to NRCS Site standards for Clayey bottomland and bottomland.

Technical Standard

A technical standard for revegetation success has been developed based on range site descriptions obtained from the Natural Resource Conservation Service (NRCS, 1980) for soil mapping units existing on the mine site (Table F.2).

This standard is of a higher quality than comparing to the reference area site north of Marquez Arroyo which has already shown through monitoring measurements to be of a lesser productivity than NRCS standards (RGR, 2021). The reference area has been heavily disturbed (grazing), resulting in poor plant growth and lack of species diversity.

Collected data will include:

- percent by species,
- production in lbs/ac,
- diversity (richness and/or evenness).

IMPLEMENTATION

Revegetation will occur incrementally, after completion of other closeout activities, on all disturbed land surfaces. Implementation of revegetation will be performed in accordance with the approved closeout plan (including Appendix F and Technical Specification C.5) and the conditions of the Mine Permit. Vegetation establishment monitoring of reseeded areas will be conducted during the third year after seeding, with the objective of determining the adequacy of reseeding efforts. Subsequent quantitative revegetation success monitoring of the reclaimed areas will occur during the sixth year after seeding and in the last two years of the twelve-year revegetation period. The period of responsibility will continue after completion of closeout until release of financial assurance.

The measurement of vegetation success and vegetation monitoring for RGR will be provided with assistance from a vegetation consultant. Less formal monitoring will be conducted through the year by RGR personnel to identify conditions in the revegetated areas that may require attention.

RGR will submit a work plan for MMD approval for quantitative vegetation sampling of the reclaimed areas within 180 days of approval of the updated closeout plan under this permit revision. Vegetation sampling of the reclaimed area will be done during the peak period of the growing season, September 1 through mid-October.

Monitoring

After vegetation is sufficiently established, monitoring of revegetated areas will be conducted on a periodic basis to assess revegetation success against the technical standard. Success of both germination and establishment will be dependent in large part on the moisture received in the summer and winter months and variations from year to year. Monitoring activities will be designed and scheduled to recognize this.

Vegetation sampling will be performed and correlated to the amount of precipitation during the growing period to indicate below, above, or average precipitation during the period of the growing season (i.e. late summer) of each year.

Until vegetation success is determined, an annual survey of the revegetated areas will be conducted to determine species composition and vegetation cover, frequency and density. Since establishment of vegetation is a function of its ability to reproduce, vegetation will also be assessed for its reproductive status, as well as its overall vigor.

The annual survey will be conducted toward the end of the growing season, no later than early September. Survey results will be analyzed and summarized to aid in determining the need for any changes in management practices or the need for reseeding or other supplementary practices.

Reclaimed areas will be sampled separately to allow separate determination of sample adequacy. On the revegetated disturbed areas, the transects will be located randomly.

After vegetation has been proven successful according to measurements discussed above vegetation will continue to be monitored to ensure quality of success is continued. The reclaimed area will have quantitative vegetation surveys performed in the year immediately after success and in two out of the last four years of the twelve-year vegetation re-establishment period using the same quantitative vegetation sampling methods determining success. Survey results will be analyzed and summarized to aid in determining the need for any changes in management practices or the need for reseeding or other supplementary practices.

All data and copies of all documents and reports used to develop the technical standards and evaluate or monitor the vegetation success will be made available to the MMD.

Sampling Methods

The following sampling methods for conducting vegetation studies will be used for determining revegetation success of reclaimed areas.

Species Diversity

Species diversity will be measured and compared to table F.2. **T**he vegetation standard for diversity for the revegetated area is at least three perennial grasses, two perennial forbs, and two perennial shrub species. The minimum occurrence of native perennial warm season grasses and perennial shrubs will be at least one percent of cover. The minimum occurrence of perennial cool season grasses will be 0.5 percent of cover and the minimum occurrence of perennial forbs will be 0.1 percent of cover.

Percent Ground Cover

Ground cover will be sampled by the line interception method, in which percent cover is obtained by summing the relative lengths of the transect that are covered, including vegetation, litter, rock, bare ground. Transects will be 1OOm long, randomly placed within the revegetated areas. This method will follow the procedures of Canfield, R.H., 1941. *Application of the Line Interception Method in Sampling Range Vegetation.* For. 39:388-394. Ground cover will be at least the minimum range value of 50% in order to be successful as referenced in NRCS standard in table F.2.

Productivity

Productivity will be measured by clipping from quadrats. Plants will be clipped to a three-inch stubble height. All standing biomass will be clipped for grasses and forbs; for shrubs, only current year's growth will be clipped. Noxious weeds will not be clipped. Samples will be dried and weighed to the nearest 0.1 gram. For sample adequacy, the combined weight of each life form at each plot will be used. Productivity will be reported as pounds/acre. Productivity will be considered successful upon meeting total production range and range within species for 8 of the 10 listed species in Table F2.

BOND RELEASE

Revegetation sampling will be conducted during the last year of the responsibility period for bond release purposes. A formal application requesting bond release and a report describing the revegetation will be submitted to the Director of MMD for approval. Release application will be submitted no sooner than the end of the 12th growing season. The report will include a description of acreage, and mine soils or growth media materials used in reclamation. Data will be tabulated to demonstrate that revegetation success criteria have been met for the reclaimed area. The data will include comprehensive species lists and grass species seasonality. Successional development will be discussed in terms of reclamation techniques, potential climate and recognized successional stages of natural vegetation of the area. A post-mining vegetation map will depict location, size, shape and proportion of cover and forage areas.

SCHEDULE

After disturbed lands have been remediated, regraded and covered with growth media, the seedbed will be prepared and the permanent seed mixture planted during the first normal planting season. Since most precipitation as rainfall occurs in the summer and in order to favor the establishment of warm season species, the normal planting season will occur from late spring through summer. Ongoing research, field experience, or variations in normal weather patterns may require planting and seeding operation to be conducted at other times of year.

The overall timetable for completion of revegetation is dependent on the rate at which the mine water treatment ponds can be dried through evaporation. All other closeout activities involving demolition and earthwork outside of the pond basins can be completed within the time that will be required to dry the treatment ponds. Therefore, revegetation of the entire mine area should be completed by the end of the second year of closeout activities.

WEED MANAGEMENT PLAN

Overview

This plan is based on encouraging desired plant species as well as eliminating weeds. Preventive programs will be implemented to keep the mine area free of pest species that occur in the vicinity. This plan follows an adaptive management approach:

- Weed species are identified through an inventory on the mine area and from information on neighboring areas.
- Land management goals and weed management practices are developed for the mine area.
- Priorities are assigned to eradicate or reduce weed species and weed patches based on their impacts as well as the ability to control them.
- Control methods are identified.
- Integrated Weed Management (IWM) plans are developed
- IWM plans are implemented
- IWM results are monitored and evaluated
- Modifications are made to improve IWM plans and actions

Management Area

The area for this program includes the disturbed lands within the mine permit area as well as adjacent undisturbed portions of the permit area that could contribute to, or be impacted by weeds in the disturbed area.

Resource Base

During the Closeout/Closure period, a biological resource study will be performed to document the biological communities and valued species, weed species, land-use histories, major threats and other notable characteristics of the mine area.

Inventory of Weed Species

The inventory plan as well as results of the inventory will be presented, emphasizing those found on the mine site as well as those likely to invade the site. A map of the weed infestations will be prepared.

Weed Management Objectives and Goals

The objectives of weed management are broader than simply weed control and include the desired biological communities, forage production, and land stewardship. Potential impacts of weeds will be described. Objectives will be specific, measurable and achievable within the timeframe related to mine operations and closeout. Specific weed management goals that serve these objectives will be identified for each weed species.

Weed Management Priorities

Prevention – The first priority is to prevent weeds from becoming established.

Species Priority – The species posing the greatest threat to management goals or those most difficult to control will receive priority.

Infestation Priorities – Locations of infestations that pose the greatest threat to high-value resources will receive priority. These locations will be identified and monitored during weed management actions.

Weed Management Actions

Prevention – RGR will perform periodic inspections of revegetated land to identity weeds and mark them for eradication. Bare ground will be re-seeded to reduce the likelihood of weed invasion. A list of the most important weed species will provide the basis for prioritizing eradication actions.

Weed Control – Based on the results of the resource base study and inventory of weed species, RGR will develop a weed control program using IWM principles and species-specific control measures. These measures could include application of herbicides, mowing, mechanical removal, or burning.

Monitoring and Reporting

The effectiveness of the weed control efforts will be evaluated through annual monitoring usually at the peak of the growing season (July-September). Monitoring measures will include visual examination of vegetation species and densities along the line intercept transects as well as random observations beyond the transects, especially in those areas where weeds were identified or where eradication measures were taken previously. Weed species and distributions will be mapped each year, providing a reference for control measures as well as locations to revisit for further assessment in succeeding years. The results of monitoring will be used to refine the IWM program and to adjust future weed management actions.

Two inspections will be performed in the year after reclamation seeding has been performed (in early growing season [May-June] and after the monsoon season [September]). The inspections will identify and inventory noxious weeds that are listed in the New Mexico Department of Agriculture Noxious Weed Update List, dated April I, 2009.

A weed treatment plan will be submitted after the completion of the noxious weed inspections. The weed control work plan will provide species- specific weed control measures and a schedule of inspections for noxious weeds during the post-reclamation period.

Table F.1 Seed Mix: Selected Species and Planting Rates

1. Cool Season Grass-Western wheatgrass *(Agropyron smithii)* Rate: 6 PLS/ft^2
2. Forb-Winterfat *(Ceratoides /anata)* Rate: 2 PLS/ft^2
3. Warm Season Grass-Blue grama, Galleta, Spike Muhly *(Boute/oua gracilis)* Rate: 6.0-6.5 PLS/ft^2*****
4. Warm Season Grass-Vine Mesquite Rate: 2PLS/ft2
5. Warm Season Grass-Alkali Sacaton *(Sporobolus airoides)* Rate: 3 PLS/ft^2
6. Forb-Rabbitbrush, Broom Snakeweed2 PLS/ft^2
7. Forb-Fourwing saltbush *(Atriplex canescens)* Rate: 2 PLS/ft^2
8. Forb-(Globemallow) *(Sphaeralcea fend/en)* Rate: 2 PLS/ft^2
9. Forb-(Narrowleaf Penstemon) *(Penstemon angustifo/ia)* Rate: 2 PLS/ft^2
10. Cool Season Grass-Bottlebrush Squirreltail Rate: 2 PLS/ft^2
11. Other-(Perennial flower mix) as available, African Daisy, Cornflower, Perennial Gaillardia, Annual Gaillardia, Black-eyed Susan, Evening Primrose, Baby's Breath, Sweet William, Blue Flax, Shasta Daisy, Sweet Alyssum, Corn Poppy, California Poppy, Catchfly, Wall Flower, Siberian, Rocky Mtn. Penstemon, Prairie Coneflower, Spurred Snapdragon, Plains Coneflower, Purple Coneflower Rate: 6-8 lb./acre

* Black grama may be substituted for these species. Other variations and substitutions may be made based on cost and availability of seed at the time of closeout.

All seed must be certified, weed-free, and each bag must have attached to it a complete label with certification information. Seed labels or copies of seed labels will be submitted to MMD within 90-calendar days after seeding.

TABLE F.2

REVEGETATION SUCCESS STANDARDS

MT. TAYLOR MINE CLOSEOUT PLAN

POTENTIAL PLANT COMMUNITY FROM NRCS RANGE SITE DESCRIPTIONS

Section IIE, Technical Guide

Natural Plant Species	Percentage of Potential Production		
	Clayey Bottomland Mapping Unit 257	Bottomland Mapping Unit 57	Acceptable Production Range
Western Wheatgrass	35-45	20-30	20-45
Alkali Sacaton	5-10	30-40	5-40
Vine Mesquite	10-15	1-5	1-15
Blue Grama, Spike Mulhy, Galleta	15-25	10-15	10-25
Bottlebrush Squirreltail	1-3	1-5	1-5
Fourwing Saltbush	3-10	3-10	3-10
Winterfat	1-3	1-3	1-3
Rabbitbush, Broom Snakeweed	1-5	1-5	1-5
Forbs	3-8	1-5	1-8
Others	1	9	1-9
Ground Cover, %	50	55	50-55
Production, Ib./acre	1250-3200	1200-3000	1250-3000

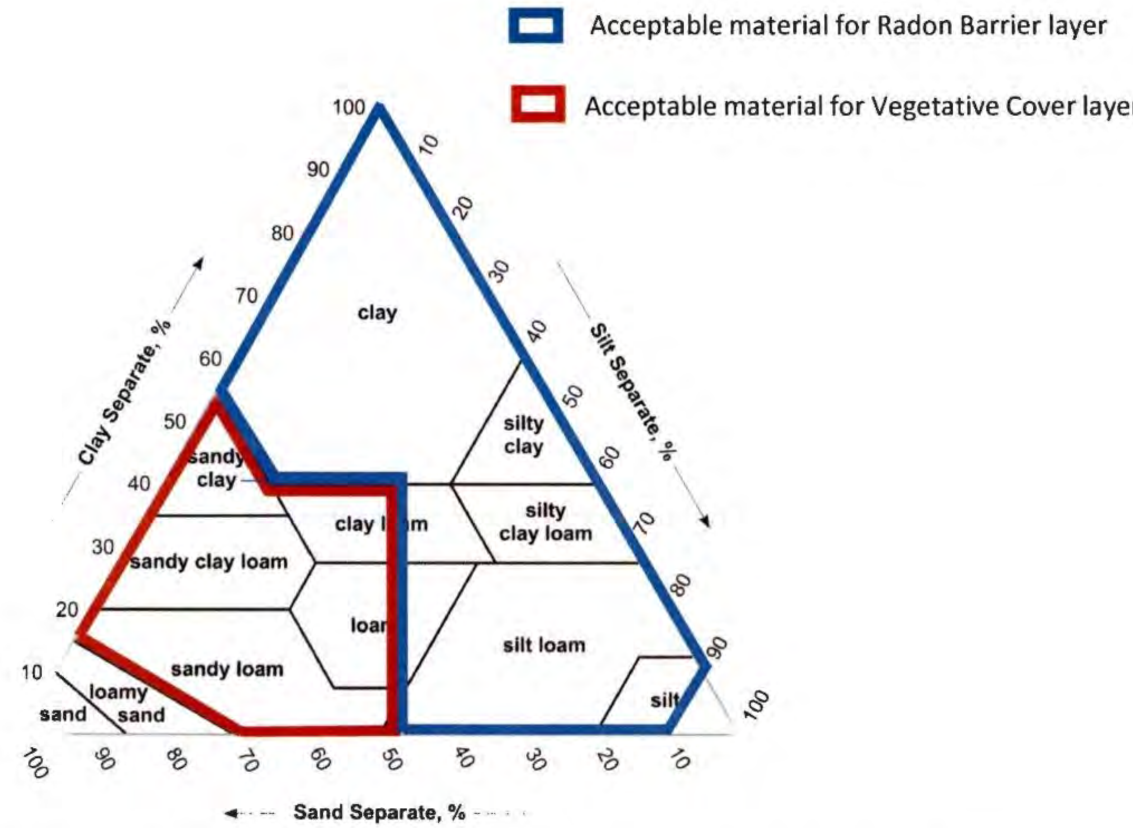


Figure 1: Acceptable Material Types, soil textural triangle, adapted from www.nrcs.usda.gov

APPENDIX G

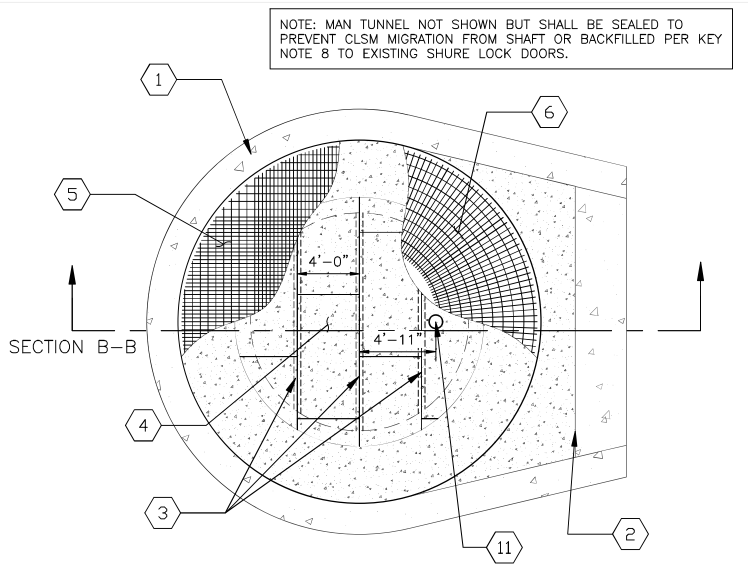
REINFORCED CONCRETE SHAFT

SLAB CLOSURE DESIGNS

MT. TAYLOR MINE

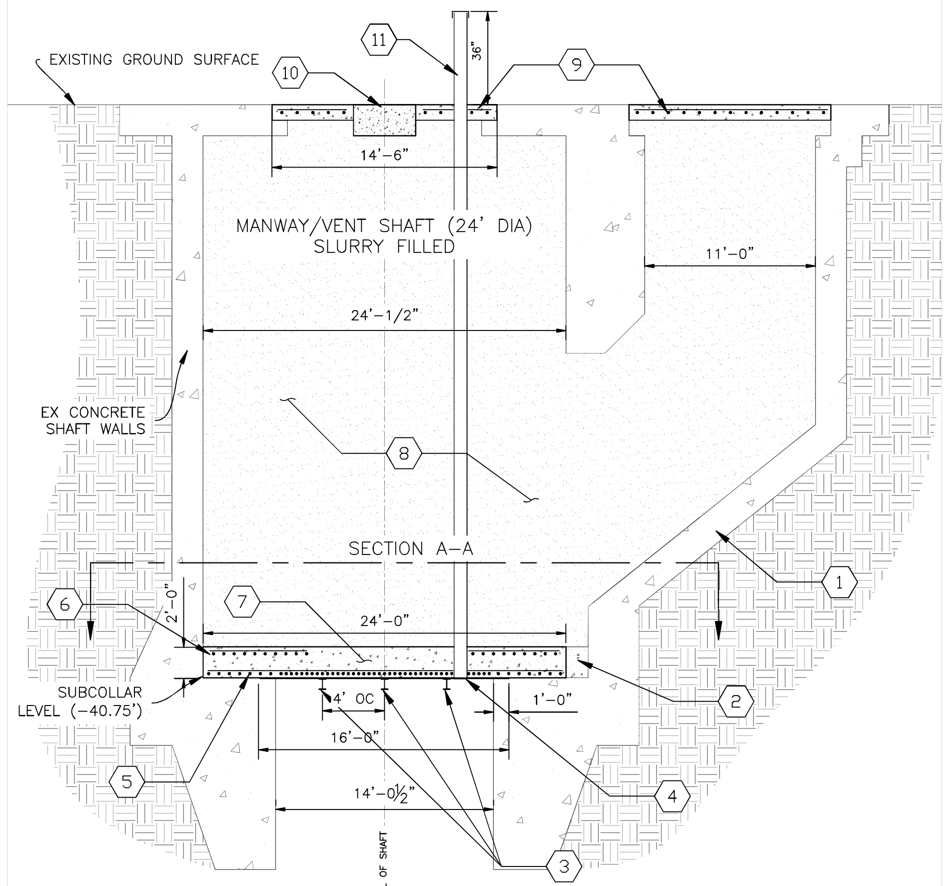
RIO GRANDE RESOURCES

June 2022



SECTION A–A (PLAN VIEW AT SUBCOLLAR LEVEL)

SCALE: $\frac{1}{8}$" = 1'-0"



SECTION B–B (CROSS SECTION OF MANWAY/VENT SHAFT)

SCALE: $\frac{1}{8}$" = 1'-0"

KEYED NOTES

1. EXISITING REINFORCED CONCRETE SHAFT WALLS. PROTECT IN PLACE EXCEPT WHERE NOTED
2. EXISTING CONCRETE SHELF WALL TO ACT AS EDGE FORM. NEW SLAB CONCRETE TO EXTEND TO THIS POINT, BUT REINFORCEMENT NOT NECESSARY BEYOND LIMITS SHOWN.
3. W8X21 STEEL BEAMS SPACED 4'-0" OC SUPPORTING STEEL PLATING. BEAMS TO BE SUPPORTED AT ENDS WITH POST INSTALLED ANCHORS ATTACHED TO GUSSET PLATES
4. $\frac{3}{4}$" STEEL PLATES TO SUPPORT CONCRETE SLAB. WELD PLATES TO STRINGERS AND AT UNSUPPORTED SEAMS. EDGES TO BE SUPPORTED BY MIN 12" OF EXISTING SHAFT COLLAR
5. BOTTOM MAT OF SLAB REINFORCEMENT. #8 @ 3" OC EACH WAY OVER CENTER $\frac{1}{3}$ OF SLAB. #8 @ 6" OC EACH WAY OVER OUTER THIRDS. ALL BARS TO BE EPOXY COATED
6. TOP MAT OF SLAB REINFORCEMENT AT OUTER THIRD OF SLAB. #8 @ 2 DEGREES RADIALLY. #8 CIRCLES CONCENTRICALLY SPACED @ 8". ALL BARS TO BE EPOXY COATED
7. 4500 PSI HEAVY WEIGHT CONCRETE @ 24" DEPTH. TEST CONCRETE AT 7, 14, & 28 DAYS FOR STRENGTH. DO NOT BACKFILL UNTIL DESIGN STRENGTH IS ACHIEVED
8. CONTROLLED LOW STRENGTH MATERIAL (CLSM) SLURRY BACKFILL TO BE PLACED AFTER 28 DAY DESIGN STRENGTH IS ACHIEVED ON CONCRETE SLAB
9. LIGHTWEIGHT 2500 PSI CONCRETE SLAB AT MANWAY AND VENT SHAFT SURFACE ENTRANCES. 12" MIN DEPTH WITH #4 @ 12" OC EW.
10. PRECAST CONCRETE CAP WITH MARKER. 4' X 4' X 2' DEEP. INSCRIBED USING 4" LETTER EMBEDDED STATING: "MOUNT TAYLOR MINE MANWAY/VENT SHAFT, CLOSED [DATE]"
11. 10" SCH 40 STEEL PIPE TO SERVE AS SAMPLING WELL. WELD PIPE TO CIRCULAR HOLE CUT INTO STEEL PLATE. CAP TOP OF WELL WITH ROYER LOCKING WELL CAP OR EQUAL.

MANWAY SHAFT MATERIAL QUANTITIES

ITEM	QTY	UNIT
#8 EPOXY COATED REBAR–BOTTOM MAT	2894	FT
#8 EPOXY COATED REBAR–TOP MAT	1715	FT
4500 PSI CONCRETE	34	CY
3000 PSI LIGHTWEIGHT CONCRETE	11	CY
$\frac{3}{4}$" STEEL PLATE	204	SF
W8X21 STEEL BEAMS	38	LF
CLSM SLURRY BACKFILL	660	CY

GENERAL NOTES:

1. THIS PLAN IS INTENDED TO REPLACE DRAWING NO MT13-CL-05 IN THE PREVIOUSLY APPROVED 'MOUNT TAYLOR MINE CLOSEOUT/CLOSURE PLAN' DEVELOPED BY ALAN KUHN ASSOCIATES LLC, DATED 12-17-13.
2. REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR AND SUB COLLAR LEVEL PRIOR TO CONSTRUCTION
3. ALL SLURRY BACKFILL TO INCLUDE SOIL, PORTLAND CEMENT, AND FLY ASH. MINIMUM COMPRESSIVE STRENGTH OF 75 PSI
4. ALL REINFORCING STEEL TO BE GRADE 60, EPOXY COATED REBAR
5. ALL WELDS TO BE $\frac{1}{4}$", 2" LONG, SPACED 6" APART
6. ARRANGEMENT OF STEEL SUPPORT MAY BE ROTATED AS NECESSARY
7. STEEL PLATES MAY BE SQUARED OFF PROVIDED A MINIMUM SUPPORT OF 12" OVER COLLAR
8. ALL EDGES AND JOINTS OF STEEL SUPPORT STRUCTURE TO BE SEALED TO ENSURE UNCURED CONCRETE CANNOT LEAK
9. PLACEMENT OF CONCRETE TO ADHERE TO ACI CODES, VIBRATED IN PLACE TO ENSURE NO VOIDS ARE PRESENT
10. REBAR LAYOUT AND STEEL BEAM CONNECTION DETAILS TO BE PROVIDED WITH ISSUE FOR CONSTRUCTION (IFC) PLAN REVISIONS

REV:	DESCRIPTION:	BY:	DATE:
0	FOR CLOSURE PLAN	JJL	4/6/22

STATUS: NOT FOR CONSTRUCTION

CRITICAL VIEW ENGINEERING
PO BOX 90073
ALBUQUERQUE, NM 87199
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CLIENT: RIO GRANDE RESOURCES INC
GRANTS, NM 87020

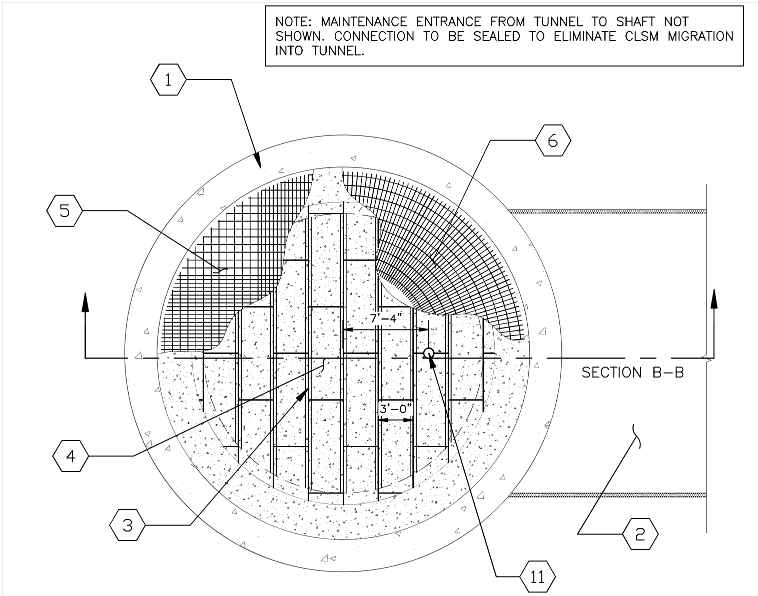
ARCHITECT:

PROJECT: RIO GRANDE RESOURCES INC MOUNT TAYLOR MINE

TITLE: RC SLAB SHAFT CLOSURE MANWAY/VENT

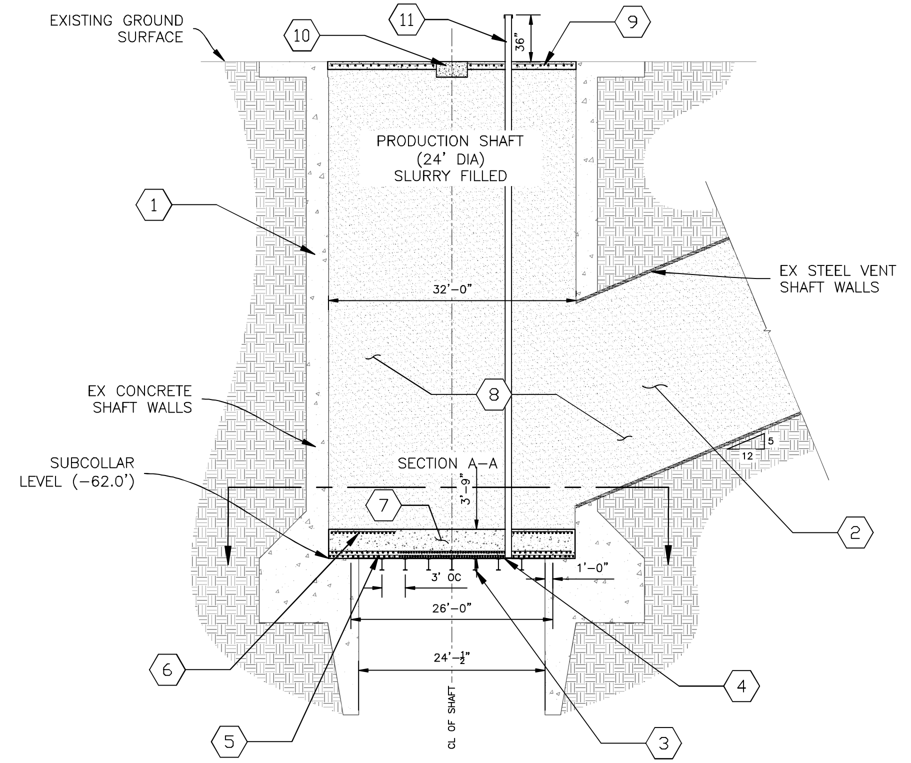
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	4/6/22	JJL	JJL

PROJECT NO:	DRAWING NO:	REVISION:
22-003	C/100	0



SECTION A-A (PLAN VIEW AT SUBCOLLAR LEVEL)

SCALE: $\frac{3}{32}$" = 1'-0"



SECTION B-B (CROSS SECTION OF PRODUCTION SHAFT)

SCALE: $\frac{1}{16}$" = 1'-0"

KEYED NOTES

1. EXISITING REINFORCED CONCRETE SHAFT WALLS. PROTECT IN PLACE EXCEPT WHERE NOTED
2. EXISTING 24' DIA STEEL VENTILATION TUNNEL. FILL WITH CLSM PER KEY NOTE 8. CAP WITH LIGHTWEIGHT CONCRETE SLAB AND PRECAST MARKER PER KEY NOTES 9 & 10.
3. W18X40 STEEL BEAMS SPACED 3'-0" OC SUPPORTING STEEL PLATING. BEAMS TO BE SUPPORTED AT ENDS WITH POST INSTALLED ANCHORS ATTACHED TO GUSSET PLATES
4. 1" STEEL PLATES TO SUPPORT CONCRETE SLAB. WELD PLATES TO STRINGERS AND AT UNSUPPORTED SEAMS. EDGES TO BE SUPPORTED BY MIN 12" OF EXISTING SHAFT COLLAR
5. DOUBLE BOTTOM MAT OF SLAB REINFORCEMENT. #9 @ 4" OC EACH WAY MIDDLE $\frac{1}{3}$ OF SLAB. #9 @ 8" OC EACH WAY AT OUTER THIRDS. ALL BARS TO BE EPOXY COATED
6. TOP MAT OF SLAB REINFORCEMENT AT OUTER THIRD OF SLAB. #9 @ 1.5 DEGREES RADIALLY. #9 CIRCLES CONCENTRICALLY SPACED @ 10". ALL BARS TO BE EPOXY COATED
7. 4500 PSI HEAVY WEIGHT CONCRETE @ 45" DEPTH. TEST CONCRETE AT 7, 14, & 28 DAYS FOR STRENGTH. DO NOT BACKFILL UNTIL DESIGN STRENGTH IS ACHIEVED
8. CONTROLLED LOW STRENGTH MATERIAL (CLSM) SLURRY BACKFILL TO BE PLACED AFTER 28 DAY DESIGN STRENGTH IS ACHIEVED ON CONCRETE SLAB
9. LIGHTWEIGHT 2500 PSI CONCRETE SLAB AT PRODUCTION AND VENT SHAFT SURFACE ENTRANCES. 12" MIN DEPTH WITH #4 @ 12" OC EW.
10. PRECAST CONCRETE CAP WITH MARKER. 4' X 4' X 2' DEEP. INSCRIBED USING 4" LETTER EMBEDDED STATING: "MOUNT TAYLOR MINE PRODUCTION/VENT SHAFT, CLOSED [DATE]"
11. 10" SCH 40 STEEL PIPE TO SERVE AS SAMPLING WELL. WELD PIPE TO CIRCULAR HOLE CUT INTO STEEL PLATE. CAP TOP OF WELL WITH ROYER LOCKING WELL CAP OR EQUAL.

PRODUCTION SHAFT MATERIAL QUANTITIES

ITEM	QTY	UNIT
#9 EPOXY COATED REBAR-BOTTOM MATS	7144	FT
#9 EPOXY COATED REBAR-TOP MAT	2713	FT
4500 PSI CONCRETE	110	CY
3000 PSI LIGHTWEIGHT CONCRETE	29	CY
1" STEEL PLATE	531	SF
W18X40 STEEL BEAMS	146	LF
CLSM SLURRY BACKFILL	3666	CY

GENERAL NOTES:

1. THIS PLAN IS INTENDED TO REPLACE DRAWING NO MT13-CL-06 IN THE PREVIOUSLY APPROVED 'MOUNT TAYLOR MINE CLOSEOUT/CLOSURE PLAN' DEVELOPED BY ALAN KUHN ASSOCIATES LLC, DATED 12-17-13.
2. REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR AND SUB COLLAR LEVEL PRIOR TO CONSTRUCTION
3. ALL SLURRY BACKFILL TO INCLUDE SOIL, PORTLAND CEMENT, AND FLY ASH. MINIMUM COMPRESSIVE STRENGTH OF 75 PSI
4. ALL REINFORCING STEEL TO BE GRADE 60, EPOXY COATED REBAR
5. ALL WELDS TO BE $\frac{1}{4}$" , 2" LONG, SPACED 6" APART
6. ARRANGEMENT OF STEEL SUPPORT MAY BE ROTATED AS NECESSARY
7. STEEL PLATES MAY BE SQUARED OFF PROVIDED A MINIMUM SUPPORT OF 12" OVER COLLAR
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STATUS: NOT FOR CONSTRUCTION

CRITICAL VIEW ENGINEERING
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ALBUQUERQUE, NM 87199
(505) 321-5917

CLIENT: RIO GRANDE RESOURCES INC
GRANTS, NM 87020

ARCHITECT:

PROJECT: RIO GRANDE RESOURCES INC MOUNT TAYLOR MINE

TITLE: RC SLAB SHAFT CLOSURE PRODUCTION/VENT SHAFT

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	4/6/22	JJL	JJL

PROJECT NO:	DRAWING NO:	REVISION:
22-003	C/200	0

APPENDIX H

MT TAYLOR MINE CLOSEOUT/CLOSURE PLAN

POST-CLOSURE MONITORING PLAN

June 2022

POST-CLOSURE MONITORING PLAN
MT. TAYLOR MINE
SAN MATEO, NM

August 2021

Prepared For:

RIO GRANDE RESOURCES
Bruce Norquist
P.O. Box 1150
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NV5

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444321-8610000.00-ABQ21RP0003

Department:	Rio Grande Resources Mt. Taylor Mine
Site/Location:	Mt. Taylor Mine, San Mateo, NM

Document Issuance and Revision History

Revision No.	Revision Date	Description of Revision	Effective Date

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1.0 INTRODUCTION

This Mt. Taylor Mine Post-Closure Monitoring Plan (PCMP) was prepared by NV5, Inc. in conjunction with Rio Grande Resources Corporation (RGR), in accordance with Discharge Permit DP-61 (DP-61). Mt. Taylor Mine, an underground uranium mine, is located in San Mateo, New Mexico and is owned and managed by RGR. Figure 1 shows the location of Mt. Taylor Mine.

1.1 FACILITY DESCRIPTION

Mt. Taylor Mine previously operated from 1979 to 1982 and from 1985 to 1990 before being placed on standby status in 1990. The mine reactivated in December 2017 until December 2019 and concurrent reclamation occurred during that time. Closure activities began in 2020. During prior conventional underground mining operations by room-and-pillar mining methods, approximately 675,000 tons of uranium ore and 698,000 tons of waste rock were extracted from the Westwater Canyon Member of the Morrison Formation. Existing subsurface facilities at the Mt. Taylor Mine include a 24-foot diameter production shaft and connected ventilation exhaust tower and a 14-foot diameter manway shaft, which provided access to underground workings at depths of between 3,100 and 3,200 feet below the ground surface.

Existing surface facilities include an ore stockpile (comprising 6.8 acres); the Waste Rock Pile (WRP) and Disposal Cell (DC) [comprising 11.5 acres]; two storm water run-off retention ponds (comprising 0.9 and 1.45 acres respectively) and associated diversion ditches and channels; two geosynthetic-lined water evaporation ponds, a septic tank and leach field; and surface Service and Support facilities (93 acres). County Road NM-334 bisects the Mt. Taylor Mine and provides public access to Cibola National Forest. Currently, the Mt. Taylor Mine facilities occupy approximately 286 acres in total. Figure 1 shows the facilities of the mine site in 2021.

1.2 PURPOSE OF THE POST-CLOSURE PLAN

The purpose of this PCMP is to summarize the monitoring and management activities that RGR will perform as part of the Mt. Taylor Mine closure. Post-closure monitoring will be conducted at the Mt. Taylor Mine via sensors, telemetry, field work, and sample collection and analysis for various reasons. These reasons include: to satisfy regulatory requirements, to ensure the integrity of cover over the DC, to sufficiently forewarn management and regulators of any need for mitigating actions and to record the utility of such actions, and to provide data for routine maintenance of abatement/corrective action systems. Review of monitoring data for maintenance of the abatement/corrective action systems is an iterative process that will ultimately dictate which monitoring data should continue to be collected and which monitoring data are no longer required.

1.3 POST-CLOSURE TIMEFRAME

Closeout/closure activities began in January 2020 and are described in the Mt. Taylor Mine Closeout/Closure Plan, 2013. Some reclamation activities were concurrent with the reactivation operations from 2018 through 2019. These activities are described in DP-61 Renewal and Modification, 2015. The remaining closeout/closure activities are scheduled to be complete before the end of 2024. RGR anticipates that all closeout/closure activities will be complete and revegetation deemed successful within the subsequent 12-year period (2025-2037). This post-closure monitoring plan describes activities from 2038-2125.

1.4 POST-MINING LAND USE

Future land use will comply with Federal, State, and local laws, regulations, and standards, providing adequate protection of the public. The designated post-mining land use (PMLU) is grazing and commercial. Closeout/closure activities will remediate operational surface impacts that are present within the project area and to restore disturbed areas to a livestock-grazing habitat with utility access.

The commercial PMLU facilities will include the guard shack/office, service building, hoist house, electrical building, utility tunnels, car shop, septic system, evaporation ponds #2 and #3, and a network of monitoring and abatement wells and systems. Potable water wells for ongoing and future site use will also remain.

1.5 REGULATORY DRIVERS FOR POST-CLOSURE MONITORING

Monitoring is used to assure compliance with permit terms and regulatory requirements. As explained more fully within this PCMP, RGR has committed to monitoring at intervals adequate to characterize the medium being monitored, as well as to provide information in a timely manner to notify authorities and take any necessary corrective actions. Applicable regulatory drivers for post-closure monitoring include:

New Mexico Mining Act (69-36-11B.(4); New Mexico Mining Act, NMSA 1978, §69-36-1, et seq.(Repl. Pamp. 1993);

New Mexico Mining Act Rules Title 19, Chapter 10, Parts 1 through 14 NMAC

New Mexico Water Quality Act (WQA), NMSA 1978 §§ 74-6-1 through 74-6-17

New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC

New Mexico Mine Permit No. CI002RE

NMED Radiation Control Bureau (RCB) 20.3 NMAC

NPDES General Permit for Stormwater Discharges Associated with Construction Activities Permit No. NMR05J02B

2.0 POST-CLOSURE MONITORING AND MAINTENANCE

Monitoring activities during the post-closure period are based on applicable regulatory drivers and data needs. These activities include:

1. Vegetation monitoring;
2. Stormwater and erosion monitoring
3. Radiation monitoring;
4. Pond leak detection monitoring;
5. Meteorological monitoring; and

6. Groundwater monitoring.

2.1 VEGETATION MONITORING

Vegetation monitoring will be conducted according to the requirements established in the Mine Permit CI002RE, Rev 13-2 Appendix A for reseeded and revegetated areas, if needed during the post closure period. Monitoring will consist of visual inspections of vegetation of all the reseeded and revegetated areas. Maintenance will be performed on an as-needed basis. Monitoring and maintenance will be recorded after each event. Continued success of the revegetation is assessed by comparing the percent canopy cover, species diversity, and shrub density of the reclaimed area to the reference area.

2.1.1 Vegetation Monitoring Frequency

Vegetation monitoring will occur according to the following schedule and as listed in Table 1:

- Once every 3 years for Years 13-30; and
- None for Years 31-100.

RGR expects that vegetation will be fully established after 30 years and that no further monitoring of the facility is needed.

2.1.2 Vegetation Monitoring Reporting

Vegetation monitoring data will be reported in the annual Post-Closure Monitoring Report.

2.2 STORMWATER AND EROSION MONITORING

The purpose of erosion monitoring of the DC, WRP, south storm water pond (SSWP), facilities, and roads is to maintain the integrity and effectiveness of the disposal cell cover and stormwater retention or diversion measures.

As long as the NPDES General Permit for Stormwater Discharges Associated with Construction Activities Permit No. NMR05J02B is active; RGR will continue to monitor stormwater discharges, as required and operate in accordance with the Mt. Taylor Mine Stormwater Pollution Prevention Plan. RGR will inspect the entire length of all storm- and surface-water diversion channels, outfalls, the SSWP, and all associated structures for physical evidence of erosion and other damage that may compromise the integrity of the stormwater management system.

Monitoring of the DC/WRP includes conducting best management practices (BMPs) that include conducting inspections and making repairs to the cover as necessary to correct the effects of settling, and erosion, or other events. Maintenance will prevent run-on and runoff from eroding or otherwise damaging the final cover.

Maintenance will involve repair of eroded areas by replacement of lost soil material and reseeding. RGR considers any rill exceeding 6 inches of depth to be significant and require soil replacement. Repairs will entail adding soil (in six-inch lifts and compacted) to the cover of the DC. Lesser erosion will be addressed by regrading. Additional erosion control BMP's will be added where needed. These will include berms, silt fences, erosion blankets, hay bales and other water flow controls to minimize soil loss until vegetation becomes established.

Visual inspections of the ground surface will be carried out to monitor the physical stability of the DC, WRP, and other reclaimed areas. Findings of the visual inspection and changes of the ground surface will be evaluated using professional judgement, informed by comparison to the closure criteria. This information will be used to generate a professional assessment of the physical stability of the DC and WRP. Exceedances of the monitoring criteria will trigger geotechnical review and may or may not require corrective actions based on site-specific conditions. This may include a change in the frequency of monitoring.

2.2.1 Stormwater and Erosion Monitoring Frequency

Stormwater and erosion monitoring will occur according to the following schedule and as listed in Table 1:

- Quarterly and after each 1-inch rainfall event while NPDES General Permit for Stormwater Discharges Associated with Construction Activities Permit No. NMR05J02B is active; and
- Annually for Years 31-100 after a one-inch rainfall in a 24-hour period.

The SWPP will be monitored for water quality once every four years through Year 30 and once every fifteen years thereafter. The sampling event will coincide with the groundwater-monitoring event. Continued monitoring of the SWPP will confirm that stormwater is not contaminated with uranium or radium.

2.2.2 Stormwater and Erosion Monitoring Reporting

While operating under the MSGP, documentation of stormwater inspections and sampling will occur after each event, with annual summary reports submitted per the permit requirements. All stormwater and erosion monitoring events will be documented after each inspection and/or sampling event. Yearly summaries of the monitoring events will be included in the annual Post-Closure Monitoring Report.

2.3 RADIATION MONITORING

The purpose of radiation monitoring of the DC is to measure radon flux and gamma radiation emissions for evaluating the effectiveness and integrity of the cover. Facilities retained for the commercial PMLU will also be included in the monitoring to ensure radiation levels do not exceed criteria for unrestricted use. Monitoring will be performed by a qualified radiation professional.

Radiation monitoring (radon flux measurements and gamma surveys) will be conducted on the DC after a major repair. A major repair would be of an erosional feature on the DC that is greater than 1-

foot deep. Repairs will entail adding soil (in six-inch lifts and compacted) to the cover of the DC. Conducting a post-repair radon flux monitoring and a gamma survey will ensure repaired areas do not exceed the permitted standard of 20 pCi/m²/sec.

2.3.1 Radiation Monitoring Frequency

Radon flux monitoring and gamma surveys will occur according to the following schedule and as listed in Table 1:

- After any major repairs to the DC Years 13-100.
- Once every five years for PMLU facilities in Years 13-100

2.3.2 Radiation Monitoring Reporting

Monitoring and survey results, as well as any mitigation measures required, will be documented after each event. A compilation of monitoring and survey results will be included in the annual Post-Closure Monitoring Report.

2.4 EVAPORATION POND LEAK DETECTION

The purpose of monitoring for leaks from evaporation pond #2 and pond #3 is to ensure that the pond liners are intact and no fluids are leaking to the ground surface. Monitoring will include visual inspection of liner surfaces to monitor for tears, rips, holes and other defects. RGR will also monitor the pond leak detection and collection systems by recording the depth of water that has collected in the sump of each pond, and calculating the leakage rate, as applicable.

Should the action leakage rate be exceeded, RGR will repair the liners as needed, including pond evacuation, relining and recertification of the repaired liner(s). Should sump pumps fail, they will be replaced. Pond 2 will be maintained in a near-empty state, in reserve for such events. Two-feet of clean water will be maintained in Pond 2 to prevent shifting of the liners. Pond 3 will continue to hold all contaminated waters generated from abatement activities. The contaminated waters will be managed by evaporation.

2.4.1 Evaporation Pond Leak Detection Monitoring Frequency

Evaporation pond leak detection monitoring will occur according to the following schedule and as listed in Table 1:

- Annually for Years 13-30; and
- No monitoring after year 30.

When the evaporation ponds are no longer needed for reclamation purposes, ponds will be reclaimed and monitoring will cease.

2.4.2 Evaporation Pond Leak Detection Monitoring Reporting

Leak detection monitoring will be documented after each inspection. Results will be compiled and included in the annual Post-Closure Monitoring Report.

2.5 METEOROLOGICAL MONITORING

The purpose of the meteorological monitoring is to identify and record weather-related events. This monitoring will alert RGR personal of significant precipitation or wind events that may signal a need for a site inspection.

A Davis Instruments 6250 Vantage Vue wireless weather station Is installed at the Mt. Taylor Mine site. It is located immediately south of the Guard House building/office. The weather data from the instrument is transmitted through a wireless connection and stored in a datalogger. Data is downloaded periodically to a laptop computer. The daily meteorological data includes precipitation amounts, air temperature, and wind speed and direction.

2.5.1 Meteorological Monitoring Frequency

RGR monitors daily site-specific meteorological conditions. Weather data is recorded hourly and is summarized in daily records. Meteorological monitoring will continue as long as monitoring activities are being performed at the site.

2.5.2 Meteorological Monitoring Reporting

Records of weather data are maintained as part of the project record keeping. Monthly and annual summaries of the weather data will be compiled and included in the annual Post-Closure Monitoring Report.

2.6 GROUNDWATER MONITORING

The purpose of the post-closure groundwater-monitoring program is to verify and document that reclamation activities conducted during the mine closeout/closure continue to be protective of the groundwater quality within the multiple aquifers present at the site.

A series of dewatering wells were completed in order to access the ore horizon in the Morrison Westwater Canyon Member and develop the mine. The dewatering wells were installed in multiple aquifers: eight wells were completed in the Point Lookout aquifer, four wells were completed in the Tres Hermanos and/or Dakota aquifers, and ten wells were completed in the Dakota Formation and/or Westwater Canyon aquifer.

The eight dewatering and one potable water supply Point Lookout wells will remain operational and continue to supply potable water to the facility. Two Point Lookout aquifer, one Tres Hermanos /Dakota aquifer and two Westwater Canyon wells will be used for post-closure monitoring. The other Tres Hermanos/Dakota aquifer and Westwater Canyon wells will be plugged and abandoned as part of the mine closeout/closure activities. Figure 1 shows the location of the wells.

Detailed descriptions of the geology and hydrogeology of these aquifers in the Mt. Taylor Mine area can be found in these references:

- New Mexico Environmental Institute (NMEI), 1974. *An Environmental Baseline Study of the Mount Taylor Project Area of New Mexico*.
- Brod, R.C. and W.J. Stone, 1981. *Hydrogeology of Ambrosia Lake-San Mateo Area, McKinley and Cibola Counties, New Mexico*
- Dam, W.L., 1995. Geochemistry of Ground Water in the Gallup, Dakota, and Morrison Aquifers, San Juan Basin, New Mexico, U.S. Geological Survey Water Resources Investigations, Report 94-4253.

2.6.1 Monitoring Network

RGR has operated under an approved Stage 2 Abatement Plan since 2011. RGR maintains a series of recovery wells and alluvial/Menefee-aquifer monitoring wells as part of the ongoing abatement. In addition to these shallow monitoring wells, two wells in the Point Lookout, one well in the Tres Hemanos, and two wells in the Westwater/Dakota aquifers will be used to monitor and assess water quality over the long term. The designated point-of-compliance (POC) well(s) for each of the aquifers will be monitored during the post-closure period. The actual point-of-compliance wells to be monitored may differ than described below, depending upon the state of remediation at the end of mine closeout/closure activities in 2037.

2.6.1.1 Alluvial and Menefee Aquifer

Alluvial and Menefee groundwater was adversely affected by a former sewage lagoon, waste rock pile, and other mining activities. The alluvial and Menefee Formation are unconfined aquifer systems that yield small amounts of water in the local area. Water levels vary from 35 to 80 feet below ground surface (ft bgs). The alluvial sediments vary from 0 to 65 feet thick at the site. The Menefee is approximately 767 feet thick and comprised of interbedded shales, claystones and sandstones, which provide a confining layer to the underlying Point Lookout. The groundwater gradient is to the west-northwest.

Wells WP-5, MW-5, MW-11A, and MW-1M are the proposed POC wells for the alluvial and Menefee water-bearing zones. The designated POC wells for the alluvial and Menefee aquifer will be monitored during the post-closure period.

2.6.1.2 Point Lookout Aquifer

The Point Lookout Sandstone is a confined aquifer system in the area. Water quality in the Point Lookout wells is good and serves as a source of drinking water in the San Mateo area. The Point Lookout Sandstone is approximately 200 feet thick and is encountered between 738 ft bgs to 937 ft bgs at the mine site. Water levels vary from 465 feet below top of casing (ft btoc) to 600 ft btoc, depending upon screened interval and location. Groundwater gradient is eastward.

Wells 2a and DW-8 are suitable for water level and water quality. The designated POC wells, 2a and DW-8 will be monitored during the post-closure period. The screened interval of 2a and DW-8 is 6597-6447 feet above mean sea level (ft amsl) [750-900 ft bgs] and 6555-6405 ft amsl [791-941 ft bgs], respectively.

2.6.1.3 Tres Hermanos/Dakota Sandstone Aquifer

The Tres Hermanos aquifer is a deep confined system that is hydraulically connected to the underlying Dakota Sandstone. The Tres Hermanos/Dakota sandstones are 326 feet thick. This aquifer was dewatered by a series of four wells in order to develop the mine. A comparative study of the pre-mining and post-mining water quality will be conducted during closure to evaluate the impacts of mining on the aquifer and support a need for long-term monitoring.

DW-12 is suitable for both water quality and water level monitoring. The screened interval for DW-12 is 4628-4479 ft amsl (2791-2940 ft bgs). The other three Tres Hermanos dewatering wells are not suitable for monitoring for various reasons.

2.6.1.4 Westwater Canyon Aquifer

The Westwater Canyon aquifer is a deep confined system that is hydraulically connected to the overlying Dakota Sandstone. The Westwater Canyon Member is an aquifer, as well as the major uranium ore horizon at the mine. This aquifer was dewatered by a series of ten wells in order to access the ore horizon and develop the mine. Pre-mining water quality levels of uranium and radium exceed the standards listed in NMAC 20.6.2.3103, due to the naturally occurring ore body in the formation. A comparative study of the pre-mining and post-mining water quality will be conducted during closeout/closure to evaluate the impacts of mining on the aquifer and potentially support a petition for an alternative abatement standard.

Westwater dewatering wells DW-14 and DW-19 are suitable for both water quality and water level monitoring. The screened interval for DW-14 and DW-19 is 4290-4150 ft amsl (3048-3188 ft bgs) and 4287-4179 ft amsl (3166-3274 ft bgs), respectively. The other eight Westwater dewatering wells are not suitable for monitoring for various reasons.

2.6.2 Water Quality Sampling and Frequency

Wells will be monitored for water levels and sampled for water quality according to the following schedule and as listed in Table 2:

- Biennially for alluvial/Menefee wells and Point Lookout wells for Years 13-30;
- Once every four years for Tres Hermanos/Dakota and Westwater Canyon wells for Years 13-30; and
- Once every ten years for Years 31-100 for all wells, if required.

In the future, RGR may request to change the frequency of or cease sampling a water quality monitoring location if the water contaminants in a monitoring well have been below the applicable standards for eight consecutive sampling periods or if an alternative standard is approved.

Groundwater samples submitted to the analytical laboratory will be tested for the analytes listed in Table 3.

2.6.3 Sampling Methodology

RGR Mt. Taylor Mine has an approved Sampling and Analysis Plan (SAP) and Quality Control and Quality Assurance Plan that it follows to conduct groundwater monitoring. These plans are updated periodically to reflect changes in the monitoring program and requirements. These plans include the detailed procedures for monitoring water level and water quality parameters; sample collection and handling, and documentation. RGR will continue to follow these plans to conduct groundwater monitoring during post-closure.

A brief description of the sampling methodology:

1. Water levels will be measured in a well and recorded.
2. Wells will be monitored for water quality parameters (pH, temperature, specific conductance, oxidation-reduction potential and dissolved oxygen) prior to collecting a groundwater sample for analytical testing.
3. Water samples will be collected using a bailer, low-flow sampling pump, tap on a supply well pump, and/or a discrete-interval sampler. The actual method used will depend upon the depth of water in a well and/or condition of the pump.
4. Samples will be placed in an ice-filled cooler immediately after collection and then transported to an analytical laboratory for analysis.

2.6.4 Groundwater Monitoring Reporting

After each groundwater-monitoring event, a comprehensive groundwater monitoring report will be prepared. The report will summarize the analytical data, report water quality trends, update potentiometric maps, and record any deviations from the SAP. The groundwater monitoring report will be included in the annual Post-Closure Monitoring Report

2.7 REPORTING

The annual Post-Closure Monitoring Report will include a description and the results of all post-closure monitoring conducted for the year. Each area of monitoring will report a summary of the inspections, maintenance performed, and the results of surveys and sampling.

2.8 REFERENCES

Brod, R.C. and W.J. Stone, 1981. *Hydrogeology of Ambrosia Lake-San Mateo Area, McKinley and Cibola Counties, New Mexico*, New Mexico Bureau of Mines and Mineral Resources Hydrogeologic Sheet.

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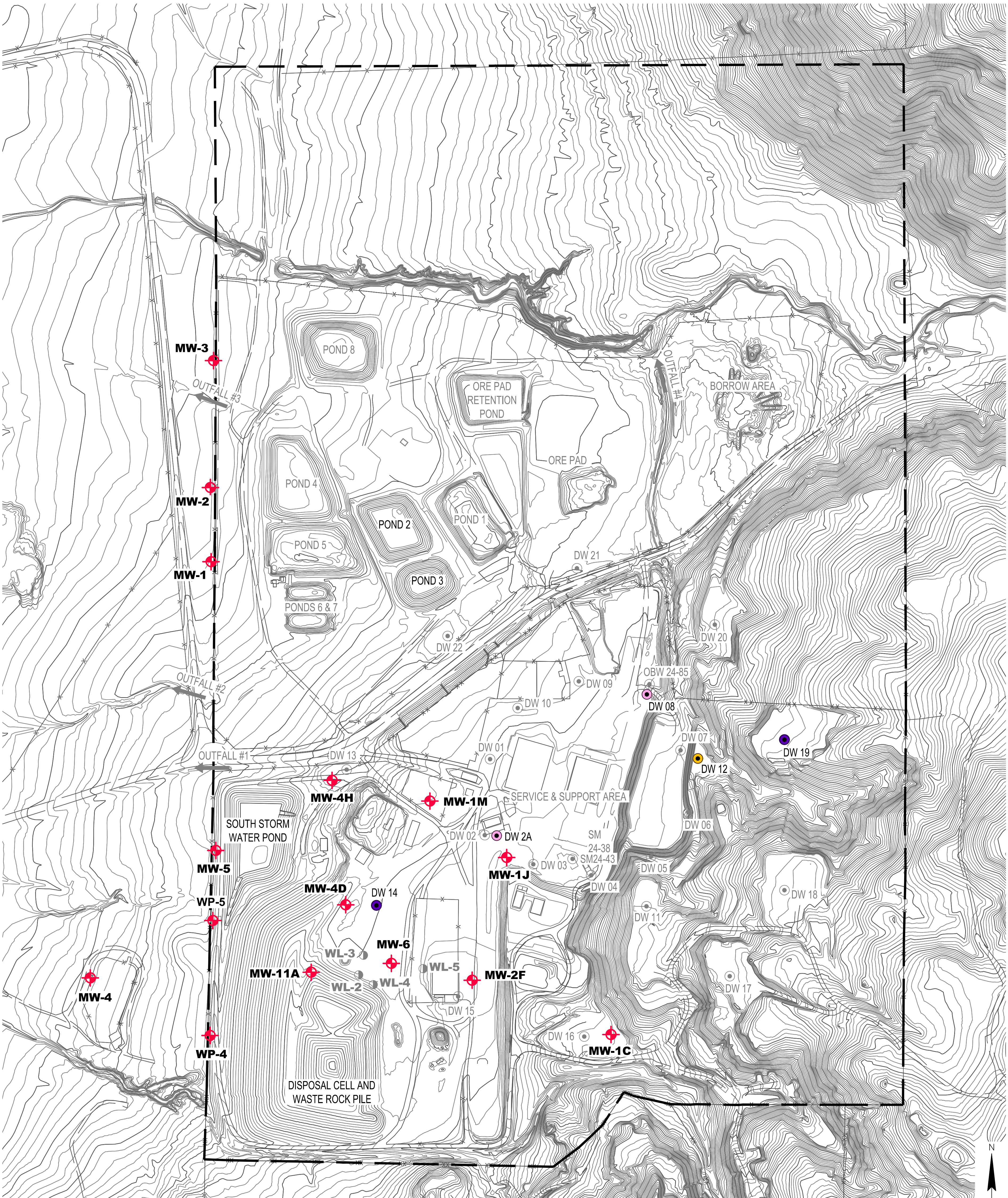
FIGURES



SITE PLAN

SCALE: 1"=500'

0 500' 1000'

SCALE: 1" = 500'

PROJECT SITE

SITE LOCATION

SCALE: NOT TO SCALE

LEGEND

- MONITOR WELL
- DRY WELL (PLUGGED AND ABANDONED)
- RECOVERY WELL
- DEWATERING WELL
- FACILITY WATER SUPPLY
- STORMWATER DRAINAGE
- FENCING
- ROADWAYS
- APPROXIMATE SITE BOUNDARY

NV5 www.NV5.com	PROJECT NO. 444321-9810000.00	**SITE TOPOGRAPHY, FACILITIES, AND WELL LOCATION MAP**	FIGURE
	DRAWN: 08/30/21		**1**
	DRAWN BY: PD		
	CHECKED BY: BE	RIO GRANDE RESOURCES MOUNT TAYLOR MINE SAN MATEO, NEW MEXICO	
	FILE NAME: 444321-9810000.00_01.dwg		

TABLES

Table 1 – Vegetation, Stormwater and Erosion, Radiation, and Meteorological Monitoring Frequency

Time Period	Frequency	Location
Years 13-30		
Vegetation Monitoring	Once every 3 years	DC, SSWP[1], Facilities
Stormwater and Erosion Monitoring	Quarterly (while under MSGP)	DC, SSWP[1], Facilities
Radiation Monitoring	Once after every major repair to the DC; Once every 5 years for facilities	DC, Facilities
Evaporation Pond Monitoring	Annually, if in use	Pond #2 and Pond #3
Meteorological Monitoring	Continuous	
Years 31-100		
Vegetation Monitoring	None	
Stormwater and Erosion Monitoring	Annually[2]	DC, SSWP[3], Facilities
Radiation Monitoring	Once after every major repair to the DC; Once every 5 years for facilities	DC, Facilities
Evaporation Pond Monitoring	None	
Meteorological Monitoring	Continuous	

Notes:
1 – SSWP will be sampled for water quality once every four years for analytes listed in Table 3
2 –Inspections will be conducted after any precipitation event of 1-inch or greater in a 24-hr period (averages twice a year).
3 – SSWP will be sampled for water quality once every ten years for analytes listed in Table 3
DC – Disposal Cell
SSWP – South Storm Water Pond

Table 2 - Point of Compliance Wells Monitoring Frequency

Time Period	Frequency	PPOC Wells[1]
Years 13-30		
Alluvial/Menefee Wells	Biennial	MW-1M, MW-5, WP-5, MW-11A
Pt. Lookout Wells	Biennial	2a, DW-8
Tres Hermanos Wells	Once every 4 years	DW-12
Westwater/Dakota Wells	Once every 4 years	DW-14, DW-19
Years 31-100		
Alluvial/Menefee Wells	Once every 10 years	TBD
Pt. Lookout Wells	Once every 10 years	2a, DW-8
Westwater/Dakota Wells	Once every 10 years	DW-14, DW-19

Notes:
1 – Actual Point of Compliance Wells may differ than those listed, as it will depend upon the state of the groundwater abatement program in 2038.
PPOC – Proposed Point of Compliance MW-1M,
TBD – To be determined

Table 3 – Point of Compliance Well Monitoring Parameter List, Analytical Methods, and Quantitation Limits

Analyte[a]	Standards[b] (mg/l, or as noted)	EPA and Standard Methods	PQL[c] (mg/l, or as noted)
Total Alkalinity (Bicarbonate, Carbonate)	N.A.	SM 2320B	20
Beryllium, dissolved	0.004	EPA 200.7/6010C	0.001
Calcium, dissolved	N.A.	EPA 200.7/6010C	0.5
Chloride	250.0	EPA 300.0/9056	0.1
Fluoride	1.6	EPA 300.0/9056	0.1
Iron, dissolved	1.0	EPA 200.7/6010C	0.02
Magnesium, dissolved	N.A.	EPA 200.7/6010C	0.5
Molybdenum, dissolved	1.0	EPA 200.8/6020	0.001
Nitrate-N	10	EPA 300.0/9056	0.1
Potassium, dissolved	N.A.	EPA 200.7/6010C	1.0
Radioactivity (comb. Ra-226 & Ra-228), dissolved	5 pCi/l	EPA 903.0/904.0	1 pCi/l
Radium 226,dissolved	N.A.	EPA 903.0	1 pCi/l
Radium 228, dissolved	N.A.	EPA 904.0	1 pCi/l
Selenium, dissolved	0.05	EPA 200.8/6020	0.001
Sodium, dissolved	N.A.	EPA 200.7/6010C	0.5
Sulfate	600.0	EPA 300.0/9056	0.5
Total Dissolved Solids	1000.0	SM 2540C	10
Uranium, dissolved	0.03	EPA 200.8/6020	0.001
Zinc, dissolved	10.0	EPA 200.7/6010C	0.005
pH[d]	6.0-9.0	SM 4500 H+B	0.01

a - some analytes are for QA/QC considerations; “dissolved” – filtered with 0.45-micron filter prior to acidification
b – standards refer to 20.6.2.3103 NMAC; (N.A. – not applicable;)
c – PQL refers to Practical Quantification Limit; actual may be higher, if sample is contaminated and requires a dilution.
d – reported in standard units
N.A. – No Standard

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