MT. TAYLOR MINE

CLOSEOUT/ CLOSURE PLAN

EXISTING MINE PERMIT #C1002RE
DISCHARGE PERMIT DP-61

RIO GRANDE RESOURCES CORPORATION

JANUARY 1998

REVISED DECEMBER 1998

UPDATED JULY 2012

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REVISION 1, NOVEMBER 2013

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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 standby status in accordance with the provisions of 19.10.7.701 NMAC. RGR has 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. This Closeout/Closure Plan (CCP) is submitted, as required by 19.10.5.506 and 19.10.5.507 NMAC, to describe the measures and estimated costs for reclamation of the mine site for the designated post-mining land uses at the end of the mine life.

In January 2012 the Mining and Minerals Division (MMD) of the New Mexico Department of Energy, Minerals and Natural Resources issued Permit Revision 10-1 to the existing-mine permit #C1002RE for the Mt. Taylor Mine. In addition to renewing the Standby status for the mine, Permit Revision 10-1 required the owner, Rio Grande Resources (RGR), to update the Closeout Plan to reflect current regulatory standards and as-is (existing) site conditions while the Mine Permit is in Standby status and before the mine returns to Active (operating) status. The closeout plan was originally submitted in 1998 by RGR as a revision to its existing-mine permit #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-GWQB), requires a closure plan under Discharge Permit 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 Closeout/ Closure Plan, 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. This document is the first revision of that CCP, reflecting comments from regulatory agencies as well as changes to the application for revision of the mine permit to active status from the April 2013 application (RGR 2013a) to the November 2013 revision #1 of that application (RGR 2013b).

The mine permit #C1002RE closeout plan and DP-61 closure plan, 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 the 2012 CCP update and is not included in this revision of the CCP.

This submittal has been prepared to revise the 2012 CCP to reflect both the existing land disturbances and mine facilities and those expected for the life of the mine, beyond those addressed in the 2012 CCP. This CCP describes the existing and expected future disturbances caused by mining and 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); closeout measures to achieve the post-mining land uses (section 4); and environmental monitoring, environmental standards and permits required for closeout (section 5). Section 6 addresses the closeout schedule. The cost estimate for closeout of the mine once returned to active status 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 extracts uranium ore from depths of over 3,000 feet below ground surface using room-and-pillar and stope mining methods. There are no mill facilities present within the permit area. The underground mine is a room-and-pillar mine consisting of drifts, stopes and stations that connect to two 3300-foot deep shafts from the mine surface. The mine facilities at ground surface are shown on Figure 1-2.

At the time of this application, the mine remains on standby after mining operations were suspended in 1990 due to the depressed uranium market. RGR has submitted an application to revise the mine permit from standby to active status (RGR 2013a, RGR 2013b). The existing Mt. Taylor Mine units are described in the Mine Permit Application of December 1994. Of the 4006.7 acres included in the entire permit area (Figure 1-3), 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 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, vent raises). The disturbed land consists of:

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

These existing facilities are shown on Figure 1-2 and described in more detail in the mine permit and the closeout drawings (Appendix A). Other permits related to the mine are listed in Table 1.1. Detailed locations and descriptions of deep wells are shown on Figure 1-4 of this closeout/ closure plan.

The Treated Mine Water Discharge Pipeline extends 4.3 miles from the Mine Water Treatment Unit (MWTU) area to the outfall point north of the mine. Up to 15 acres, most beyond the mine surface, could be disturbed when the pipeline is removed.

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, and not subject to closeout. However, surface disturbance will be required to remove soil with elevated levels of radium and uranium.

Land disturbance may increase from the present 148 acres by approximately 21 acres if the north waste rock pile is needed. This facility, included in the original mine permit, is the only mine unit included in the mine permit not yet existing. It will be constructed only if the existing (south) waste pile reaches its design capacity before all waste rock has been removed from the mine.

This Closeout/Closure Plan addresses decommissioning of the existing mine disturbances as well as additional facilities that were anticipated in the original permit. Existing land disturbance subject to closeout/ closure actions, for which financial assurance is required, is described in the following sections.

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.

The Mt. Taylor Mine was developed in the 1970’s by Gulf Mineral Resources Company. After excavation of the two 3,300 foot shafts during a five-year period, Gulf started production in 1980. Production continued until September 30, 1982, when the market price of uranium fell dramatically, resulting in the temporary cessation of production by Gulf. Mine pumps continued pumping mine water during this shut-down period. Ownership was transferred to Chevron Resources Company in 1985 when the two companies merged. Chevron suspended production of uranium ore in 1990 due to low market price for uranium. RGR acquired the mine and other Chevron property in 1991.

To gain access to the ore zones, the mine was dewatered, and the mine water was treated before discharge. Pumping of water from wells began in the early 1970's. Recent water levels in some of these wells are listed in Table 1.2. Locations and descriptions of the wells within the mine area are shown on Figure 1-4, and typical sections of the wells are shown on Figure 1-5.

Five observation wells were installed in the Westwater level for monitoring drawdown during the initial dewatering of the mine. One of these observations wells, OBW 24-85 located at N 1579711 E 2783249, is in the mine area near dewatering well #8, and the other four are located outside of the mine area at locations shown on Figure 1-6. These wells have not been used during mining operations or standby.

The mine historically produced uranium using conventional underground mining methods from ore zones of the Morrison Formation at depths of more than 3000 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. Waste rock from shaft sinking (shaft muck) and from mine development was placed in an on-site waste rock pile.

The mine has not produced since RGR purchased the property because of the historical market price for uranium and high cost of reactivation. Facility descriptions remain unchanged from those provided in previous renewals of this plan. Based on improving market conditions and recovery technologies, mine operation will resume after the mine permit (# CI002RE), issued by the Mining and Minerals Division, is revised to Active (Operating) status about year 2014. The mine is expected to operate for at least 10 years after returning to active status. Upon permanent cessation of operations, the mine will be reclaimed in accordance with this CCP and subsequent revisions, if any.

1.4 Existing and Required Permits

RGR maintains several permits that are relevant to the closeout/ closure of the Mt. Taylor Mine. In addition to the mine permit #C1002RE and DP-61, the other permits related to the mine are listed in Table 1.1.

There are no stationary sources with potential emissions of regulated contaminants associated with closeout 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 design volumes are expected to stay below these limits, but if they are 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 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 Permit Application (RGR 1994a) and the Environmental Site Assessment (RGR 1994b). The climate is semi-arid, like most of the state, but the elevation (about 7300 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 3200-3300 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 2900 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 spring 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. The 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 rain storms, 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 rain storms, 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 measureable 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 passed into either the mine water treatment system before being discharged off-site or was retained in storm water retention ponds and evaporated. As part of site drainage upgrades during mine reactivation:

1. Runoff from the service and support area previously directed into mine water treatment pond #2 will be re-diverted into a replacement culvert along the county road that discharges to the south storm water retention pond (RGR 2013, Drawing MT13-AC-14).
2. Runoff from the east and north slopes of the south waste pile will be collected in a culvert system that discharges to the south storm water retention pond (RGR 2013, Drawing MT13-AC-14).
3. Runoff from the north pile (if constructed) will be collected in a perimeter drainage swale around the pile and discharged to a retention basin at the west end of the pile.

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 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.

2.3.2 Ground Water

Several aquifers are intersected by the mine shafts and were affected by mine dewatering. These aquifers and the ground water conditions in general are described 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 sandstones of the Morrison Formation, where the ore bodies are found. These water-bearing strata produce a large amount of water that was removed by pumping during mine operations through 1990 to dewater the ore bodies. The pumps were shut off on June 25, 1990, after mining operations were suspended in 1990, and the mine has subsequently flooded as ground water levels recovered. After the mine returns to active status, mine dewatering will resume.

The mine water has concentrations of uranium and radium that slightly exceed current drinking water standards (Table 2.1), requiring it to be treated for these constituents before release. After the mine water is treated in the Mine Water Treatment Unit, it is transported through a 24-inch, 4.3 mile pipeline across private land, except for approximately a three-quarter mile portion leased from the Federal Forest Lands, to the outfall in San Lucas Canyon north of the mine. The water discharges under NPDES Permit #NM 0028100 from Outfall 001 into the San Lucas Canyon, normally an ephemeral stream, where it will provide a source of water for both domestic animals and wildlife. The discharge water flows northward from the San Lucas Canyon and disappears approximately 22 miles from the point of discharge after comingling with the San Miguel Creek drainage system.

A recent study (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.

The Village of San Mateo and the mine both have wells reaching approximately 650-900 feet into the Point Lookout Sandstone, the shallowest potable water aquifer at the mine site. The water chemistry of many of these wells was included in the 1974 Baseline Study. The quality of the Point Lookout water remains very good (Table 2.2), and the aquifer has a large flow potential. The mine began using this water in 1972, whereas the village's 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 NMEI Baseline Study (1974) includes a list of other 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 are currently being used for watering livestock, but a number of them were plugged off when the Point Lookout water well was drilled for village use by Gulf.

Perched ground water occurs in some locations in the mine area at the alluvium/bedrock contact at 30-60 feet and in shallow, low-volume aquifers elsewhere in the Upper Menefee. On the mine site one perched zone in alluvium at the bedrock contact has been investigated for contamination and is currently being addressed in an NMED-approved abatement plan. The shallowest aquifer capable of sustaining a water potable supply in the mine area, the Point Lookout sandstone in the Lower Menefee, has a potentiometric surface at a depth of approximately 450-500 feet below the surface. This sandstone unit is separated vertically from the surface and alluvium by several hundred feet of shale and sandy shale sequences (Figure 2-1) in the Upper Menefee, minimizing the possibility of any seepage water reaching the Lower Menefee aquifer.

2.4 Existing 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 mine facilities. Ore is mined by drill-and- blast and mechanical methods, hoisted to the surface in ore skips via shafts, and transported offsite for milling. Due to the extreme depth of the ore, no surface mining has been conducted.

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 a million tons was extracted from the ore body without intersecting aquifers outside the Morrison units containing the target uranium deposit. 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 Mine Unit) will be abandoned and shafts will be plugged.

Surface operations consist of all activities needed for support of underground mining including:

- 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 existing mine units are shown on Figure 1-2.

2.4.1 Mine Unit

The facilities in this category, collectively called the Mine Unit, consist of all subsurface components of the Mt. Taylor Mine, including shafts and underground workings. The underground mine workings, including all drifts, stopes, and haulageways and other openings for ore extraction are shown on Figure II of the Site Assessment. These underground workings follow the ore body at depths of 3100-3200 feet below ground surface.

The Mt. Taylor Mine has two shafts, the main production or haulage shaft (24-foot shaft) and a manway/ ventilation shaft (14-foot 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 3100 feet (north conduit) and 3200 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 mine level. At MMD's request, the entire length of each conduit will be grouted in the same way as the deep wells.

Both shafts have cast-in-place reinforced concrete liners from collar level to mine level. The liner thickness increases with depth, from 1.0 feet at subcollar level to 3.0 feet at mine level. The rock/ concrete contact is pressure-grouted through the saturated section 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 shaft water levels are approximately 800 feet below ground surface, or about elevation 6545, versus the water elevation of about 6864 in the Phase I well #2A in the Point Lookout aquifer. After 22 years without dewatering, this water level difference of approximately 300 feet over a distance of 200-400 feet (Table 1.2) shows that there is no measurable 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. Any connection 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 24-foot shaft and the Point Lookout water (Table 2.2) sampled in well 2A.

2.4.2 Mine Dewatering and Mine Water Treatment Unit

The mine facilities include deep wells for removing water from the mine, a Mine Water Treatment Unit (MWTU), and a treated water discharge pipeline. When the mine is operating, these facilities are used to pump, treat, and discharge up to 7,200,000 gallons per day. However, during mine standby, no mine water was discharged, and these facilities were not in operation.

During initial mine operations, water was pumped from up to 22 deep wells to dewater the mine. These wells are located concentrically around the shafts, as shown on Figures 1-2 and 1-3 and listed in Table 2.3. In addition, two deep monitoring wells (SM in Table 2.3) near the production shaft were installed to initially conduct aquifer tests and then to measure water levels in and below the mine horizon.

When the mine is active, the mine water is treated to remove low concentrations of uranium and radium so that the treated water meets drinking water standards. Treatment consists of sediment settlement, precipitation of radium by flocculation with barium chloride, and removal of uranium in an ion exchange circuit. Treated water is then pumped through a 4 . 3 mile long, 24-inch pipeline and discharged to San Lucas Canyon (Figure 2-3) under authority of NPDES permit # NM0028100. The pipe consists of 1/4-3/8 inch thickness steel sections welded in the field.

The MWTU is regulated under Discharge Plan 61 (DP-61), which was originally approved on July 20, 1979 and subsequently renewed on July 12, 1984; March 30, 1989; and January 24, 1995. DP-61 is currently in the process of timely renewal based on RGR's application dated September 6, 1999.

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 as well as the ponds, which had an original combined capacity of approximately 62 acre-feet (Appendix B, MT13.04).

The MWTU will be upgraded when the mine permit is revised to active status. All eight ponds (RGR 2013, Drawing MT13-AC-02) will be regraded to remove existing vegetation and contaminated sediments and to create uniform 3H:1V slopes. Sections 3.1.2 and 3.2.1 of the mine permit revision application (RGR, 2013b) describe the excavation and disposal of sediments when the mine is reactivated. Double membrane high-density polyethylene (HDPE) liner systems will be installed in all ponds except ponds #6 and 7, in which single 60 mil HDPE liners will be installed. Existing hydraulic structures will be refurbished, and new concrete spillways will be constructed at the inlet hydraulic structures of the ponds. Table 2.4 lists the physical dimensions and radium concentrations of the MWTU ponds as they exist before mine reactivation. Table 2.5 lists the approximate dimensions of the MWTU ponds after upgrading for reactivation, allowing for uncertainties in the final pond depths. The ponds are below-grade basins excavated into native soil and rock. During standby, Pond #2 was used as a retention pond for runoff from the mine service and support area; upon mine reactivation, that runoff will be redirected to the south storm water retention pond.

The flocculant treatment facility ion exchange (IX) plant and barium chloride treatment facility contain the active treatment components of the MWTU. Mine water is treated with flocculant before being released into Pond #1. Three ponds, #1, #2 and #3, are settling basins for suspended solids that are pumped out of the mine with the mine water. Mine water is circulated from pond #1 through ponds #2 and 3, then treated by ion exchange to remove uranium and with barium chloride (barium-radium-sulfate co-precipitation) to remove radium from solution as precipitate in Ponds #4, 5 and 8. The treated water is held in ponds #6 and 7 before release to the 24-inch pipeline, which conveys the water to Outfall 001 in San Lucas Canyon.

Area A, northeast of Pond #1, was used during the pond cleaning process to dewater the sands and silt prior to storage on the ore pad for shipment off site. Upon reactivation, Area A will be used for expansion of pond #1 and for general laydown of equipment.

2.4.3 Service and Support Facilities

Service and support facilities include all surface functions other than mine water treatment and mine waste rock disposal. The location and identification of these facilities are shown on Figure 1-2.

Service facilities are those units at ground surface that support the overall mine operation but do not provide direct support of underground operations, and that will be either removed from the site or converted to post-mining use after closeout. These facilities include the guard house, fire equipment building, service building, electrical substation, car shop, carpenter shop, electrical building, waste 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 consist of those facilities at ground surface (above the shafts collars) that have a direct function in underground mining operations and that will be either removed from the site or converted to post-mining use after closeout. These units 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 present mine support facilities include the compressor buildings, York chiller, cooling tower, pump building, shaft heating building, hoist house, headframes, and exhaust fans.

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, is not part of the mine permit, and is not subject to closeout.

2.4.4 Ore Stockpile

The ore stockpile, presently covering 6.8 acres and containing approximately 60,000 tons of low-grade ore, will be removed before the pad is reconstructed and placed in the waste pile disposal cell. Upon mine reactivation, the entire 10-acre ore pad will be reconstructed with a liner, truck wash, and runoff collection system as described in RGR, 2013b. The chemistry of the ore in the stockpile is represented by the tests results in Appendix D.3.

2.4.5 South Waste Pile

The existing south waste pile occupies 11.5 acres in the southwest corner of the surface facility area. Upon resumption of mining operations, waste rock will be placed on this pile until it reaches the maximum build-out configuration (RGR 2013b, Drawings MT13-AC-08 and -09). The waste pile contains waste rock (rock with uranium content below ore value), mined during mine development and production, from non-ore bearing formations or below-ore-grade rock in the mine. The mound of material at the southwest corner is primarily shaft muck excavated from strata above mine level, making its radionuclide content essentially background level.

The waste pile also contains a variety of non-rock waste from the mine such as rock bolts, timbers, and other hardware. 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 waste pile. At the Mt. Taylor Mine this mixture has been in place for up to 34 years with no evidence of settlement. The hardware and other non-rock waste were placed randomly, and no record was made of disposal locations. Burial of non-rock waste generated during closeout will be controlled so that the material will be placed in lifts and either covered with soil after each lift or flooded with a 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 exist now or planned for closeout. 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 pseudostatic (earthquake) load conditions. These values are well above the minimums necessary (1.00) to ensure slope stability.

2.4.6 Storm Water Retention Ponds

Two runoff retention ponds (RGR 2013b, Drawing MT13-AC-16) capture and retain runoff from areas of the mine surface that contain ore or waste rock. The north storm water retention pond (ore pad runoff retention pond), 0.9 acres and located between the ore stockpile and the mine water treatment area, retained runoff from the ore pad and holds it until it evaporates. The south storm water retention pond, covering approximately 2.1 acres, retains storm water from the existing waste pile and a portion of the service and support facilities area. The sediments in both ponds have radium levels exceeding the 6.8 pCi/g limit and will be cleaned up as part of reactivation and before construction of liners. The contaminated soil from this cleanup will be placed in the disposal cell on the existing waste pile (RGR 2013b, Figure 3-3).

Upon mine reactivation, these storm water runoff retention ponds will be deepened and the pond slopes regraded to 4H:1V slopes. A double HDPE liner system will be constructed in the ore pad runoff retention pond to receive and evaporate up to the 100-year runoff from the ore pad and the truck wash. Upon mine reactivation, the capacity of the south storm water runoff retention pond will be increased sufficiently to hold the runoff of two 100-year storms, and a clay liner at least 1.0 feet thick will be constructed. Presently, Pond #2 in the mine water treatment unit receives most of the runoff from the service and support unit area through a system of subgrade drainage pipes. Upon mine reactivation, this runoff will be diverted through a new system of manholes and culverts to the south storm water retention pond. Later, upon closeout, this runoff will continue to be diverted to the south storm water retention pond but also to arroyos north and south of the mine site, similar to the natural, pre-mining drainage patterns.

2.4.7 Access Road

The maintained gravel road, NM 334, is a public 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.

2.5 Future Mine Units

Both existing and future mine units were described in the original mine permit application (RGR 1994b). The only mine unit not existing at this time (future mine unit) is the north waste rock pile. The north pile will be constructed only if needed, and that need will not be determined until at least five years after the mine is reactivated.

3 POST-CLOSURE 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 uses were considered for which the 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 leased or purchased its permit-area surface from the owners listed in the Permit Application. RGR anticipates that after termination of the mine, control of the surface will return to those owners. Most of the surface will be returned to the previous owners; however, a total of 16.6 acres (10 acres of surface centered on each of the two shafts that overlap), will remain under RGR ownership.

Current and possible future surrounding land uses - 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
- water supply 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 waste rock pile 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 excellent condition, for services, manufacturing, 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.

Water supply facilities already exist on site in the form of the mine water treatment unit and the wells. During operations these facilities remove water from the mine and treat it to the required standards before release. Continued operation of these facilities after mining potentially could provide a long-term source of water for municipal and industrial users. Such users might be within the local area but might also be located at much greater distance from the mine.

3.3 Selected Post-Mining Land Uses

For the purposes of this closeout/ closure plan, RGR has selected grazing as the primary PMLU and the basis of the cost estimate for financial assurance. However, this use can be used in combination with one or more of the other PMLUs selected by the landowners. The electrical substation will remain unchanged or otherwise disposed, as determined by Continental Divide Electrical Cooperative and Public Service of New Mexico. 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.

3.3.1 Grazing

Prior to the development of the mine, the site was used for grazing by generations of the same families to whom ownership or control will be returned after mining. See the Mine Permit Application (RGR, 1994b) for delineation of post-mining 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. Presently, RGR is the surface owner of this tract. After RGR's economic use of this property has ended, the surface property will be returned to Arturo S. and Mary Lou Candelaria *et ux* (Candelaria) except for areas described in the relevant agreement. 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 waste rock pile. Presently, RGR owns the surface of this tract. After RGR's economic use of this property has ended, RGR will return the surface ownership to the Trusts of Sifredo Sandoval Ethel Sandoval *et ux* (Sandoval). Sandoval has expressed its preference that some existing buildings be left in place for Sandoval's use after mining. Sandoval has also stated its preference for grazing as the PMLU on this surface.
- Fernandez portion of SE 1/4, section 24 - This triangle of land, about six acres owned by the Fernandez Company Ltd., is the surface presently occupied by part of the waste rock pile and the adjacent storm water retention pond. RGR is negotiating a land swap agreement with the Fernandez Company to transfer title of this land to RGR in exchange for RGR land outside the permit area. This triangle of land would be included subsequently with the rest of the SE 1/4 of section 24 and turned over to Sandoval. The south storm water runoff retention pond will be retained as a stock tank, and the remainder of the area will be converted to grazing with the exception of the waste pile, which will be fenced to exclude grazing.

3.3.2 Commercial or Government Facilities

The existing service and support facilities, located within the Sandoval portion of the site, are multiple-use buildings that support offices, warehouse, and maintenance/ repair activities. These buildings have been surveyed for radiological contamination. At the landowner's request, some building and facilities will be left in place for PMLU for logistical support of agricultural, commercial/ mining or government activities. The agreement with Sandoval specifies that the facilities listed on Drawing MT13-CL-04 as "Facilities to Remain" and "Wells to Remain" will remain in place for PMLU.

The agreement with Sandoval specifies that the following facilities will remain in place for PMLU:

- Guard House (Security Building)

- Fire Equipment Building (Fire House)
- Car (Maintenance) Shop
- Carpenter Shop
- Core Storage Building
- Fan Shop
- Septic System – Treatment Unit, Septic Tank and Leach Field
- Water Wells # 1, 2A, 3, 4, 5, 6, 7, 8, and 10
- Water Tank

These facilities are listed on Table 5.1 and shown on Drawing MT12-CL-04 (Appendix A).

Radiation levels in these facilities do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use (Table 3.1). A radiological survey will be conducted before mine closure begins to confirm that no decontamination will be required or to identify where contamination exceeds release standards and decontamination will be required.

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. 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 mine water treatment pond and waste pile areas 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, as requested by the landowner, are additional PMLUs that will provide valuable infrastructure for sustainable economic opportunities for the San Mateo community. No comparable facilities exist in this area to support mining, land management, agriculture or commerce.

4 DESCRIPTION OF CLOSEOUT ACTIVITIES

Closeout/ closure of the Mt. Taylor Mine will include a number of activities that are organized into several categories:

1) Shaft closures
2) Well and Conduit Plugging
3) Surface Facilities Demolition
4) Earthwork
5) Revegetation

Best Management Practices (BMP) will be followed in all of the closeout activities, 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 measures are illustrated in Drawings MT12-CL-04 through -13, and the anticipated surface configuration of the site after closeout is shown on Drawings MT12-CL-04 and -13.

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 wash facility with a temporary liner and water collection system. Wash water will be evaporated and residues removed for disposal 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. Presently, in standby status, the inventory of potential contaminants is limited to those listed in Table 4.1. During operations, additional quantities of these and other materials will be on site. All such materials will be removed and disposed of offsite by a licensed contractor at a permitted facility.

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; therefore, no decontamination will be required.

4.1 Shaft Closures

Both the 24 ft. diameter production or haulage shaft and the 14 ft. diameter manway/ ventilation shaft will be closed in the same way, illustrated on Drawings MT12-CL-05 and -06 and described in Appendix C. Using the following procedures, the plug in the 24 ft. shaft will extend to a depth of 62 feet and to 40 feet in the 14 ft. shaft:

- Equipment and fittings within the shaft collar will be removed to the subcollar level. Softer, less rigid materials such as wood and rope guides, pipes, electrical cable, and duct work will be dropped down the shaft. Structural steel, sheet metal and other rigid materials will be removed from the shaft for salvage.
- The headframe will be toppled to the ground with explosives and/or heavy equipment and cut into pieces by excavator-mounted hydraulic shears.
- Selected pieces of the headframe structural steel and steel plate will be set aside to use in the shaft plug, but the remaining pieces will be cut to 40-foot maximum lengths, sorted and separately stacked for salvage and sale off-site.
- Selected structural steel I-beams and scrap metal plate from headframe demolition will be welded in sections to fit into the shafts at subcollar level, 40.75 feet deep in the 14 ft. diameter shaft and 60 feet deep in the 24 ft. diameter shaft (See Drawings MT12-CL-05 and -06).
- Each section will be lowered from ground surface 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 will 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 will be poured to encapsulate the platform steel.
- The remainder of the shaft, as well as connecting tunnels and raises, 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 continuous 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 as well as by the existing shaft liner and annular grout, the combination of which provides a barrier to infiltration that is equivalent to the natural bedrock surrounding the shafts. 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 (Drawing MT12-CL-04, Rev. 1, item 24). The tunnels connecting directly to the shafts will be backfilled with slurried weak soil cement as part of shaft closure. The other tunnels, total 2642 feet of 7 ft. by 11 ft. tunnel and 838 ft. of 4 ft. diameter tunnel, will be backfilled with the same soil cement slurry used for shaft backfill.

4.2 Well and Conduit Plugging

4.2.1 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 3100 feet (north conduit) and 3200 feet (south conduit). 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.

4.2.2 Depressurizing and Deep Monitor Wells

Of the 22 wells used to depressurize and dewater the mine (Table 2.3 and Figure 1-4), 14 extend to depths greater than 2000 feet. In addition, two deep (>3500 feet) monitor wells were used to observe drawdown in the mine area. Five 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. Five observation wells were used only during initial drawdown. Each of these will be grouted from bottom of casing to ground surface using tremie methods as required by 19.27.4.NMAC. The grout mix will be 4:1 cement to bentonite. Details are described in the technical specifications in Appendix C.6.

At least one year before cessation of mining, RGR will submit to the Office of the State Engineer (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

4.3 Surface Facilities Demolition

Surface facilities not listed in Section 3.2, to be retained for the land owner for PMLU, will be demolished. Table 5.1 lists all surface buildings, their sizes and their disposition at closeout. Facilities to be demolished include:

- Shaft Headframes
- Compressor Building
- York Chiller Refrigeration Equipment and Building
- Pump Building)Chill Water Pump House)
- Shaft Heating Building
- Hoist House
- Service Building (Office and Warehouse)

- Electrical Building
- Water Treatment and Boiler Building
- Fuel Storage Tanks
- Storage Building
- Glycol Heat Exchanger
- Chlorine Building
- Flocculant Treatment Building
- Barium Chloride Treatment Building
- Ion Exchange Building
- Mine Water Treatment Pond Hydraulic Structures
- Mine Car Rails and Concrete Base for Rail
- Shaft Exhaust Fans and Vents
- Cooling Tower
- Mine Water Discharge Pipes
- Treated Water Pipeline
- Truck Wash Facility

Radiological contamination levels in these facilities have not exceeded the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. All of the facilities to be demolished will be surveyed to document the level of contamination. However, based on prior experience, RGR expects that, of these facilities, only the Ion Exchange Building may require decontamination prior to demolition.

Structural steel and sheet metal roofing and siding will be salvaged for sale and off-site use. Pipe in the tunnel connecting the shafts will be removed and, if clean of contamination, will be sold or scrapped. Alternatively, pipe and other scraps materials will be either disposed of in the shafts prior to plugging or buried in the waste pile or if clean, buried in the ore loadout trench east of the electrical substation. Materials dropped in the shafts will be limited to non-contaminated, flexible or soft materials that will not damage the shaft liners when dropped. Demolition of these facilities will include the concrete slabs or other foundations. The concrete will be broken up, separated from reinforcement, and recycled as riprap in closure of the waste piles.

The treated water discharge pipeline is 1/4 to 3/8 inch thick steel pipe. The in-place and spare lengths total approximately 23,000 feet. This pipe will be removed from the site and sold for re-use or salvage, but no cost credit for this is taken in the cost estimate (Section 7).

The shaft hoists will be sold and removed from the site. Hoists of this size are hard to find and have long lead times for manufacturing, so these hoists have high re-sale values on the world market. However, no cost credit against the closeout cost estimate has been taken for any sale of the hoists.

Ponds will be decommissioned at the same time as other surface facilities, but the time required will be longer because of the steps involved:

- Evaporate remaining water
- Remove contaminated sediments
- 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. It will continue to direct water to the south storm water retention pond, which will be a stock tank after reclamation.

Contaminated pond sediments and soils in the ponds area will be removed and placed in the waste pile disposal cell (Section 4.4.1). Demolition debris that is contaminated will be placed in the waste pile outside of the disposal cell, but clean debris, including piping and pond liners, will be buried in the pond basin backfill.

4.4 Earthwork

Earthwork for mine closeout will begin after most of the demolition work has been completed. In general, earthwork will involve short hauls by dozer to redistribute berm fills or mine waste rock and by scraper 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 waste pile slopes, the working grades are less than 5%. All borrow sources and haulage routes for excavated material are within the existing disturbed area of the mine.

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. However, 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.

The first earthwork will be removal of contaminated pond sediment, ore pad working surface soil not used in the shaft plugs, and contaminated site soils. Table 4.2 lists the estimated quantities and locations of these materials prior to excavation. The pond sediments will be excavated and hauled to the south waste pile for placement in a clay-lined disposal cell, as described below. The contaminated soil not used in shaft plugs will be used to construct the disposal cell berms, with any excess placed on the pile outside of 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 4.3). However, if additional borrow soil is needed, it can be obtained from the area east of the ore stockpile or immediately north of Marquez Canyon arroyo within the permit area. The soil consists 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 earthwork and the sources for that soil as well as the overall balance of site earthwork.

The site 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- SanMateo- Sparank series. These are surficial soils that have supported native vegetation; they are not overburden or interburden 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 fourwing 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, waste pile, 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 covers or backfill.

4.4.1 Waste Pile Disposal Cell

RGR will construct a clay-lined waste cell within the south waste pile, as part of mine reactivation, that will serve several purposes:

- Isolate contaminated old pond sediments removed prior to installation of geomembrane liners in the mine water treatment ponds
- Provide a field test for a 2.0 ft. thick soil cover over the contaminated sediments and soils, to verify performance as a radon barrier and growth medium.
- Provide a test plot for revegetation methods and seed mixes

The lined waste disposal cell will be located in the northwest quadrant of the waste pile at a nominal bottom elevation of 7340 ft. (RGR 2013b, Figure 3-3). The cell will be 1-1.5 acres in area, at least 5 feet deep, with a capacity of approximately 15,000 CY to 30,000 CY. 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 possible after the mine returns to active status and before any pond sediments have been excavated. Once contaminated materials from mine reactivation have been placed in the cell, it will be covered with 2.0 ft. of compacted clay, and the surface will be revegetated in accordance with the revegetation plan (CCP, Section 4.5 as revised in Rev. 1). The cell surface will be off-limits for additional waste disposal during the subsequent mining period (at least five years) to allow monitoring of cover integrity and vegetation success.

This reactivation disposal cell will provide for permanent disposal of contaminated material generated prior to resumption of mining but will also provide a test for the final closure cell cover design concepts. Lessons learned from the activation waste cell will be useful in refining the cover design of a second-generation cell (closure cell) of similar design that will be placed near the top of the waste pile. This closure cell, illustrated in Figure 4-1, will be the repository for contaminated pond sediments and soils excavated at mine closeout/ closure.

The actual position and dimensions of the closure cell will not be known until mine closeout. The illustration on Figure 4-1 assumes that the cell will be 1.5 acres and 15-20 feet deep with a capacity of approximately 40,000 CY plus a 1.0 ft.-thick clay liner and a 2.0 ft.-thick clay cover.

The cover thickness for both the disposal cell and the waste pile will be 2.0 feet. This cover will have several functions – barrier to infiltration of water, protection from erosion, support of vegetation, and radon attenuation.

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 pond sediments, were based on the measured values of these parameters in the sediments and waste pile 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 on the Mt. Taylor Mine ore stockpile supports robust volunteer vegetation, demonstrating that this local soil is a good growth medium. The waste pile 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 working surface, the top-most 12-inch layer of gravel or crushed sandstone that forms the travel course of the pad, will be excavated by loader and hauled by truck to the shafts, where the gravel will be dumped as shaft backfill up to the subcollar level or mixed as aggregate into the cementitious backfill above the shaft plugs. As an alternative, the gravel may be placed in the waste pile. After the ore pad working surface is removed, the remaining contaminated soil in the ore pad, if any, will be excavated to achieve the required soil cleanup standards and placed on the waste pile.

4.4.3 Ponds Backfill

The sediments in the Mine Water Treatment Unit (MWTU) ponds and the ore pad runoff retention pond are expected to 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. Upon termination of mining activities, the ponds will be allowed to dry by natural evaporation, then the pond sediments will be removed with light earthwork equipment and hand cleaning until residual gamma readings at the liner surface are not higher than those for the soil cleanup standard. The pond sediments will be placed in the disposal cell on the waste pile, described in Section 4.4.1.

After the pond sediments have been removed, the pond liners above 4.0 ft. below final grade elevation will be folded into the pond, then the hydraulic controls and related structures including foundations in the pond area will be demolished. Concrete and other debris not exceeding radiological contamination limits of clean soil (0.026 millirem/hour) and not salvaged will be placed in the pond basins.

When the hydraulic control structures of the ponds are demolished and that debris is placed in the ponds, clean soil will be placed into the debris to fill voids. If the size or thickness of debris prevents this dry-soil backfilling, the debris will be flooded with weak soil/cement slurry with not less than 5% by weight Portland cement. The slurry will be placed in lifts not thicker than 2.0 ft. and allowed to set until firm and dry to the touch before the next slurry lift is poured or the placement of dry soil backfill commences.

When the debris in the pond basins has been buried, the berms around each of the ponds will be excavated by dozer. The clean berm soils will be pushed into the pond basins, spread and tracked in lifts appropriate to the size of the contractor’s equipment. This earthwork will involve balanced cut and fill of clean soil (Table 4.3), essentially placing this soil back where it originated. Technical specifications for this earthwork are included in Appendix C.

4.4.4 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 waste pile, mine water treatment ponds, and the immediate vicinity of the 24-foot main shaft, the ore pad area, the storm water retention ponds, and approximately seven acres north of Marquez Canyon arroyo. This radiological contamination is limited to the mine permit area. Figure 5-1 shows the results of radiological measurements and sampling, and recent radiological investigations are documented in Appendix D.

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. 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.

Radium 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 storm water permit (i.e., storm water ponds, berms, diversion channels) have prevented the discharge of radioactive materials from the mine property.

The highest external radiation exposure rates measured in 2012 were inside Ponds #3, 4, and 8 (2.5, 2.1, and 1.5 millirem/hour, respectively). This is due to the settling of radium and radium-bearing residues during mine water treatment up to 1990. Exposure rates elsewhere around the site varied from background (+/-0.015 millirem/hour) to 0.4 millirem/hour around the main shaft and 0.17 millirem/hour on the waste pile.

Access to the mine is controlled by fences, locked gates, and surveillance to prevent exposure to the general public. Occupational exposure controls and monitoring are implemented during entry into the ponds and excavation of the ponds, piles, and mine compound. These controls will be continued during closeout activities.

After demolition is complete and debris has been transported to the locations of staging or disposal on site, the site soils will be excavated to remove radiological contamination above the cleanup standard as derived from 40 CFR 192, 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 Appendix C.

Historical and recent 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 will be excavated and placed on the mine water treatment pond basins or the north waste pile (if constructed) from areas north of the county road and on the south waste pile from the county road and areas to the south. The 6.8 pCi/g Ra corresponds to a gamma reading of 0.026 millirem/hour. Gamma readings will be made while soil cleanup excavation is being performed, and readings below 0.026 millirem/hour will indicate that the soil radium concentrations are below 6.8 pCi/g and the soil cleanup standard has been achieved.

Existing and recent radiological survey results are shown on Figure 5-1 and Drawing MT13-CL-02. The area limits and estimated volumes of soil cleanup at closeout are approximately 133 acres and 90,000 -95,000 cubic yards for entire mine site. Cleanup of contaminated soil from the county road right-of-way is included in these quantities.

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

4.4.5 Existing Waste Pile Stabilization

Upon reactivation of the mine (revision of the mine permit to active status), RGR will begin the practice of progressive, contemporaneous stabilization (reclamation) to protect the existing south waste pile against erosion. In the initial step of this stabilization, RGR will reshape the existing waste pile to enhance long-term stability, as shown on Drawings MT13-AC-09 and -10 (RGR, 2013b). The waste rock pile will be consolidated into a smaller area and stabilized in place. The thin wedge of waste rock on the east side of the pile (Drawing MT13-CL-09) will be excavated and pushed by dozer west over the area of thicker waste rock. The north, west and south slopes will be flattened to 5H:1V, as represented in the lower slopes Drawings MT13-AC-08 (RGR 2013) and MT13-CL-09, then covered with 2.0 feet of clean soil obtained from the clean soil stockpile located in the southwest corner of the pile (RGR 2013b, Drawing MT13-AC-09, section A-A').

Burial of non-rock waste generated during closeout will be controlled so that the material will be placed in lifts and either covered with soil after each lift or flooded with soil/cement slurry to fill voids.

As part of the original closeout plan, 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 pseudostatic (earthquake) load conditions for slope gradients that are steeper than those proposed for the reconfiguration of the existing waste pile. These values are well above the minimums necessary (1.00) to ensure stability. The configuration of the pile reshaped from its present (2013) form to 5H:1V slopes will have even higher factors of safety, given the lower height and flattened slopes compared to those assumed in the model.

The initial reshaping and slope stabilization, undertaken for mine reactivation, will be completed as a condition of reactivation of the mine. The costs associated with this effort will be removed from the financial assurance instrument (Section 7) when the effort is completed and approved by MMD.

Contaminated soil and pond sediments, excavated as part of the reactivation of the mine (RGR 2013b), will be the first materials added to the waste pile. The pond sediments will be placed in a clay-liner closure cell, described in Section 4.4.1, and the contaminated soil will be used to form the berms of that cell and to form additional lifts on the pile. When these reactivation-generated materials have been placed, the pile slopes will be finish-graded, covered with clean soil, revegetated, and protected with erosion control materials such as Curlex or other surface stabilization materials, as described below. Subsequently, when mining resumes, additional waste rock will be added to the pile, and the grading/cover placement/revegetation/erosion protection steps will be repeated progressively over time for each 10-foot lift added to the pile. The technical specifications for this earthwork are included in Appendix C.

A recent waste pile 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 waste pile. This study showed that infiltration of precipitation into the waste pile 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 occupies the southwest corner of the waste pile has background levels of radiation and presently supports healthy volunteer vegetation, so it will be used as cover soil over the reshaped waste pile surface. 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, similar to the soil presently covering the ore stockpile, on which two feet of cover is supporting healthy volunteer vegetation. Therefore, 2.0 feet of this soil cover over the waste pile will support a vegetative cover consistent with the local ecosystem and with the PMLU. RADON modeling (Appendix B) shows that 2.0 feet of soil cover also limits radon flux at the cover surface to less than the standard of 20 pCi/m^{2}s.

The soil cover will be placed and revegetated progressively over the mine life with each 10-foot lift added to the waste pile. 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 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 planning and estimating, RGR assumes that all broken concrete generated by demolition (approximately 2500 cubic yards) will be crushed, screened, and applied on the waste pile and adjacent diversion channel for erosion protection.

4.4.6 Future North Waste Pile Stabilization

Drawings MT13-CL-11 and -12 depict the future north waste pile that would, if needed, be build north of the Marquez Canyon arroyo. This pile is designed, and would be built, with 5H:1V slopes that require no additional shaping for reclamation, which would be achieved progressively with buildout as described for the south pile (Section 4.4.4). With each 10-foot high lift, the 2.0 feet of cover soil would be applied and vegetated, then erosion controls applied as described in the following sections.

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 Drawings MT12-CL-07 through -13 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 139 acres on the mine permit area and pipeline corridor.

4.5 Revegetation

Following regrading, areas that have been disturbed by Mt. Taylor mining operations and soil cleanup will be revegetated in accordance with the Revegetation and Weed Management Plan (Appendix F) and Appendix C.5. Revegetated areas include approximately 15 acres along the treated water pipeline, the waste rock pile, the ore pad area, mine water treatment pond area and locations of demolished facilities. Storm water ponds 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 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 in order 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.

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 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.

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 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. 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 5.2.

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 invasion 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 management plan will be prepared not less than one year before mine closeout begins. Eradication measures may include application of herbicides, mechanical removal, or burning. Specific measures will be selected at the time of eradication.

4.5.2 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.

4.5.3 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.

4.5.4 Seed Origin and Quality

Seed should 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, may be used. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

4.5.5 Revegetation Success

Interim 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, an interim technical standard based on range site descriptions has been proposed and is described in Table 5.3. Range site descriptions were obtained from the Natural Resource Conservation Service (NRCS 1980) for soil mapping units existing on the mine site. This standard will remain in effect until either the volunteer revegetation success is determined to support a higher standard or a test plot program has produced acceptable results that support a more site-specific standard.

Volunteer Revegetation Success – In approximately two decades since mining operations were suspended and the last significant disturbances were made to the mine site, volunteer vegetation has taken hold in areas of the site that were not subjected to routine maintenance traffic. Specifically, vegetation has developed on the slopes of the waste pile and on the cover of the ore stockpile. No survey of these surfaces has been performed, but the success of the volunteer vegetation will be measured against the criteria listed in Table 5.3 to evaluate if the vegetation success meets or exceeds the interim standard.

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, no later than early September. The survey will be conducted by a botanist or other 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.

Evaluation - Evaluation of success will be based on a combination of criteria categories that include (1) site-specific conditions, (2) vegetation cover and species composition in the undisturbed adjacent areas, and (3) the potential vegetation cover and composition per NRCS range descriptions for particular soil types in the area (SCS 1993). A combination of these criteria is used since any one of them by itself may be inadequate to provide an acceptable standard. Specific criteria and numeric values for evaluation will be developed in consultation with the Mining and Minerals Division. The success criteria are expected to take into account:

- Range site descriptions, developed by the SCS (1993) for the area are based on a combination of factors including types of soils (depth, parent material, etc.) and climate. The descriptions provide a range of expected vegetation types and annual productivity for various uses.
- Site-specific conditions, used to modify the range-site derived criteria by increasing or decreasing required production. These will be used primarily to adjust productivity as a function of soil depth.
- Life-form diversity in surrounding undisturbed areas, i.e. the ratio of grasses:forbs:woody plant species, used to provide an additional measure by which to evaluate revegetation success. The criteria will be developed with the understanding that the entire region has been extensively grazed for many generations. Therefore, there are no truly undisturbed areas from which a baseline or natural background standard can be developed (NMEI 1974).

4.5.6 Management and Contingency Plans

After revegetation efforts have been completed, management of the revegetated areas will follow the will 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 unreclaimed waste rock pile 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. Since the original analysis, the closeout design has been changed, so a new analysis using the updated using the 2010 version 2.0.4.0 of the RUSLE2 model. 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 waste pile, 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 with rock and/or gravel will provide the best slope protection while also encouraging vegetation of the waste pile cover.

The south waste pile will be reshaped, and the north waste pile would be constructed, 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. Progressive reclamation allows time and opportunity to observe and evaluate the effectiveness of these measures. If additional erosion protection is needed for surfaces on the waste pile 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 arroyo bank, south of the waste pile. 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 waste rock pile is provided in Appendix B and Drawings MT12-CL-09 through -12. Design runoff and shear calculations were prepared as part of the original closeout plan in 1998 and address the issue of erosion protection for the ultimate build-out size and shape of the waste pile 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 waste pile at final buildout will have flatter slopes than assume 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 waste pile closure slopes. Nevertheless, the 1998 calculations have been retained and applied to this revision for conservatism.

Top surfaces will not require riprap. These surfaces have been designed with 1% slopes (RGR 2013b, Drawings MT13-AC-09 and -11) so that the allowable shear from runoff on clayey soil surfaces will not be exceeded by peak runoff of the 100-year, 24-hour storm.

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 waste pile and the final grades of the cover are known. However, for cost estimating purposes approximately 1600 cubic yards of riprap on the pile outslopes 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 south storm water retention pond (ultimately the stock tank) north of the waste rock pile. 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 was diverted at the time of mine development to run along the south side of the waste rock pile. 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 waste pile 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 waste pile eastward for at least 400 feet or to the southeast corner of the waste pile at approximately where the arroyo crosses E 559450 (Drawing MT13-CL-13). 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 surface water diversion channel, located east of the 14-foot shaft and ore stockpile areas, intercepts and diverts runoff northward to Marquez Arroyo. The channel is very stable, with substantial amount of rock and vegetation in place, and will be preserved in closeout in this condition.

4.7 Fencing

Recently 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 5000 feet in length. Another eight-foot chain link fence will be up to 3000 feet long surrounding the waste pile, depending of its final footprint. An additional 2000 feet of this fence will prevent entry to the shaft areas.

5 POST-CLOSURE ENVIRONMENTAL COMPLIANCE AND MONITORING

Through the closeout measures described in section 4 and the requirements of other permits described in section 1.4, the Mt. Taylor Mine site is expected to stay within environmental standards for air and water quality. The mine involves extraction of ore for processing elsewhere; there are no milling facilities on the site to concentrate or release potential contaminants.

5.1 Ground Water

5.1.1 Alluvial Ground Water Monitoring

Investigations on the mine site performed over the years through 2012 (RGR 2012; Kleinfelder 2012; 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 only in the paleoarroyo that lies below part of the Service and Support area and the existing waste pile. The underlying Menefee strata are unsaturated above the Pt. Lookout.

During the previous renewal period of mine standby, RGR reported information to the NMED that showed elevated concentrations of chloride, nitrate, sulfate, and TDS in monitor well MW-5 located in alluvium of the paleoarroyo down gradient from the waste pile. In response to NMED concerns about the origin and extent of this contamination, a two-stage abatement plan was undertaken and a waste rock characterization study (Kleinfelder, 2012) was performed. That study determined that the contamination is a relic of an old sanitary waste lagoon, originally a stock tank located above the paleoarroyo, which was buried under the waste rock. The contamination is limited to a perched water zone at the base of the paleoarroyo. It originated from the waste lagoon and was not caused by infiltration or leaching of the waste rock.

An abatement plan is in effect for remediation of contamination in perched water at the alluvial soil/ bedrock contact below and west of the waste rock pile. Stage II of the approved abatement plan is in progress and is expected to remediate the contamination. A line of salt cedars has been planted across the plume, along a north-south line at the west edge of the mine area, to intercept the plume, consume the nitrates, and dry up the perched water zone. The plume and the effects of the abatement plan are being assessed through a 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.

For the abatement plan, shallow alluvial monitor wells have been installed, water levels measured, and water samples obtained for testing. The alluvial monitor wells already in place (MW and WP series) span the width of saturation in the paleoarroyo; therefore, no addition shallow monitor wells are needed. Quarterly ground water monitoring will be continued in wells MW-5 WP-5, WP-4, and MW-4 after completion of the abatement plan to detect and evaluate infiltration of storm water from the south storm water retention pond into the alluvium. The target water quality parameters to be tested are uranium, radium, selenium, chloride, and sulfate. The stage II abatement monitoring program will be continued until NMED has determined that the abatement goals have been achieved; although unlikely, this monitoring could extend to and beyond closeout. No additional remedial measures are expected, so none is included in this closeout/closure plan.

The only other potential future sources of shallow ground water contamination are the mine water treatment ponds and the ore pad and its runoff retention pond, but such contamination is not expected. These facilities will have HDPE liners and either leak detection systems or runoff collection and retention. In the area of these facilities, the alluvial cover is thin or absent. Therefore, there is no shallow ground water that could be potentially impacted by leakage from the mine water treatment ponds (20.6.2.3108 F NMAC). At cessation of mining, the mine dewatering will be terminated and the mine water treatment ponds and ore pad runoff retention pond will be allowed to evaporate the remaining water. At that time, the pond leak detection sump monitoring and tensiometers, if any (RGR 2013, Section 6.5.2.1) will cease, as well, in preparation for closure of the ponds.

5.1.2 Deep Aquifer Ground Water Monitoring

Upon termination of mine dewatering, RGR will measure the water levels in the mine shafts at least quarterly for 12 months. When the phreatic level in well #2A has recovered to approximately original levels, Point Lookout water will be tested for the parameters listed in Table 2.2 to demonstrate that the water quality meets human health standards per 20.6.2.3103 NMAC.

Two deep monitoring wells, SM-24-38 and SM-24-43, extend to depths below the mine workings, or about 3500 feet, next to the 24-foot shaft. These wells were used to measure water levels in the mine. They will be decommissioned and plugged at mine closure.

Stage I depressurizing wells (RGR 2013b, Section 6.5.2.2) to depths of up to 1200 feet will be retained by the land owner for PMLU. Well 2A currently provides potable water from the Point Lookout aquifer for use at the mine. This well will continue to be sampled annually for the sample water quality parameters listed in Table 2.2 until closure is complete per DP-61. The sampling and test results will be reported to NMED annually during the closure period.

5.2 Surface Water

Surface water releases will continue to conform to NPDES #NMR05GB27 requirements until closeout is completed and the permit has been terminated.

The surface water courses across the site are ephemeral, and no monitoring of flows has been conducted during operation or standby periods. The storm water retention ponds have collected runoff during larger storm or snowmelt events but are usually dry. Sediments with elevated levels of radium will be removed from these ponds upon mine reactivation and again, if necessary, during closeout, and this cleanup will be verified by radiological surveys and sample testing. No post-closure monitoring will be conducted after the pond basins are determined to be free of contamination.

The proposed revegetation and erosion protection measures have been designed to limit runoff and erosion rates to normal levels, with special emphasis placed on preventing erosion of waste rock material or exposure and release of the buried sediments in the mine water treatment ponds. The waste areas, including waste pile and pond covers, will be visually inspected annually until the revegetation in those areas has been determined to be satisfactory and protective of areas containing buried contaminants. All other potential sources of sediment are naturally occurring at ground surface, and the erosion rates of these materials should return to normal when revegetation has been completed.

Erosion modeling in 1998 using the Revised Universal Soil Loss Equation (RUSLE) for the then-proposed steeper, benched slopes of the south waste pile showed that the maximum soil loss rate, estimated at 1.1 T/acre/year for the as-is pile, would be reduced to a maximum of 0.2 T/acre/year after closeout. The maximum annual soil loss rate on the unreclaimed waste rock pile is only 0.02 T/acre/yr., according to RUSLE modeling performed for the original closeout plan, and this will be reduced to less than 0.005 T/acre/yr. after reshaping to 5H:1V slopes and revegetation of the soil cover. Therefore, sediment releases should be very low.

5.3 Radiological Safety and Monitoring

5.3.1 Radiological Safety

Radiation safety controls will be implemented to protect workers and the public, and to ensure compliance with the ALARA requirement in the New Mexico Radiation Protection Regulations (20.3.4.404.B NMAC). The performance standards will be the pertinent monitoring requirements and radiation dose limits specified elsewhere in 20.3.4 NMAC. 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.

5.3.2 Radiological Monitoring

In 2012, the Mt. Taylor Mine resumed its routine radiation safety environmental monitoring program. Seven initial monitoring locations, shown on Figure 6-1 of RGR 2013, were established. A radon track-etch detector and a gamma radiation dosimeter are located at each station and will be exchanged and analyzed every three months throughout closeout activities. The data are used to monitor public and worker radiation dose.

Gamma radiation surveys have been performed routinely on the surface of the service and support area and will continue during closeout, with gamma surveys performed at least monthly and contamination surveys performed at least weekly. After closeout 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 the portions of the Multi-Agency Radiation Survey and Site Investigation Manual (or equivalent methodologies) for soil characterization that are applicable to uranium mine reclamation. As allowed by MARSSIM, 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 Draft Guidance for Meeting Radiation Criteria Levels and Reclamation at New Uranium Mining Operations may be utilized; however, in its draft form it is written specifically to new mines. All radiological surveys will be conducted by health physicists and health physics technicians.

The monitoring and analysis for intake of respirable particulates will use methods consistent with Nuclear Regulatory Commission (NRC) guidances 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 20.3.4.461 NMAC.

5.4 Air Quality

Air quality impacts from Mt. Taylor Mine are minimal, resulting primarily from fugitive dust generated by truck traffic. Completion of closeout 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. For additional information on air quality, see page 14 of the Mt. Taylor Mine Site Assessment.

5.5 Sewage Treatment Plant Discharge

The sewage treatment plant (STP) will be taken out of service and demolished at termination of mining. The existing septic tank will be inspected, repaired or replaced if necessary, placed back into service with the leach field through closeout. Once the STP is taken out of service, the sampling and testing under NPDES #NM0028100 will be discontinued. No monitoring of the septic system is planned.

6 CLOSEOUT SCHEDULE

The schedule for mine closeout is shown in the Gantt chart in Figure 6-1. From initiation of the closeout contracting process to completion of the closeout activities on site is estimated to take about 16 months. The first 5-6 months would be taken up by project management and contractor procurement, followed by 9-10 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 PLAN GUIDELINES FOR EXISTING MINES, Attachment #4 (FINANCIAL ASSURANCE CALCULATION HAND BOOK)* 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 2013, 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 2012 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 closure costs for the north waste pile. If this pile is needed, RGR will update the cost estimate to include costs related to closure of this facility. If the north waste pile is not needed and not constructed, the area reserved for this pile will be left undisturbed.

The cost estimate does not include any deductions or offsets for re-sale or salvage value of mine components and scrap. However, the value of these materials, especially the structural steel and the treated water pipeline, could offset one quarter to one third the actual direct cost of closeout.

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 as low-level radioactive waste in a licensed facility off-site (DOE 2002). Additional assumptions are that 1) the IX resin will be 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, and 2) the third party facility would accept title to the resin. The decontamination and demolition (D&D) costs for the IX circuit equipment are covered under the financial assurance requirement of the Radioactive Material License with the NMED Radiation Control Bureau and are not included in this estimate; only the IX structure is included in this estimate.

The detailed estimate is presented in Appendix E. The estimated costs by category are:

Direct Cost =	$ 4,934,919
Indirect Cost =	$2,418,110
Direct + Indirect Cost =	$7,353,029
Location Cost Adjustment=	0.879
Total Adjusted Direct + Indirect =	$6,463,312
New Mexico Gross Receipts Tax	$432,234
Total Direct + Indirect, Location-adjusted, with NMGRT	**$6,895,547**

The cost estimate also includes cost projections over three additional years with annual escalation of 2.0% .

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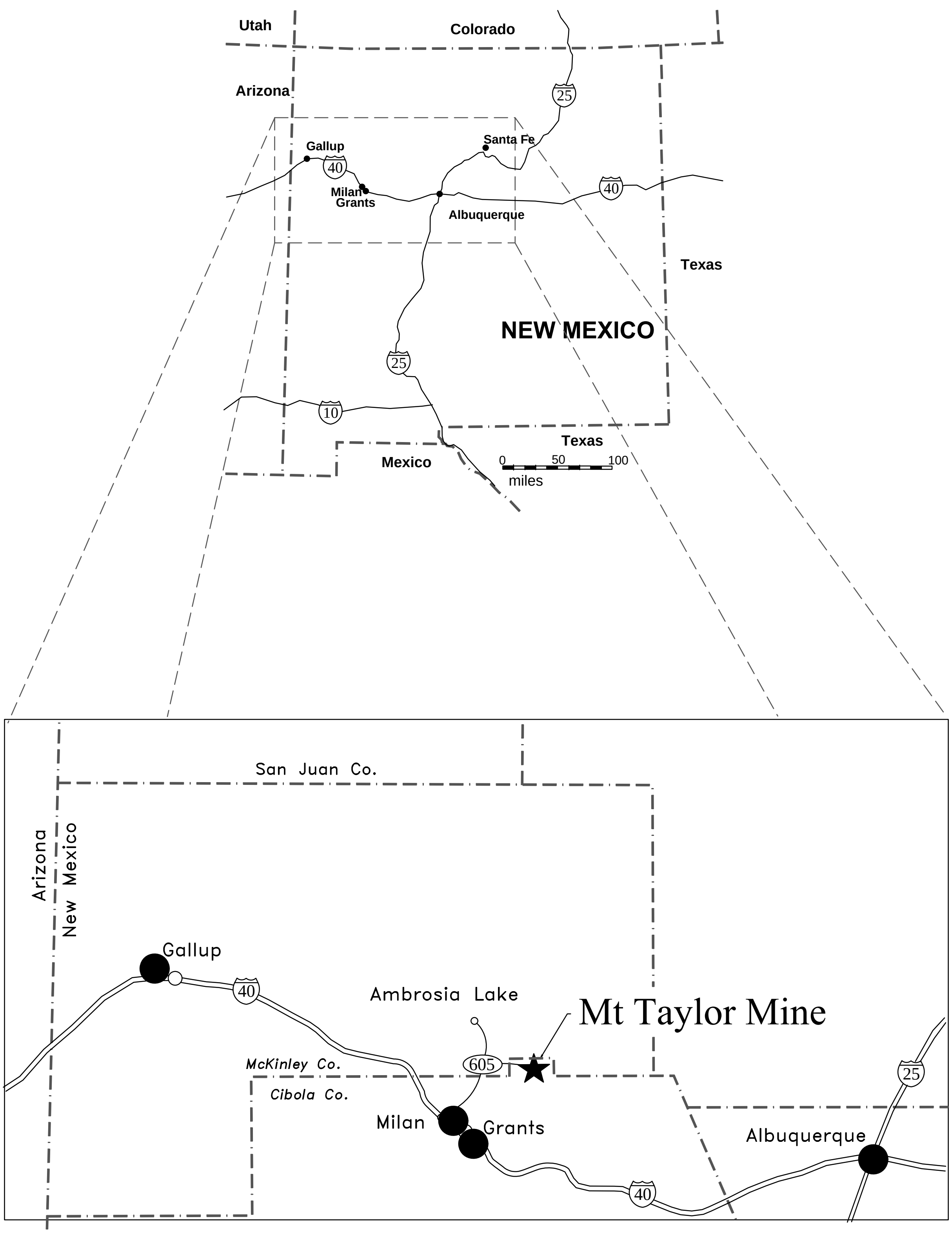

FIGURE 1-1

SITE LOCATION MAP

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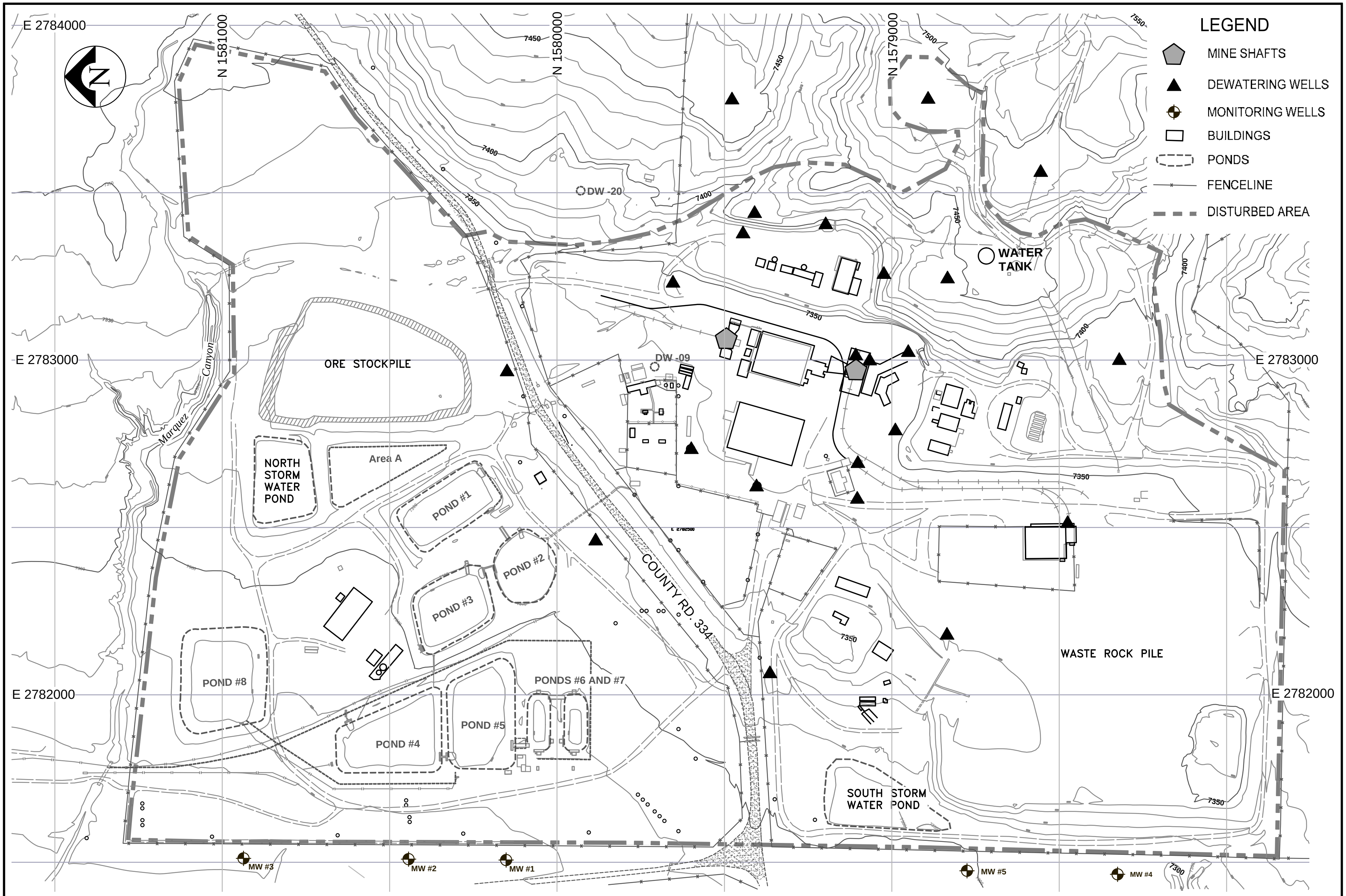

NOTE:
FOR DETAIL SITE PLAN SEE
DRAWING MT12-CL-04

0 200 400
SCALE IN FEET

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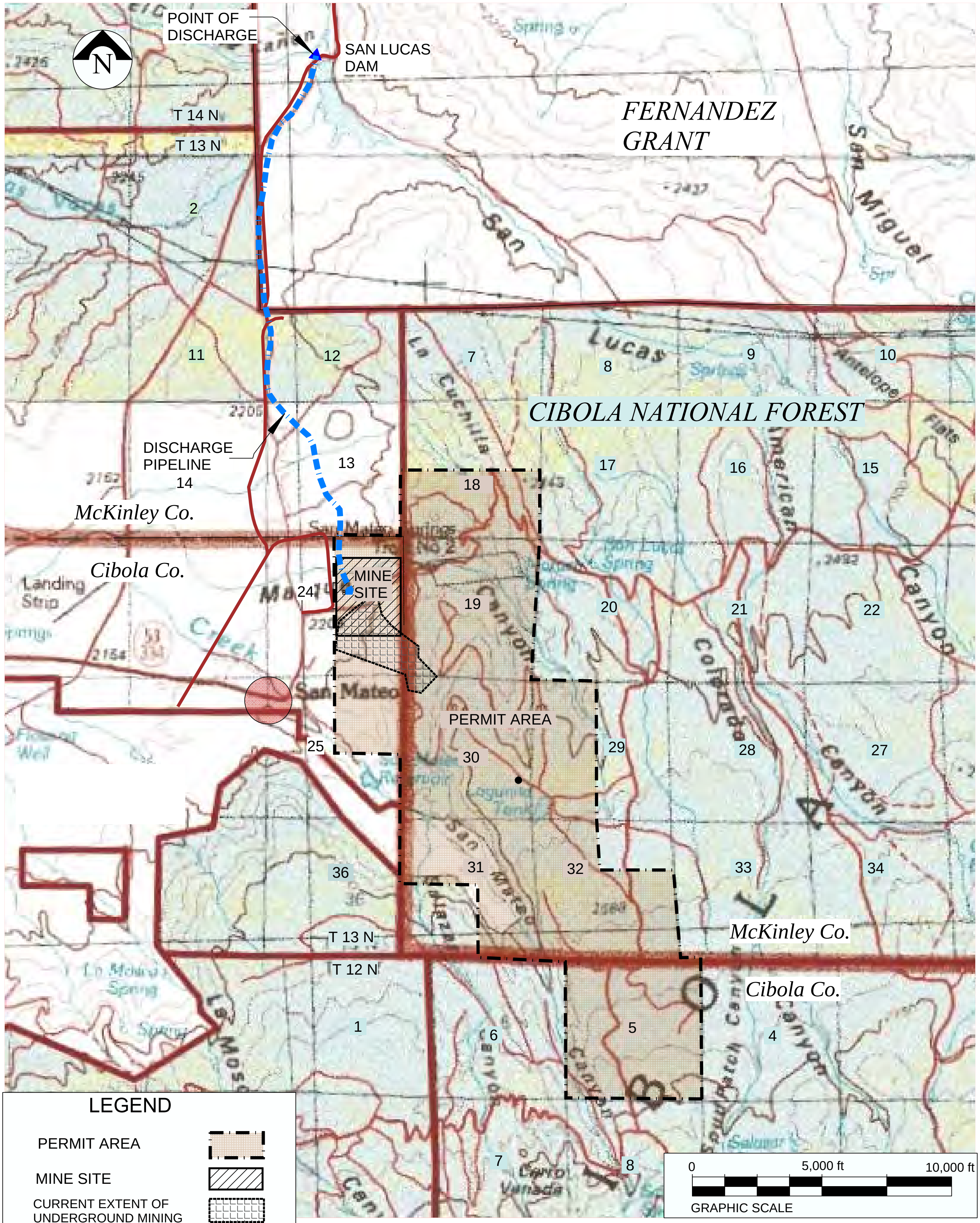
FIGURE 1-2
EXISTING MINE FACILITY



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DATE:
10/22/13

FIGURE 1-3

MINE PERMIT AREA

DEEP WELLS INFORMATION TABLE

Well No.	Closure Disposition (3)	State Plane Coordinates (NAD 83)		Collar Elevation, Feet AMSL	Depth, Feet from Surface	Depth, Feet Elevation AMSL	Screened Interval, Feet Depth (5)	Screened Interval, Feet Elevation (5)	Aquifer in Screened Interval (6)	Pt Lookout		Westwater	
										Top Depth/ Elevation	Bottom Depth/ Elevation	Top Depth/ Elevation	Bottom Depth/ Elevation
		N	E										
DW 1	PMLU	1579419	2782626	7340	1118	6222	740-890	6600-6450	PL	740/6600	870/6470		
DW 2	Plug	1579121	2782606	7345	2920	4425	2550-2920	4795-4425	TH/D	740/6605	870/6475		
DW 2-a (1)	PMLU	1579202	2782709	7347	925	6422	750-900	6597-6447	PL	741/6606	871/6476		
DW 3	PMLU	1579008	2782795	7347	1150	6197	737-891	6610-6456	PL	751/6606	871/6476		
DW 4	PMLU	1578965	2783021	7349	1130	6214	750-900	6599-6449	PL	750/6599	880/6469		
DW 5	PMLU	1579038	2783256	7406	1172	6234	852-1002	6554-6404	PL	807/6599	937/6469		
DW 6	PMLU	1579210	2783402	7385	1190	6195	845-995	6540-6390	PL	800/6585	930/6455		
DW 7	PMLU	1579455	2783384	7376	1125	6251	825-995	6551-6401	PL	780/6596	910/6466		
DW 8	PMLU	1579672	2783240	7346	1044	6302	791-941	6555-6405	PL	746/6600	876/6470		
DW 9	Plug	1579723	2782973	7340	2845	4495	2538-2840	4802-4500	TH	738/6602	868/6472		
DW 10	PMLU	1579619	2782734	7337	1065	6272	738-888	6599-6449	PL	738/6599	868/6469		
DW 11	Plug	1578845	2783245	7446	3028	4418	2819-3028	4627-4418	TH/D	847/6599	977/6469		
DW 12	Plug	1579421	2783439	7419	2940	4479	2791-2940	4628-4479	TH/D	819/6600	949/6470		
DW 13	Plug	1579378	2782065	7317	3185	4132	3045-3185	4247-4132	W	722/6595	852/6465	3132/4185	3272/4045
DW 14	Plug	1578847	2782182	7338	3205	4133	3048-3188	4290-4150	W	736/6602	866/6472	3146/4192	3286/4052
DW 15	Plug	1578491	2782501	7347	3205	4142	3056-3196	4291-4151	W	744/6603	874/6473	3154/4193	3294/4053
DW 16	Plug	1578334	2782995	7393	3275	4118	3105-3245	4288-4148	W	793/6600	923/6470	3203/4190	3343/4050
DW 17	Plug	1578570	2783563	7501	3342	4159	3209-3342	4291-4159	W	896/6604	1027/6474	3307/4194	3447/4054
DW 18	Plug	1578902	2783778	7502	3314	4188	3212-3314	4295-4192	W	900/6606	1030/6476	3310/4196	3450/4056
DW 19	Plug	1579493	2783781	7453	3274	4179	3166-3274	4287-4179	W	854/6599	984/6469	3264/4189	3404/4049
DW 20	Plug	1579945	2783505	7385	3223	4162	2938-3223	4447-4162	D-W	786/6599	916/6469	3196/4189	3336/4049
DW 21	Plug	1580165	2782966	7316	3184	4132	2873-3173	4443-4143	D-W	721/6595	851/6465	3131/4185	3271/4045
DW 22	Plug	1579900	2782460	7305	3195	4110	3019-3159	4286-4146	W	707/6598	837/6468	3117/4188	3257/4048
SM-24-38	Plug	1579132	2783007	7349	3535	3814	3107-3247	4324-4184	W	795/6636	925/6506	3205/4226	3345/4086
SM-24-43	Plug	1579029	2782948	7347	3535	3812	3064-3204	4283-4143	W	752/6595	882/6465	3162/4185	3302/4045

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

(2) Wells installed in 1977

(3) PMLU= Post-mining land use

(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.

(6) PL=Pt Lookout, TH= Tres Hermanos, D= Dakota, W= Westwater

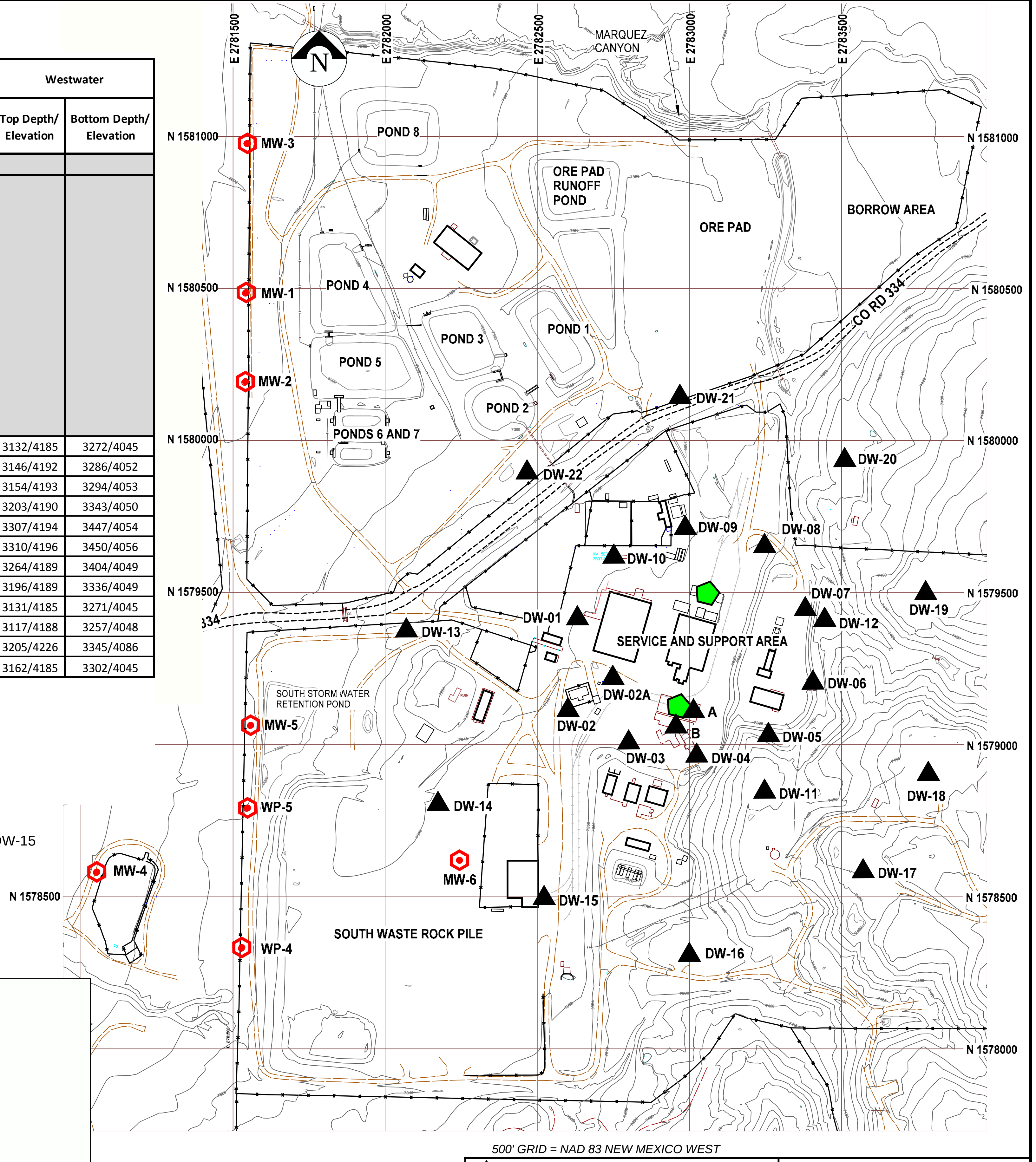
NOTE: WELLS NOS: DW-01, DW-02 AND DW-15 HAVE BEEN TAKEN OUT OF SERVICE.

MONITORING WELLS INFORMATION TABLE

Well No.	State Plane Coordinates NAD 83		Year Installed	Casing/liner Diameter inches	Casing/liner Material	Collar Elevation, Feet AMSL	Screen Interval, ft	
	Easting	Northing					Depth/ Elevation of top	Length
MW-1	2781541	1580484	1979	3	steel	7274	25	10
MW-2	2781538	1580191	1979	3	steel	7275	25	10
MW-3	2781545	1580976	1979	3	steel	7272	30	10
MW-4	2781050	1578580	2005	4	PVC	7284.2	33	15
MW-5	2781556	1579062	2005	2	PVC	7297	22.5	10
MW-6	2782243	1578620	2011	2	PVC	7341	15	35
WP-4	2781527	1578330	1982	4	PVC	7308	36	10
WP-5	2781545	1578790	1982	4	PVC	7302	30	10

LEGEND

—×—	FENCE LINE
▲ DW-00	DEWATERING WELLS
⬡ WP-0	MONITORING WELLS
▭	SUPPORT BUILDINGS
⬟	MINE SHAFT



500' GRID = NAD 83 NEW MEXICO WEST

0 200 400 FT

SCALE IN FEET

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FIGURE 1-4

WELL LOCATIONS AND DESCRIPTIONS

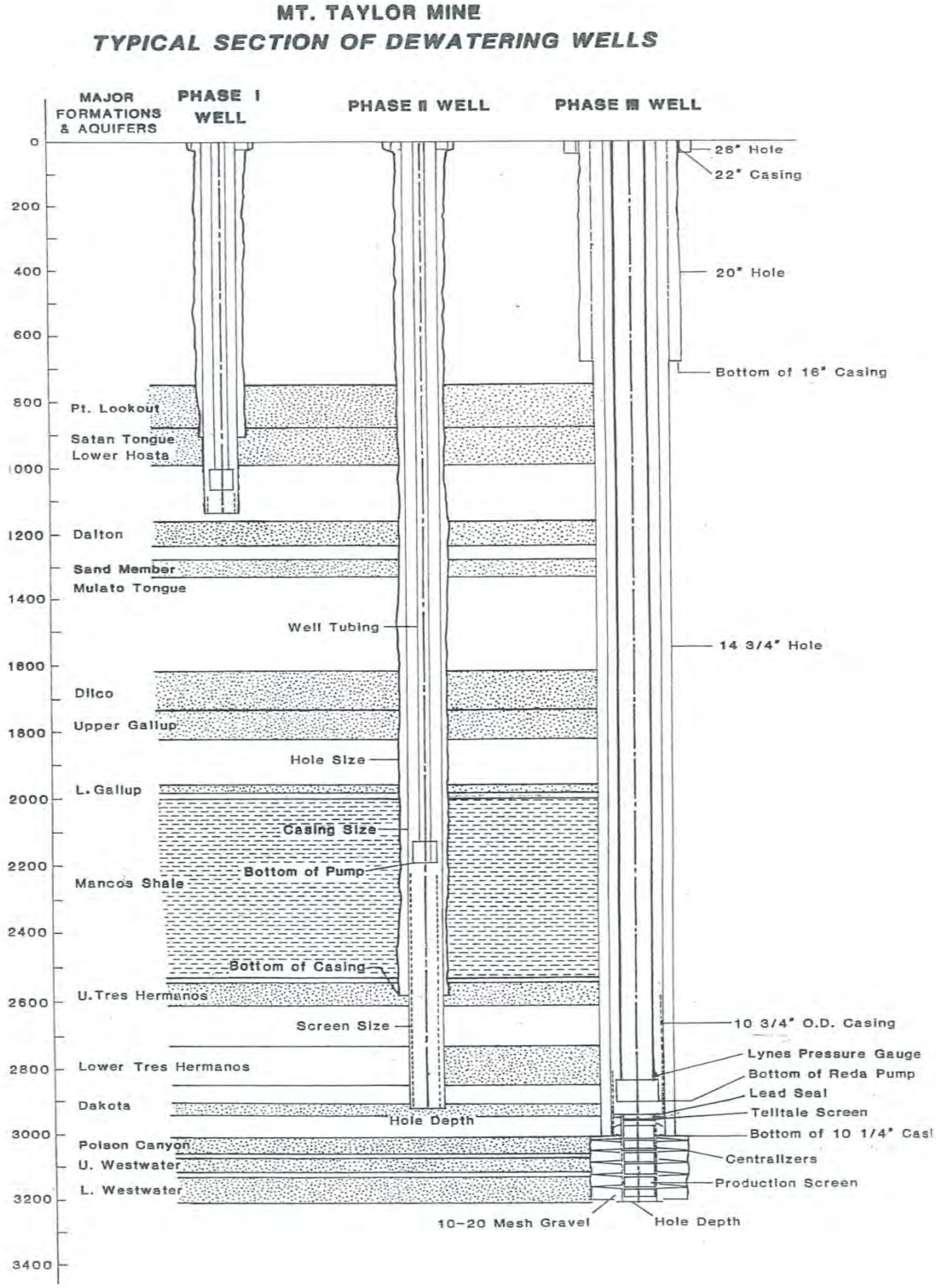
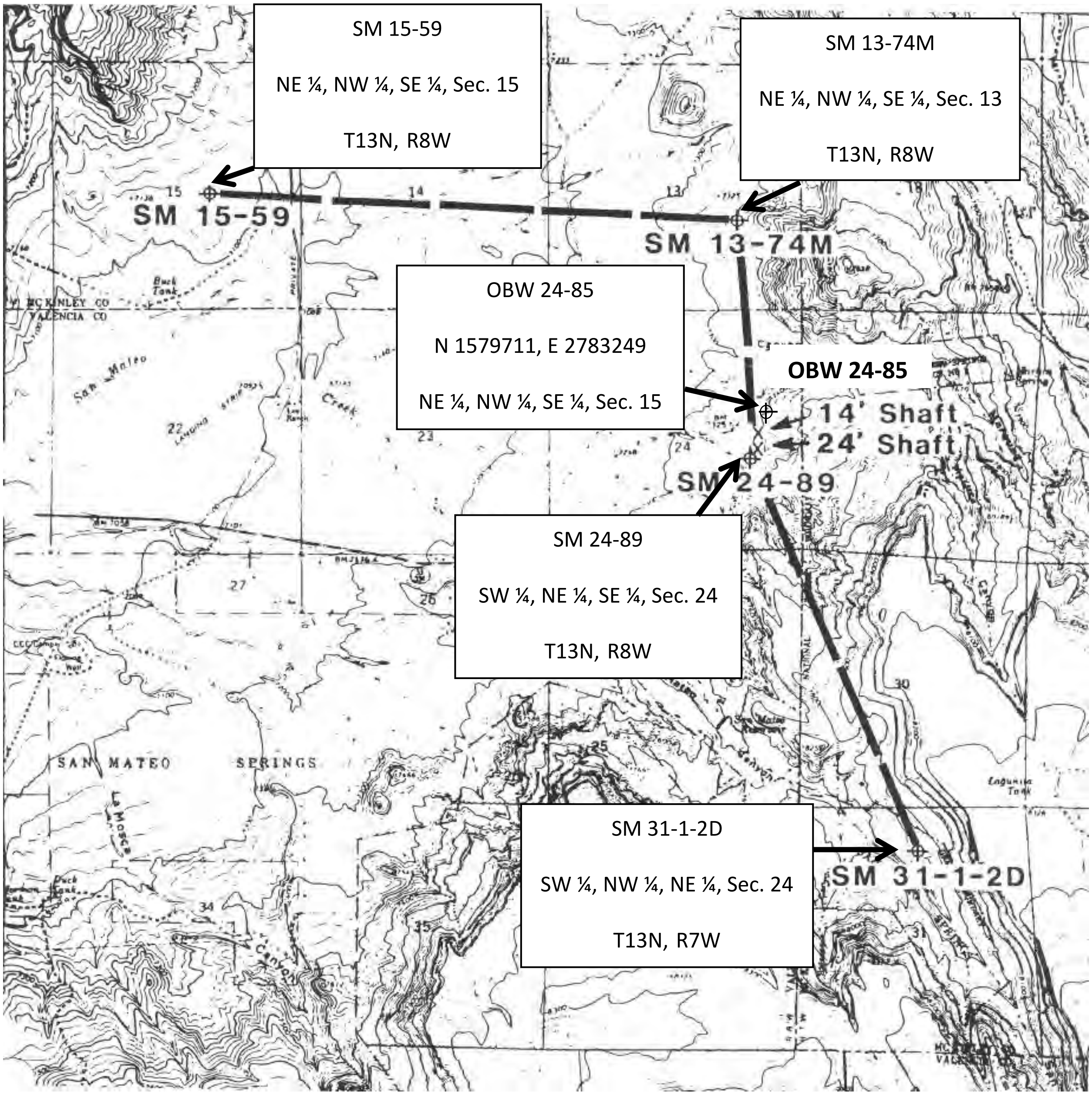
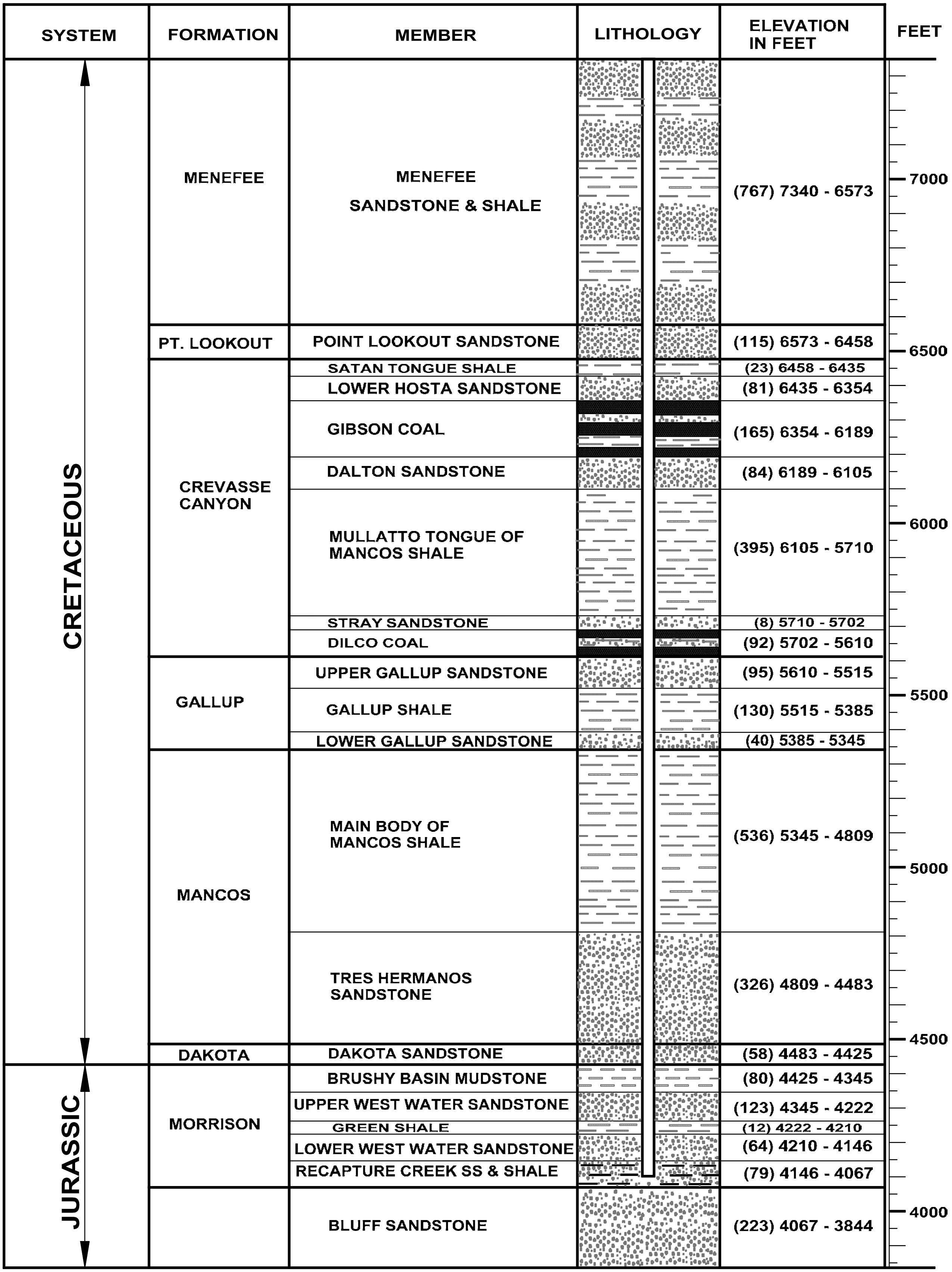


Figure 1-5 Typical Section of Dewatering Wells



OBW and SM observation wells drilled to the Westwater level and cased with 3 7/8 " drill pipe, then used to monitor drawdown during initial mine dewatering. To be plugged at closeout.

Figure 1-6   Observation wells



SYSTEM	FORMATION	MEMBER	LITHOLOGY	ELEVATION IN FEET	FEET
CRETACEOUS	MENEFEE	MENEFEE SANDSTONE & SHALE		(767) 7340 - 6573	7000
	PT. LOOKOUT	POINT LOOKOUT SANDSTONE		(115) 6573 - 6458	6500
	CREVASSE CANYON	SATAN TONGUE SHALE		(23) 6458 - 6435	
		LOWER HOSTA SANDSTONE		(81) 6435 - 6354	
		GIBSON COAL		(165) 6354 - 6189	
		DALTON SANDSTONE		(84) 6189 - 6105	
		MULLATTO TONGUE OF MANCOS SHALE		(395) 6105 - 5710	6000
		STRAY SANDSTONE		(8) 5710 - 5702	
		DILCO COAL		(92) 5702 - 5610	
	GALLUP	UPPER GALLUP SANDSTONE		(95) 5610 - 5515	
		GALLUP SHALE		(130) 5515 - 5385	5500
		LOWER GALLUP SANDSTONE		(40) 5385 - 5345	
	MANCOS	MAIN BODY OF MANCOS SHALE		(536) 5345 - 4809	5000
		TRES HERMANOS SANDSTONE		(326) 4809 - 4483	4500
	DAKOTA	DAKOTA SANDSTONE		(58) 4483 - 4425	
JURASSIC	MORRISON	BRUSHY BASIN MUDSTONE		(80) 4425 - 4345	
		UPPER WEST WATER SANDSTONE		(123) 4345 - 4222	
		GREEN SHALE		(12) 4222 - 4210	
		LOWER WEST WATER SANDSTONE		(64) 4210 - 4146	
		RECAPTURE CREEK SS & SHALE		(79) 4146 - 4067	
		BLUFF SANDSTONE		(223) 4067 - 3844	4000

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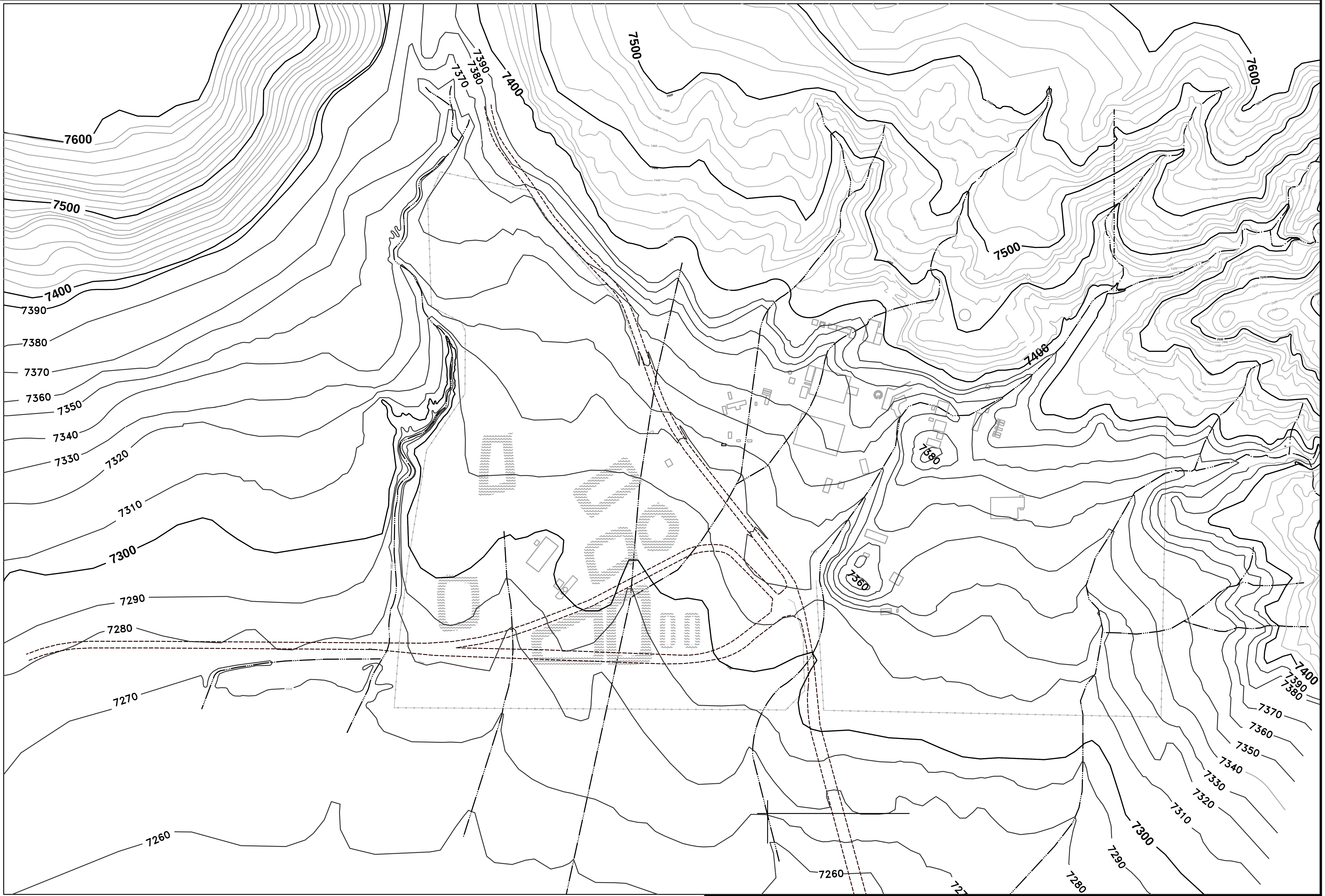
FIGURE 2-1

Geological Section at the Mount Taylor Mine



PRE-MINE TOPOGRAPHY ESTIMATED FROM USGS TOPO MAP "SAN MATEO QUADRANT" DMA 4454 SW-SERIES, V-881 WITH TOPO FROM 1963

0 300 600

SCALE IN FEET

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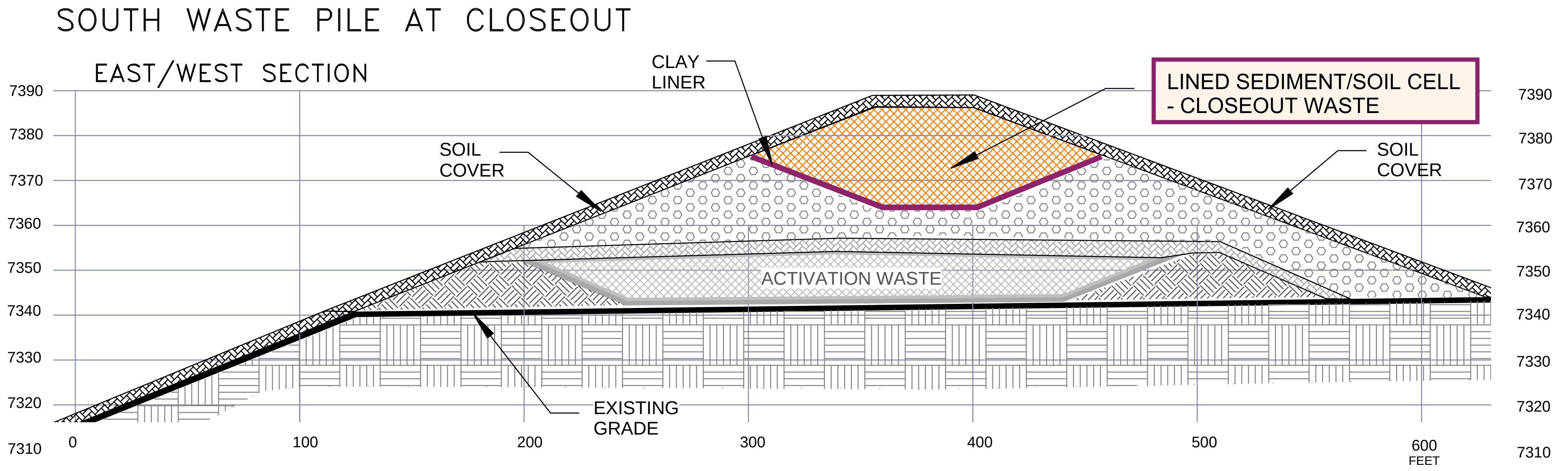
FIGURE 2-2

PRE-MINE TOPOGRAPHY

1963 USGS

Figure 2-3 Treated Water Pipeline



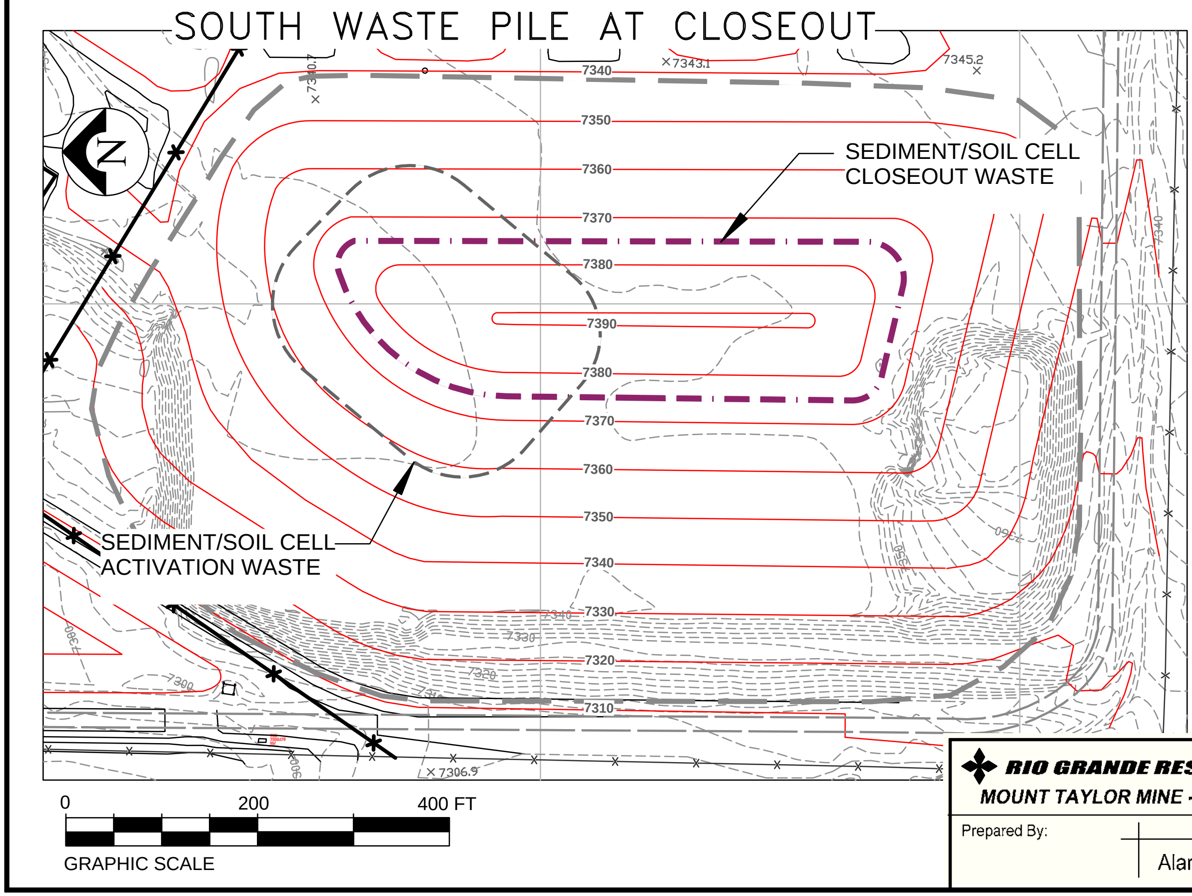


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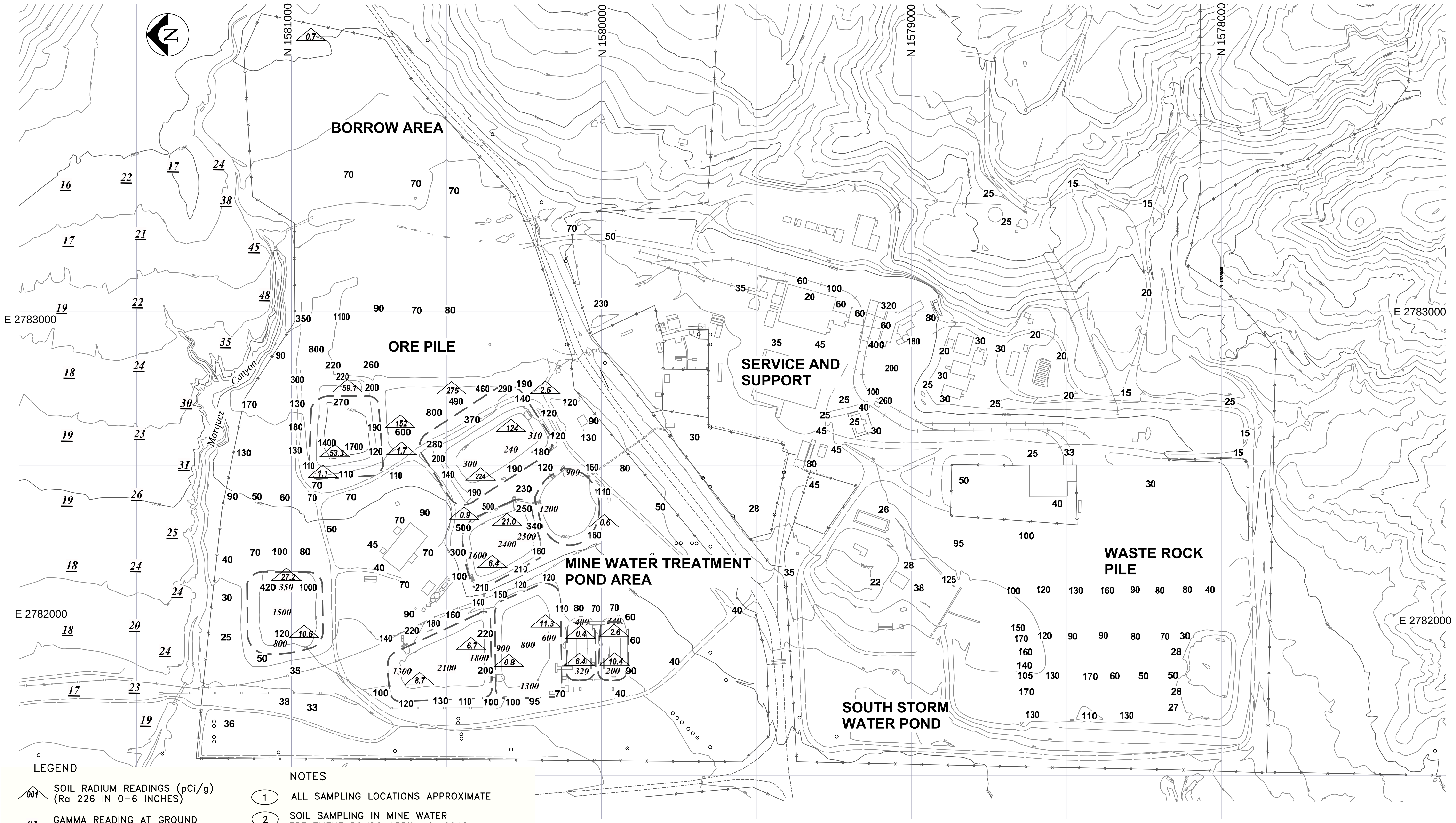
FIGURE 4-1

Mine Closeout Contaminated
Sediment/Soil Disposal Cell



LEGEND

△ 001	SOIL RADIUM READINGS (pCi/g) (Ra 226 IN 0-6 INCHES)
01	GAMMA READING AT GROUND SURFACE, APRIL 2012
01	GAMMA READING AT 1 METER ABOVE GROUND, NORTH OF ARROYO, APRIL 2012
01	GAMMA READINGS AT 1 METER ABOVE GROUND, MAY 2002

NOTES

① ALL SAMPLING LOCATIONS APPROXIMATE

② SOIL SAMPLING IN MINE WATER TREATMENT PONDS APRIL 10, 2012

③ GAMMA RAY SURVEY MAY 23, 2002
READINGS IN uR/hr
BACKGROUND +OR- 18 uR/hr

④ GAMMA RAY SURVEY APRIL 10, 2012
READINGS IN uR/hr
BACKGROUND +OR- 12 uR/hr
INSTRUMENT: Eberline PRM-7 #182,

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FIGURE 5-1
SITE RADIOLOGICAL DATA

Figure 6-1 Mt. Taylor Mine Closeout/ Closure Schedule

ID	Task Name	Duration
1	**PROJECT MANAGEMENT**	
2	**Contracting**	**120 days**
3	**Mobilization**	**30 days**
4	**Demobilization**	**5 days**
5	**DEMOLITION**	**60 days**
6	**24 ft Shaft Headframe**	**15 days**
7	**14 ft Shaft Headframe**	**10 days**
8	**Surface Facilities**	**60 days**
9	**MWTU Buildings, Structures**	**60 days**
10	**Treated Water Discharge Pipeline**	**25 days**
11	**Service and Support Facilities**	**20 days**
12	**SHAFT BACKFILL AND PLUGGING**	**100 days**
13	**24 ft Shaft**	**90 days**
14	**14 ft Shaft**	**90 days**
15	**WELL AND CONDUIT PLUGGING**	**30 days**
16	**EARTHWORK**	**197 days**
17	**Waste Disposal Cell**	20 days
18	**Ore Pad and Runoff Retention Pond**	**60 days**
19	**MWTU Ponds**	**97 days**
20	**Contaminated Soil**	**60 days**
21	**Waste Pile**	**62 days**
22	**Finish Grading**	**15 days**
23	**Erosion Protection**	**30 days**
24	**REVEGETATION**	**30 days**
25	**Conditioning, seeding, mulching**	**15 days**
26	**Fencing**	**15 days**

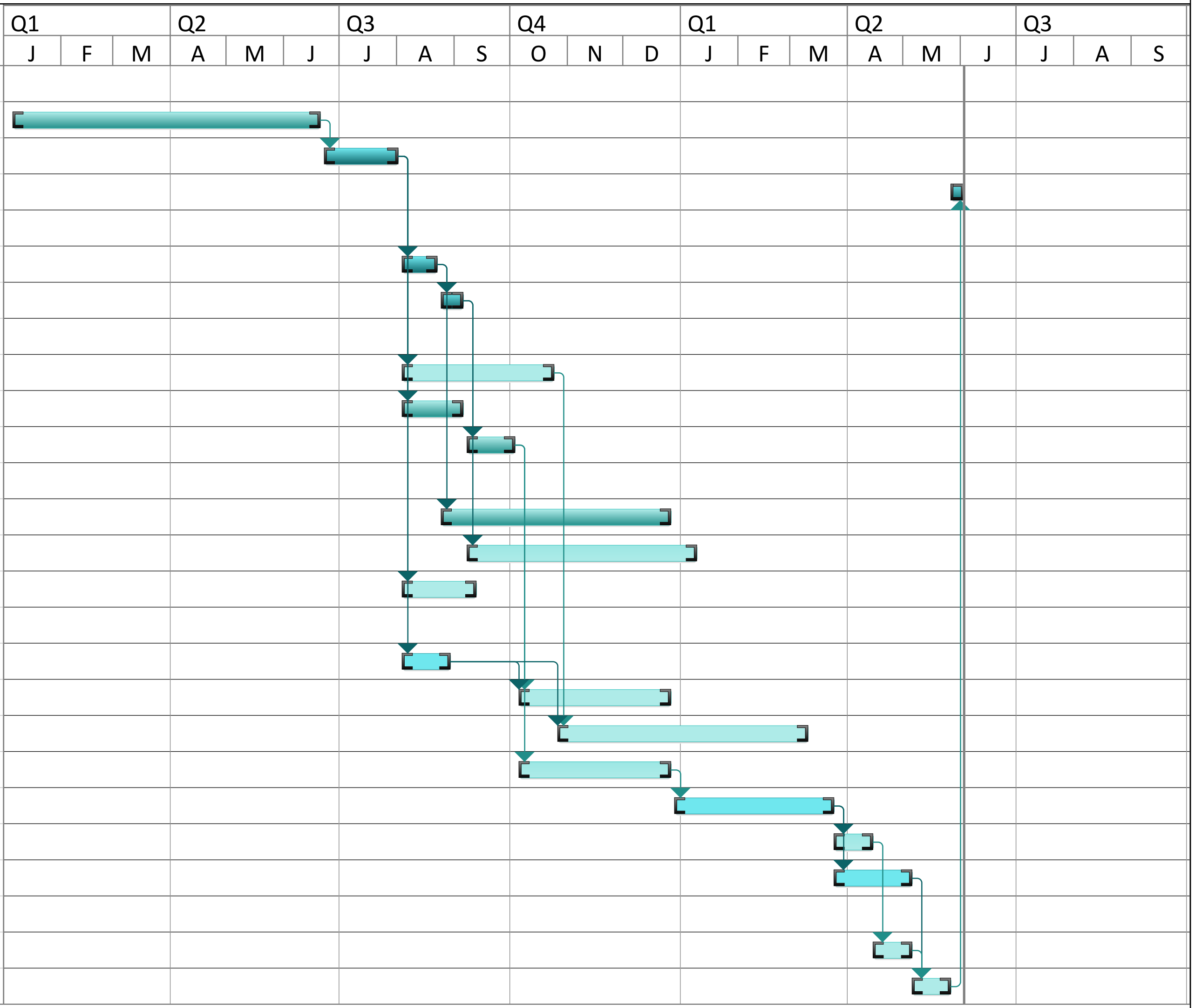


Figure 6-1 MT TAYLOR MINE CLOSEOUT/CLOSURE SCHEDULE
REV. 1 NOVEMBER 2013

Baseline Milestone ◇
Task
Baseline Summary
Baseline

Table 1.1 Existing Permits

NAME OF PERMIT	PURPOSE	EXPIRES
FEDERAL		
NPDES NM 0028100	MINE WATER DISCHARGE	JULY 2015
MULTI-GENERAL STORM WATER PERMIT #NMR05GB27	STORM WATER DISCHARGE INDUSTRIAL PLANT	SEPTEMBER 2013, in renewal
US FOREST SERVICE "SPECIAL USE PERMIT"	24" WATER TRANSMISSION PIPELINE	DECEMBER 2028
STATE OF NEW MEXICO		
DISCHARGE DP-1712	TEMPORARY BENCH TEST	CANCELED
DISCHARGE DP-61	MINE WATER DISCHARGE & RETENTION	APPROVAL PENDING
RADIOACTIVE SOURCE LICENSE #SO043-09	RADIATION SOURCES ONLY	December 31, 2017
RADIOACTIVE MATERIAL LICENSE	MATERIAL and I-X PLANT	NEW APPLICATION on 4/11/13, in processing
STAND-BY MINE PERMIT # C1002RE –REVISION 10-1	STANDBY STATUS	OCTOBER 2014
SOLID WASTE LANDFILL FOR MINE	MINE WASTE & LANDFILL	NO RENEWAL NEEDED

Table 1.2 Ground Water Levels in Wells and Shafts

Description	**State Plane Coordinates (NAD 83)**		**Collar Elevation (Feet AMSL)**	**Total Depth (Feet from Collar)**	**Depth to Water (Feet from Collar)**	**Elevation of Water Level (feet AMSL)**	**DATE MEASURED**
	N	**E**					
14' SHAFT	1579534	2783046	7343	~3300	794	6549	December 2013
WELL 2A (DOMESTIC WELL)	1579120	2782651	7347	1150	483	6864	August 2011
WELL #6 PHASE II	1579210	2783402	7395	1190	598	6797	December 2013
WELL #11 PHASE II	1578845	2783245	7442	3028	933	6509	December 2013
WELL #12 PHASE II	1579421	2783439	7414	2940	819	6595	December 2013
WELL #13 PHASE III	1579378	2782065	7317	3815	771	6546	December 2013
WELL #20 PHASE III	1579945	2783505	7381	3223	836	6545	December 2013

Other wells were not accessible at the time of measurement.

***San Mateo Municipal Well

Elevation	7240
Top of Point Lookout	576'
Depth to Water	196'
Depth of Well	701'
Date Drilled	1976

Table 2.1 Water Quality Test Results for Mine Pool in 24-ft Shaft

CONSTITUENT	*20.6.2.3103 NMAC STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS*	*MEASURED VALUE OF SAMPLE COLLECTED ON 09/28/07*	*VALUE VS STANDARD*
Uranium	0.03 mg/l	0.071 mg/l	above standard
Radium 226	30 pCi/l	16.8 pCi/l	below standard
Selenium	0.05 mg/l	not detected	below standard
for Domestic Water Supply			
Chloride	250 mg/l	4 mg/l	below standard
Iron	1.0 mg/l	0.05 mg/l	below standard
Sulfate	600 mg/l	44 mg/l	below standard
Total dissolved solids	1000 mg/l	358 mg/l	below standard
Zinc	10 mg/l	not detected	below standard
pH	6 to 9 s.u.	8.38.0 s.u.	within range
for Irrigation Use			
Molybdenum	1.0 mg/l	0.2 mg/l	below standard

Table 2.2 Water Quality Test Results for Point Lookout Aquifer, Well 2A

CONSTITUENT	**20.6.2.3103 NMAC STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS**	**MEASURED VALUE OF SAMPLE COLLECTED ON 09/28/07**	**MEASURED VALUE OF SAMPLE COLLECTED ON 08/28/12**	**VALUE VS STANDARD**
Uranium	0.03 mg/l	0.0012 mg/l	0.0015 mg/l	below standard
Radium 226	30 pCi/l	0.24 pCi/l	0.44 pCi/l	below standard
Selenium	0.05 mg/l	0.001 mg/l	0.001 mg/l	below standard
	for Domestic Water Supply			
Chloride	250 mg/l	6 mg/l	7 mg/l	below standard
Iron	1.0 mg/l	not detected	not tested	below standard
Sulfate	600 mg/l	92 mg/l	112 mg/l	below standard
Total dissolved solids	1000 mg/l	523 mg/l	577 mg/l	below standard
Zinc	10 mg/l	0.11 mg/l	not tested	below standard
pH	6 to 9 s.u.	9.0 s.u.	8.94 s.u.	within range
	for Irrigation Use			
Molybdenum	1.0 mg/l	not detected	not tested	below standard

Table 2.3 Deep Wells

Well No.	Closure Disposition (3)	State Plane Coordinates (NAD 83)		Collar Elevation, Feet AMSL	Depth, Feet from Surface	Depth, Feet Elevation AMSL	Screened Interval, Feet Depth (5)	Screened Interval, Feet Elevation (5)	Aquifer in Screened Interval (6)	Pt Lookout		Westwater	
										Top Depth/ Elevation	Bottom Depth/ Elevation	Top Depth/ Elevation	Bottom Depth/ Elevation
		N	E										
1	PMLU	1579419	2782626	7340	1118	6222	740-890	6600-6450	PL	740/6600	870/6470		
2	Plug	1579121	2782606	7345	2920	4425	2550-2920	4795-4425	TH/D	740/6605	870/6475		
2-a(1)	PMLU	1579202	2782709	7347	925	6422	750-900	6597-6447	PL	741/6606	871/6476		
3	PMLU	1579008	2782795	7347	1150	6197	737-891	6610-6456	PL	751/6606	871/6476		
4	PMLU	1578965	2783021	7349	1130	6214	750-900	6599-6449	PL	750/6599	880/6469		
5	PMLU	1579038	2783256	7406	1172	6234	852-1002	6554-6404	PL	807/6599	937/6469		
6	PMLU	1579210	2783402	7385	1190	6195	845-995	6540-6390	PL	800/6585	930/6455		
7	PMLU	1579455	2783384	7376	1125	6251	825-995	6551-6401	PL	780/6596	910/6466		
8	PMLU	1579672	2783240	7346	1044	6302	791-941	6555-6405	PL	746/6600	876/6470		
9	Plug	1579723	2782973	7340	2845	4495	2538-2840	4802-4500	TH	738/6602	868/6472		
10	PMLU	1579619	2782734	7337	1065	6272	738-888	6599-6449	PL	738/6599	868/6469		
11	Plug	1578845	2783245	7446	3028	4418	2819-3028	4627-4418	TH/D	847/6599	977/6469		
12	Plug	1579421	2783439	7419	2940	4479	2791-2940	4628-4479	TH/D	819/6600	949/6470		
13	Plug	1579378	2782065	7317	3185	4132	3045-3185	4247-4132	W	722/6595	852/6465	3132/4185	3272/4045
14	Plug	1578847	2782182	7338	3205	4133	3048-3188	4290-4150	W	736/6602	866/6472	3146/4192	3286/4052
15	Plug	1578491	2782501	7347	3205	4142	3056-3196	4291-4151	W	744/6603	874/6473	3154/4193	3294/4053
16	Plug	1578334	2782995	7393	3275	4118	3105-3245	4288-4148	W	793/6600	923/6470	3203/4190	3343/4050
17	Plug	1578570	2783563	7501	3342	4159	3209-3342	4291-4159	W	896/6604	1027/6474	3307/4194	3447/4054
18	Plug	1578902	2783778	7502	3314	4188	3212-3314	4295-4192	W	900/6606	1030/6476	3310/4196	3450/4056
19	Plug	1579493	2783781	7453	3274	4179	3166-3274	4287-4179	W	854/6599	984/6469	3264/4189	3404/4049
20	Plug	1579945	2783505	7385	3223	4162	2938-3223	4447-4162	D-W	786/6599	916/6469	3196/4189	3336/4049
21	Plug	1580165	2782966	7316	3184	4132	2873-3173	4443-4143	D-W	721/6595	851/6465	3131/4185	3271/4045
22	Plug	1579900	2782460	7305	3195	4110	3019-3159	4286-4146	W	707/6598	837/6468	3117/4188	3257/4048
SM-24-38	Plug	1579132	2783007	7349	3535	3814	3107-3247	4324-4184	W	795/6636	925/6506	3205/4226	3345/4086
SM-24-43	Plug	1579029	2782948	7347	3535	3812	3064-3204	4283-4143	W	752/6595	882/6465	3162/4185	3302/4045

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

(2) Wells installed in 1977

(3) PMLU= Post-mining land use

(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.

(6) PL=Pt Lookout, TH= Tres Hermanos, D= Dakota, W= Westwater

Table 2.4 **Mine Water Treatment Ponds Area Radiological Profile**
(see Table 2, App. D.3.1 for lab data and App. D.1.1 for sample locations)

Ponds Areas and Sediment Volumes

Pond #	Surface Area of Pond Basin, sf	Average Depth of Sediment in Pond, ft	Surface Area** of Pond Sediment, sf	Estimated Sediment Volume, cy	Ra-226 Concentrations in Sediments, pCi/g
1	44600	0.67	28302	699	113-224
2	31550	1.0 *	23241	1000 *	wet, no samples
3	43100	0.96	27966	991	6.4-21
4	68750	0.75	37708	1047	0.8-18.1
5	72831	1.63	36718	2210	0.8-11.3
6	11100	1.5	5056	281	0.8-6.4
7	10700	2.21	5064	414	1.0-10.4
8	45250	2.25	21729	1811	2.5-27.2

* Estimated values. Standing water prevented direct measurement or sediment sampling.

** Surface areas from AutoCad calculation based on existing base map from 1991.

Other Soil Samples in the MWTU Area

Location	Sample ID	Sample Depth, ft	Ra-226, pCi/g
Pond 1 berm	MT-1-F	0.5	2
Pond 2 berm	MT-2-D	0.5	0.6
Pond 3 berm	MT 3-F	0.5	0.9
Area A	MT-A-A	0-0.3	152
Area A	MT-A-A	0.5-0.7	8.7
Area A	MT-A-A	2.3-2.5	1.7
Area A	MT-A-B	0-0.3	275
Area A	MT-A-B	0.7-0.9	5.4
Area A	MT-A-B	2.5-2.8	29.3
Area A	MT-A-C	0.5	1.7
Borrow Area	MT-borrow	2.0-5.5	0.7
N. Storm Pond	MT-OP-C-S1	0-0.5	53.3
N. Storm Pond	MT-OP-C-S2	1.7	1.7
N. Storm Pond	MT-OP-C-S3	4.0-4.2	0.8
N. Storm Pond	MT-OP-C-S4	6	1.5
N. Storm Pond	MT-OP-D-S1	0-0.5	51.9
N. Storm Pond	MT-OP-D-S2	4.0-4.2	1.9
N. Storm Pond	MT-OP-D-S3	6.3	0.6
N. Storm Pond Berm	MT-OP-E	0.5	1.1

Table 2.5 Capacity of MWTU Ponds With Design Upgrades

Pond Number	Operating Pool Elevation		Area , ft^2	Volume, cy	Volume (acre feet)
1	Min	7305	68938	24718	15.32
	Max	7308		32912	20.40
2	Min	7299.6	31655	5803	3.60
	Max	7301		7470	4.63
3	Min	7296.7	40373	12420	7.70
	Max	7300		18130	11.24
4	Min	7287.5	60195	12680	7.86
	Max	7291		14977	9.28
5	Min	7285	60218	11729	7.27
	Max	7286		14041	8.70
6	Min	7282.8	6636	698	0.43
	Max	7286		1623	1.01
7	Min	7282.8	6634	698	0.43
	Max	7286		1615	1.00
8	Min	7287.5	34105	4489	2.78
	Max	7291		9569	5.93
	Total area		308754		
			Volumes at Min Pool		50.47
			Volumes at Max Pool		57.11

Based on 2012 Topography and AutoCAD volumetrics

Table 3.1 Mt. Taylor Mine Building Radiological Survey Results

	Surface Contamination (dpm/100 cm^2)			Removable Contamination (dpm/100 cm^2)		
Location	**Maximum**	**Average**	**Minimum**	**Maximum**	**Average**	**Minimum**
14’ Shaft Hoist House & Storage	471	321.5	32	9	4.0	0
24’ Shaft Hoist House and Repair Shop	71	19.1	8	9	2.7	0
Car Shop	568	140.5	0	13	4.7	0
Carpenter Shop	171	64.2	0	4	1.2	0
Compressor Building	86	40.3	11	11	4.0	0
Electrical Building	96	42.8	11	6	3.7	1
Fan Shop	214	109.8	0	13	5.7	0
Storage Building	182	75.0	11	9	5.0	1
Fire Equipment Building	268	100.0	11	1	1.0	1
Guard Shack	11	2.8	0	1	0.3	0
Main Service Building	1189	293.5	0	35	4.3	0
Water Treatment Building	246	109.8	0	6	2.8	0
York Chiller Building	257	89.2	11	6	2.8	0

Survey performed by Stan Fitch, CHP, on July 2012. The survey employed techniques consistent with NUREG-1727 to screen for contamination on interior surfaces of the structures indicated. The survey may be applied as an historical site assessment for determining the characterization guidelines and DCGLs specified by NUREG-1727 and MARSSIM. All contamination values in units of disintegrations per minute per 100 square centimeters of alpha radiation.

Table 4.1 Inventory of Potential Contaminants on Hand

DESCRIPTION	MATERIAL SAFETY DATA 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	8008-20-6	64742-81-0	94741-59-9
	91-20-3					
Engine Oil	68649-42-3					
Gasoline Fuel	86290-81-5	71-43-2	108-88-3	100-41-4	1330-20-7	106-97-8
	110-54-3	110-82-7	108-87-2	540-84-1	91-20-3	64-17-5
	637-92-3	994-05-8	142-82-5	1634-04-04		
Grease	686-42-3	Mixture				
Holeplug 3/8	14464-46-1	15468-32-3	1302-78-9	14808-60-7		
Hydraulic Oil	Mixture					
Insulating Oil	64741-97-5	64742-53-6				
Lubricant - Gear	Mixture					
Transmission Fluid	Mixture					

Quantities on hand vary and are replaced as they are consumed.

Table 4.2 Estimated Volumes and Locations of Contaminated Sediment and Soil

LOCATION	VOLUME, CY (4)
Mine Water Treatment Ponds (1)	6812 (5)
Ore Pad Runoff Retention Pond (2)	904 (5)
Ore Pad (2)	15906
South Storm Water Retention Pond (2)	1514 (5)
MWTU area excluding ponds (3)	24943
Service and Support Area (3)	34104
County Road ROW (3)	3791
Borrow Area (3)	7395
Area north of Marquez Canyon Arroyo	12707
Total	**108,076**

Notes:

(1) Assumed sediment depth of 1.0 ft. in ponds #1-5 and 8 at time of closeout. No contaminated sediment in ponds #6 and 7.
(2) Assumed sediment depth of 1.0 ft
(3) Assumed sediment depth of 0.5 ft
(4) Volumes based on calculations MT13.04, MT13.06, and MT13.07
(5) Disposal in waste cell in south waste pile.

Table 4.3 Earthwork Balance

Pond Sediments to Waste Pile Disposal Cell

Pond Number	Area at Existing Pond Bottom (FT^2)	Assumed depth of cut (Feet)	Sediments Removed (CY)	Total Volume to be Backfilled (CY)
POND #1	38950	1	1443	30060
POND #2	20070	1	743	10320
POND #3	23747	1	880	22590
POND #4	34428	1	1275	29014
POND #5	35897	1	1330	26188
POND #6	2099	0	0	2950
POND #7	2099	0	0	2950
POND #8	30577	1	1132	28038
Ore Pad Runoff Pond	24417	1	904	17950
South Storm Water Pond	40878	1	1514	NA
		Total Excavated, to Disposal Cell	**9230**	
			Total Backfill Needed	**170060**

Contaminated Soil to Waste Pile

Area Description	Area in (FT^2)	Depth Of Cut (FT)	Volume (CY)
Mine Water Treatment Pond Area (Not including the pond bottoms)	1,346,922	0.5	24943
Ore Pad Area	429,451	1.0	15906
Borrow Area	399,326	0.5	7395
Support and Service Area (Not including building footprints)	1,841,593	0.5	34104
County Road (ROW)	204,732	0.5	3791
Area North of Marquez Canyon	686,178	0.5	12707
		Total Excavated, to Waste Pile	**98846**
		Total Backfill Needed	**NA**

Cut / Fill Balance

Description	Contaminated		Clean	
	Cut, CY	Fill, CY	Cut, CY	Fill, CY
MWTU area				
Pond basins	9230			170060
MWTU area fill to grade				58,195
MWTU cut to grade			228,785	
Site Contaminated Soil	98846			
Maximum Waste Rock from Mining Operations (1)	150506			
South Waste Pile				
Total Capacity of South Waste Rock Pile (At full buildout)		259383		
Disposal cell liner				2489
Clean soils from MWTU Pond Expansions			18744	
Clean Soils from Activation Grading in South Waste Rock area			23236	
Cover soils over South Waste Rock area				34905
Totals	258582	259383	270765	265649
	Extra fill needed	801	Extra Clean Cut Available	5116
	Balance available from clean soil cut =		**4315**	

Note:
(1) Assumes approximately 10 cy per shift for 20 years, conservatively high.

Table 5.1 Building Inventory

Building Name	Building Type	Dimensions	Volume, ft^3	Disposition at Closeout	
				Demolish	Retain for Owner PMLU**
Compressor Building	Steel frame and siding	40'4"x40'2"x16'	25921	X	
York Chiller (Chill Water) Building	Steel frame and siding	100'x50'x30'	150000	X	
Pump Building (Chill Water Pump House)	Steel frame and siding	40'x24'x16'	15360	X	
Chlorine Building	Concrete Block	23'x50'6"x20'	23230	X	
Shaft Heating Building	Steel frame and siding	50'x30'x16'	24000	X	
Glycol Heat Exchanger	Steel frame and siding	50 x 30 x 16	24000	X	
Hoist House	Steel frame and siding	162'x120'x40'	777600	X	
Cooling Tower	Steel frame and siding	75 x 25 x 25	46875	X	
Guard House (Security Building)	Steel frame and siding	63'x20'6"x16'	20664		X
Fire Equipment Building (Fire House)	Steel frame and siding	27'x24'x16'	10368		X
Service Building (Office and Warehouse)	Steel frame and siding	194'x138'x24'	642528	X	
Car (Maintenance) Shop	Steel frame and siding	150'x100'x30'	450000		X
Carpenter Shop	Steel frame and siding	45'x24'x16'	17280		X
Electrical Building	Steel frame and siding	62'x30'x16'	29760	X	
Water Treatment and Boiler Building	Steel frame and siding	62'x50'x16'	49600	X	
Core Storage Building	Steel frame and siding	100x38'x16'	60800		X
Fan Shop	Steel frame and siding	40 x 30 x 12	14400		X
Storage Building	Steel frame and siding	28'x30'x16'	13440	X	
Flocculant Treatment Facility	Steel frame and siding	30'x23'x12'	8280	X	
Barium Chloride Treatment Facility	Steel frame and siding	40'x25'x16'	16000	X	
Ion Exchange Plant	Steel frame and siding	140'x70'x40'	392000	X	
Water Tank	Steel		300,000 gal		X
Fuel Storage Tanks	Steel		various	X	

**Other facilities to be retained for PMLU by owner – Phase I water wells (to Pt. Lookout aquifer), septic tank and leach field

Table 5.2 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 *(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, grows on rock slopes.
4. Galleta *(Hilaria jamesii)* Rate: 6 PLS/ft^2
5. Alkali Sacaton *(Sporobolus airoides)* Rate: 6 PLS/ft^2
6. Mountain mahogany *(Cercocarpus montanus)* Rate: 2 PLS/ft^2
7. Fourwing saltbush *(Atriplex canescens)* Rate: 2 PLS/ft^2

   Evergreen native perennial shrub, reproduces from seeds, grows on grassy uplands, excellent reclamation species.
8. Globemallow *(Sphaeralcea fend/en)* Rate: 2 PLS/ft^2
9. Narrowleaf Penstemon *(Penstemon angustifo/ia)* Rate: 2 PLS/ft^2
10. New Mexican feathergrass *(Stipa neomexicana)* Rate: 6 PLS/ft^2

    Cool season native perennial grass, reproduces by seed and tillers, growth starts mid-spring, grows on rocky slopes.
11. 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: Seed should 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 may be used. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

Table 5.3 Interim Vegetation Success Standards

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, lb./acre	1250-3200	1200-3000	2162

PROPOSED INITIAL INTERIM STANDARDS

Plant Species	Expected Percentage of Production	Standard
Western Wheatgrass	32	20-45
Alkali Sacaton	20	5-40
New Mexican Feathergrass	20	10-30
Blue Grama, Spike Mulhy, Galleta	16	10-25
Fourwing Saltbush	6	3-10
Winterf	2	1-3
Mountain Mahogany	1	0-5
Globemallow	1	0-5
Narrowleaf Penstemon	1	0-5
others	1	0-10
Ground Cover, --- 50% of potential		
Production, lb./acre --- 70% of potential		

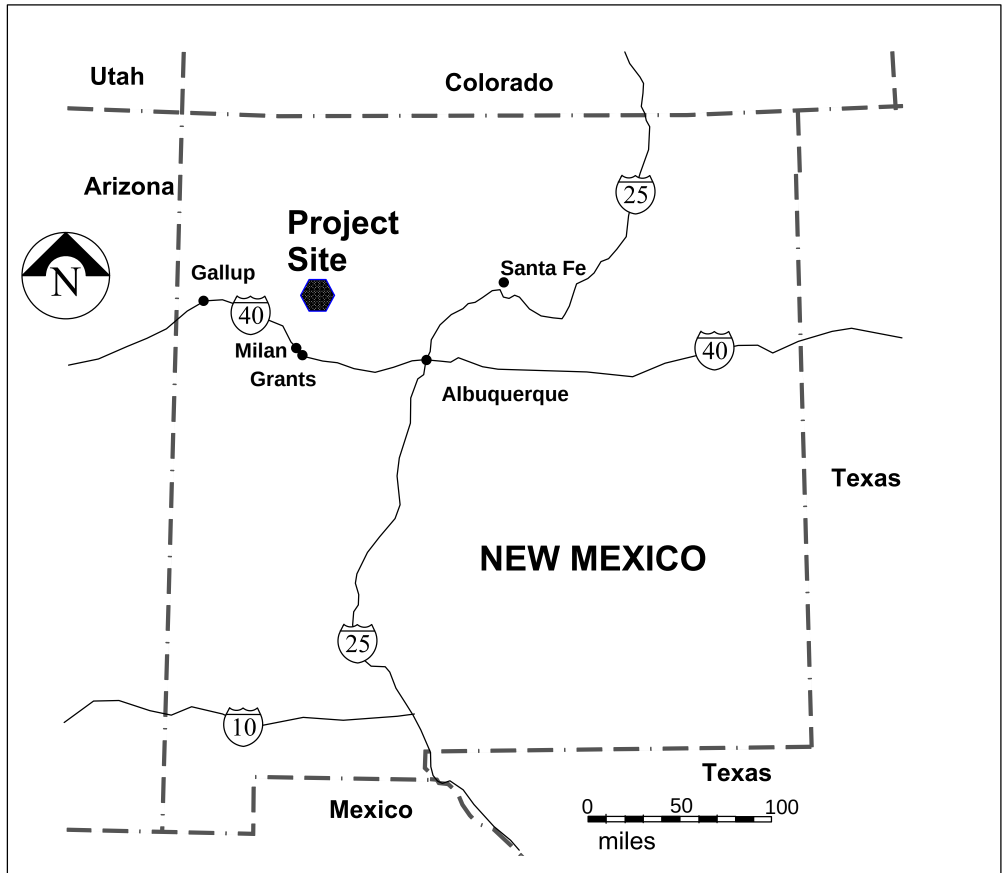
Variations and substitutions may be made in the seed mix, based on seed availability and cost at time of closeout.

APPENDIX A

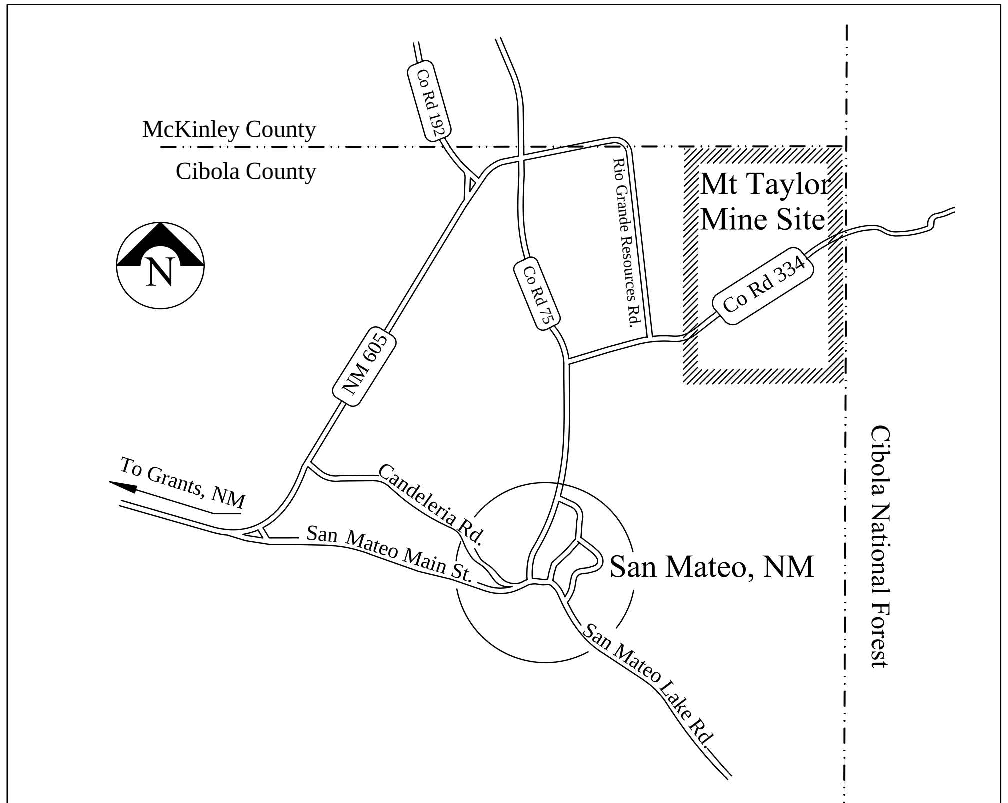
DRAWINGS

MT12-CL-01	Title Sheet
MT12-CL-02	Closeout Plan Index Sheet
MT12-CL-03	Gamma and Soil Radium Sample Locations
MT12-CL-04	Facility Disposition Plan
MT12-CL-05	Shaft Closure - Manway Vent
MT12-CL-06	Shaft Closure - Production Shaft
MT12-CL-07	Final Grading Plan Mine Water Treatment Pond and Ore Pad Areas
MT12-CL-08	Typical Sections - Mine Water Treatment Pond Infill
MT12-CL-09	Final Grading and Cover Plan - South Waste Rock Pile Area
MT12-CL-10	Final Grading and Cover Sections - South Waste Rock Pile Area
MT12-CL-11	Final Grading and Cover Plan - North Waste Rock Pile Area
MT12-CL-12	Final Grading and Cover Sections - North Waste Rock Pile Area
MT12-CL-13	Final Site Grading Plan

MOUNT TAYLOR MINE CLOSEOUT/CLOSURE PLAN



STATE MAP



SITE LOCATION MAP

DRAWING LIST

DRAWING NUMBER	DRAWING TITLE
MT13-CL-01	TITLE SHEET
MT13-CL-02	CLOSEOUT PLAN INDEX SHEET
MT13-CL-03	GAMMA AND SOIL RADIUM SAMPLE LOCATIONS
MT13-CL-04	FACILITY DISPOSITION PLAN
MT13-CL-05	SHAFT CLOSURE - MANWAY VENT
MT13-CL-06	SHAFT CLOSURE - PRODUCTION SHAFT
MT13-CL-07	FINAL GRADING PLAN- MINE WATER TREATMENT POND AND ORE PAD AREA
MT13-CL-08	TYPICAL SECTIONS - MINE WATER TREATMENT POND BACKFILL
MT13-CL-09	FINAL GRADING AND COVER PLAN- SOUTH WASTE ROCK PILE AREA
MT13-CL-10	FINAL GRADING AND COVER SECTIONS- SOUTH WASTE ROCK PILE AREA
MT13-CL-11	FINAL GRADING AND COVER PLAN- NORTH WASTE ROCK PILE AREA
MT13-CL-12	FINAL GRADING AND COVER SECTIONS- NORTH WASTE ROCK PILE AREA
MT13-CL-13	FINAL SITE GRADING PLAN

GENERAL NOTES

G-01 FOR DETAILS REGARDING CONSTRUCTION AND MATERIAL REQUIREMENTS FOR THIS PROJECT, SEE THE PROJECT SPECIFICATIONS. IN ANY CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE SPECIFICATIONS WILL GOVERN.

G-02 THE GRID AND COORDINATES SHOWN ON ALL PLANS ARE NEW MEXICO WEST ZONE NAD 83

G-03 THE TOPOGRAPHIC MAP OF THIS SITE USED IN THESE DRAWINGS AS A BASE MAP WAS PRODUCED BY THOMAS R. MANN & ASSOCIATES, INC. IN MAY 2012.

SURVEY REFERENCES

S-1.0 THE TOPOGRAPHIC BASE MAP WAS PRODUCED BY AERIAL SURVEY METHODS AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

S-2.0 SURVEY DATA FOR THE MAP WAS FURNISHED BY THE FOLLOWING:

- S- 2.1 FIELD SURVEY OF CONTROL POINTS AND THE 1000 FOOT GRID— BY SURVEY CONTROL, INC. ALBUQUERQUE NM
- S- 2.2 AERIAL PHOTOGRAPHY EXPOSED ON MAY 4, 2012 BY BLUE SKIES CONSULTING, BELEN NM.
- S- 2.3 ORTHOPHOTO BASE MAPPING AND RELATED DIGITAL FILES PRODUCED BY THOMAS R. MANN, INC.

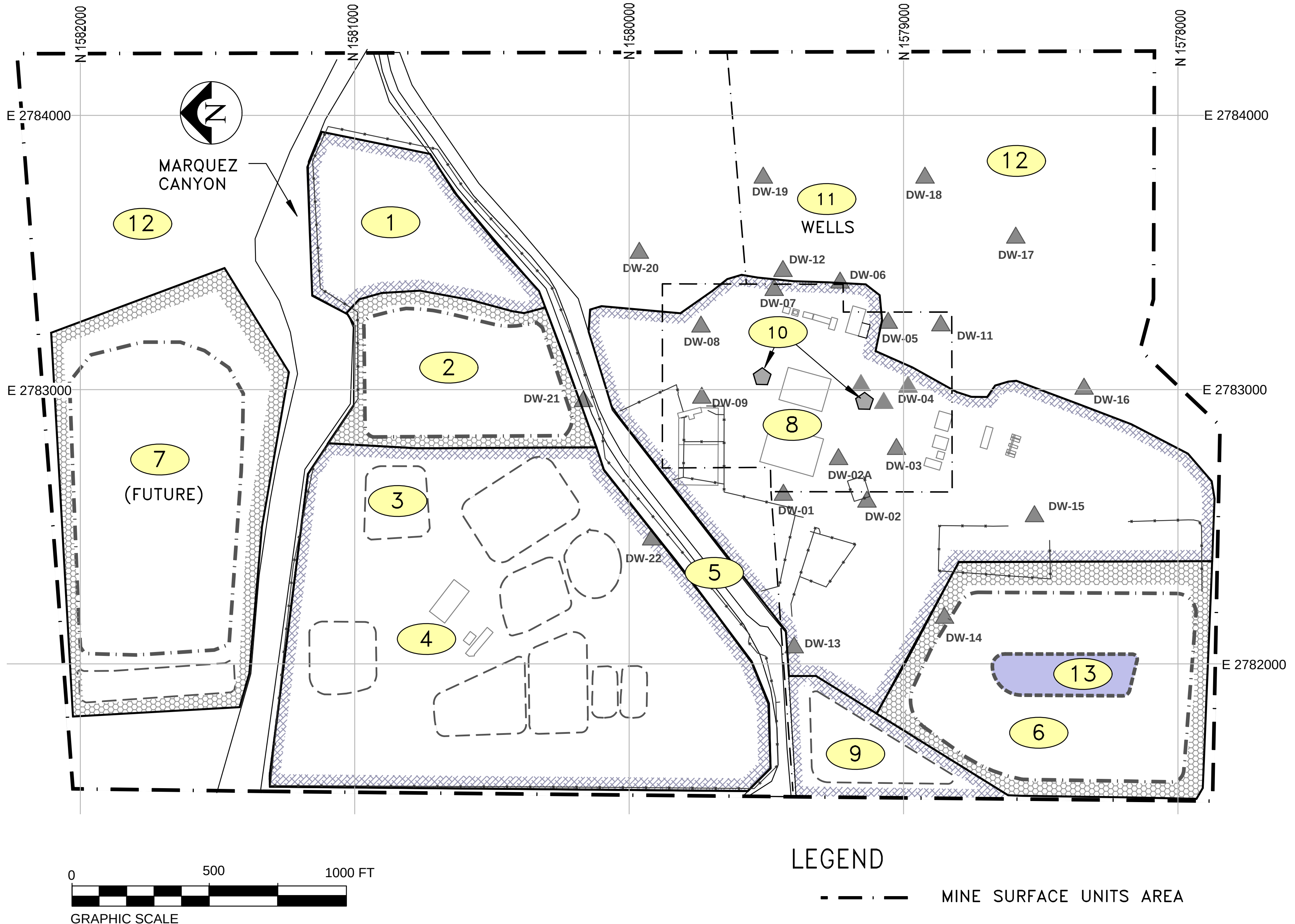
REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By: Alan Kuhn Associates LLC
SIZE: B
SCALE: NONE
DWG NO. MT13-CL-01

PROJECT TITLE: MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN
SHEET TITLE: TITLE SHEET
REV 1

AREA		TASKS						
NO.	AREA DESCRIPTION	DEMOLITION	SOIL CLEANUP [1]	PLUG OR BACKFILL	REMOVE SEDIMENT [2]	PLACE COVER	FINISH GRADING	REVEGETATE
①	BORROW AREA		X				X	X
②	ORE PAD AREA	X	X				X	X
③	ORE PAD RUNOFF RETENTION POND	X	X	X	X		X	X
④	MINE WATER TREATMENT AREA	X	X		X		X	X
⑤	COUNTY ROAD ROW		X				X	
⑥	SOUTH WASTE ROCK [1] PILE AREA					X	X	X
⑦	NORTH WASTE ROCK PILE AREA – (FUTURE)						X	X
⑧	SERVICE AND SUPPORT AREA	X	X				X	
⑨	SOUTH STORMWATER RETENTION POND		X		X			
⑩	MINE SHAFTS – MANWAY AND PRODUCTION	X		X				
⑪	DEWATERING WELLS			X				
⑫	UNDEVELOPED AREAS							X
⑬	CLAY-LINED DISPOSAL CELL			X [2]			X	



LEGEND

— · —	MINE SURFACE UNITS AREA
▲ DW-03	DEWATERING WELL
⬚	POND
⬚	ORE PAD OR WASTE ROCK PILE
▨	POND SEDIMENT DISPOSAL CELL
☐	BUILDING
⬟	MINE SHAFT

NOTES

1. CONTAMINATED SOILS FROM SITE CLEANUP TO BE DEPOSITED ON SOUTH WASTE ROCK PILE.
2. POND SEDIMENTS TO BE REMOVED AND DEPOSITED IN CLAY LINED DISPOSAL CELL LOCATED IN THE SOUTH WASTE ROCK PILE.
3. FOR QUANTITIES AND DETAILED DESCRIPTIONS OF EACH TASK SEE THE PROJECT SPECIFICATIONS

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

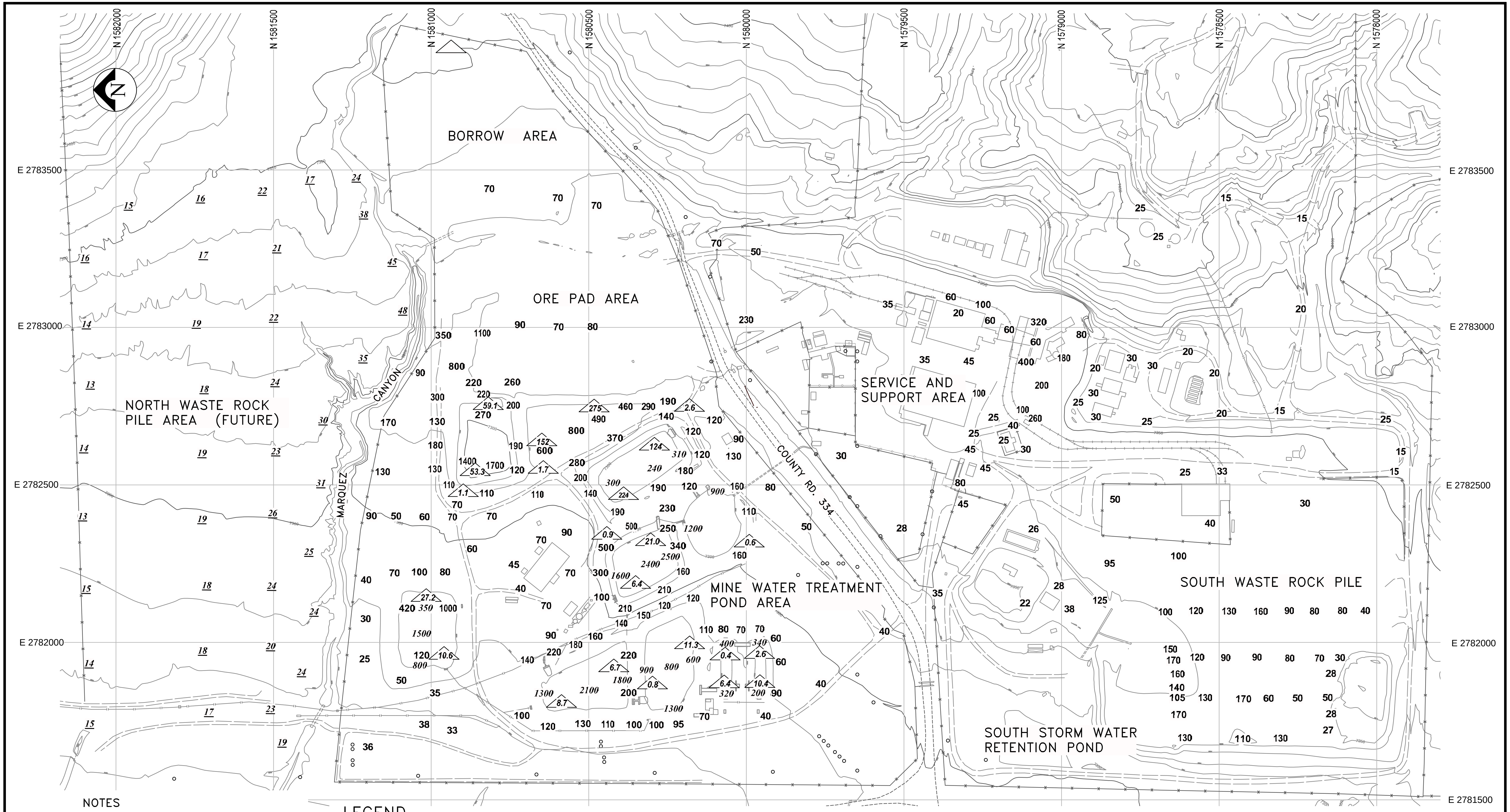
RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By:	SIZE	SCALE:
Alan Kuhn Associates LLC	B	AS SHOWN
	DWG NO.	MT13-CL-02

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
CLOSEOUT PLAN INDEX SHEET

REV
1



0 300 600 FT

GRAPHIC SCALE

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

NOTES

① ALL SAMPLING LOCATIONS APPROXIMATE

② SOIL SAMPLING IN MINE WATER TREATMENT PONDS APRIL 10, 2012

③ GAMMA RAY SURVEY MAY 23, 2002
READINGS IN uR/hr
BACKGROUND +OR− 18 uR/hr

④ GAMMA RAY SURVEY APRIL 10, 2012
READINGS IN uR/hr
BACKGROUND +OR− 12 uR/hr
INSTRUMENT: Eberline PRM-7 #182,

LEGEND

△ *000*	SOIL RADIUM READINGS (pCi/g) (Ra 226 IN 0-6 INCHES)
21	GAMMA READING AT GROUND SURFACE, APRIL 2012
21	GAMMA READING AT 1 METER ABOVE GROUND, NORTH OF ARROYO, APRIL 2012
38	GAMMA READINGS AT 1 METER ABOVE GROUND, MAY 2002

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By:
Alan Kuhn Associates LLC

SIZE: B
SCALE: AS SHOWN
DWG NO. **MT13-CL-03**

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
GAMMA AND SOIL RADIUM SAMPLE LOCATIONS

REV
1

FACILITIES TO BE REMOVED

01 MANWAY/VENT SHAFT HEADFRAME AND HEATER BUILDINGS
02 PRODUCTION SHAFT HEADFRAME
03 VENT FAN STRUCTURE
04 STORAGE BUILDING
05 GLYCOL HEAT EXCHANGER
06 HOIST HOUSE
07 SERVICE BUILDING
09 WATER TREATMENT
10 COMPRESSOR BUILDING
11 ELECTRICAL BUILDING
12 PORTABLE BUILDING
13 FUEL PUMP HOUSE
15 FUEL STORAGE TANKS
17 YORK CHILLER
24 ACCESS/UTILITY TUNNEL
25 PUMP BUILDING
26 COOLING TOWER
27 CHLORINE BUILDING
28 CONDUIT 1
29 CONDUIT 2
30 MINE CAR RAILS
31 BARIUM CHLORIDE BUILDING
32 ION EXCHANGE PLANT
33 FLOCCULANT BUILDING
34 TREATED WATER PIPELINE
35 PLANT AND REFRIGERATION WATER PIPELINES
36 MINE WATER TREATMENT PUMP HOUSE
37 TRUCK WASH EQUIPMENT AND DRAINAGE PIPES
38 SANITARY TREATMENT PLANT
TP WATER TREATMENT PONDS (PONDS #1 THROUGH #8)
HS ⬚ (21) HYDRAULIC CONTROL STRUCTURES

FACILITIES TO REMAIN

08 SUBSTATION (NOTE 1)
14 CARPENTER SHOP
16 WATER TANK
18 GUARD HOUSE
19 FIRE EQUIPMENT BUILDING
20 CORE STORAGE BUILDING
21 ADOBE HOUSE (PRE-MINING STRUCTURE)
22 FAN SHOP
23 CAR SHOP
39 SEPTIC TANK
40 LEACH FIELD
41 DRAINAGE PIPES

OTHER AREAS

ORE PAD – 10 ACRES (TO BE REMOVED)

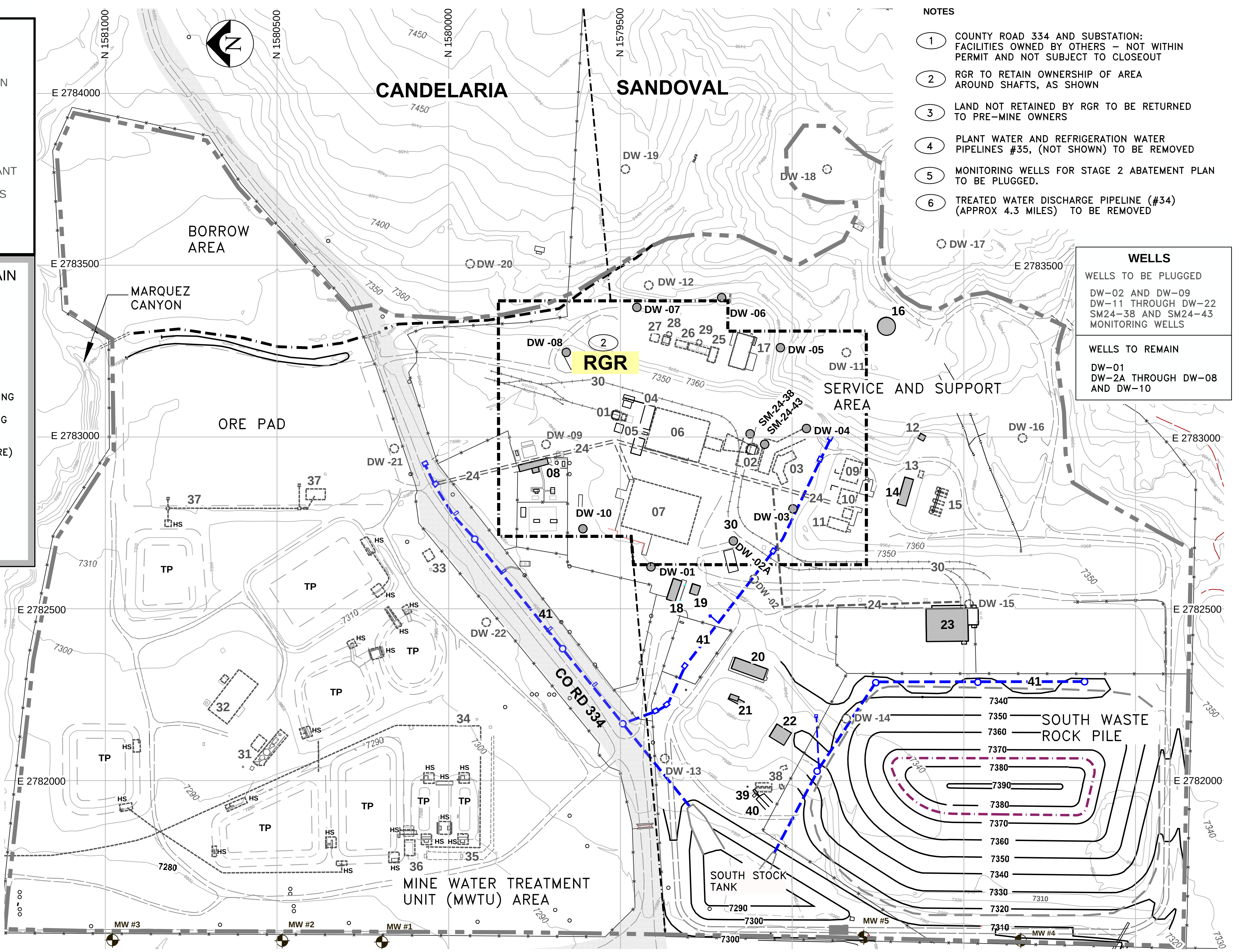
SOUTH STOCK TANK AREA (SOUTH STORM WATER RETENTION POND) – 2.8 ACRES

WASTE ROCK PILE AREA 21.7 ACRES (REMAINS BUT CLOSED)

AREAS NOT IN MINE PERMIT – 8.4 ACRES (NOTE 1)

LEGEND

AREA DISTURBED BY MINING ACTIVITY
RETAINED RGR PROPERTY LINE
PROPERTY LINE
FENCE LINE
DRAINAGE PIPES
ACCESS/UTILITY TUNNEL
▨ FACILITY TO REMAIN
⊕ MONITORING WELL (TO BE PLUGGED)
● DW-00 DEWATERING WELL (TO REMAIN)
○ DW-00 DEWATERING WELL (TO PLUG)



0 300 600 FT
GRAPHIC SCALE

500' GRID = NAD 83 NEW MEXICO WEST

NOTES

① COUNTY ROAD 334 AND SUBSTATION: FACILITIES OWNED BY OTHERS – NOT WITHIN PERMIT AND NOT SUBJECT TO CLOSEOUT
② RGR TO RETAIN OWNERSHIP OF AREA AROUND SHAFTS, AS SHOWN
③ LAND NOT RETAINED BY RGR TO BE RETURNED TO PRE-MINE OWNERS
④ PLANT WATER AND REFRIGERATION WATER PIPELINES #35, (NOT SHOWN) TO BE REMOVED
⑤ MONITORING WELLS FOR STAGE 2 ABATEMENT PLAN TO BE PLUGGED.
⑥ TREATED WATER DISCHARGE PIPELINE (#34) (APPROX 4.3 MILES) TO BE REMOVED

WELLS

WELLS TO BE PLUGGED

DW-02 AND DW-09
DW-11 THROUGH DW-22
SM24-38 AND SM24-43
MONITORING WELLS

WELLS TO REMAIN

DW-01
DW-2A THROUGH DW-08
AND DW-10

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK
1	2013 Reveiw Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By:
Alan Kuhn Associates LLC

SIZE B
SCALE: AS SHOWN
DWG NO. MT13-CL-04

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

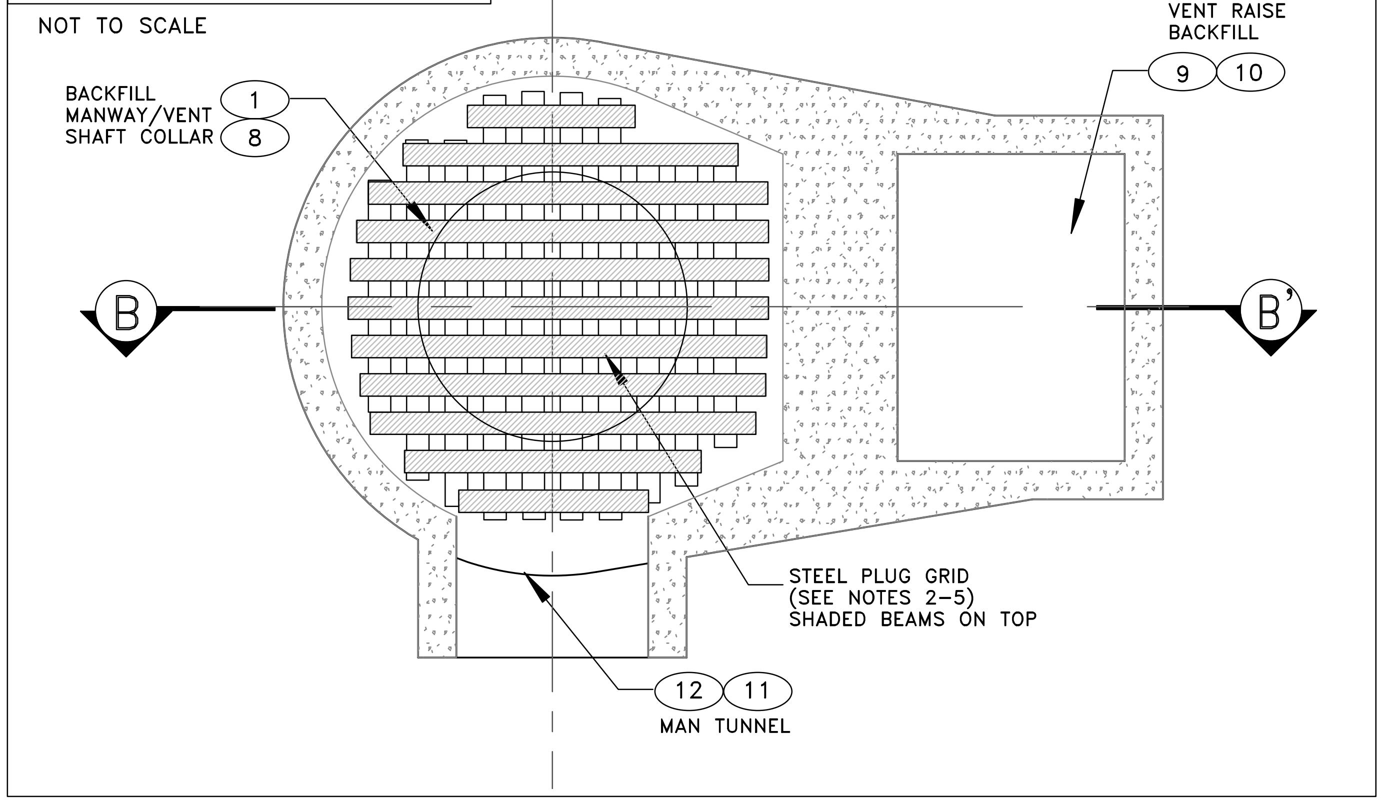
SHEET TITLE:
FACILITY DISPOSITION PLAN

REV
1

SECTION A–A'

SHEET MT13–CL–05

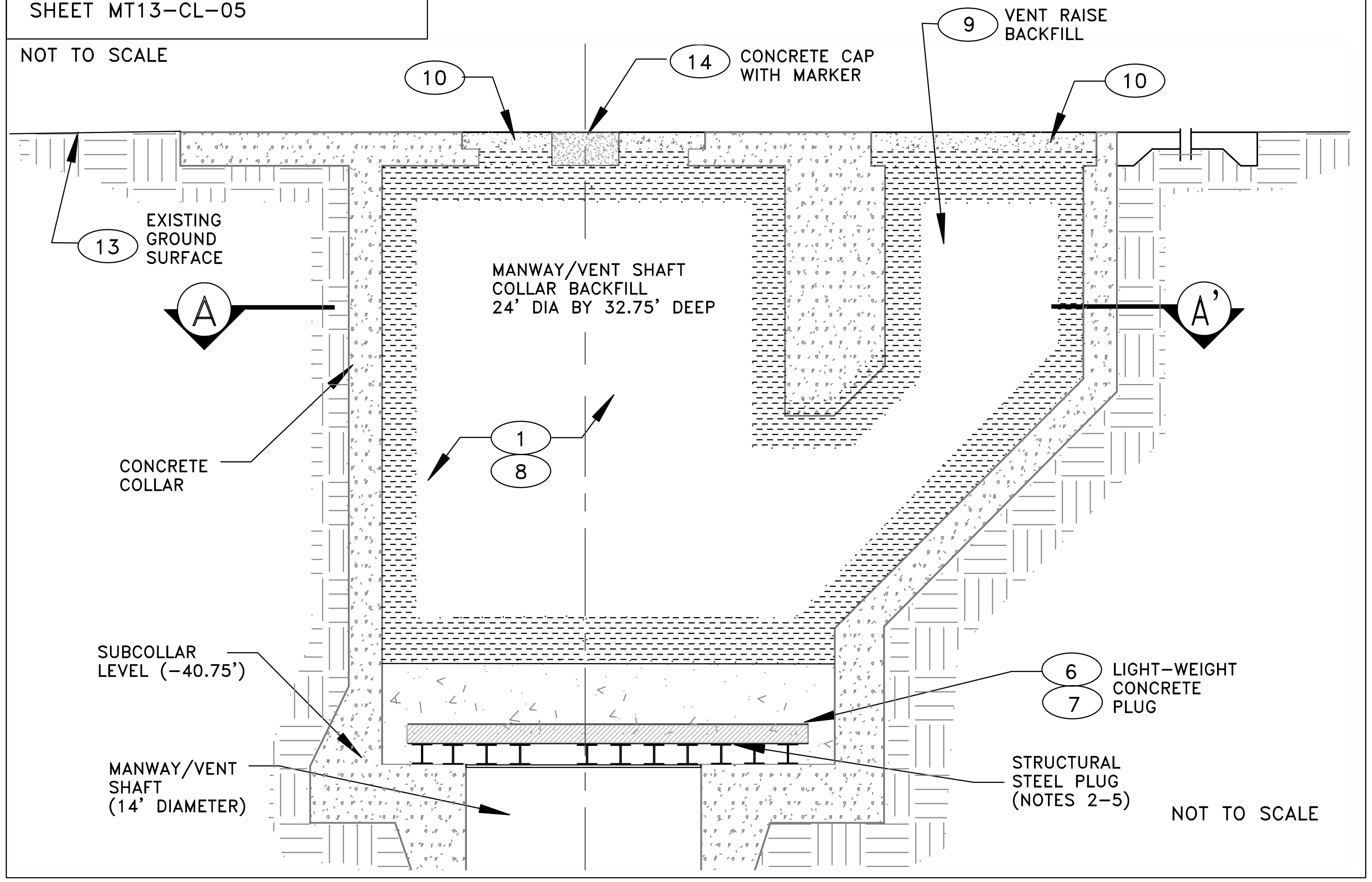
NOT TO SCALE



SECTION B–B'

SHEET MT13–CL–05

NOT TO SCALE



NOTES:

① REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR TO SUB COLLAR LEVEL.

② LOWER LEVEL STRUCTURAL STEEL = UP TO 23' LONG STEEL BEAMS
11 BEAMS @ 2 FEET OC. (W14 X 90)
LOWER LEVEL BEAMS PLACED ON EXISTING CONCRETE SUBCOLLAR LEVEL.
BEAMS TO EXTEND A MINIMUM 1.5' AT EACH END BEYOND SUBCOLLAR OPENING.

③ UPPER LEVEL STRUCTURAL STEEL = UP TO 23' LONG STEEL BEAMS
11 BEAMS @ 2 FEET O.C. (W14 x 90)
UPPER LEVEL BEAMS PLACED PERPENDICULAR TO LOWER LEVEL BEAMS.

④ STRUCTURAL STEEL BEAMS RECYCLED FROM HEADFRAME DEMOLITION AND STEEL POSTS AND CAPS STORED ON SITE. NO PURCHASE OF NEW STEEL REQUIRED.

⑤ WELD SCRAP PLATE OR SHEET METAL TO THE BOTTOM OF THE STEEL BEAMS. FABRICATE THE BEAMS AND PLATES IN SECTIONS AT THE GROUND SURFACE AND LOWER INTO THE MANWAY SHAFT COLLAR TO THE POSITION SHOWN IN SECTION BB. CONTRACTOR TO DETERMINE MEANS AND METHODS OF FABRICATION AND INSTALLING FABRICATED SECTIONS INTO PLACE.

⑥ INSTALL LIGHTWEIGHT CONCRETE AT SUBCOLLAR LEVEL (–40.75' TO –34.75')

⑦ EMBED SCRAP CYCLONE FENCE OR OTHER SCRAP STEEL MESH IN LIGHT WEIGHT CONCRETE

⑧ TREMIE PLACED SLURRY BACKFILL WILL INCLUDE SOIL, PORTLAND CEMENT, AND FLY ASH, IN PROPORTIONS TO BE DETERMINED BY BENCH TESTS TO PRODUCE 28–DAY UNCONFINED COMPRESSIVE STRENGTH OF 50 TO 100 PSI.

⑨ VENT RAISE AND MAN TUNNEL BACKFILLED USING SAME SLURRY FILL AS SPECIFIED FOR FILL IN THE COLLAR STRUCTURE. VENT RAISE IS SHOWN IN SECTIONS AA AND BB ON THIS SHEET.

⑩ IN VENT RAISE AND COLLAR, SLURRY BACKFILL TO EXTEND TO WITHIN 1 FOOT OF THE GROUND SURFACE THEN CAP WITH LIGHT–WEIGHT CONCRETE.

⑪ THE PORTION OF THE MAN–TUNNEL RECEIVING BACKFILL IS 10 FEET WIDE, 11 FEET HIGH, AND 40 FEET LONG.

⑫ THE SLURRY BACKFILL IN THE MAN–TUNNEL CAN BE PLACED DIRECTLY AGAINST THE EXISTING STEEL SURE–LOCK DOORS. NO ADDITIONAL CONCRETE BULKHEADS WILL BE NEEDED.

⑬ THE TOP OF THE NATURAL ROCK AT THIS LOCATION IS APPROXIMATELY AT THE EXISTING GROUND SURFACE

⑭ THE SHAFT MARKER TO BE CONSTRUCTED FROM PRECAST CONCRETE WITH A MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF 2500 PSI. THE MARKER SHALL BE 4 FEET WIDE AND 4 FEET LONG AND 2 FEET THICK AND BE INSCRIBED USING 4 INCH LETTERS EMBEDDED A MINIMUM OF 1/4 INCH DEEP AND STATING THE FOLLOWING: "MOUNT TAYLOR MINE MANWAY/VENT SHAFT, CLOSED (DATE)."

STEEL BEAMS

QTY	LENGTH FEET
9	22.5
4	20.0
3	18.0
3	15.0
2	10.0

LIST OF MATERIALS

STEEL PLATE	460 SF
LIGHT WEIGHT CONCRETE	160 CY
BACKFILL SLURRY TOTAL SOIL 510 CY CEMENT 28 CY FLY ASH 28 CY	563 CY
3000 PSI CONCRETE	1.2 CY

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION

MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By: Alan Kuhn Associates LLC

SIZE: B

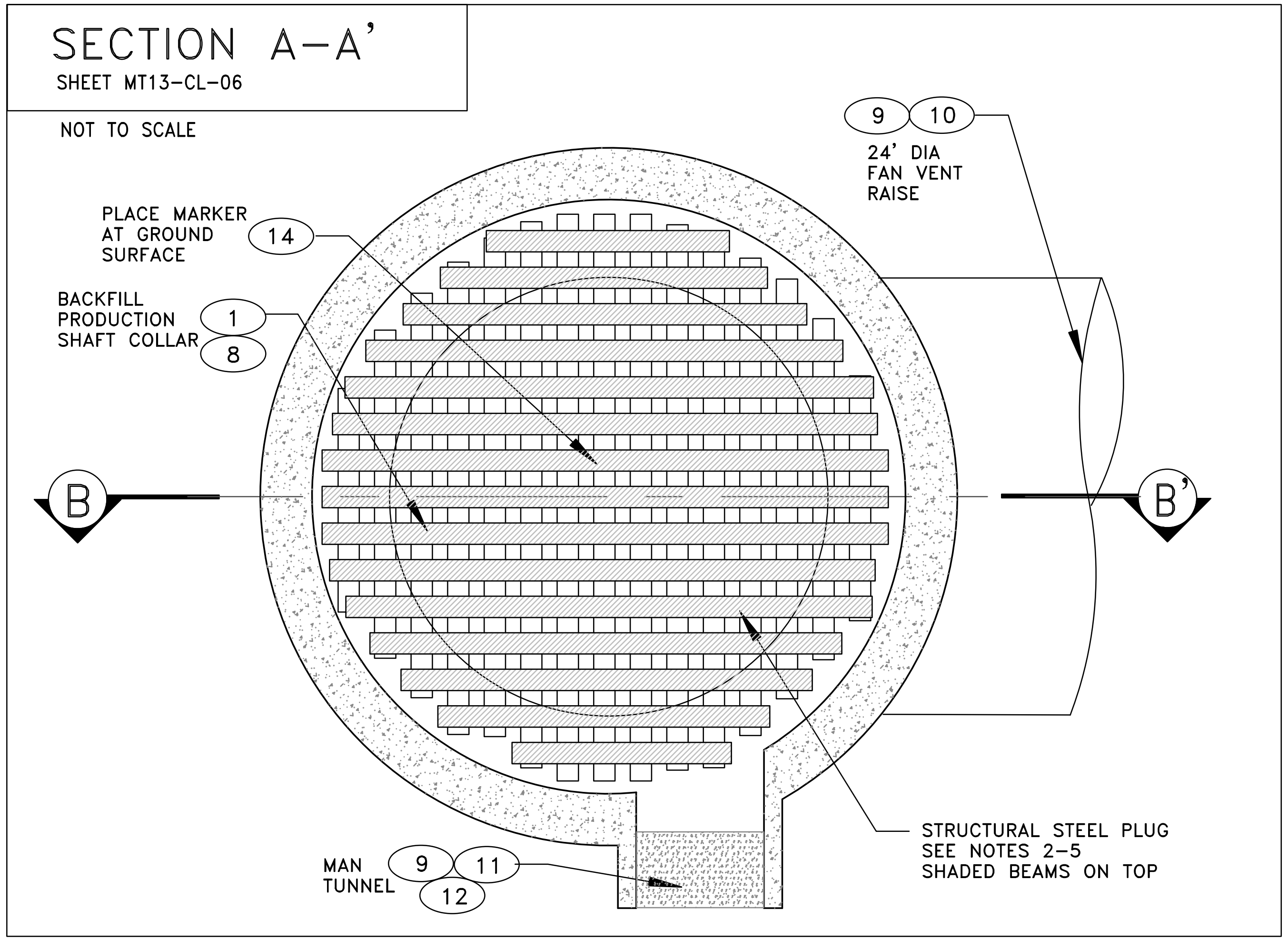
SCALE: NONE

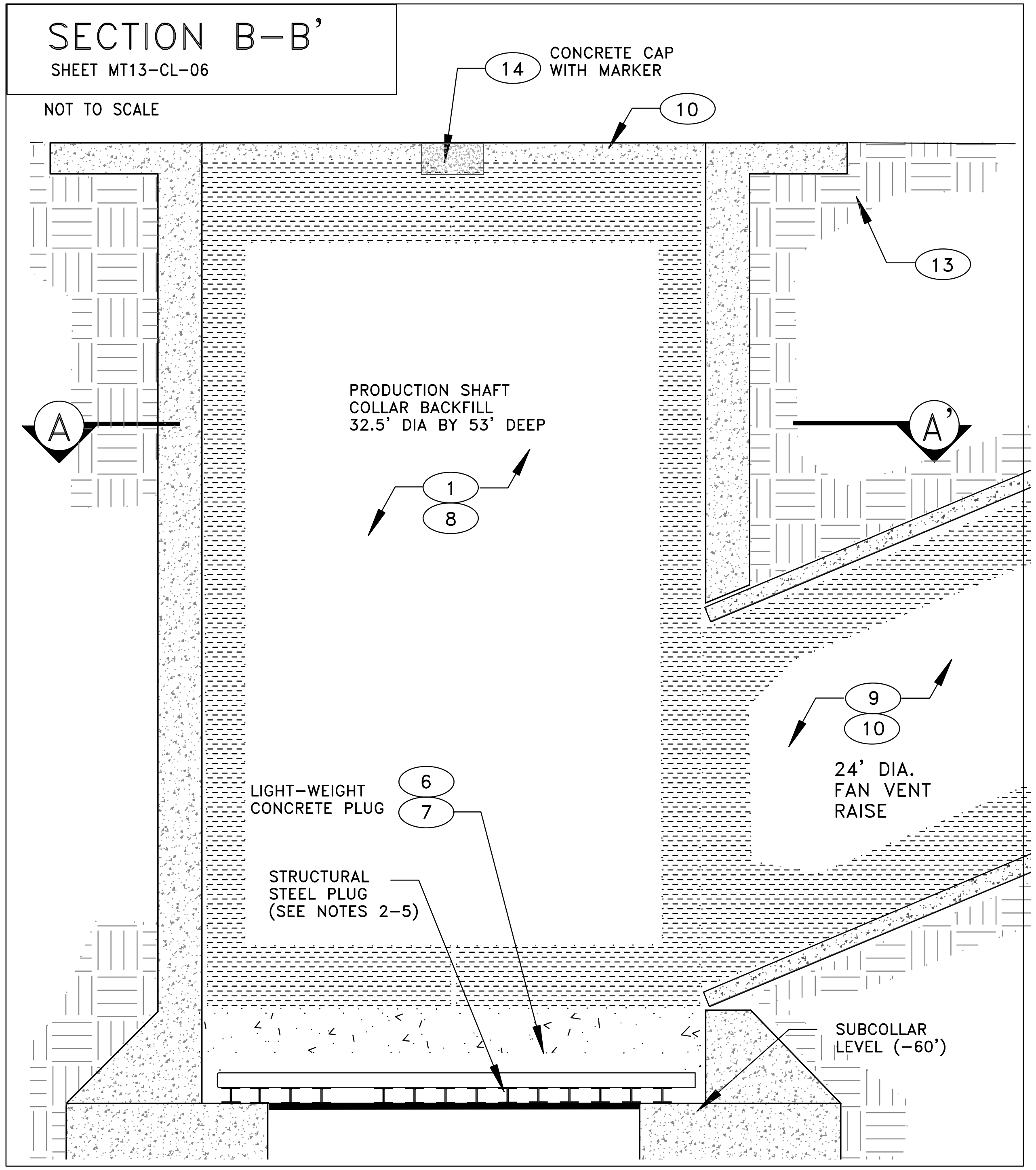
DWG NO. MT13-CL-05

PROJECT TITLE: **MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN**

SHEET TITLE: SHAFT CLOSURE - MANWAY/VENT

REV 1





NOTES:

① REMOVE AND DROP ALL EQUIPMENT, FITTINGS, AND UTILITIES BETWEEN COLLAR TO SUB COLLAR LEVEL.

② LOWER LEVEL STRUCTURAL STEEL = UP TO 31' LONG STEEL BEAMS 15 BEAMS @ 2 FEET OC. (W14 X 90)
LOWER LEVEL BEAMS PLACED ON EXISTING CONCRETE SUBCOLLAR LEVEL. BEAMS TO EXTEND A MINIMUM 1.5' AT EACH END BEYOND SUBCOLLAR OPENING.

③ UPPER LEVEL STRUCTURAL STEEL = UP TO 31' LONG STEEL BEAMS 15 BEAMS @ 2 FEET O.C. (W14 x 90)
UPPER LEVEL BEAMS PLACED PERPENDICULAR TO LOWER LEVEL BEAMS.

④ STRUCTURAL STEEL BEAMS RECYCLED FROM HEADFRAME DEMOLITION AND STEEL POSTS AND CAPS STORED ON SITE. NO PURCHASE OF NEW STEEL REQUIRED.

⑤ WELD SCRAP PLATE OR SHEET METAL TO THE BOTTOM OF THE STEEL BEAMS. FABRICATE THE BEAMS AND PLATES IN SECTIONS AT THE GROUND SURFACE AND LOWER INTO THE MANWAY SHAFT COLLAR TO THE POSITION SHOWN IN SECTION BB. CONTRACTOR TO DETERMINE MEANS AND METHODS OF FABRICATION AND INSTALLING FABRICATED SECTIONS INTO PLACE.

⑥ INSTALL LIGHTWEIGHT CONCRETE AT SUBCOLLAR LEVEL (–60.0' TO –54.0')

⑦ EMBED SCRAP CYCLONE FENCE OR OTHER SCRAP STEEL MESH IN LIGHT WEIGHT CONCRETE

⑧ SLURRY BACKFILL WILL INCLUDE SOIL, PORTLAND CEMENT, AND FLY ASH, IN PROPORTIONS TO BE DETERMINED BY BENCH TESTS TO PRODUCE 28–DAY UNCONFINED COMPRESSIVE STRENGTH OF 50 TO 100 PSI.

⑨ VENT RAISE AND MAN TUNNEL BACKFILLED USING SAME SLURRY FILL AS SPECIFIED FOR FILL IN THE COLLAR STRUCTURE. VENT RAISE IS 68 FEET LONG AND 24 FEET DIAMETER

⑩ IN VENT RAISE AND COLLAR, SLURRY BACKFILL TO EXTEND TO WITHIN 1 FOOT OF THE GROUND SURFACE THEN CAP WITH LIGHT–WEIGHT CONCRETE.

⑪ THE PORTION OF THE MAN–TUNNEL RECEIVING BACKFILL IS 10 FEET WIDE, 11 FEET HIGH, AND 50 FEET LONG.

⑫ THE SLURRY BACKFILL IN THE MAN–TUNNEL CAN BE PLACED DIRECTLY AGAINST THE EXISTING STEEL SURE–LOCK DOORS. NO ADDITIONAL CONCRETE BULKHEADS WILL BE NEEDED.

⑬ THE TOP OF THE NATURAL ROCK AT THIS LOCATION IS APPROXIMATELY AT THE EXISTING GROUND SURFACE

⑭ THE SHAFT MARKER TO BE CONSTRUCTED FROM PRECAST CONCRETE WITH A MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF 2500 PSI. THE MARKER SHALL BE 4 FEET WIDE AND 4 FEET LONG AND 2 FEET THICK AND BE INSCRIBED USING 4 INCH LETTERS EMBEDDED A MINIMUM OF 1/4 INCH DEEP AND STATING THE FOLLOWING: "MOUNT TAYLOR MINE PRODUCTION SHAFT CLOSED (DATE)."

STEEL BEAMS

QTY	LENGTH FEET
10	31.0
4	29.0
4	26.0
4	22.0
4	18.0
4	14.0

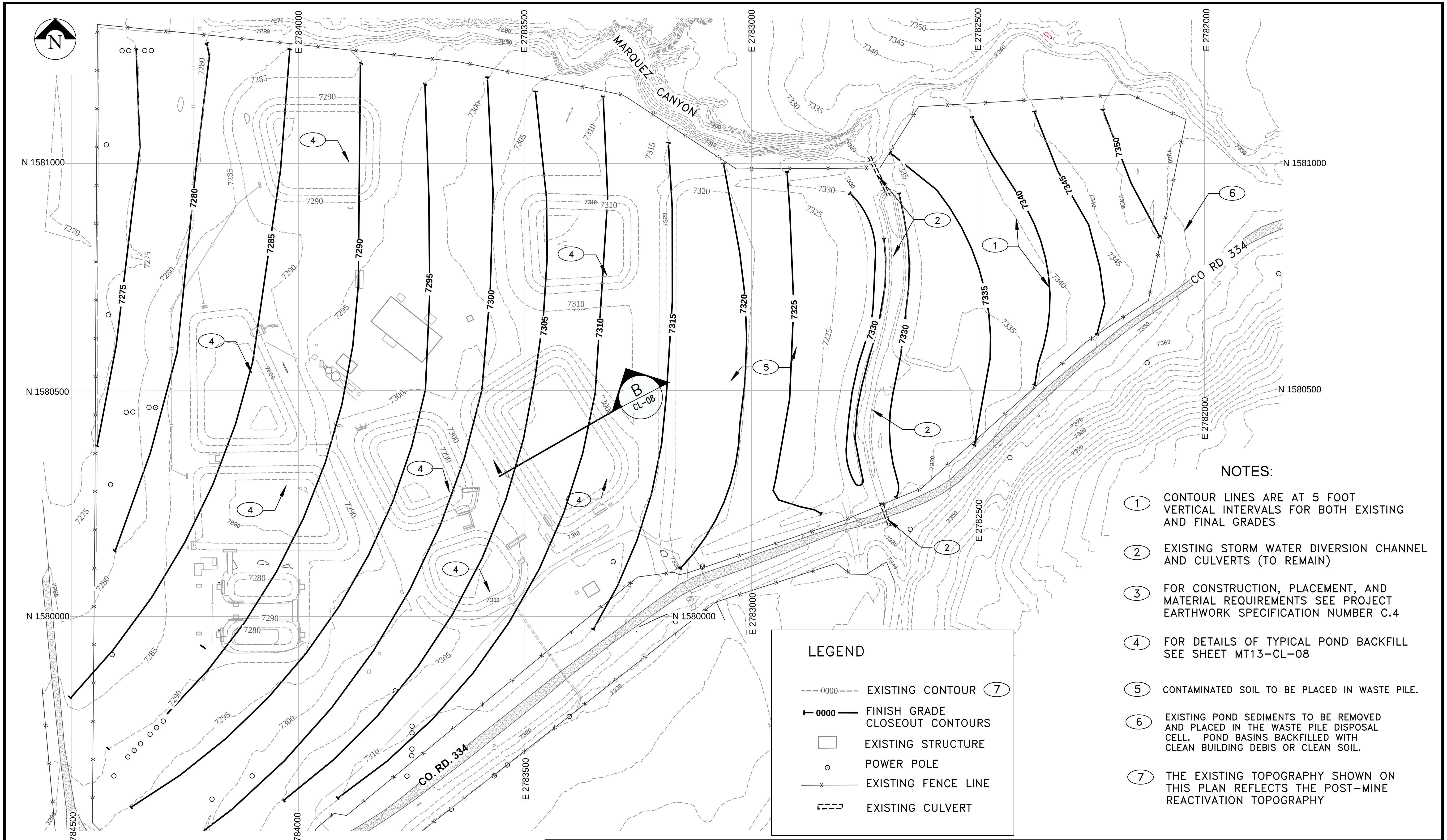
LIST OF MATERIALS

STEEL PLATE	830 SF
LIGHT WEIGHT CONCRETE	215 CY
BACKFILL SLURRY TOTAL	2950 CY
3000 PSI CONCRETE	1.2 CY

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020
Prepared By:
Alan Kuhn Associates LLC
SIZE B
SCALE: NONE
DWG NO. **MT13-CL-06**

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN
SHEET TITLE:
SHAFT CLOSURE -
PRODUCTION SHAFT
REV
1



LEGEND

----0000----	EXISTING CONTOUR ⑦
⊢0000──	FINISH GRADE CLOSEOUT CONTOURS
☐	EXISTING STRUCTURE
○	POWER POLE
──×──	EXISTING FENCE LINE
⊏⊐	EXISTING CULVERT

NOTES:

① CONTOUR LINES ARE AT 5 FOOT VERTICAL INTERVALS FOR BOTH EXISTING AND FINAL GRADES

② EXISTING STORM WATER DIVERSION CHANNEL AND CULVERTS (TO REMAIN)

③ FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATION NUMBER C.4

④ FOR DETAILS OF TYPICAL POND BACKFILL SEE SHEET MT13-CL-08

⑤ CONTAMINATED SOIL TO BE PLACED IN WASTE PILE.

⑥ EXISTING POND SEDIMENTS TO BE REMOVED AND PLACED IN THE WASTE PILE DISPOSAL CELL. POND BASINS BACKFILLED WITH CLEAN BUILDING DEBIS OR CLEAN SOIL.

⑦ THE EXISTING TOPOGRAPHY SHOWN ON THIS PLAN REFLECTS THE POST-MINE REACTIVATION TOPOGRAPHY

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

0 200 400 FT
GRAPHIC SCALE

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

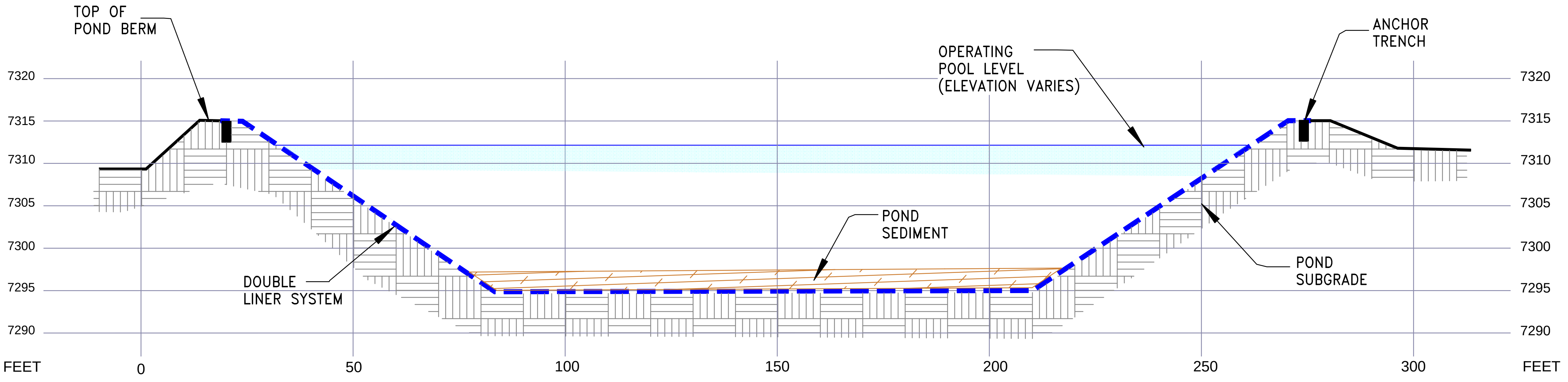
Prepared By:
Alan Kuhn Associates LLC

SIZE: B
SCALE: AS SHOWN
DWG NO. MT13-CL-07

PROJECT TITLE:
MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
FINAL GRADING PLAN- MINE WATER TREATMENT POND AND ORE PAD AREAS

REV 1



A
08

TYPICAL MINE WATER TREATMENT POND BEFORE CLOSURE

SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

POND #1 SHOWN AS EXAMPLE

NOTES

① FINAL GRADE – GRADE SURFACE TO BE PREPARED FOR REVEGETATION.

② REMOVE LINER SYSTEM FROM ANCHOR TRENCH AND THE TOP 2.0 FEET OF SLOPE, AND FOLD INTO POND.

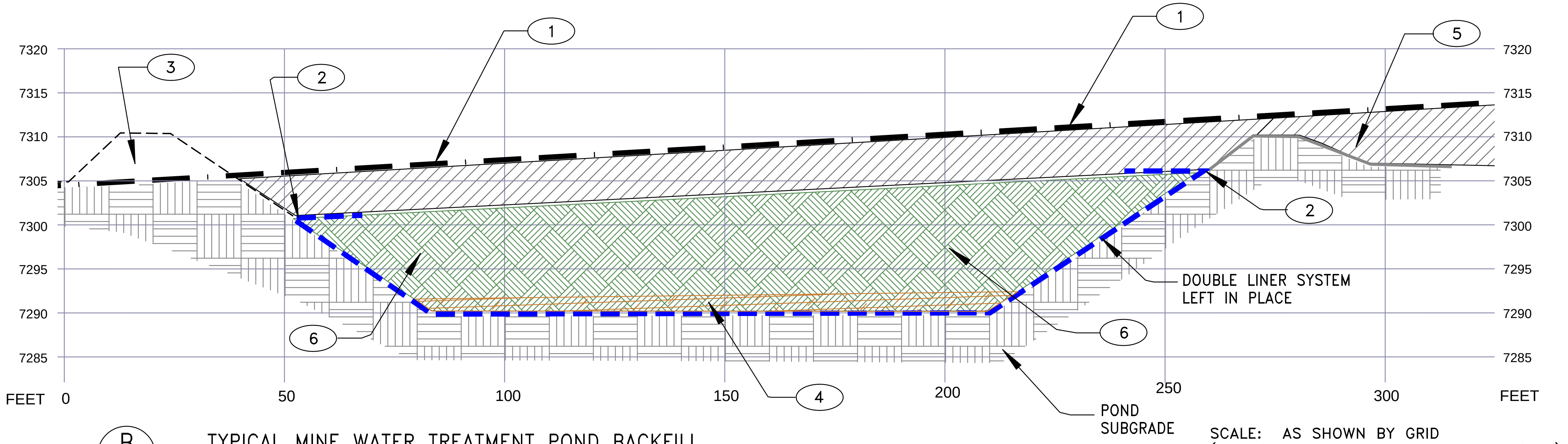
③ CUT EXISTING BERMS AS NEEDED TO REACH FINAL GRADES

④ REMOVE SEDIMENT FROM PONDS AND DISPOSE IN A CLAY LINED CELL IN THE SOUTH WASTE PILE.

⑤ COMMON FILL– CLEAN FILL SOILS WITH NO BUILDING DEBRIS.

⑥ POND BACKFILL – INCLUDES CLEAN BUILDING DEBRIS AND CLEAN SOIL.

⑦ FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATION NUMBER C.4



B
07

TYPICAL MINE WATER TREATMENT POND BACKFILL POST CLOSURE CONDITIONS

SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

POND #1 SHOWN AS EXAMPLE

LEGEND

▬ ▬ ▬	EXISTING POND GRADE WITH LINER
▬ · ▬	FINAL GRADE
▤	④ POND SEDIMENT (REMOVED)
▨	⑤ COMMON FILL
▩	⑥ POND BACKFILL

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 REVISION	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

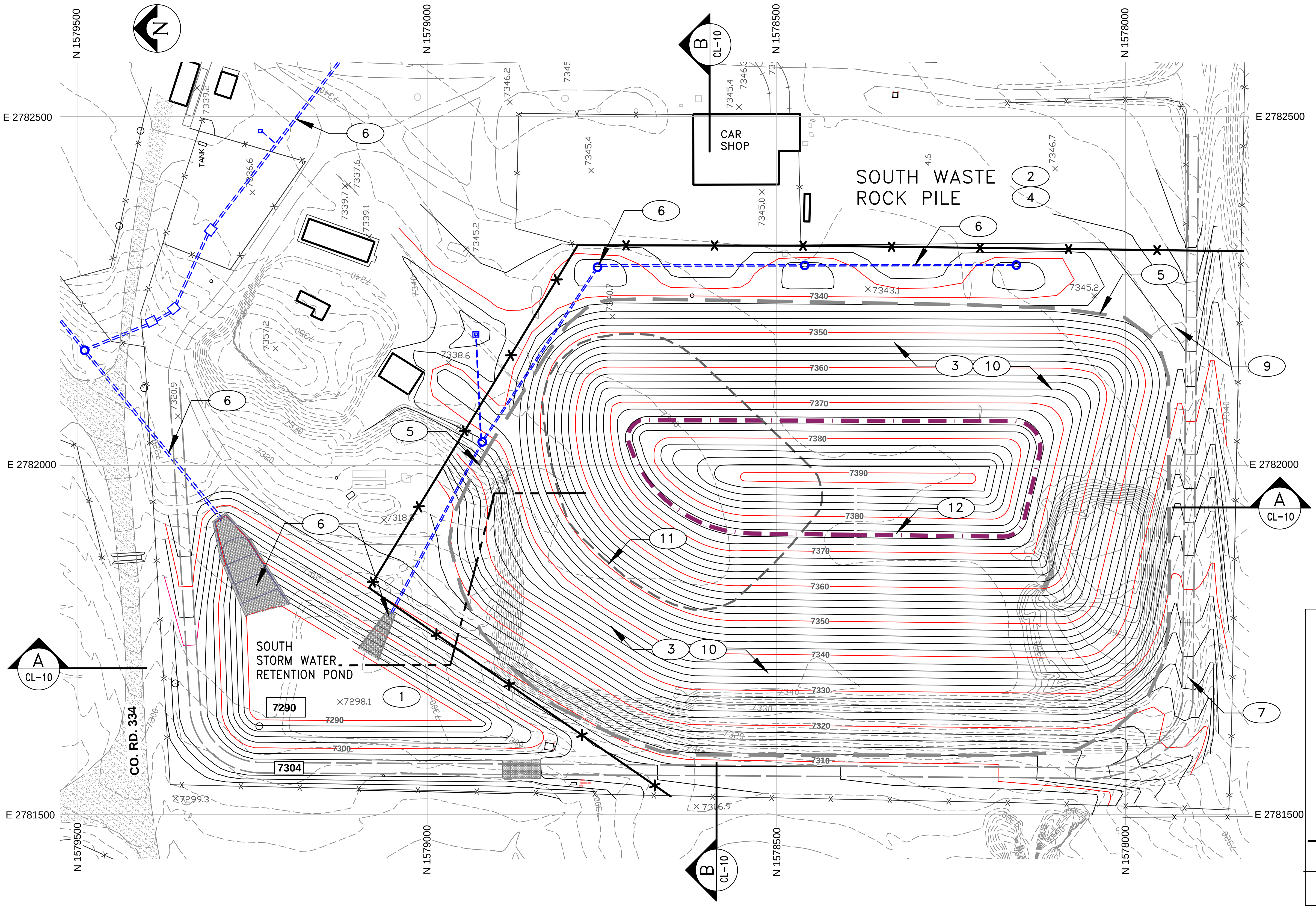
Prepared By:
Alan Kuhn Associates LLC

SIZE: B
SCALE: AS SHOWN
DWG NO. **MT13-CL-08**

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
TYPICAL SECTIONS - MINE
WATER TREATMENT POND INFILL

REV
1



0 150 300 FT
GRAPHIC SCALE

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

NOTES:

1. SOUTH STORM WATER RETENTION POND
2. WASTE ROCK PILE AT FINAL BUILDOUT CONTOURS SHOWN AT 2' INTERVALS
3. WASTE ROCK PILE SLOPES = 5H TO 1V
4. WASTE ROCK PILE TO RECEIVE 2' MIN. CLEAN SOIL COVER PLACED CONTEMPORANEOUSLY WITH WASTE ROCK
5. PERIMETER OF WASTE ROCK PILE
6. DRAINAGE PIPES, MANHOLES AND CONCRETE SPILLWAYS TO REMAIN
7. SERVICE ROAD TO REMAIN
8. FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATION NUMBER C.4
9. USE CLEAN FILL SOILS FOR FILL AREAS OF 2 FEET OR LESS
10. REVEGETATE ALL DISTURBED AREAS
11. ACTIVATION DISPOSAL CELL (CLAY LINED)
12. CLOSEOUT DISPOSAL CELL (CLAY LINED)

LEGEND

0000	DESIGN SPOT ELEVATIONS
——	DESIGN CONTOURS (2 FOOT INTERVALS)
– – –	EXISTING CONTOURS (2 FOOT INTERVALS)
======	DRAINAGE PIPES
▭	ACTIVATION DISPOSAL CELL (CLAY LINED)
▭	CLOSEOUT DISPOSAL CELL (CLAY LINED)
—✕—	NEW FENCE LINE
–×–	EXISTING FENCE LINE

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By:
Alan Kuhn Associates LLC

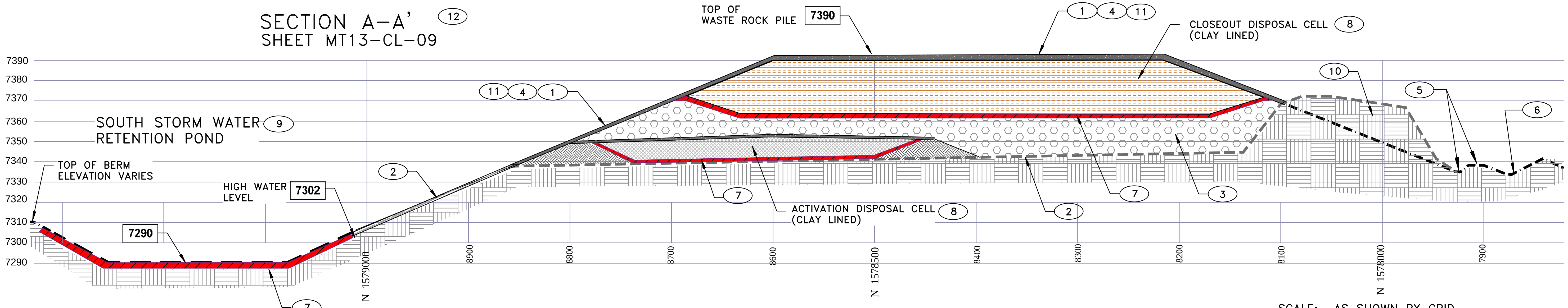
SIZE B
SCALE: AS SHOWN
DWG NO. **MT13-CL-09**

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
FINAL GRADING AND COVER PLAN-
SOUTH WASTE ROCK PILE AREA

REV
1

SECTION A–A' ⑫
SHEET MT13–CL–09



SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

GRID = NAD 83 NEW MEXICO WEST

NOTES:

① FINAL GRADES AT FULL BUILDOUT.

② POST MINE REACTIVATION GRADES. – COVER SOILS PLACED OVER REGRADED WASTE ROCK SLOPES AT MINE REACTIVATION.

③ WASTE ROCK FROM MINE, CONTAMINATED SOIL AND DEMOLITION DEBRIS

④ FINISH SLOPES OF WASTE ROCK PILE – 5H TO 1V MAXIMUM WITH 2 FEET OF CLEAN SOIL COVER PLACED CONTEMPORANEOUSLY ON PILE SLOPES.

⑤ CONTAINMENT BERM AND DRAINAGE SWALE AT TOE OF SLOPE

⑥ EXISTING DIVERSION CHANNEL

⑦ CLAY LINER – 1FT THICK MINIMUM

⑧ CLAY LINED DISPOSAL CELL FOR POND SEDIMENTS. SEE MT13–CL–09

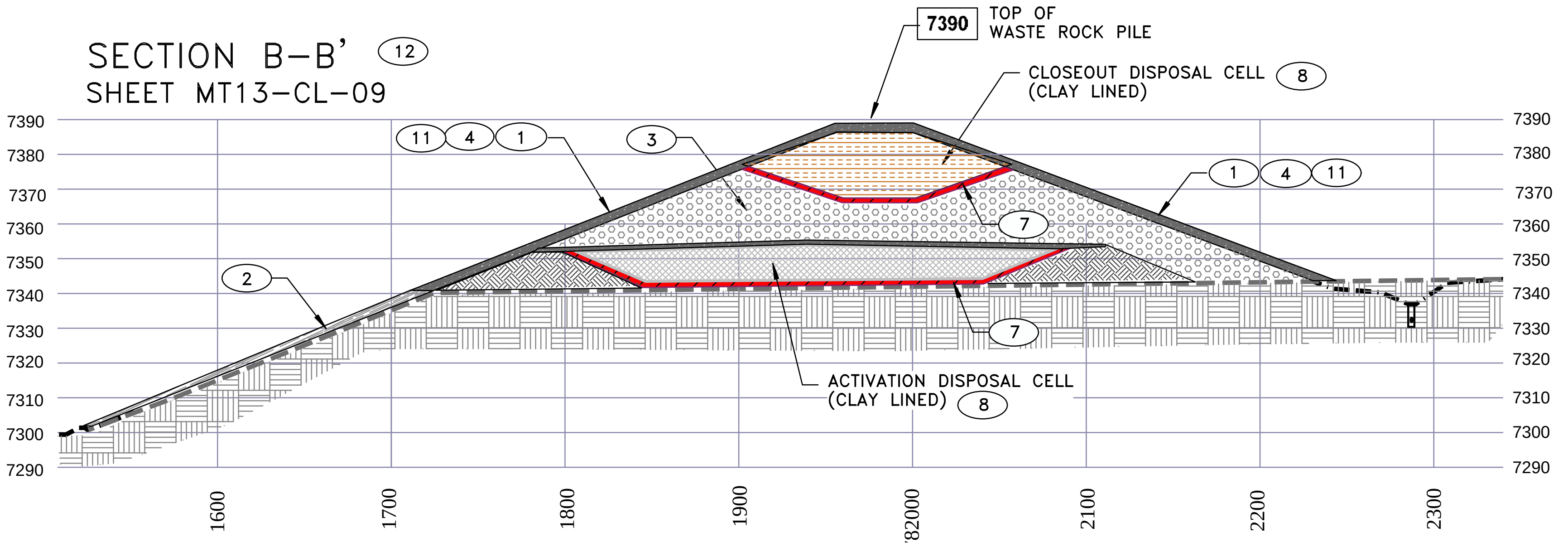
⑨ SOUTH STORM WATER RETENTION POND.
TOP OF BERM ELEVATION = 7304' MINIMUM
BOTTOM OF BASIN ELEVATION = 7290'

⑩ SHAFT MUCK PILE– TO BE USED FOR THE COVER SOILS PLACED ON THE WASTE ROCK PILE.

⑪ REVEGETATE ALL DISTURBED AREAS EXCEPT THE SOUTH STORM WATER RETENTION POND

⑫ FOR CONSTRUCTION, PLACEMENT, AND MATERIAL REQUIREMENTS SEE PROJECT EARTHWORK SPECIFICATION NUMBER C.4

SECTION B–B' ⑫
SHEET MT13–CL–09



SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

GRID = NAD 83 NEW MEXICO WEST

LEGEND

▤ 2' THICK COVER SOIL OVER CONTAMINATED FILL

○ WASTE ROCK – CONTAMINATED SOIL OR BUILDING DEBRIS

▥ POST– MINE ACTIVATION GRADES

🟥 CLAY LINER

— — · — — FINAL CLOSEOUT GRADE

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK
1	POND SEDIMENTS IN CLAY LINED CELL 2013 Review Comments	12-17-13	EL	AK	AK

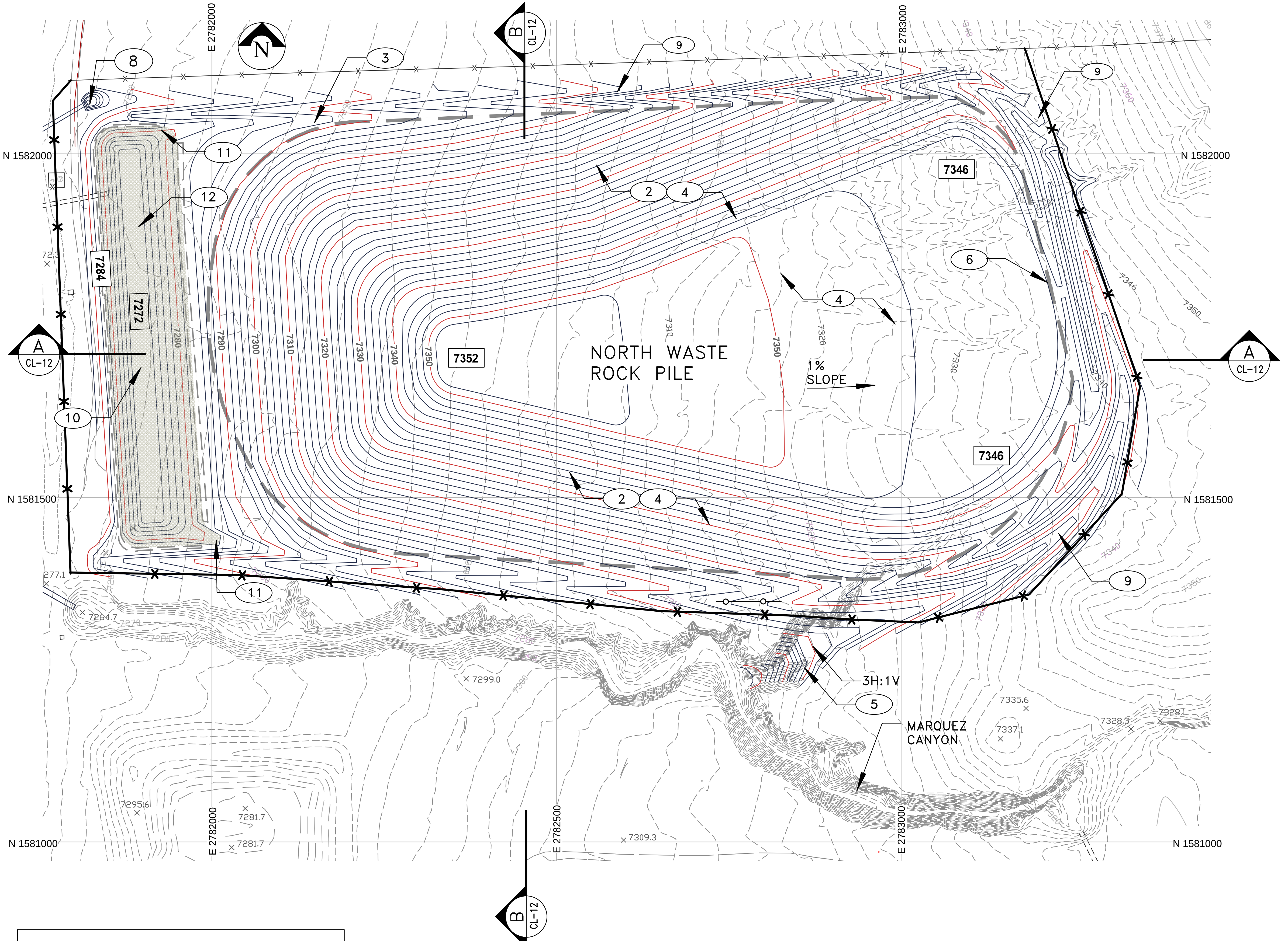
RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - San Mateo, NM 87020

Prepared By: Alan Kuhn Associates LLC
SIZE: B
SCALE: AS SHOWN
DWG NO. **MT13-CL-10**

PROJECT TITLE: **MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN**

SHEET TITLE: FINAL GRADING AND COVER SECTIONS SOUTH WASTE ROCK PILE AREA

REV 1



NOTE:
NORTH WASTE ROCK PILE TO BE BUILT ONLY IF NEEDED IN THE FUTURE

GRAPHIC SCALE

NOTES:

1. WASTE ROCK PILE AT FINAL BUILDOUT CONTOURS SHOWN AT 2' INTERVALS
2. WASTE ROCK PILE SLOPES = 5H TO 1V
3. DRAINAGE SWALE AT TOE OF SLOPE
4. 2' THICK COVER OF CLEAN SOIL OVER WASTE ROCK PILE PLACED CONTEMPORANEOUSLY WITH BUILDOUT
5. RIP RAP WHERE DRAINAGE SWALES FLOW INTO MARQUEZ CANYON
6. PERIMETER OF WASTE ROCK PILE
7. REVEGETATE ALL DISTURBED AREAS
8. 2' DIA CMP CULVERT
9. OUTER DRAINAGE SWALES TO DIVERT RUNOFF FROM MESA
10. STORM WATER RETENTION BASIN FOR RUNOFF FROM WASTE ROCK PILE –
    TOP OF EMBANKMENT ELEVATION = 7284'
    HIGH WATER ELEVATION = 7282'
    BOTTOM OF POND ELEVATION = 7272'
11. RIP RAP AT SWALE ENTRANCE TO STORM WATER RETENTION BASIN
12. CLAY LINER – 1 FT THICK MINIMUM

LEGEND

0000	DESIGN SPOT ELEVATIONS
⁀	DESIGN CONTOURS (2 FOOT INTERVALS)
- - -	EXISTING CONTOURS (2 FOOT INTERVALS)
—x—	EXISTING FENCE LINE
—✕—	NEW FENCE LINE
═ ═	TOP OF STORM WATER RETENTION BASIN
▬ ▬	PERIMETER OF WASTE ROCK PILE
▨	CLAY LINER

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - Grants, NM 87020

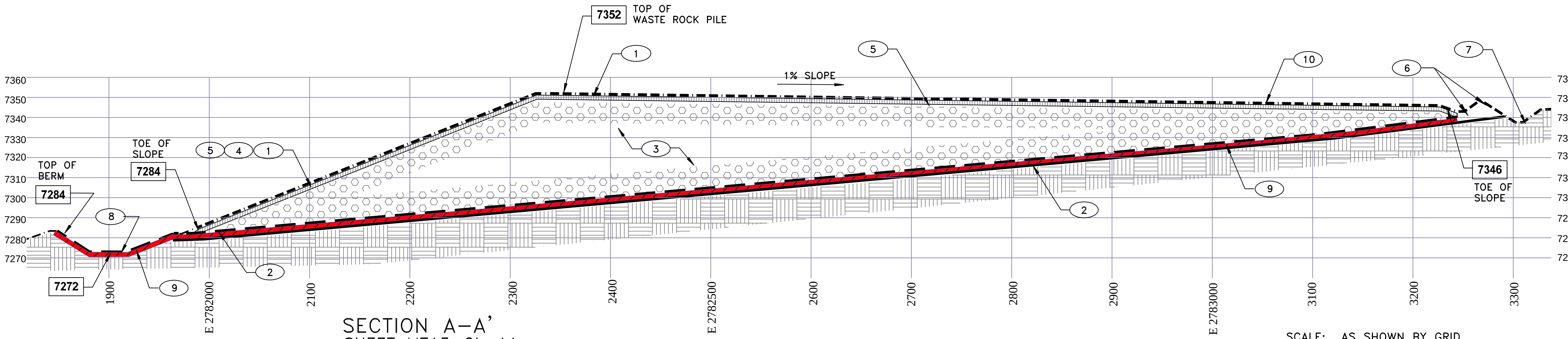
Prepared By: Alan Kuhn Associates LLC

SIZE: B
SCALE: AS SHOWN
DWG NO. MT13-CL-11

PROJECT TITLE: MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN

SHEET TITLE: FINAL GRADING AND COVER PLAN - NORTH WASTE ROCK PILE AREA

REV 0



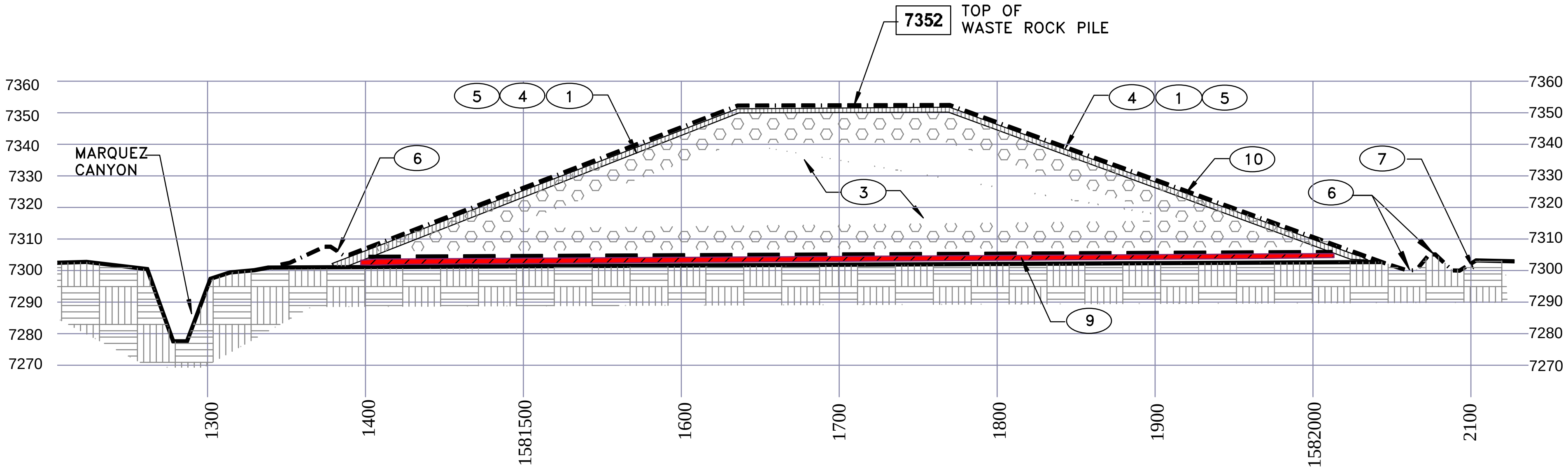
SECTION A–A'
SHEET MT13–CL–11

SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

GRID = NAD 83 NEW MEXICO WEST

NOTES:

1. FINAL GRADES AT FULL BUILDOUT
2. EXISTING GRADES
3. WASTE ROCK FROM MINE
4. FINAL SLOPES OF WASTE ROCK PILE – 5H TO 1V MAXIMUM.
5. TWO FEET OF CLEAN SOIL COVER PLACED CONTEMPORANEOUSLY ON PILE SLOPES
6. CONTAINMENT BERM AND DRAINAGE SWALE
7. DIVERSION CHANNEL TO DIVERT MESA RUNOFF AWAY FROM PILE
8. STORM WATER RETENTION BASIN FOR RUNOFF FROM WASTE ROCK PILE –
TOP OF BERM ELEVATION = 7284'
BOTTOM OF BASIN ELEVATION = 7272'
9. CLAY LINER – 1FT THICK MINIMUM



SECTION B–B'
SHEET MT13–CL–11

SCALE: AS SHOWN BY GRID
(VERTICAL SCALE = 2X HORIZONTAL SCALE)

GRID = NAD 83 NEW MEXICO WEST

NOTE:
NORTH WASTE ROCK PILE TO BE BUILT ONLY IF NEEDED IN THE FUTURE

LEGEND

0000	DESIGN SPOT ELEVATION
▤	EXISTING GRADE
– · – · –	FINAL GRADE
○○○	WASTE ROCK – CONTAMINATED SOIL OR BUILDING DEBRIS
🟥	CLAY LINER

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK
1	Fix Elevation Note	11-4-13	EL	AK	AK

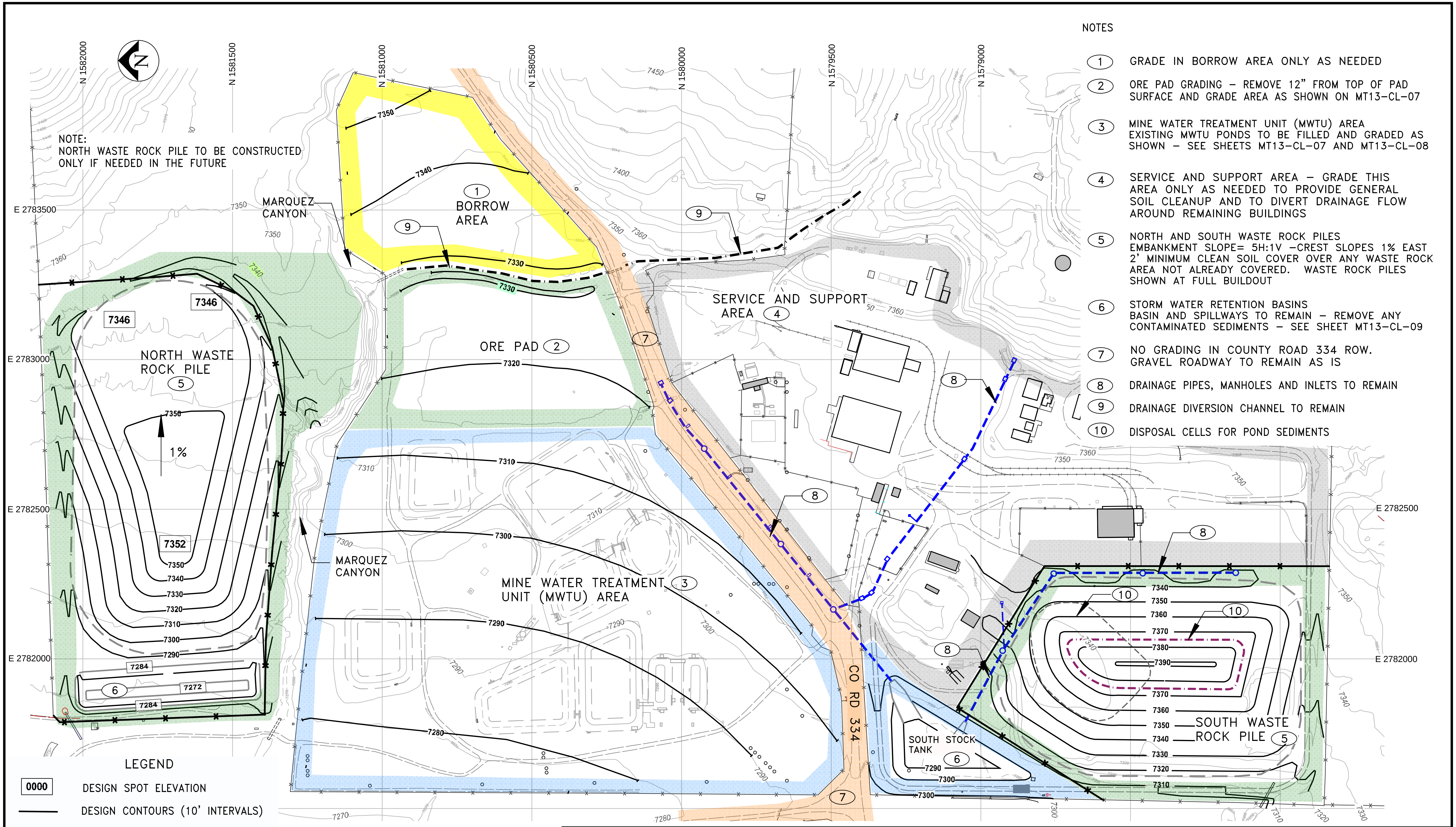
RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - Grants, NM 87020

Prepared By: Alan Kuhn Associates LLC
SIZE: B
SCALE: AS SHOWN
DWG NO. **MT13-CL-12**

PROJECT TITLE: **MT. TAYLOR MINE CLOSEOUT/CLOSURE PLAN**

SHEET TITLE: FINAL GRADING AND COVER SECTIONS NORTH WASTE ROCK PILE AREA

REV 1



NOTES

① GRADE IN BORROW AREA ONLY AS NEEDED

② ORE PAD GRADING – REMOVE 12" FROM TOP OF PAD SURFACE AND GRADE AREA AS SHOWN ON MT13-CL-07

③ MINE WATER TREATMENT UNIT (MWTU) AREA EXISTING MWTU PONDS TO BE FILLED AND GRADED AS SHOWN – SEE SHEETS MT13-CL-07 AND MT13-CL-08

④ SERVICE AND SUPPORT AREA – GRADE THIS AREA ONLY AS NEEDED TO PROVIDE GENERAL SOIL CLEANUP AND TO DIVERT DRAINAGE FLOW AROUND REMAINING BUILDINGS

⑤ NORTH AND SOUTH WASTE ROCK PILES EMBANKMENT SLOPE= 5H:1V –CREST SLOPES 1% EAST 2' MINIMUM CLEAN SOIL COVER OVER ANY WASTE ROCK AREA NOT ALREADY COVERED. WASTE ROCK PILES SHOWN AT FULL BUILDOUT

⑥ STORM WATER RETENTION BASINS BASIN AND SPILLWAYS TO REMAIN – REMOVE ANY CONTAMINATED SEDIMENTS – SEE SHEET MT13-CL-09

⑦ NO GRADING IN COUNTY ROAD 334 ROW. GRAVEL ROADWAY TO REMAIN AS IS

⑧ DRAINAGE PIPES, MANHOLES AND INLETS TO REMAIN

⑨ DRAINAGE DIVERSION CHANNEL TO REMAIN

⑩ DISPOSAL CELLS FOR POND SEDIMENTS

LEGEND

0000	DESIGN SPOT ELEVATION
────	DESIGN CONTOURS (10' INTERVALS)
– – – –	EXISTING CONTOURS (10' INTERVALS)
==○==	DRAINAGE PIPES, MANHOLES, AND INLETS
──✕──	NEW FENCE LINE
──×──	EXISTING FENCE LINE

FOR GRID AND SURVEY INFO SEE SHEET MT13-CL-01

REV	DESCRIPTION	DATE	DRAWN BY	ENGINEER	APPROVED
0	2013 UPDATE	4-01-13	EL	AK	AK
1	2013 Review Comments	12-17-13	EL	AK	

RIO GRANDE RESOURCES CORPORATION
MOUNT TAYLOR MINE - Grants, NM 87020

Prepared By:
Alan Kuhn Associates LLC

SIZE: B
SCALE: AS SHOWN
DWG NO. MT13-CL-13

PROJECT TITLE:
MT. TAYLOR MINE
CLOSEOUT/CLOSURE PLAN

SHEET TITLE:
FINAL SITE GRADING PLAN

REV
1

APPENDIX B

ENGINEERING ANALYSES

**B.1 RADON Analyses - **New for 2012 Update

B.2 - Retained from Original Closeout Plan, 1998

- 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
- DESIGN RUNOFF AND SHEAR CALCULATIONS

These calculations were based on full build-out of the mine site.

As-is conditions are less than full build-out, therefore these calculations are conservative for as-is conditions.

REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE2 VERSION 2.0.4.0)
AVERAGE ANNUAL SOIL LOSS
MT. TAYLOR MINE WASTE PILE, MAXIMUM SLOPE AT CLOSEOUT

This Annual Soil Loss Analysis updates and supplements the original RUSLE2 anaylsis performed in 1995, using the latest version (July 2010) of RUSLE2 per USDA-Agricultural Research Service, 2008, User's Reference Guide, Revised Universal Soil Loss Equation Version 2

The analysis examined several base management scenarios, listed below, to bracket those possible for selection for the worst case condition.

Worst case condition : Waste pile regraded to uniform 5H:1V slope, longest slope at maximum build-out, which represents the slope form at the end of mine life.
Location: Nearest selection, Bernalillo County, NM

Base Management	**Slope Length, ft**	**Slope Steepness, %**	**Contouring**	**Diversion/ terrace, sediment basin**	**Soil**	Strips/ barriers	**Sediment delivery, t/ac/yr**	**Soil Loss, t/ac/yr**
Highly disturbed, blade and mulch with native hay at 4000 lb/ac	350	20	perfect contouring, 0 row grade	default	sandy clay loam (l-m OM, s-m perm)	default	0.28	0.77
Highly disturbed, blade and mulch with rock at 100t/ac	350	20	perfect contouring, 0 row grade	default	sandy clay loam (l-m OM, s-m perm)	default	0.30	0.82
Highly disturbed, gravel, fresh	350	20	perfect contouring, 0 row grade	default	sandy clay loam (l-m OM, s-m perm)	default	0.30	0.82
Highly disturbed,long term vegetation after 4 years	350	20	perfect contouring, 0 row grade	default	sandy clay loam (l-m OM, s-m perm)	default	4.3	4.3
Smooth bare	350	20	perfect contouring, 0 row grade	default	sandy clay loam (l-m OM, s-m perm)	default	0.61	5.6

On the modeled slope, 350 feet long at 20% slope, the worst case for the waste pile, 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.

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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.     [m]     [pCi/g]  Fract           [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.    MIC

 No.      [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.      [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.     [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.      [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract           [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.    MIC

 No.     [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.      [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.     [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.     [m]     [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.     MIC

 No.      [m]      [pCi/m2s]   [pCi/L]

  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 Thickness  Ra-226   Emanat  Porosity  Moisture  Diff Coeff

 No.    [m]    [pCi/g]  Fract          [dry wt_%]  [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  Thickness   Exit Flux  Exit Conc.    MIC

 No.     [m]     [pCi/m2s]   [pCi/L]

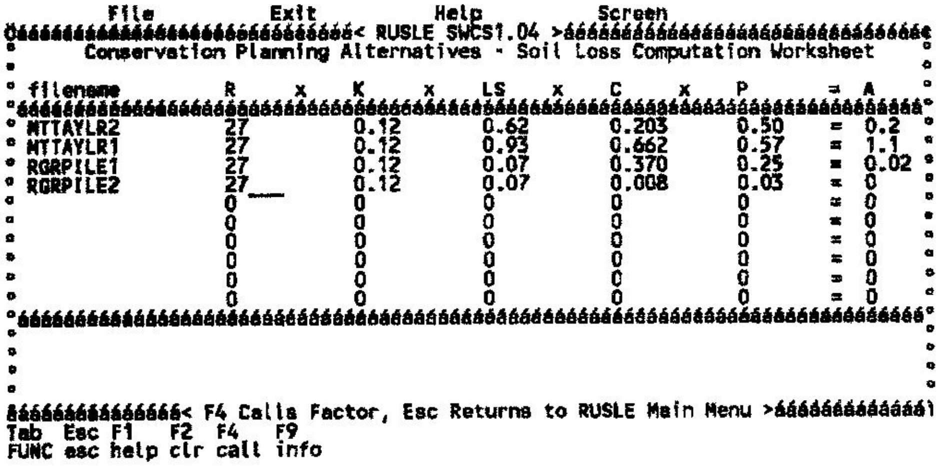
  1     4.5       13.07      35.47E3    0.790

  2     0.5       21.08      18.47E3    0.700

  3     0.6       19.94      0E0       0.700


Total cover radon retention: 54.35%
```

REVISED UNIVERSAL SOIL LOSS EQUATION
INPUT/OUTPUT FILE



```
          File           Exit           Help           Screen
Öáááááááááááááááááááááááááááá< RUSLE SWCS1.04 >ááááááááááááááááááááááááááááááá
°       Conservation Planning Alternatives - Soil Loss Computation Worksheet    °
°                                                                               °
° filename         R     x     K     x    LS     x     C     x     P      =  A  °
°ááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááá°
° 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   °
°ááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááááá°
°                                                                               °
°                                                                               °
°                                                                               °
°                                                                               °
áááááááááááááá< F4 Calls Factor, Esc Returns to RUSLE Main Menu >ááááááááááááá1
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 Coordinates       Line Left  Right Soil     Soil Density Cohesion Phi
No.    X      Y         No.  Point Point No.      No.  pcf     psf      Deg
  1     550.0  307.0     1     1     2    1        1   112.0      250   20.0
  2     615.0  310.0     2     2     3    2        2   102.0        0   34.0
  3     750.0  346.0     3     3     4    2
  4     775.0  346.0     4     4     5    2
  5     865.0  373.0     5     5     6    2
  6    1050.0  371.0     6     2     7    1
  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

 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 Coordinates     Line Left  Right Soil   Soil Density Cohesion Phi
No.   X       Y       No.  Point Point No.    No.  pcf     psf      Deg
  1      1.0  273.0     1    1     2    1      1   112.0      250   20.0
  2     95.0  276.0     2    2     3    2      2   102.0        0   34.0
  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

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 * 20º 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				HYDRAULIC PARAMETERS				PEAK VELOCITY fps	AVERAGE SHEAR psf	ROCK SIZE d_{50} inches
			DEPTH ft	WIDTH ft	LENGTH ft	AREA ft^2	Capacity cfs	R	n	S			
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**

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

*****************************************                              ****************************************
*                                       *                              *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                              *   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  10:53:37  *                              *         (916) 756-1104               *
*                                       *                              *                                      *
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                           :::  Full Microcomputer Implementation  :::
                           :::                 by                  :::
                           :::        Haestad Methods, Inc.        :::
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       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:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
       KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM
```

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                                                    HEC-1 INPUT                                         PAGE  1

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

   1           ID  PRECIP DEPTH- AREA SIMULATION FOR MARQUEZ CANYON WATERSHED - MT. TAYLOR MINE
   2           ID  100 YEAR, 24 HOUR STORM EVENT
   3           IT      15       0       0      96
   4           IO       1
   5           JD     3.2    5.02
   6           PH                     1.2    1.70    2.00     2.1     2.3     2.5     2.7     3.2

   7           KK      10 RUNOFF FROM UPPER MARQUEZ CANYON TO MARUCA JUNCTION
   8           KO       0
   9           BA    2.76       0
  10           BF       0       0       1
  11           LS       0      71       0
  12           UD     .57

  13           KK    1040  ROUTE MARQUEZ RUNOFF TO JUNCTION
  14           RD   26805    .067     .06            TRAP     4.5     1.9

  15           KK      20  RUNOFF FROM MARUCA CANYON
  16           KO       0
  17           BA    1.63       0
  18           BF       0       0       1
  19           LS       0      71       0
  20           UD     .54

  21           KK    2040  ROUTE MARUCA RUNOFF TO JUNCTION
  22           RD   26214    .074     .06            TRAP     4.5     1.9

  23           KK      30 RUNOFF FROM LOWER MARQUEZ CANYON
  24           BA     .63       0
  25           BF       0       0       1
  26           LS       0      78       0
  27           UD     .20

  28           KK      40 COMBINE 10, 20,30 RUNOFF
  29           KM    COMBINE RUNOFF FROM UPPER MARQUEZ AND MARUCA CANYONS AND LOWER MARQUEZ
  30           HC       3       0
  31           KO       0

  32           KK    4050 ROUTE COMBINED 10,20, AND 30 RUNOFF TO WEST SIDE OF MINE PROPERTY
  33           RD    5507    .068     .06            TRAP     4.5     1.9
  34           ZZ


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

                                      PEAK    TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD       BASIN     MAXIMUM     TIME OF
   OPERATION          STATION         FLOW     PEAK         6-HOUR      24-HOUR     72-HOUR      AREA      STAGE     MAX STAGE

   HYDROGRAPH 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

   ROUTED 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
```

```
:2 S/N: 1363001292        HMVersion: 6.52    Data File: 31MARQUZ.HC2

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


 Run Date:   6SEP96    Run Time: 10:59:50    HMVersion: 6.52    Data File:   31MARQUZ.HC2             Page    1


                                                                   THIS RUN EXECUTED   6SEP96     10:59:50

************************************
EC-2 WATER SURFACE PROFILES

'ersion    4.6.2;   May 1991
************************************

 WATER PROFILE ANALYSES FOR MARQUEZ CANYON ARROYO ACROSS MINE SITE
MT. TAYLOR 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       ALLDC      IBW      CHNIM     ITRACE
    -1         1         0         0         0         0        -1         0         0         1

5  VARIABLE CODES FOR SUMMARY PRINTOUT
    150

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

5  IHLEQ     ICOPY     SUBDIV    STRTDS     RMILE
     1         1         0         0          0

C     .03       .03      .040       .1        .3         0         0         0         0         1
1       3         8        10       50         0        19       257        22       257        28
R     270         0       265       10       260        68
R     260        35       265       50       267

        2        11        40      108      1200      1200      1200         0         0         1
`     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       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.

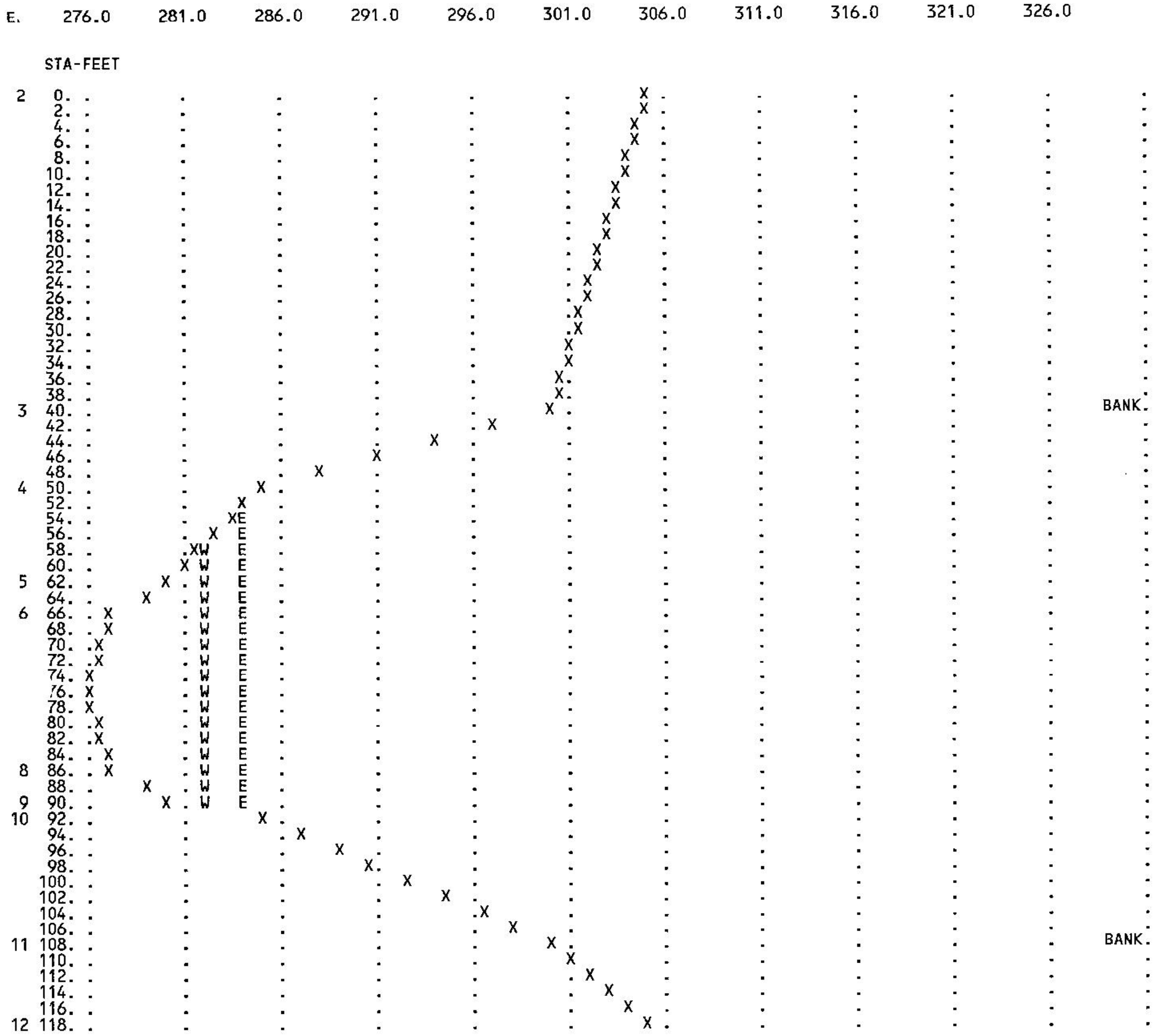
PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

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      .        W.   E     .         .         .         .         .         .         .         .         .
    55. .    X    .        W.   E     .         .         .         .         .         .         .         .         .
    56. .     X   .        W.   E     .         .         .         .         .         .         .         .         .
    57. .      X  .        W.   E     .         .         .         .         .         .         .         .         .
    58. .        X.        W.   E     .         .         .         .         .         .         .         .         .
    59. .         X        W.   E     .         .         .         .         .         .         .         .         .
    60. .         .X       W.   E     .         .         .         .         .         .         .         .         .
    61. .         .  X     W.   E     .         .         .         .         .         .         .         .         .
    62. .         .   X    W.   E     .         .         .         .         .         .         .         .         .
    63. .         .    X   W.   E     .         .         .         .         .         .         .         .         .
    64. .         .      X W.   E     .         .         .         .         .         .         .         .         .
    65. .         .       XW.   E     .         .         .         .         .         .         .         .         .
    66. .         .        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,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL
```



```
  Run Date:   6SEP96    Run Time: 10:59:50    HMVersion: 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,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

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 W   .     E   .         .         .         .         .         .         .
    14. .         .         .        X.     W   .     E   .         .         .         .         .         .         .
    16. .         .         .  X      .     W   .     E   .         .         .         .         .         .         .
 4  18. .         .    X    .         .     W   .     E   .         .         .         .         .         .         .
    20. .    X    .         .         .     W   .     E   .         .         .         .         .         .         .
 5  22. X         .         .         .     W   .     E   .         .         .         .         .         .         .
    24. X         .         .         .     W   .     E   .         .         .         .         .         .         .
    26. X         .         .         .     W   .     E   .         .         .         .         .         .         .
 6  28. X         .         .         .     W   .     E   .         .         .         .         .         .         .
    30. .   X     .         .         .     W   .     E   .         .         .         .         .         .         .
    32. .        X.         .         .     W   .     E   .         .         .         .         .         .         .
 7  34. .         .    X    .         .     W   .     E   .         .         .         .         .         .         .
    36. .         .       X .         .     W   .     E   .         .         .         .         .         .         .
    38. .         .         .  X      .     W   .     E   .         .         .         .         .         .         .
    40. .         .         .    X    .     W   .     E   .         .         .         .         .         .         .
    42. .         .         .       X .     W   .     E   .         .         .         .         .         .         .
    44. .         .         .         . X   W   .     E   .         .         .         .         .         .         .
    46. .         .         .         .    XW   .     E   .         .         .         .         .         .         .
    48. .         .         .         .       X .     E   .         .         .         .         .         .         .
 8  50. .         .         .         .         X     E   .         .         .         .         .         .     BANK.
    52. .         .         .         .         .X    E   .         .         .         .         .         .         .
    54. .         .         .         .         . X   E   .         .         .         .         .         .         .
    56. .         .         .         .         .  X  E   .         .         .         .         .         .         .
    58. .         .         .         .         .   X E   .         .         .         .         .         .         .
    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: hummer.hc1

****************************************                                                ***************************************
*                                      *                                                *                                     *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *   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 *                                                *          (916) 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, 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 IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM
```

```
                                             HEC-1 INPUT                                           PAGE  1

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

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

   7           KK      10 RUNOFF FROM EAST HUMMER
   8           KO       0
   9           BA     .40       0
  10           BF       0       0       1
  11           LS       0      71       0
  12           UD     .22

  13           KK    1030  ROUTE EAST HUMMER RUNOFF TO JUNCTION 30
  14           RD    9513    0.10     .06             TRAP      14     4.0

  15           KK      20  RUNOFF FROM WEST HUMMER
  16           KO       0
  17           BA     .14       0
  18           BF       0       0       1
  19           LS       0      71       0
  20           UD    0.15

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

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

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

```
r1 S/N: 1343001323       HMVersion: 6.33    Data File: hummer.hc1
                                                        RUNOFF SUMMARY
                                                FLOW IN CUBIC FEET PER SECOND
                                             TIME IN HOURS,  AREA IN SQUARE MILES

                                    PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
       OPERATION       STATION      FLOW     PEAK      6-HOUR     24-HOUR     72-HOUR       AREA      STAGE     MAX STAGE

       HYDROGRAPH AT         10      226.    12.00        31.         9.          9.      0.40

       ROUTED TO           1030      254.    12.25        35.        10.         10.      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 WATER SURFACE PROFILES             *                               *  U.S. ARMY CORPS OF ENGINEERS        *
                                          *                               *  HYDROLOGIC ENGINEERING CENTER       *
 ersion   4.6.2;  May 1991                *                               *  609 SECOND STREET, SUITE D          *
                                          *                               *  DAVIS, CALIFORNIA 95616-4687        *
 N DATE     6SEP96     TIME    16:05:18   *                               *       (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



 un Date:   6SEP96    Run Time: 16:05:18    HMVersion: 6.52    Data File:   HUMMER.HC2              Page    1


                                                         THIS RUN EXECUTED  6SEP96     16:05:18
************************************
EC-2 WATER SURFACE PROFILES

ersion   4.6.2;  May 1991
************************************


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


  ICHECK    INQ      NINV     IDIR     STRT    METRIC    HVINS    Q        WSEL      FQ
             0        0        0        -1       0         0     361                 0
  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC    IBW      CHNIM    ITRACE
   -1        1        0        0        0        0       -1       0         0        1

  VARIABLE CODES FOR SUMMARY PRINTOUT
   150
  LPRNT    NUMSEC                  ********REQUESTED SECTION NUMBERS********
   -1       -10
  IHLEQ     ICOPY     SUBDIV    STRTDS     RMILE
    1        1         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
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CROSS SECTION      1.00
STREAM  100 YEAR- 24 HOUR EVENT
DISCHARGE=      361.

PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL
E     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       .         .         .         .         .         .         .         .
 4  60. .         .         .         X         .         .         .         .         .         .         .     BANK.
    65. .         .         .    X    .         .         .         .         .         .         .         .         .
    70. .         .         .X        .         .         .         .         .         .         .         .         .
    75. .         .     X   .         .         .         .         .         .         .         .         .         .
    80. .         . X  E    .         .         .         .         .         .         .         .         .         .
    85. .      X  .CW  E    .         .         .         .         .         .         .         .         .         .
    90. .  X      .CW  E    .         .         .         .         .         .         .         .         .         .
 5  95. X         .CW  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         .         .         .
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CROSS SECTION      2.00
STREAM  100 YEAR- 24 HOUR EVENT
DISCHARGE=      361.

PLOTTED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,T=TOP BRIDGE,X=GROUND,W=WATER SUR,E=ENERGY GRADIENT,C=CRITICAL WSEL

 E    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      .         .         .         .         .         .         .
  4  85. .         .                   .         .  X      .         .         .         .         .         .     BANK.
     90. .         .                   .    X    .         .         .         .         .         .         .         .
     95. .         .                 X .         .         .         .         .         .         .         .         .
    100. .         .          XW    E  .         .         .         .         .         .         .         .         .
    105. .         .   X     C W    E  .         .         .         .         .         .         .         .         .
    110. .      X  .         C W    E  .         .         .         .         .         .         .         .         .
  5 115. X         .         C W    E  .         .         .         .         .         .         .         .         .
    120. X         .         C W    E  .         .         .         .         .         .         .         .         .
    125. X         .         C W    E  .         .         .         .         .         .         .         .         .
  6 130. X         .         C W    E  .         .         .         .         .         .         .         .         .
    135. .      X  .         C W    E  .         .         .         .         .         .         .         .         .
    140. .         .   X     C W    E  .         .         .         .         .         .         .         .         .
    145. .         .          XW    E  .         .         .         .         .         .         .         .         .
    150. .         .                 X .         .         .         .         .         .         .         .         .
    155. .         .                   .    X    .         .         .         .         .         .         .         .
  7 160. .         .                   .         .  X      .         .         .         .         .         .     BANK.
    165. .         .                   .         .  X      .         .         .         .         .         .         .
    170. .         .                   .         .   X     .         .         .         .         .         .         .
    175. .         .                   .         .    X    .         .         .         .         .         .         .
    180. .         .                   .         .     X   .         .         .         .         .         .         .
     35. .         .                   .         .      X  .         .         .         .         .         .         .
      0. .         .                   .         .       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    .         .         .         .         .
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   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.

F    'ED POINTS (BY PRIORITY)-B=BOTTOM BRIDGE,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       .         .         .         .         .         .         .         .
    '5. .         .  X   W  . E       .         .         .         .         .         .         .         .
     0. .         .       X . E       .         .         .         .         .         .         .     BANK.
 7 185. .         .         .    X    .         .         .         .         .         .         .         .
   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       .         .         .         .         .
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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 DAYS	ANNUAL TEMP., F 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 DAYS	ANNUAL TEMP., F 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

SURFACE WATER RUNOFF HYDROLOGIC ANALYSIS - MT. TAYLOR MINE

A1.J71

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

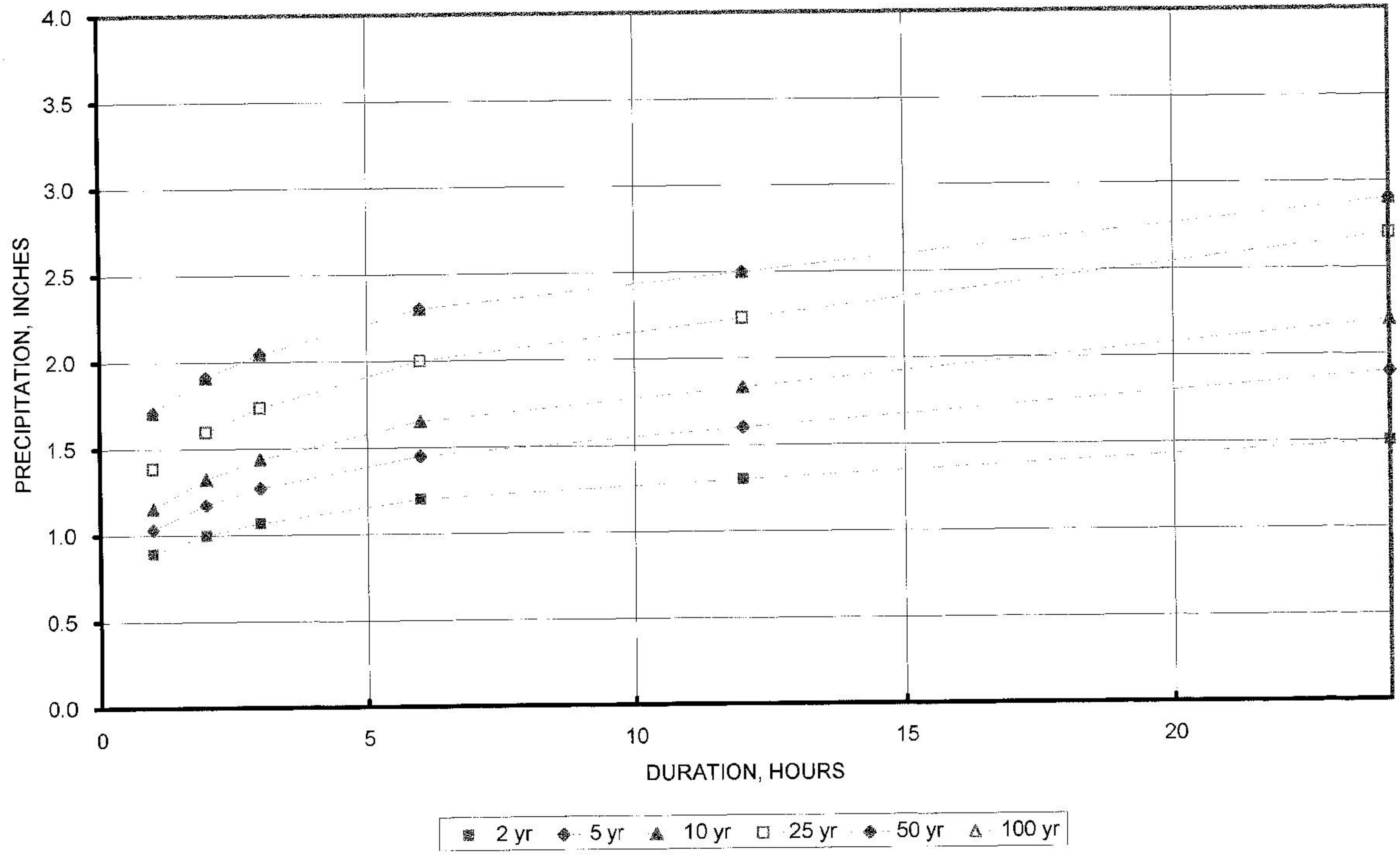
depth10 = 0.59 depth15 + 0.41 depth5
depth30 = 0.49 depth60 + 0.51 depth15

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



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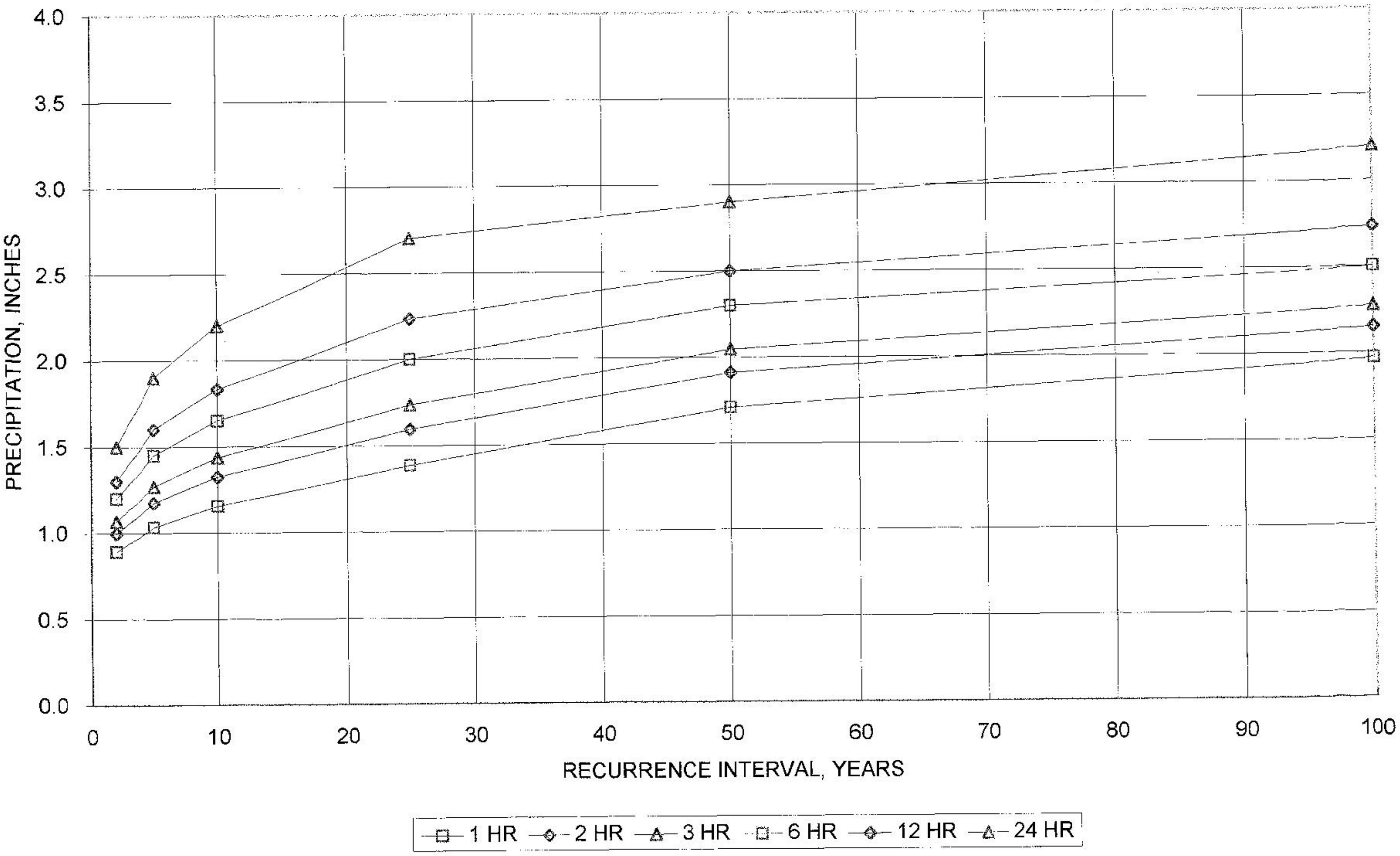
PRECIPITATION VS INTERVAL AND DURATION
MT TAYLOR MINE WATERSHED



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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

m1.u71

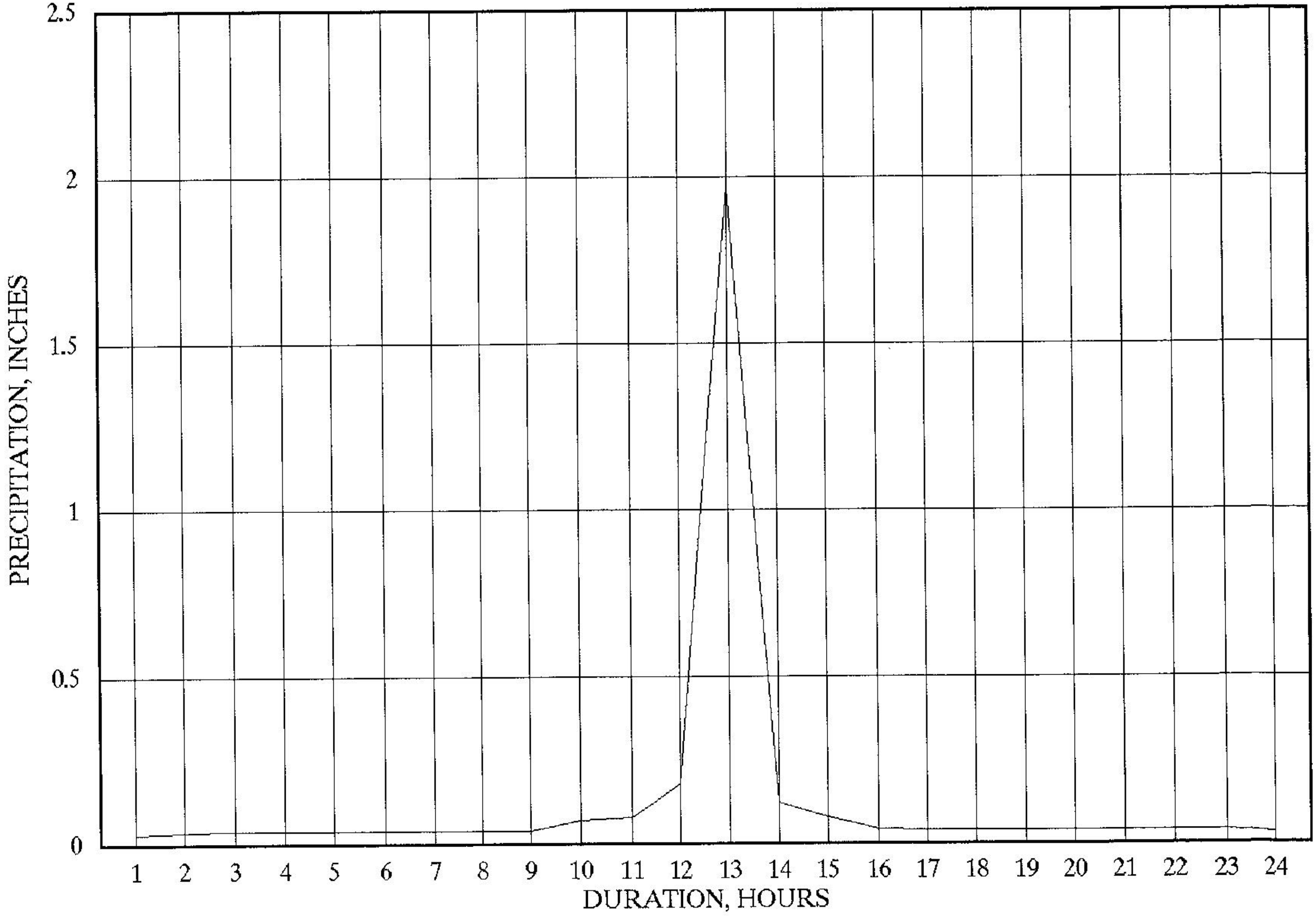
** % of (Lg+D/2)	** q	q*(Lg+D/2)/V	differential q*(Lg+D/2)/Vol.	Time hours	% of (Lg+D/2)	Ordinate	Unit q cfs
5	0.19	0.0016		0.25	40.5	0.032	3.86
10	0.32	0.0027	0.0011	0.50	81.1	0.239	28.73
15	0.48	0.0040	0.0013	0.75	121.6	0.101	12.11
20	0.74	0.0061	0.0022	1.00	162.1	0.129	15.49
25	1.21	0.0101	0.0039	1.25	202.7	0.220	26.46
30	1.81	0.0150	0.0050	1.50	243.2	0.225	27.06
35	2.63	0.0219	0.0068	1.75	283.7	0.167	20.13
40	3.68	0.0306	0.0087	2.00	324.3	0.112	13.46
45	5.47	0.0455	0.0149	2.25	364.8	0.080	9.61
50	8.41	0.0699	0.0244	2.50	405.3	0.060	7.16
55	12.61	0.1048	0.0349	2.75	445.9	0.048	5.74
60	16.5	0.1371	0.0323	3.00	486.4	0.040	4.79
65	20.5	0.1704	0.0332	3.25	526.9	0.034	4.07
70	23.97	0.1992	0.0288	3.50	567.5	0.029	3.46
75	27.75	0.2306	0.0314	3.75	608.0	0.024	2.93
80	28.91	0.2403	0.0096	4.00	648.5	0.021	2.48
85	28.07	0.2333	-0.0070	4.25	689.1	0.018	2.12
90	26.38	0.2192	-0.0140	4.50	729.6	0.015	1.80
95	24.18	0.2009	-0.0183	4.75	770.1	0.013	1.52
100	21.55	0.1791	-0.0219	5.00	810.7	0.011	1.31
105	18.92	0.1572	-0.0219	5.25	851.2	0.009	1.11
110	16.08	0.1336	-0.0236	5.50	891.7	0.008	0.94
115	14.19	0.1179	-0.0157	5.75	932.3	0.007	0.80
120	12.61	0.1048	-0.0131	6.00	972.8	0.006	0.68
125	11.04	0.0917	-0.0130	6.25	1013.3	0.005	0.58
130	9.99	0.0830	-0.0087	6.50	1053.9	0.004	0.49
135	9.04	0.0751	-0.0079	6.75	1094.4	0.003	0.42
140	8.2	0.0681	-0.0070	7.00	1135.0	0.003	0.36
145	7.36	0.0612	-0.0070	7.25	1175.5	0.002	0.30
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				

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

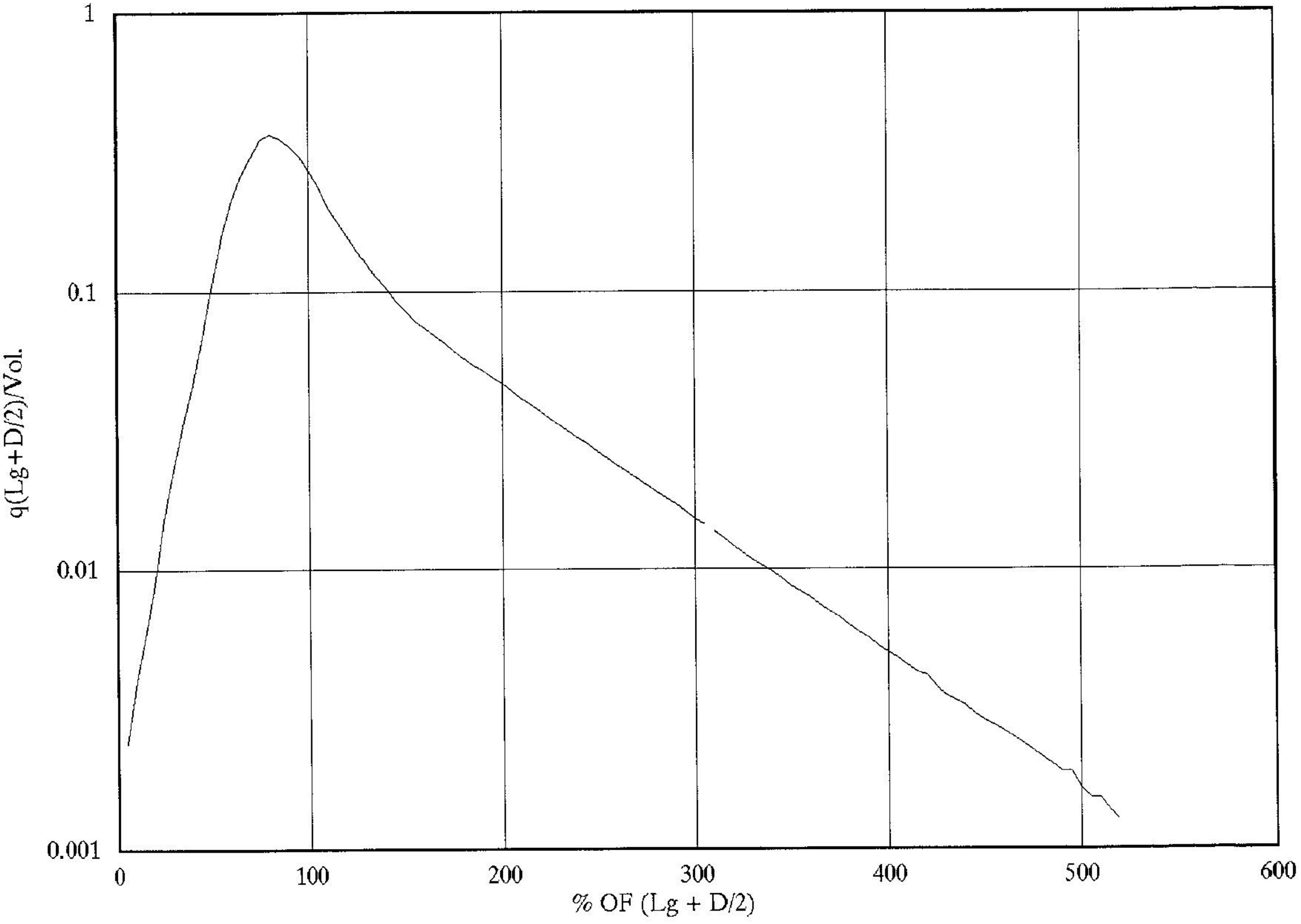
** from Table 3-13, USBR 1987

BALANCED STORM HYETOGRAPH – 24 HR/100YR

MT TAYLOR MINE WATERSHED

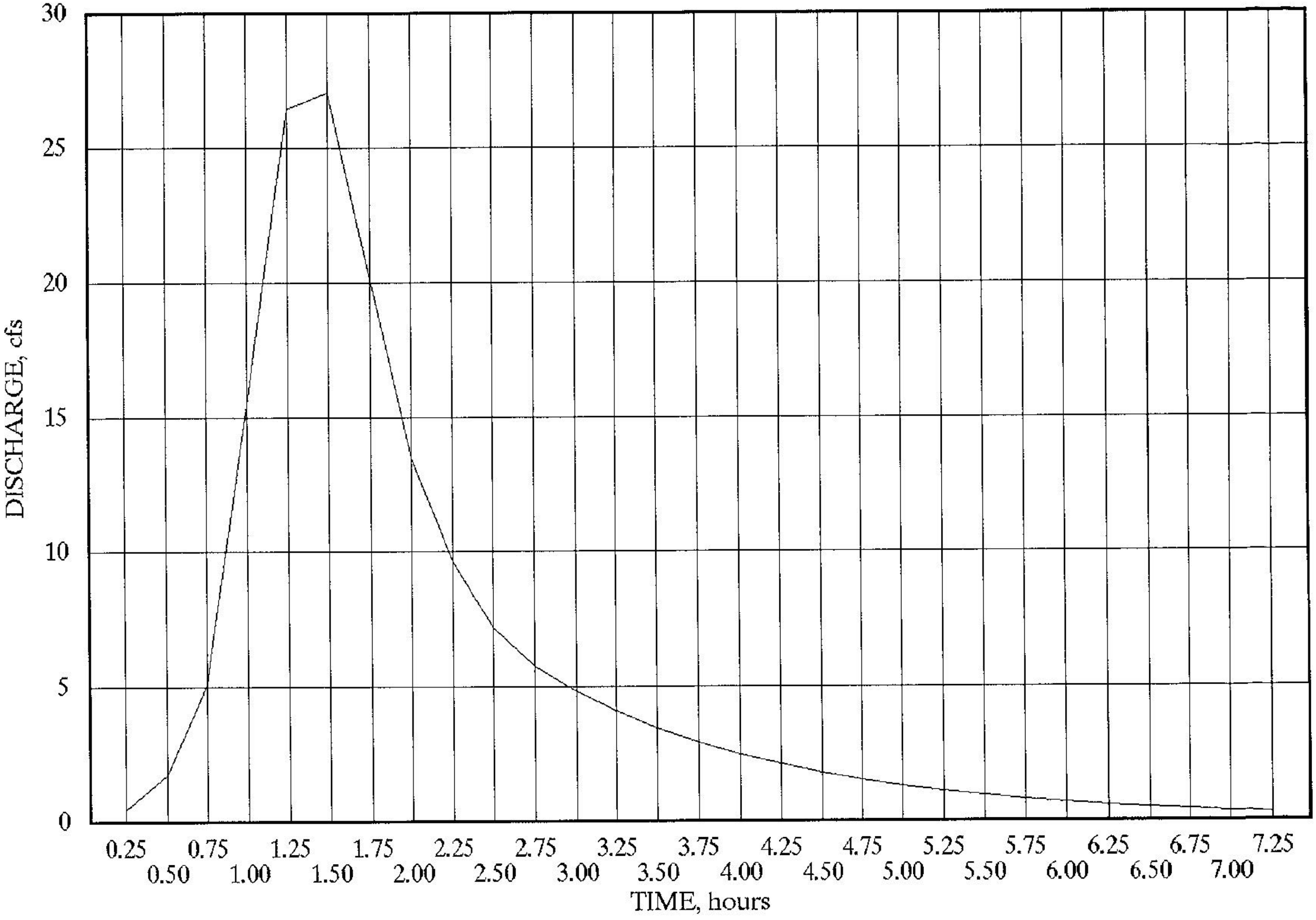


DIMENSIONLESS UNIT HYDROGRAPH FOR MARQUEZ WATERSHED
MT TAYLOR MINE

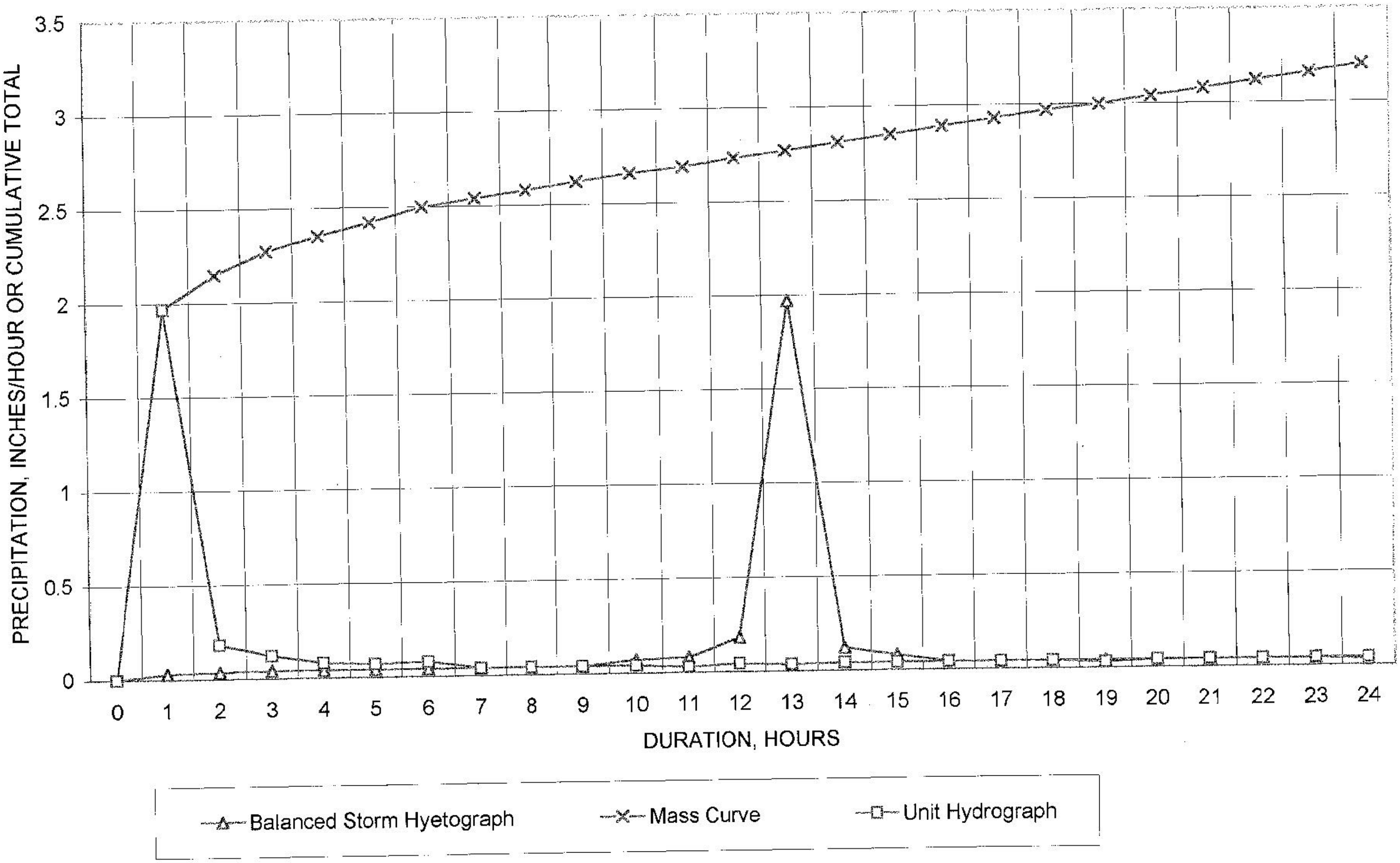


UNIT HYDROGRAPH AT SITE WEST BOUNDARY

MT. TAYLOR MINE – MARQUEZ CANYON WATERSHED



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



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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 #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 on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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 shafts are located in the Service and Support Area (Drawings MT13-CL-02 and -04) .

The included work consists of demolition of the two shaft headframes and materials within the shaft collars. 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 of both headframes to ground surface
- Cutting and stacking of headframe structural steel into lengths up to 40 feet
- Disposal of non-salvaged demolition debris in shafts below subcollar level.
- Removal of all fittings, equipment, and internal structures in the shafts from collar down to subcollar level, and disposal of selected non-rigid debris in shafts below subcollar level.
- Stacking of selected salvaged structural steel within 50 feet of each 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 plugs (Drawings #MT13-CL-05 and -06).

The work is represented in Drawings:

MT13-CL-01	Title Sheet
MT13-CL-02	Closeout Plan Index Sheet
MT13-CL-03	Gamma and Soil Radium Sample Locations

MT13-CL-04 Facility Disposition Plan

1.2. Site Survey

Prior to mobilizing to the mine, the Contractor shall perform its own survey of the headframes 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 OSHA-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. The manway/ vent shaft is 14 feet in diameter below subcollar level with a headframe approximately 75 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. However, no construction drawings of the 14-foot shaft headframe are available. Attached to this specification are inventories of structural steel in headframes by RGR, Tables C.1.1 and C.1.2. Most buildings close to the shafts will remain for post-mining land use and must be protected from damage during headframe demolition (see Drawing MT13-CL-04). Both shafts have reinforced concrete collars that will remain in place and will not be demolished.

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.

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 PSE is required. 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

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 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,

- 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 headframes, in the shafts, and in the shaft tunnels from the subcollars to the first doors in the shaft tunnels.

If the contractor plans to drop the headframes, 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 headframes, 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 headframes, 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. See drawings MT13-CL-05 and -06 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 shall be stacked within 100 feet of each 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 plugs 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. 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 shafts and headframes for re-use or salvage.

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 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 Headframe 14' SHAFT - Structural Steel

H,W, T in inches; L in feet

Description	Description	Description
I BEAMS	**ANGLE IRON**	**T IRON**
H x W x T x L	H x W x T x L	H x W x T x L
30 x 10 x 1 x 38	4 x 6 x 1/2 x 712	8 x 8 x 3/8 x 64
36 x 12 x 1 x 19	3 1/2 x 5 x 1/2 x 252	7 x 7 x 1/2 x 84
24 x 8 x 3/4 x 19		
30 x 10 x 3/4 x 33		
24 x 9 x 5/8 x 17		
14 x 8 x 5/8 x 28		
16 x 7 x 5/8 x 106		
25 x 7 x 5/8 x 72		
13 1/2 x 8 x 1/2 x 324		
12 x 8 x 1/2 x 189		
10 x 8 x 1/2 x 200		
6 x 4 x 1/2 x 120		
16 x 7 x 1/2 x 17		
24 x 7 x 1/2 x 20		
8 x 6 1/2 x 1/2 x 120		
6 x 8 x 1/2 x 20		
14 x 6 1/2 x 1/2 x 38		
14 x 7 x 1/2 x 90		
8 x 8 x 1/2 x 44		
8 x 7 x 1/2 x 20		
14 x 6 x 1/2 x 148		
10 x 7 x 1/2 x 68		
24 x 7 x 3/8 x 38		

Table C.1.2 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 #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 on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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 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 pipeline that will be salvaged. Other building and facilities that have post-mining use will not be demolished.

Facilities to be demolished are listed in Table C2.1

Scrap materials from demolition, with the exception of concrete, will be disposed of as scrap or structural elements for off-site sale. The surface landowner shall have the right to retain any 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. Concrete hydraulic control structures (13) in the mine water treatment ponds shall be demolished and the concrete crushed and stacked for use by others.

The treated water discharge pipeline (Figure C.2-1) is 1/4 to 3/8 inch thick steel pipe. The in-place and spare lengths total approximately 23,000 feet. This pipe shall be removed from the site and sold for re-use or salvage.

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 demolished
- Demolition of the buildings listed in the "demolish" column of Table C.2.1.
- Separation and stacking of demolition debris at locations on site designated by RGR.

Any demolition materials other than concrete that are declined in writing by the landowners may be salvaged for sale and re-use offsite by the contractor.

The work is represented in Drawings:

MT13-CL-01	Title Sheet
MT13-CL-02	Closeout Plan Index Sheet
MT13-CL-03	Gamma and Soil Radium Sample Locations
MT13-CL-04	Facility Disposition Plan

1.2. Site Survey

Prior to mobilizing to the mine, the Contractor shall perform its own survey of the facilities to be demolished 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 OSHA-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 demolished include the buildings listed in Table C.2.1, the treated water pipeline shown on Figure C.2-1, mine car rails, mine water discharge pipe, and hydraulic control structures of the mine water treatment ponds represented in Figure C.2-2. Locations of these facilities are shown on Drawing MT13-CL-04. Photographs of facilities to be demolished will be available to the contractor.

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

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 PSE is required. 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 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 these facilities do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. These facilities 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

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 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 MT-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,

- 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 in facilities to be demolished.

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. Facilities to be demolished listed in able C2.1.

2.2.1. Building Removal

The shaft vents and fans, the heating buildings, and the glycol heat exchanger shall be demolished first, so that these structures are removed before shaft headframe demolition (by others) begins.

The buildings shall be removed by mechanical or manual methods; no explosives may be used. Except for the chlorine building, which is a concrete block, the buildings are steel frame with metal siding and roofs.

No asbestos is known to be present in these facilities. However, the contractor shall perform inspections it considers necessary to confirm that asbestos is not present.

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 14-foot diameter shaft and 13 feet in the 24-foot diameter shaft.

Demolition debris other than concrete shall be cut, hauled, and stacked according to shape (e.g.; beams, sheet metal) in locations east of the waste pile as determined by RGR. Debris shall be reduced in size to fit into the likely transport vehicle for removal from the site, but in any case not longer than 40 feet.

2.2.3. Concrete Debris

The contractor shall demolish the concrete in floor slabs of demolished buildings, pond hydraulic control structures, ore bins next to the 24-foot shaft, aprons beyond the shaft collars, and subgrade of mine car rails. The concrete 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 may be placed in the pond basins.

2.3 Treated Water Pipeline

The treated water discharge pipeline is 1/4 to 3/8 inch thick 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 site and sell for re-use or salvage.

The contractor shall use methods for cutting, removal and transport of the pipe in pieces of uniform length that preserve the structural and hydraulic integrity of each piece. Prior to removing any pipeline materials, the contractor shall complete a written agreement with RGR, or its successor in interest, regarding the salvage value of the pipe materials.

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.

At each cut location along the pipe, lines at least 1.0 feet long shall be made with light color paint in each of the upper two quadrants of the pipe before the cut is made. Each section of pipe shall be identified by the same paint in numbers, not less than 6 inches high, applied along the top of the pipe and parallel to the pipe length. The pipe numbers shall start with 0001 at the south end.

3 GENERAL QUALITY ASSURANCE AND QUALITY CONTROL

3.1 Reviews

Not applicable

3.2 Inspection Reports

Contractor shall record in writing the lengths of each pipe section removed, as well as the unique number painted on each pipe section in its serial order in the pipeline from south to north. This record shall become the official inventory of the removed pipe and shall be the basis for both salvage value and contractor compensation. 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 Building Inventory					
				Disposition at Closeout	
Building Name	**Building Type**	**Dimensions**	**Volume, ft^3**	**Demolish**	**Retain for Owner**
Compressor Building	Steel frame and siding	40'4"x40'2"x16'	25921	X	
York Chiller (Chill Water) Building	Steel frame and siding	100'x50'x30'	150000	X	
Pump Building (Chill Water Pump House)	Steel frame and siding	40'x24'x16'	15360	X	
Chlorine Building	Concrete Block	23'x50'6"x20'	23230	X	
Shaft Heating Building	Steel frame and siding	50'x30'x16'	24000	X	
Glycol Heat Exchanger	Steel frame and siding	50 x 30 x 16	24000	X	
Hoist House	Steel frame and siding	162'x120'x40'	777600	X	
Cooling Tower	Steel frame and siding	75 x 25 x 25	46875	X	
Guard House (Security Building)	Steel frame and siding	63'x20'6"x16'	20664		X
Fire Equipment Building (Fire House)	Steel frame and siding	27'x24'x16'	10368		X
Service Building (Office and Warehouse)	Steel frame and siding	194'x138'x24'	642528	X	
Car (Maintenance) Shop	Steel frame and siding	150'x100'x30'	450000		X
Carpenter Shop	Steel frame and siding	45'x24'x16'	17280		X
Electrical Building	Steel frame and siding	62'x30'x16'	29760	X	
Water Treatment and Boiler Building	Steel frame and siding	62'x50'x16'	49600	X	
Core Storage Building	Steel frame and siding	100x38'x16'	60800		X
Fan Shop	Steel frame and siding	40 x 30 x 12	14400		X
Storage Building	Steel frame and siding	28'x30'x16'	13440	X	
Flocculant Treatment Facility	Steel frame and siding	30'x23'x12'	8280	X	
Barium Chloride Treatment Facility	Steel frame and siding	40'x25'x16'	16000	X	
Ion Exchange Plant	Steel frame and siding	140'x70'x40'	392000	X	
Water Tank	Steel		300,000 gal		X
Fuel Storage Tanks	Steel		various	X	

Figure C.2-1 Treated Water Pipeline

Figure C.2-2 Hydraulic Control Structure on Mine Water Treatment Pond #2 (existing April 2013)

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 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 on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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 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, will 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 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 Drawings:

MT13-CL-01	Title Sheet
MT13-CL-02	Closeout Plan Index Sheet
MT13-CL-05	Shaft Closure Manway Vent
MT13-CL-06	Shaft Closure Production Shaft

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 OSHA-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 (Drawings MT13-CL-05 and -06) will have been stacked separately from other steel that will be shipped offsite for salvage.

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.

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 these facilities do not exceed the NRC Regulatory Guide 1.86 criteria for unrestricted release and use. These facilities 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 (MT13-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 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,

- 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 discharge 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

Both the 24 ft diameter production or haulage shaft and the 14 ft diameter manway/ ventilation shaft will be closed in the same way, illustrated on Drawings MT13-CL-05 and -06, in the following sequence after the headframes and collar structures are removed (by others), the subcollar space has been freed of obstacles per section 2.2.1.

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 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 remains on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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 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
- Storm Water Retention Ponds (2)
- Access Road

The included work consists of excavation, hauling, placement, and compaction of soil and rippable rock within the mine area 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 pond sediments and site soil contaminated with low levels of radium and uranium,
- Construction of a pond sediment disposal cell on the waste rock pile,
- Disposal of pond sediment in the disposal cell,
- Disposal of contaminated soil in waste rock pile, or the shafts,
- Reshaping of the waste rock pile
- Reducing rock slopes
- Backfilling of the mine water treatment ponds,
- Placement of clean soil cover over the waste rock pile, and
- Backfilling of pond basins in the mine water treatment area,
- Finish grading of disturbed ground within the mine permit area

The work is represented in Drawings:

MT13-CL-01	Title Sheet
MT13-CL-02	Closeout Plan Index Sheet
MT13-CL-03	Gamma and Soil Radium Sample Locations
MT13-CL-04	Facility Disposition Plan
MT13-CL-07	Final Grading Plan Mine Water Treatment Pond and Ore Stockpile Area
MT13-CL-08	Typical Sections Mine Water Treatment Pond Infill
MT13-CL-09	Final Grading and Cover Plan South Waste Rock Pile Area
MT13-CL-10	Final Grading and Cover Sections South Waste Rock Pile Area
MT13-CL-13	Final Site Grading 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 Excavation and Disposal of Pond Sediments

Sediments above the liners in the mine water treatment ponds, the ore pad runoff ponds, and the south storm water pond shall be removed by dry excavation methods unless the sediments are too wet to excavate as dry material. It that case, the wet sediments may be removed by vacuum truck.

Excavated sediments shall be placed in the disposal cell on the waste pile in lifts of not more than 1.0 ft. loose thickness. When sufficiently dry, each sediment lift shall be tracked by at least three passes of a CAT D6 or equivalent dozer, or heavier. After removal of sediment by earthmoving or vacuum equipment, the surface of the HDPE liner shall be broom clean, as verified by radiological survey of the HDPE surface. Final removal of sediment from the clay liner of the south surface water runoff pond shall verified by radiological survey to background levels.

2.3 Removal of Pond Liner Anchor and Liner From Top of Slope

The contractor shall remove the HDPE liner system in mine water treatment ponds #1-8 and the ore pad runoff retention pond from the anchor trench and the upper portion of the pond slopes down to at least 2.0 feet below final grade (drawings MT13-CL-07 and -13). Similarly on the ore pad, the liner shall be removed from the anchor trench and to at least 2.0 feet on the pond slopes below final grade. The liner materials removed in the ponds shall be folded over into the ponds before the pond basins are backfilled.

2.4 Excavation and Disposal of Contaminated Soil

The contractor shall submit a Contaminated Soil Excavation Plan for excavating, 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 MT13-CL-03 represents the existing data on soil radium content and the gamma radiation emanating from that source. Contaminated soil shall be placed 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..

2.5 Pond Sediment Disposal Cell

The contractor shall construct a waste disposal cell on the south waster rock pile for disposal of pond sediments. The cell shall be located as shown on Drawings MT13-CL-09and -10. The pond shall be formed on the top of the pile surface existing at the time of closure, graded to a horizontal surface. The pond berms shall be constructed of contaminated soil excavated from site soil cleanup and from waste rock in place on the waste pile. The berm soil shall be constructed in lifts not more than 1.0 ft. loose thickness, compacted by at least three passes of a CAT D10 or equivalent dozer.

The inside slopes and bottom of the cell shall have a minimum 1.0 ft. thick compacted clay liner constructed of CH, CL, and SC soils from on-site sources. Compaction shall be not less than 90% maximum dry density per ASTM D-698.

2.6 Reshaping and Backfilling of the Mine Water Treatment Area Ponds

After removal of pond sediments and contaminated soil from the mine water treatment and ore pad runoff ponds, and after the top portions of liners have been folded into the pond basins, clean demolition debris may be disposed of in the pond basins. Debris shall be placed in lifts not to exceed the maximum thickness of 2.0 ft. Space around this debris shall be filled either by backfilling with dry clean soil or by flooding with a weak soil/cement slurry. In the case of slurry backfilling, the slurry lift shall take a firm set before the next lift is added.

Pond berms shall be the primary source of clean soil for pond infill material. Additional soil may be obtained from the borrow area, if needed. The pond basins shall be backfilled by a balance of cut and fill until the graded shown on Drawing MT13-CL-07 and -13 are achieved.

2.7 Reshaping of the Waste Pile

The waste rock is mostly cobble-size soft sandstone and sandy soil. Upon, reactivation of the mine, RGR will reshape the existing waste rock pile to 5H:1V slopes. The contractor shall complete whatever reshaping is yet to be completed at the time of mine closeout to achieve the lines and grades shown on Drawing MT13-CL-09 within the limits of available quantities of waste rock and contaminated materials disposed oin the pile.

The contractor shall reshape the waste rock pile from its existing contours to the lines and grades shown on Drawing MT13-CL-09. Waste rock materials beyond the final limit of the waste pile, if any, shall be excavated and placed within the final waste pile footprint. Contaminated soil from the CR 334 right-of-way and the Service and Support area shall be excavated and placed on the waste pile.

The existing mound of soil standing above the rest of the waste pile surface at the southwest corner of the pile is clean shaft muck. It shall not be used for reshaping the pile but shall be reserved for application to the reshaped pile surface as final cover.

The waste pile contains scrap metal, rock bolts and other debris from mining. The contractor can encountered these materials buried within the waste rock. If such debris is uncovered during reshaping, it shall be removed and reburied within the regraded waste rock material. Burial of non-rock waste generated during closeout will be controlled so that the material will be placed in lifts and either covered with soil after each lift or flooded with a soil/cement slurry to fill voids.

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 of waste rock from the existing pile periphery into the final pile footprint.

If the north waste rock pile is constructed during RGR's mine operations, this section also applies to that pile as illustrated by drawings MT13-CL-11 and -12.

2.8 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 mine water treatment ponds shall be obtained from existing clean soil in the pond berm at elevations above the final cover grades. Clean soil for the waste rock pile cover shall be obtained from the shaft muck pile at the south side of the waste pile and any other clean soil adjacent to the waste pile. Additional clean soil shall be obtained from the borrow area east of the ore pad location after contaminated soils have been removed. 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.

The contractor shall place not less than 2.0 feet of clean soil as a cover over the backfilled mine water treatment ponds and the reshaped waste rock pile. Soil placed for cover construction may be spread by any method in lifts not more than 1.0 feet loose thickness. Each lift shall be tracked by dozer, CAT D8 or larger, to compact the soil before the next lift is applied. Tolerances for cover thickness may be adjusted to accommodate special circumstances, but in general the soil cover shall be not less than 2.0 feet compacted thickness.

Clean soil may also be needed for filling depressions in the areas of contaminated soil removal.

If the north waste rock pile is constructed during RGR's mine operations, this section also applies to that pile as illustrated by drawings MT13-CL-11 and -12.

2.9 Finish Grading

All disturbed soil surfaces and constructed cover surfaces shall be finish graded to achieve the lines and grades shown on Drawings MT13-CL-07, -08, -09, -10 and -13. If the north waste rock pile is constructed during RGR's mine operations, this section also applies to that pile as illustrated by drawings MT13-CL-11 and -12. 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) free 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 recontoured surfaces into adjacent undisturbed areas.

2.10 Erosion Control on Waste Rock Piles

2.10.1 General Site Drainage

The primary means of controlling erosion by runoff will be grading per section 2.8. Control of surface water runoff onto or from reclaimed areas will accomplished as part of the recontouring 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. Diversion channels will be required only where actual cover or final slope gradients produce concentrated runoff and/or slope erosion.

2.10.2 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 2.9.3 and 2.9.4. 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.

2.10.3 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 2.8.

2.10.4 Riprap

On slopes of 5H:1V or steeper on waste pile surface, 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 arroyo, adjacent to the waste pile south toe. The riprap shall be placed from the toe of the north bank to not less than 10 vertical feet above the arroyo 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 arroyo crosses E 559450 (Drawing MT13-CL-09). 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.

2.10.5 Erosion Control Blanket

The contractor shall procure and install 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.

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 contractor in coordination with revegetation by others (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 #MT12-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 on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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 disturbed land consists of:

- Support (Service and Support) Facilities – 93.0 acres
- Mine Water Treatment Area - 28 acres
- Treated Water Discharge Pipeline - 15 acres (most beyond the mine surface area)
- Ore Stockpile - 6.8 acres
- Waste Pile - 11.5 acres
- Storm Water Retention Ponds (2) - 3.7 acres
- Access Road - 4.7 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 Drawings:

MT13-CL-01	Title Sheet
MT13-CL-02	Closeout Plan Index Sheet
MT13-CL-07	Final Grading Plan Mine Water Treatment Pond and Ore Stockpile Area

MT13-CL-08	Typical Sections - Mine Water Treatment Unit Infill
MT13-CL-09	Final Grading and Cover Plan – South Waste Rock Pile Area
MT13-CL-11	Final Grading and Cover Plan – North Waste Rock Pile Area
MT13-CL-13	Final Site Grading Plan

and in Figure C.5-1.

All areas that have been disturbed by Mt. Taylor mining operations and soil cleanup, approximately 133 acres, shall be revegetated except the storm water ponds and those areas where mining-related features, such as buildings and roads, are retained at the request of the surface owner. 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.

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. Ore from the stockpile will be removed by others for use in shaft plugging. 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 & 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 & 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 revegetation materials described in this specification and the referenced drawings (MT12-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 MT12-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 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

Seeding 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 and heavy chains dragged by a tracked dozer to incorporate the seed with the soil. When 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. A species mix previously approved 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 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 Mine Water Treatment Area and the waste rock pile. An additional 2000 feet of this fence shall be installed around the mine shafts area (#9 under Area Description in Drawing MT12-CL-02) 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 early September by a botanist or other 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

An interim 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. This standard will remain in effect until either the volunteer revegetation success is determined to support a higher standard or a test plot program has produced acceptable results that support a more site-specific standard.

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 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. 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 *(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, grows on rock slopes.
4. Galleta *(Hilaria jamesii)* Rate: 6 PLS/ft^2
5. Alkali Sacaton *(Sporobolus airoides)* Rate: 6 PLS/ft^2
6. Mountain mahogany *(Cercocarpus montanus)* Rate: 2 PLS/ft^2
7. Fourwing saltbush *(Atriplex canescens)* Rate: 2 PLS/ft^2

   Evergreen native perennial shrub, reproduces from seeds, grows on grassy uplands, excellent reclamation species.
8. Globemallow *(Sphaeralcea fend/en)* Rate: 2 PLS/ft^2
9. Narrowleaf Penstemon *(Penstemon angustifo/ia)* Rate: 2 PLS/ft^2
10. New Mexican feathergrass *(Stipa neomexicana)* Rate: 6 PLS/ft^2

    Cool season native perennial grass, reproduces by seed and tillers, growth starts mid-spring, grows on rocky slopes.
11. 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: Seed should 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 may be used. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

TABLE C.5.2

INITIAL INTERIM 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

PROPOSED INITIAL INTERIM STANDARDS

Plant Species	Expected Percentage of Production	Standard
Western Wheatgrass	32	20-45
Alkali Sacaton	20	5-40
New Mexican Feathergrass	20	10-30
Blue Grama, Spike Mulhy, Galleta	16	10-25
Fourwing Saltbush	6	3-10
Winterf	2	1-3
Mountain Mahogany	1	0-5
Globemallow	1	0-5
Narrowleaf Penstemon	1	0-5
others	1	0-10
Ground Cover, --- 50% of potential		
Production, Ib./acre --- 70% of potential		

Variations and substitutions may be made in the seed mix, based on seed availability and cost at time of closeout.

(attach Revegetation and Weed Management Plan here)

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 on standby after mining operations were suspended in 1990 due to the depressed uranium market. The mine extracts 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,
- Tremie grouting of approximately 20 deep (>2000 feet) wells
- Tremie grouting of shallow abatement monitoring wells
- Tremie grouting of two utility conduits.

The work is represented in Drawings:

MT13-CL-01 Title Sheet

MT13- CL-02 Closeout Plan Index Sheet

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. 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

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.

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 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.

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 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 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 l not sooner than 24 hours after the tremie filling of each conduit is complete. The contractor shall top off any casing that 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 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 well until the well casing is filled to ground surface. Before the contractor leaves the site at the completion of all well plugging, it shall inspect each well not sooner than 24 hours after the tremie filling of each well is complete. The contractor shall top off any casing that 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.

2.4 Abatement Monitoring Well Plugging

Up to five shallow monitoring wells may remain at the time of closeout, These 2-4 inch diameter wells with PVC casing are used during the NMED Stage 2 Abatement Plan to observe shallow perched water at the soil/ bedrock interface at depths up to 60 feet below and west of the waste rock pile. One or more of these wells will probably 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 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 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 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.6.1 Wells and Conduits to Plug

Well No.	State Plane Coordinates (NAD 83)		Collar Elevation, Feet AMSL	Depth (feet)	Casing/liner Size
	E	N			
2	2782597	1579115	7335	2920	9 5/8" casing
9	2782983	1579716	7333	2845	9 5/8" casing
11	2783246	1578843	7442	3028	9 5/8" casing
12	2783442	1579417	7414	2940	9 5/8" casing
13	2782068	1579376	7317	3185	10 3/4" casing , 7" liner
14	2782170	1578805	7331	3205	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
19	2783783	1579490	7449	3274	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

Mine Utility Conduits (2) - on refrigeration bench

Observation Wells (5) - see Figure 1-4 of the July 2012 CCP , Rev.1 2013, or Figure 1-6 of the April 2013 CCP, Rev 1 2013

APPENDIX D

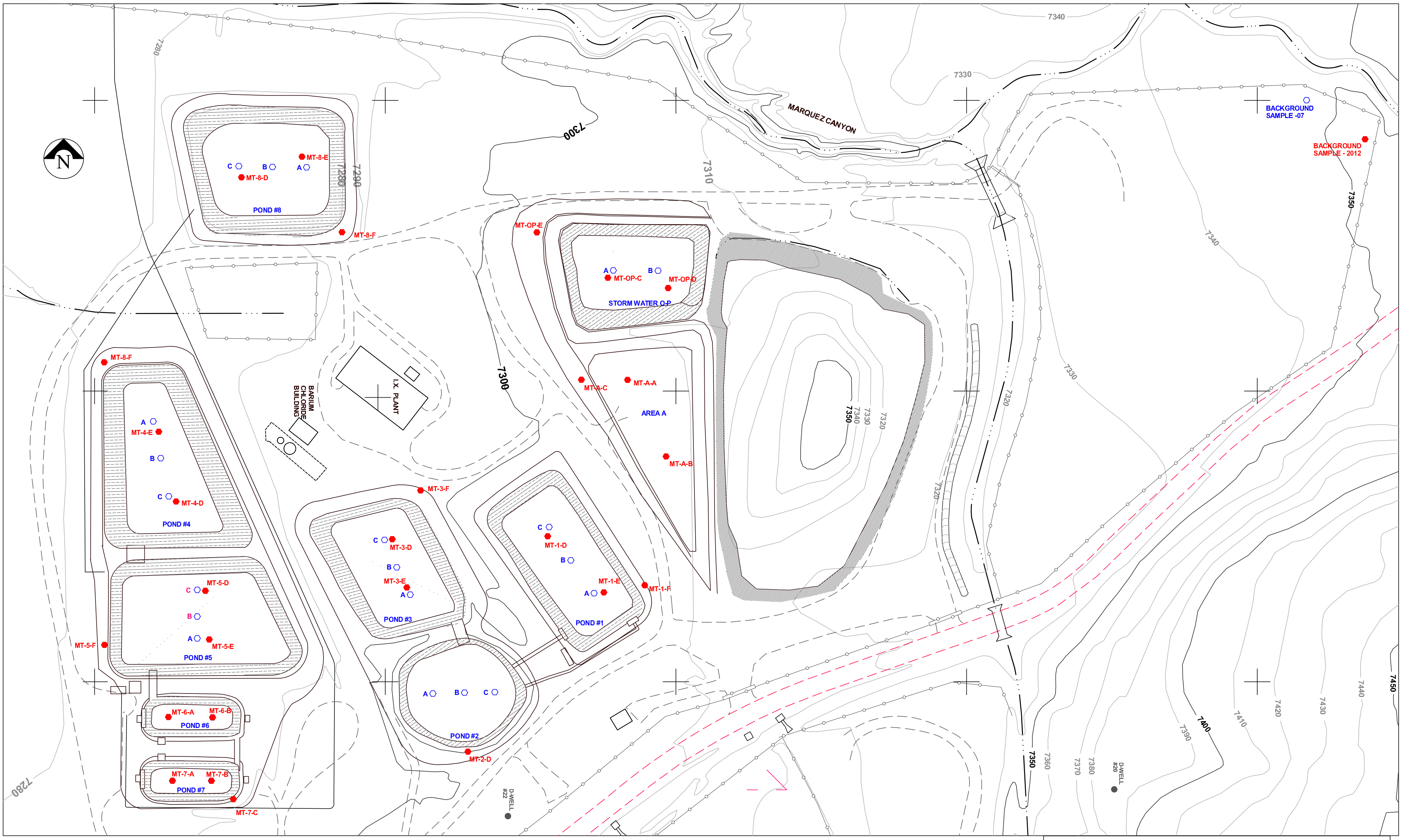


FIGURE 1

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

File #

Mt Taylor Mine - Borrow Test Pit Log

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

File #

Mt Taylor Mine - Borrow Test Pit Log

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

	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

File #

Mt Taylor Mine - Borrow Test Pit Log

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	▨	S1-01-03	Sample collected at 44-48" bgs at 11:00
4	▨		
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 2	▥	SL-02-02	10"-30": Silty sand, some clay, friable, yellow-brown, moist Sample collected at 26-30" at 11:43
3	▥	SL-02-03	30-48": Silty sand, some clay, friable, yellow-brown, slightly moist 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

	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	▨	S5-01-01	0-22": Clayey silt with sand, friable, brown, moist Sample collected at 0-12" bgs at 14:05
1	▨		
2	░		22"-37": Silty sand, trace clay, friable, dry
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 3	░	S5-02-03	24"- 44": Silty sand, friable yellow brown, slightly damp, trace gravel and cobbles 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

File #

Mt Taylor Mine Water Treatment Pond Test Pit Log

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

	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

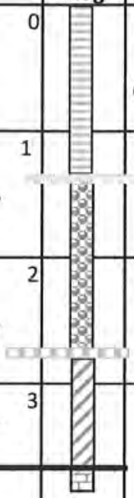
Field Engineer: Ed Loescher

Excavation Method: Small Bobcat Backhoe

Date: April - 10-2012 2:30 pm

Operator:

Weather and Moisture Conditions: Warm – Sunny –60d to 70d

	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
	░	S7-01-03	30.5"-35": Silty sand, yellow brown, moist Sample collected at 30.5-34" bgs at 15:22
3	░		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 1	▨	S8-01-01	0-17": Clayey silt, pliable, brown, moist Sample collected at 0-8" bgs at 13:00
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 1	░	S8-02-01	0-18": Silty sand, trace gravel, brown, friable, moist Sample collected at 0-12" bgs at 13:26
	▧	S8-02-02	18"-24": Clayey silt, varved gray and white sediment settling Sample collected 18-24" bgs at 13:36
2 3 4	▨	S8-02-03	24"-56": Clay, very dense, dark brown, slightly damp to dry Sample collected at 40-50" bgs at 13:36
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			(30"-36”) Silty Sand, some clay, trace gravel, tan (*Natural Soil)*
36”			
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

	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

	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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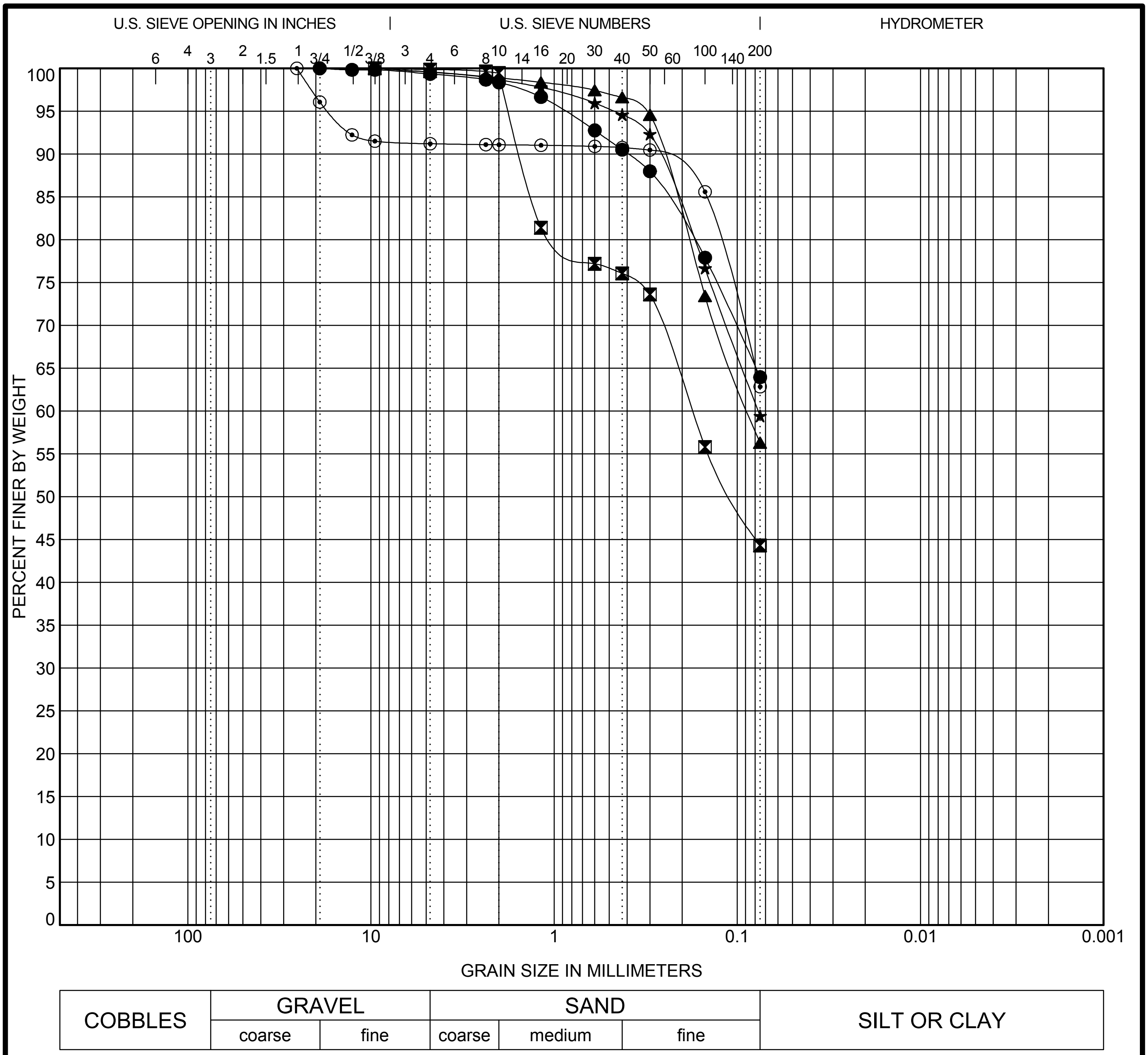

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	Borrow Area	2.0	19.05				0.7	35.4	63.9	
☒	MT-1-F	0.0	9.525	0.177			0.1	55.6	44.3	
▲	MT-2-D	0.0	9.525	0.087			0.4	43.2	56.3	
★	MT-3-F	0.0	9.525	0.077			0.4	40.1	59.4	
⊙	MT-4-F	0.0	25.4				8.8	28.4	62.8	

ASTM D1140 ASTM C136

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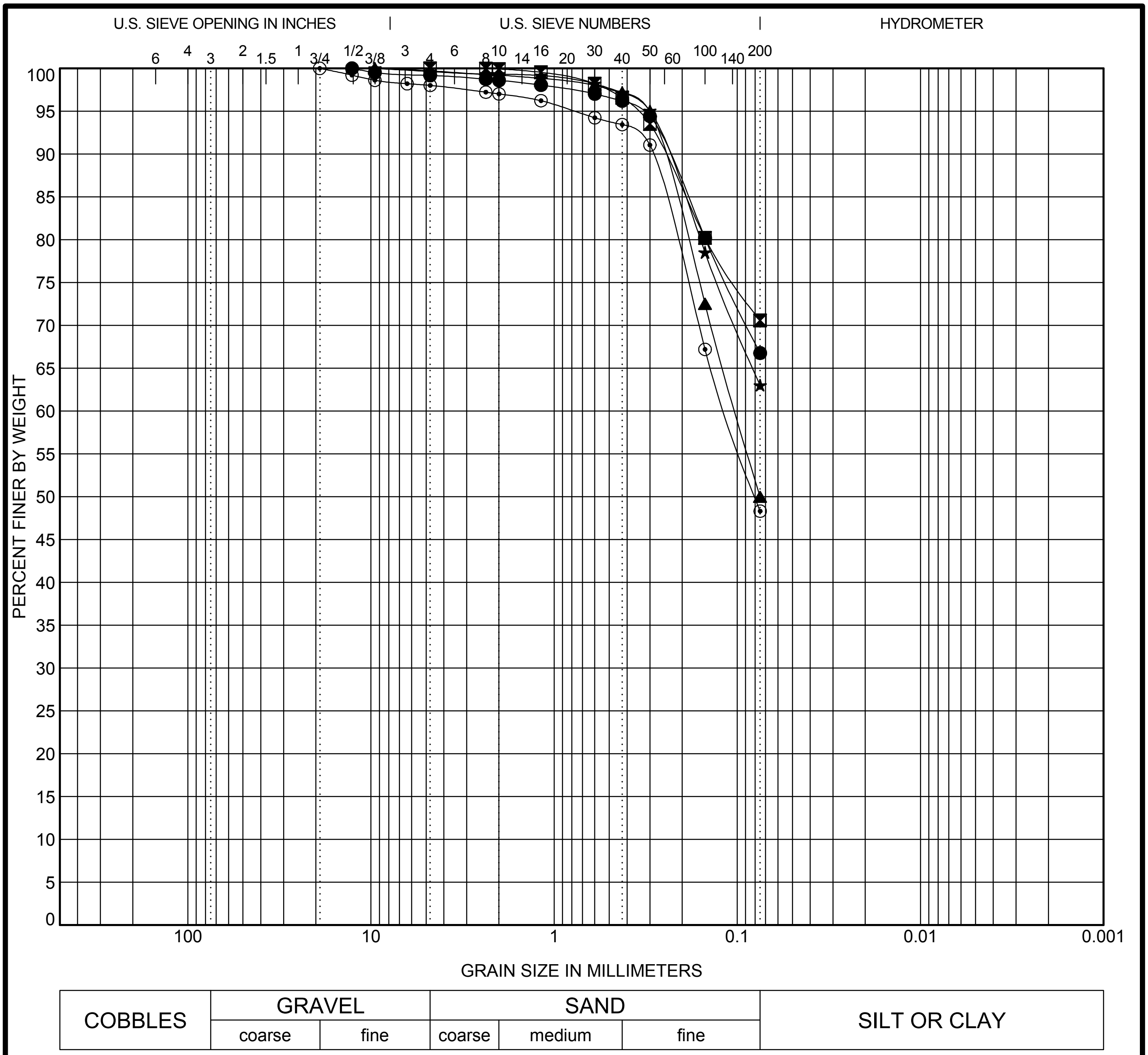
GRAIN SIZE DISTRIBUTION

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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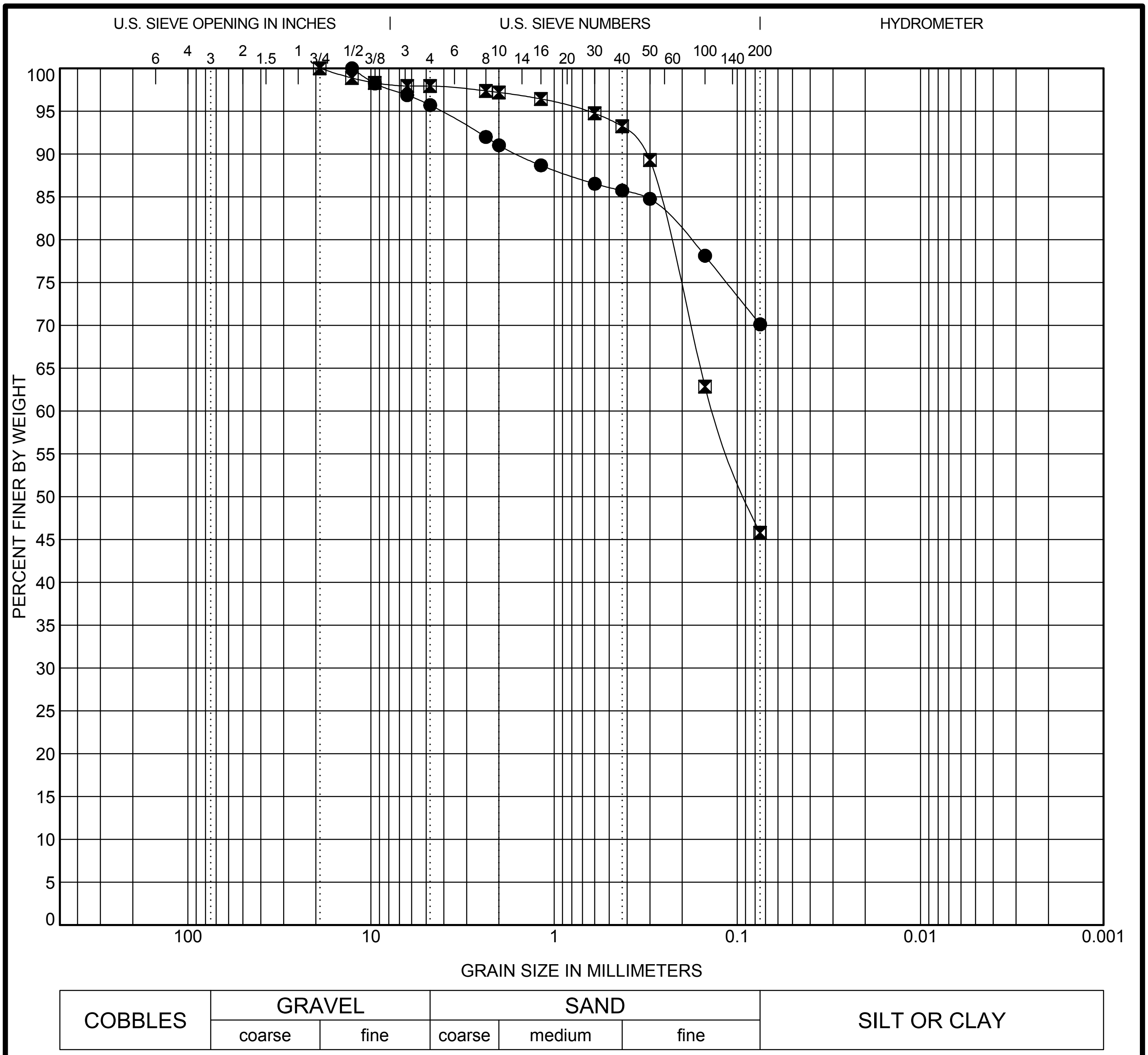

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	MT-WP-SM2	0.0	12.7				4.3	25.6	70.1	
☒	MT-WP-SM3	0.0	19.05	0.134			2.1	52.2	45.8	

ASTM D1140 ASTM C136

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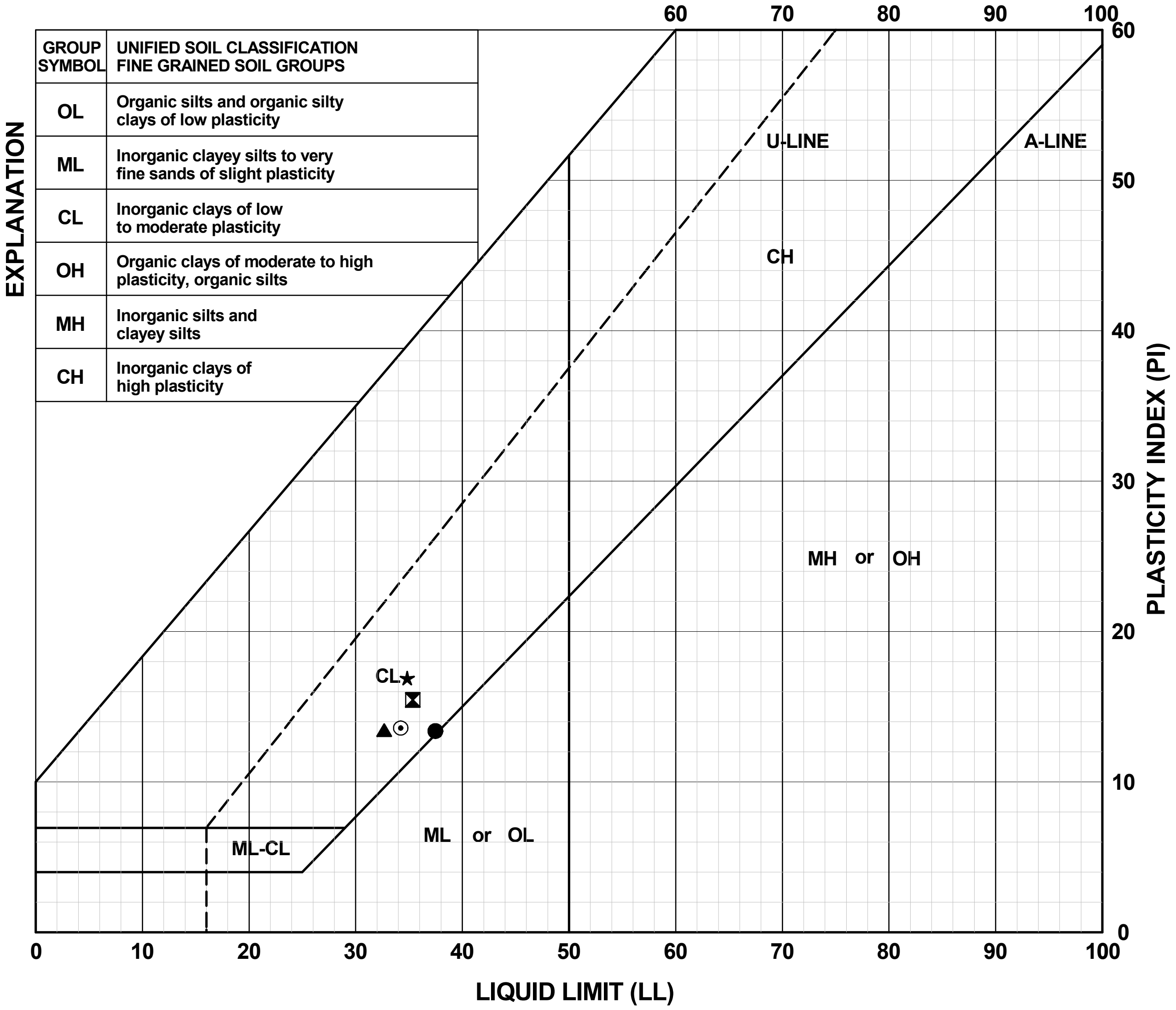
GRAIN SIZE DISTRIBUTION

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

ASTM D4318



EXPLANATION

GROUP SYMBOL	UNIFIED SOIL CLASSIFICATION FINE GRAINED SOIL GROUPS
OL	Organic silts and organic silty clays of low plasticity
ML	Inorganic clayey silts to very fine sands of slight plasticity
CL	Inorganic clays of low to moderate plasticity
OH	Organic clays of moderate to high plasticity, organic silts
MH	Inorganic silts and clayey silts
CH	Inorganic clays of high plasticity

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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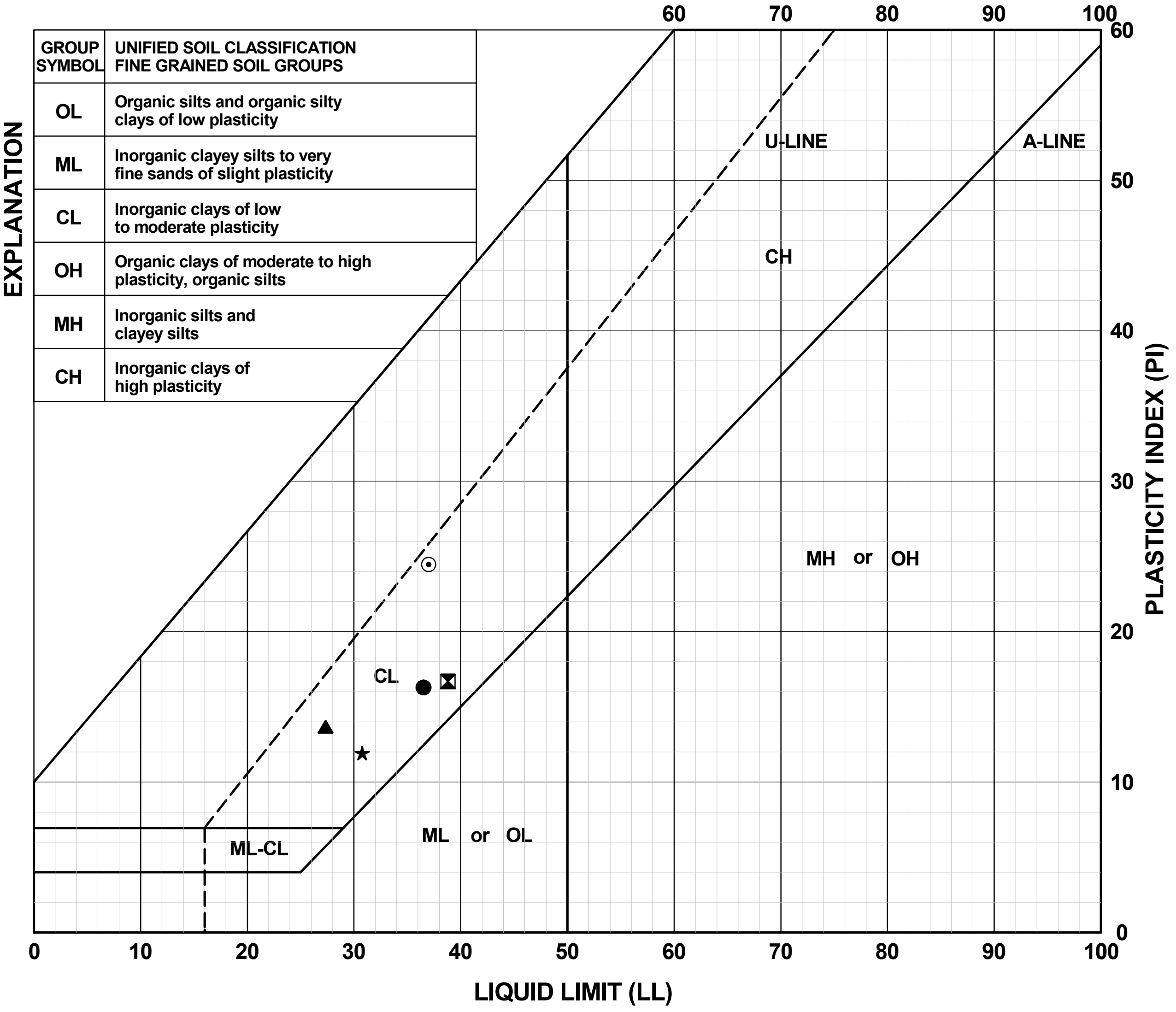
ATTERBERG LIMITS

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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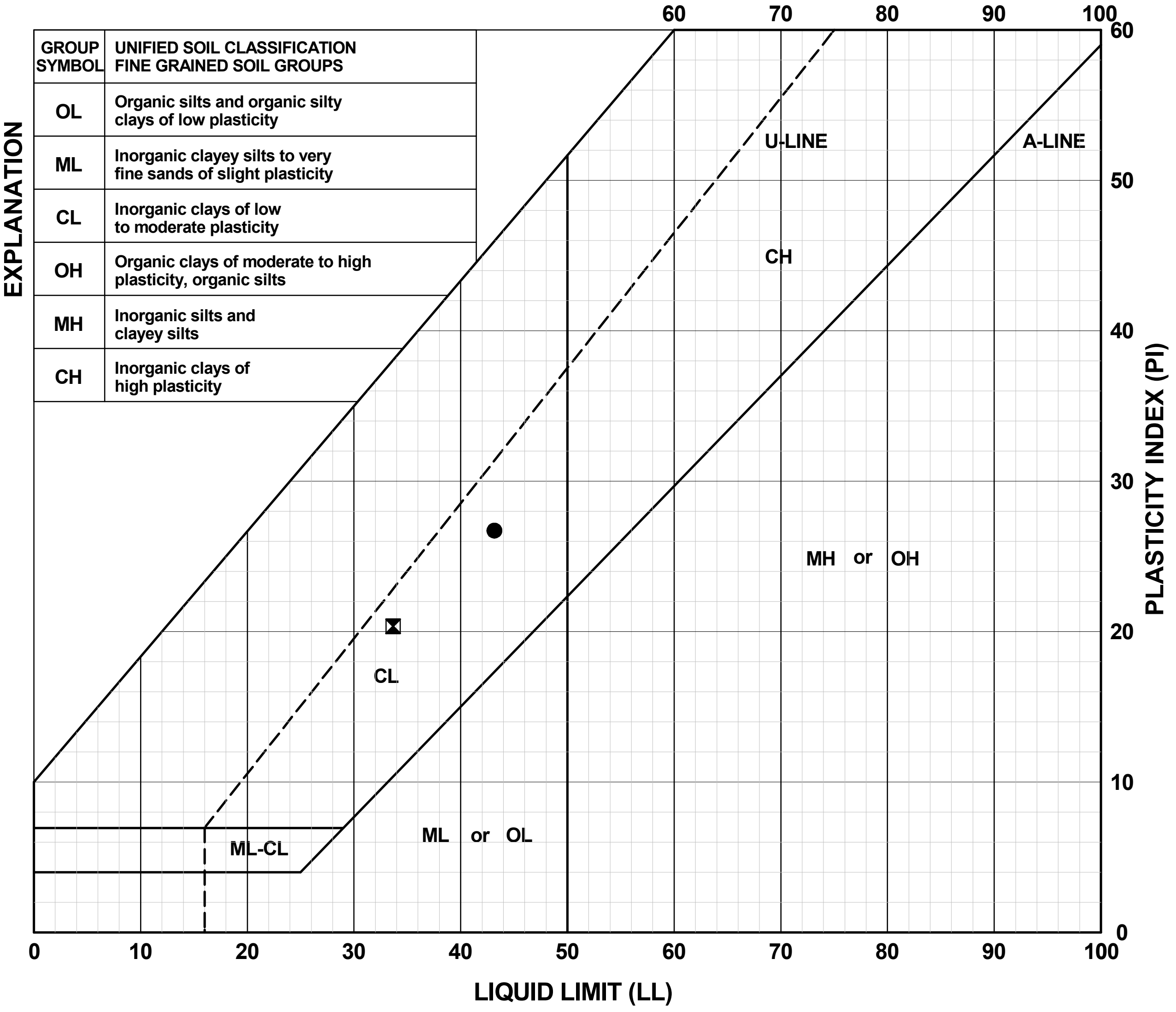
ATTERBERG LIMITS

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

ASTM D4318



GROUP SYMBOL	UNIFIED SOIL CLASSIFICATION FINE GRAINED SOIL GROUPS
OL	Organic silts and organic silty clays of low plasticity
ML	Inorganic clayey silts to very fine sands of slight plasticity
CL	Inorganic clays of low to moderate plasticity
OH	Organic clays of moderate to high plasticity, organic silts
MH	Inorganic silts and clayey silts
CH	Inorganic clays of high plasticity

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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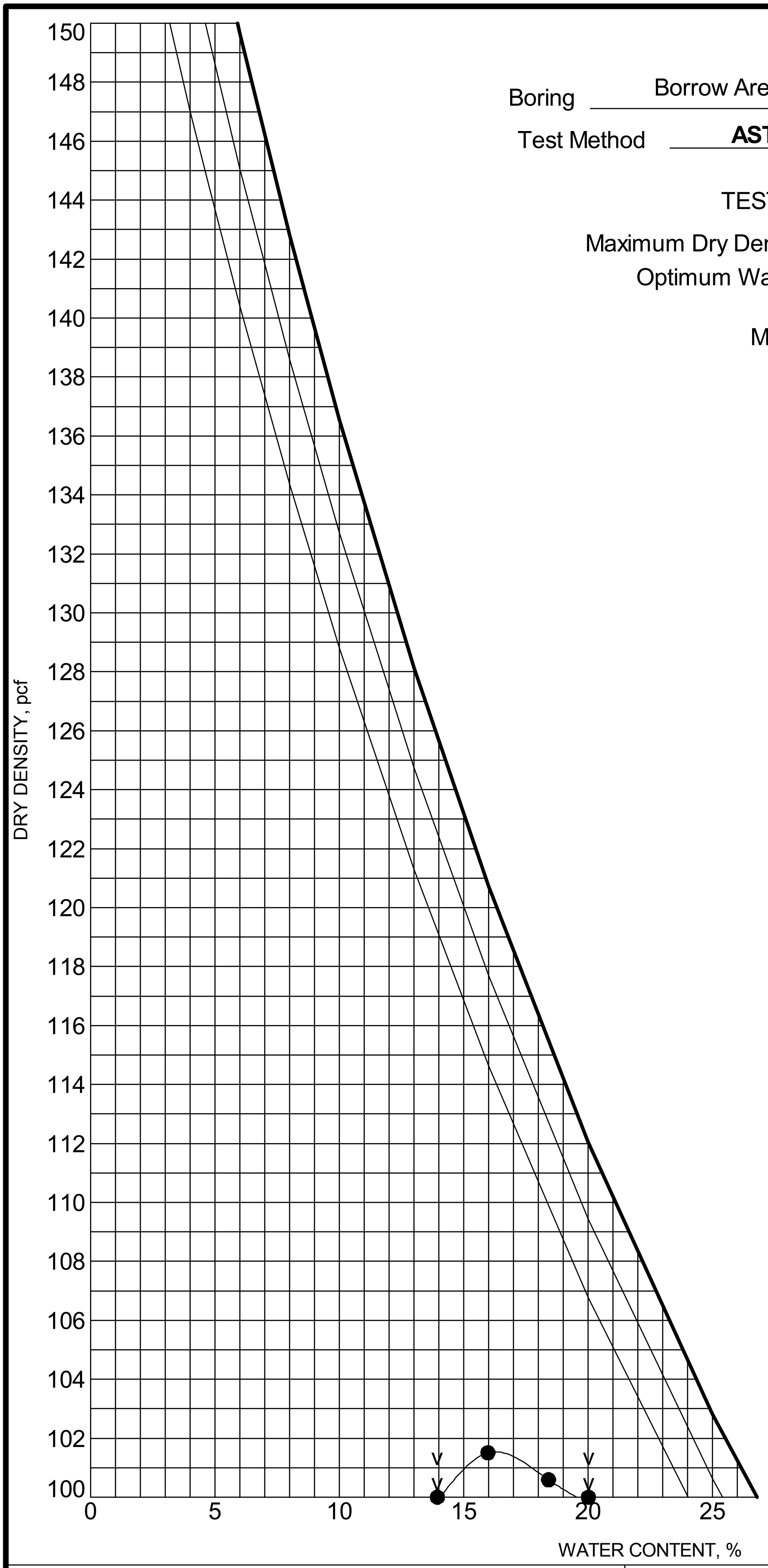
ATTERBERG LIMITS

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 **ASTM D1557 Method B**

TEST RESULTS

Maximum Dry Density **101.5 PCF**

Optimum Water Content **16.2 %**

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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MOISTURE-DENSITY RELATIONSHIP

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 **ASTM D1557 Method B**

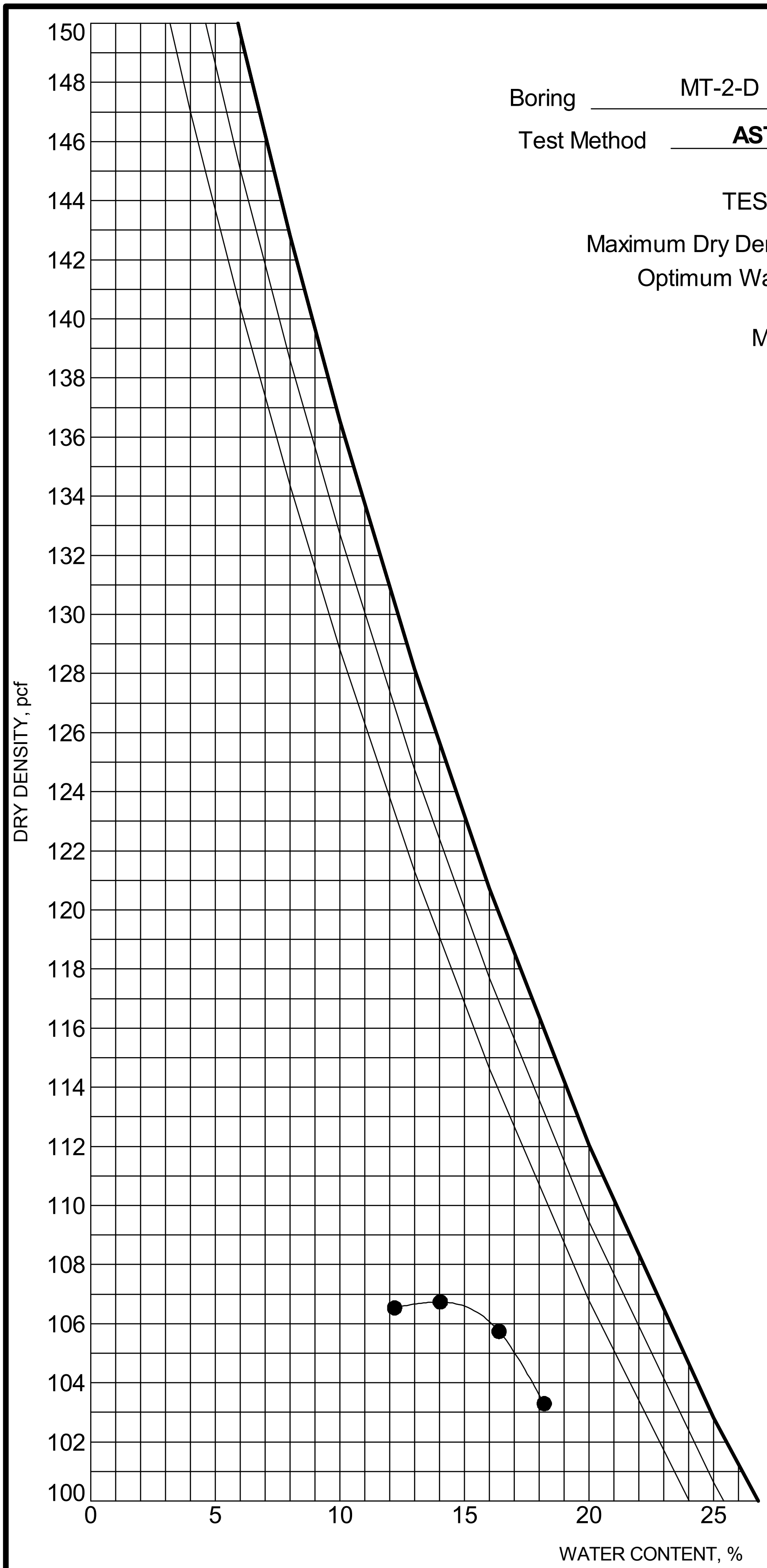
TEST RESULTS

Maximum Dry Density **106.7 PCF**

Optimum Water Content **13.9 %**

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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MOISTURE-DENSITY RELATIONSHIP

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

Boring MT-5-F Depth 0.0 - 0.5

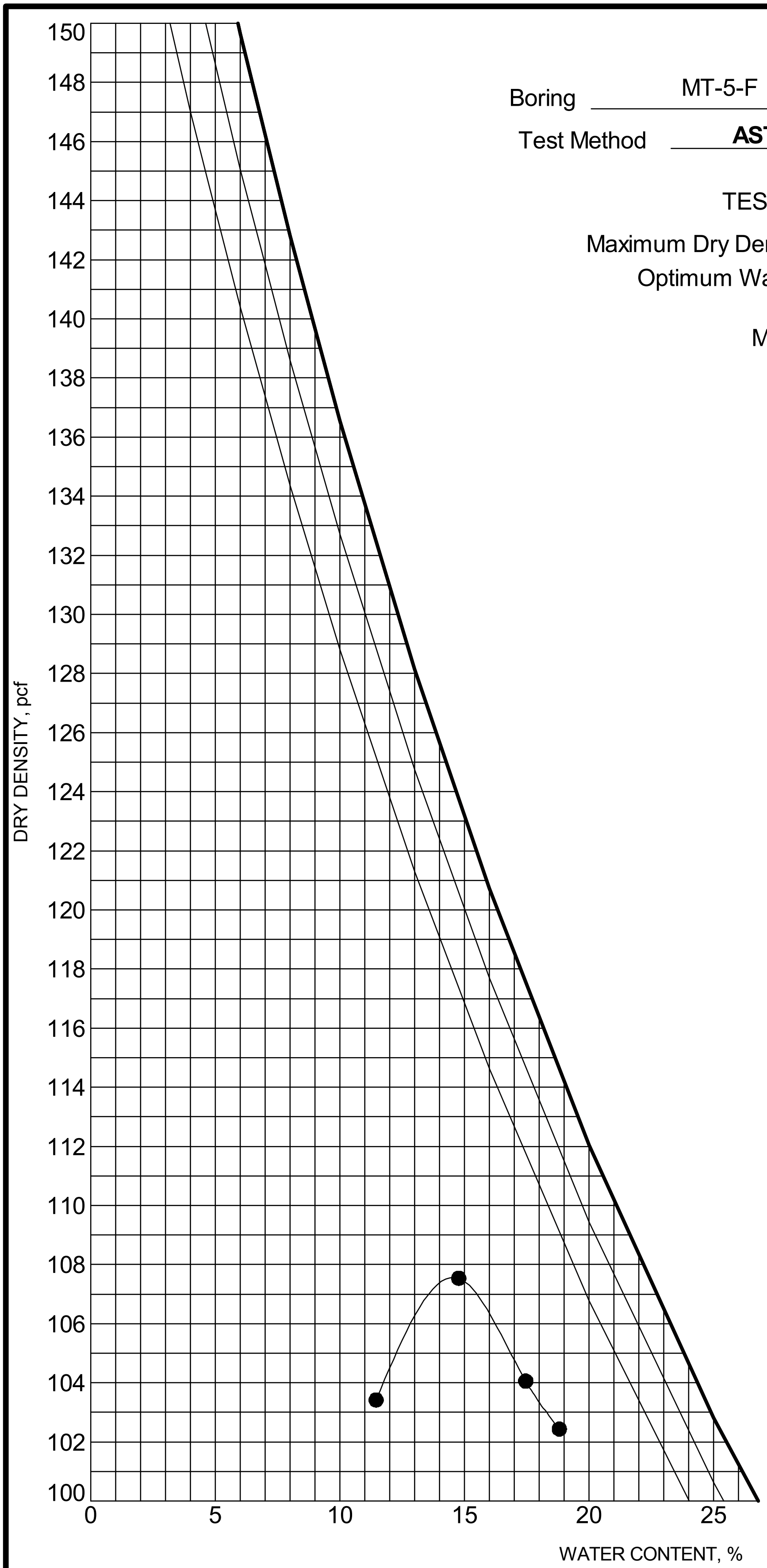
Test Method **ASTM D1557 Method B**

TEST RESULTS

Maximum Dry Density	**107.6 PCF**
Optimum Water Content	**14.6 %**

MATERIAL DESCRIPTION

% clay or silt	66.8
% sand	32.4
% gravel	0.8
Liquid Limit	37
Plastic Limit	20
Plasticity Index	17



MOISTURE-DENSITY RELATIONSHIP

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

Project Number: 96450

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Boring MT-8-F Depth 0.0 - 0.5

Test Method **ASTM D1557 Method B**

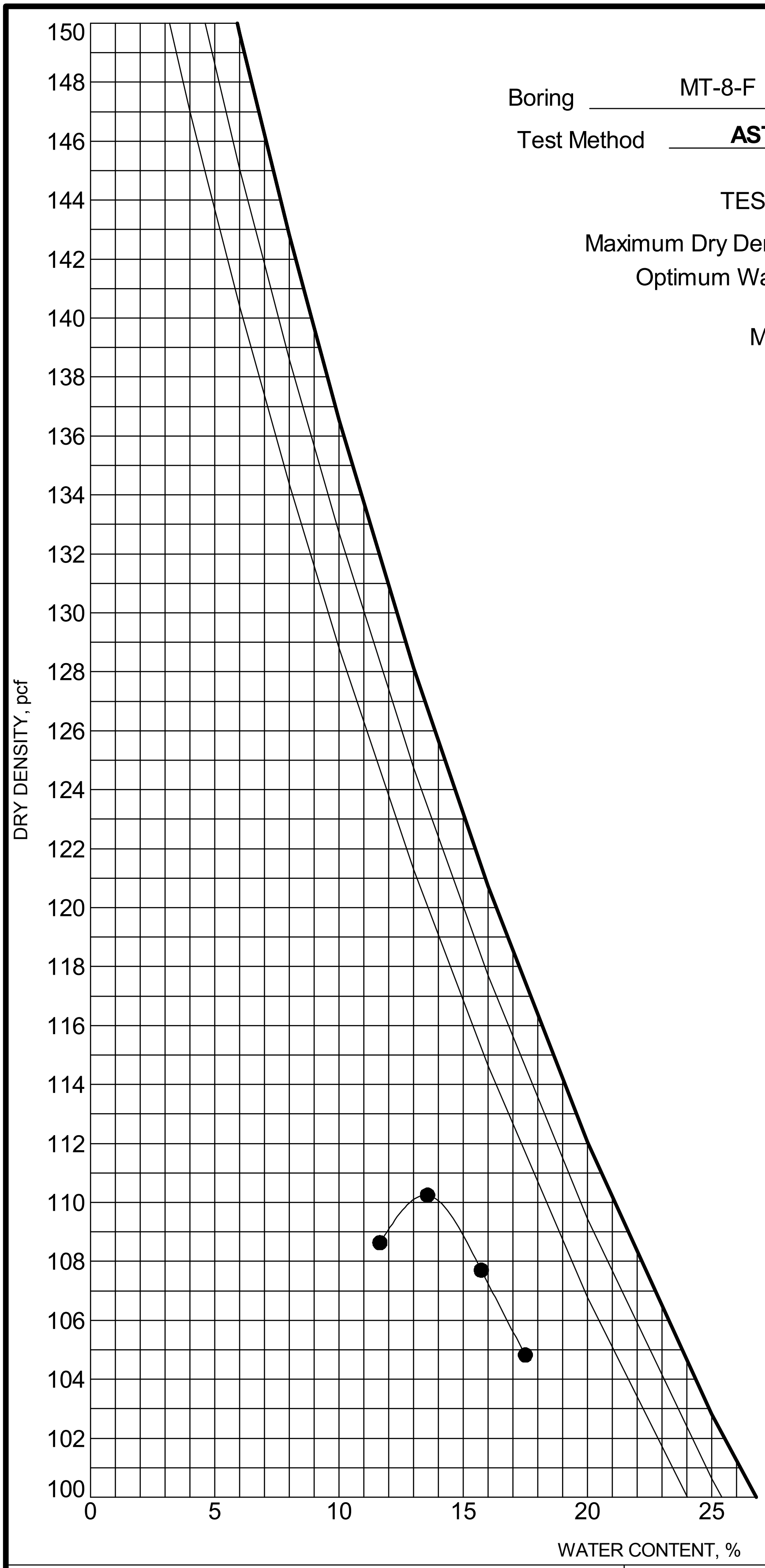
TEST RESULTS

Maximum Dry Density **110.2 PCF**

Optimum Water Content **13.5 %**

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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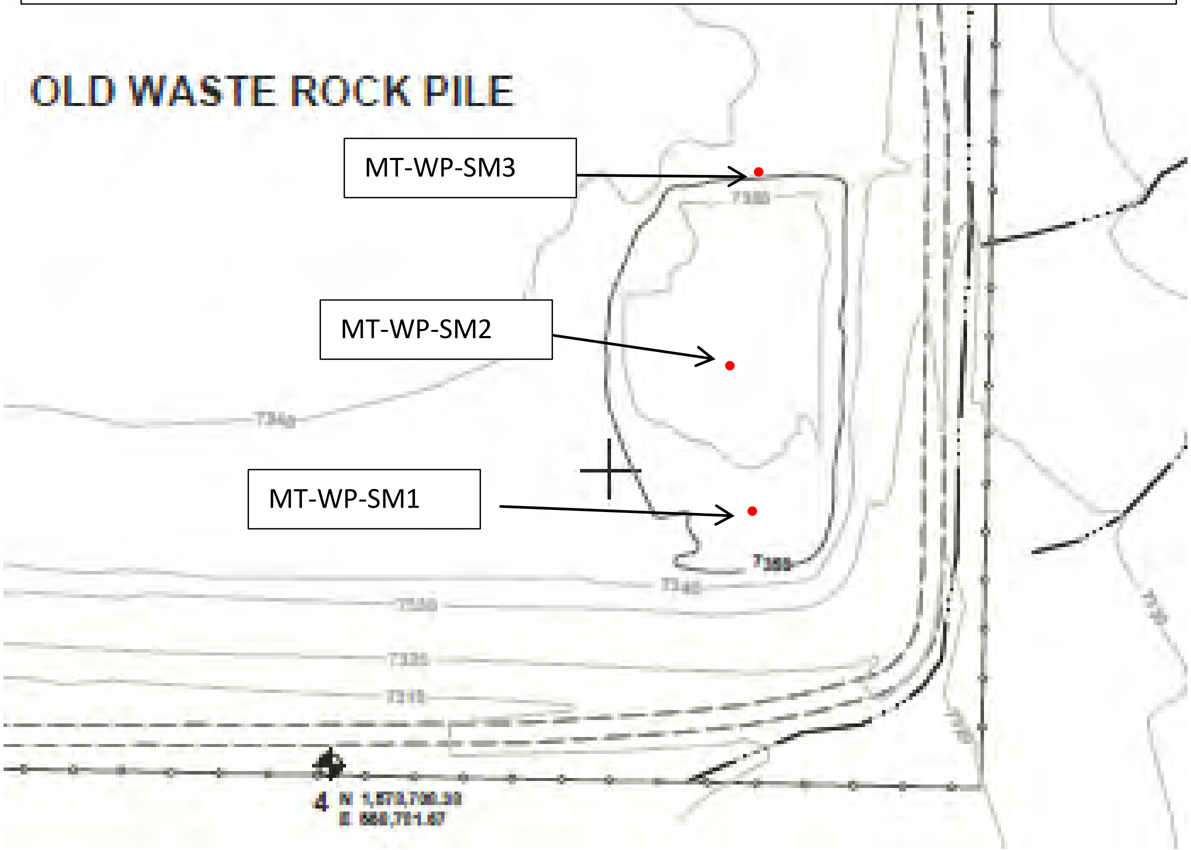
MOISTURE-DENSITY RELATIONSHIP

Project: Mount Taylor Mine: Settling Pond Evaluations

Location: San Mateo, New Mexico

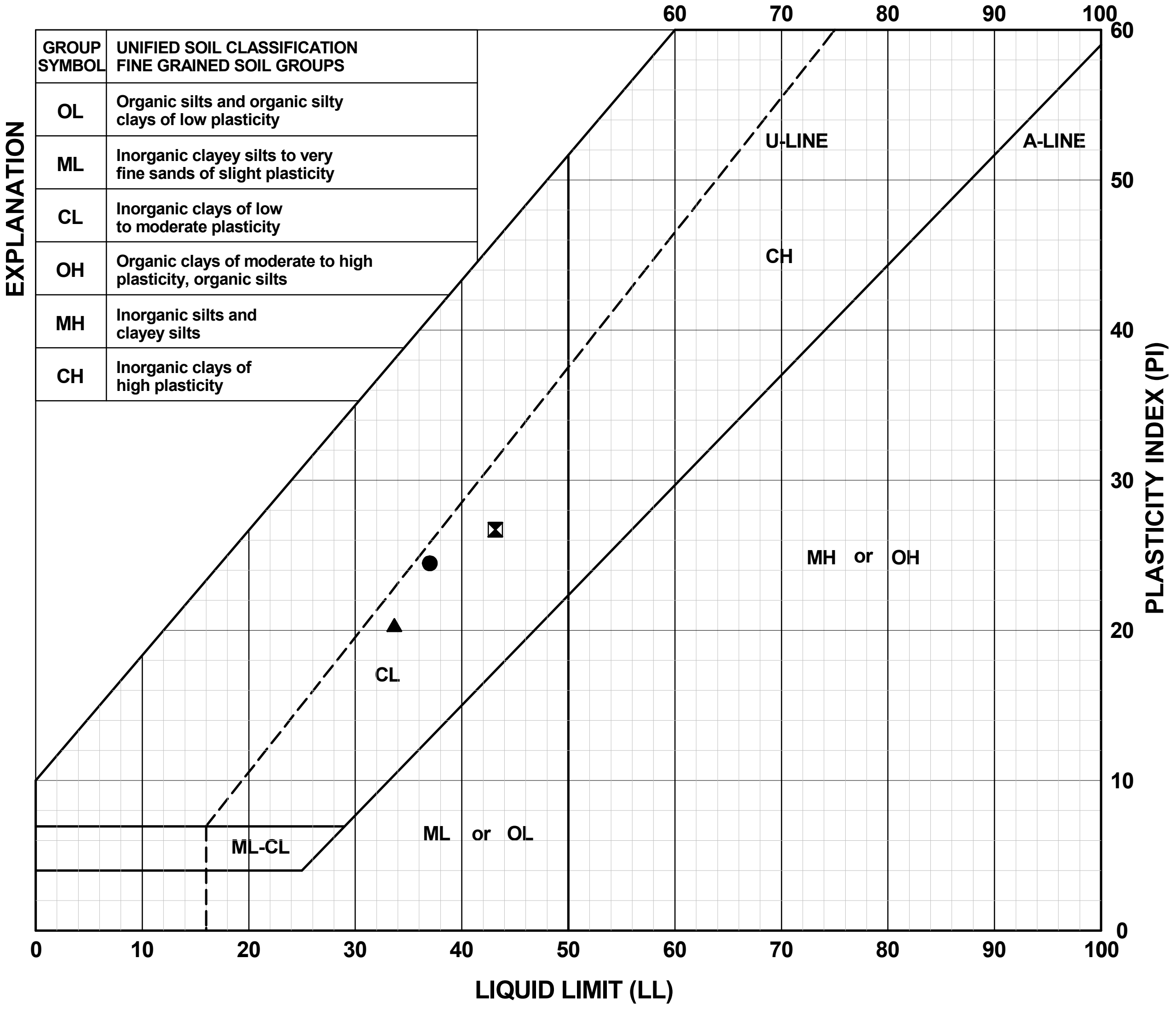
Project Number: 96450

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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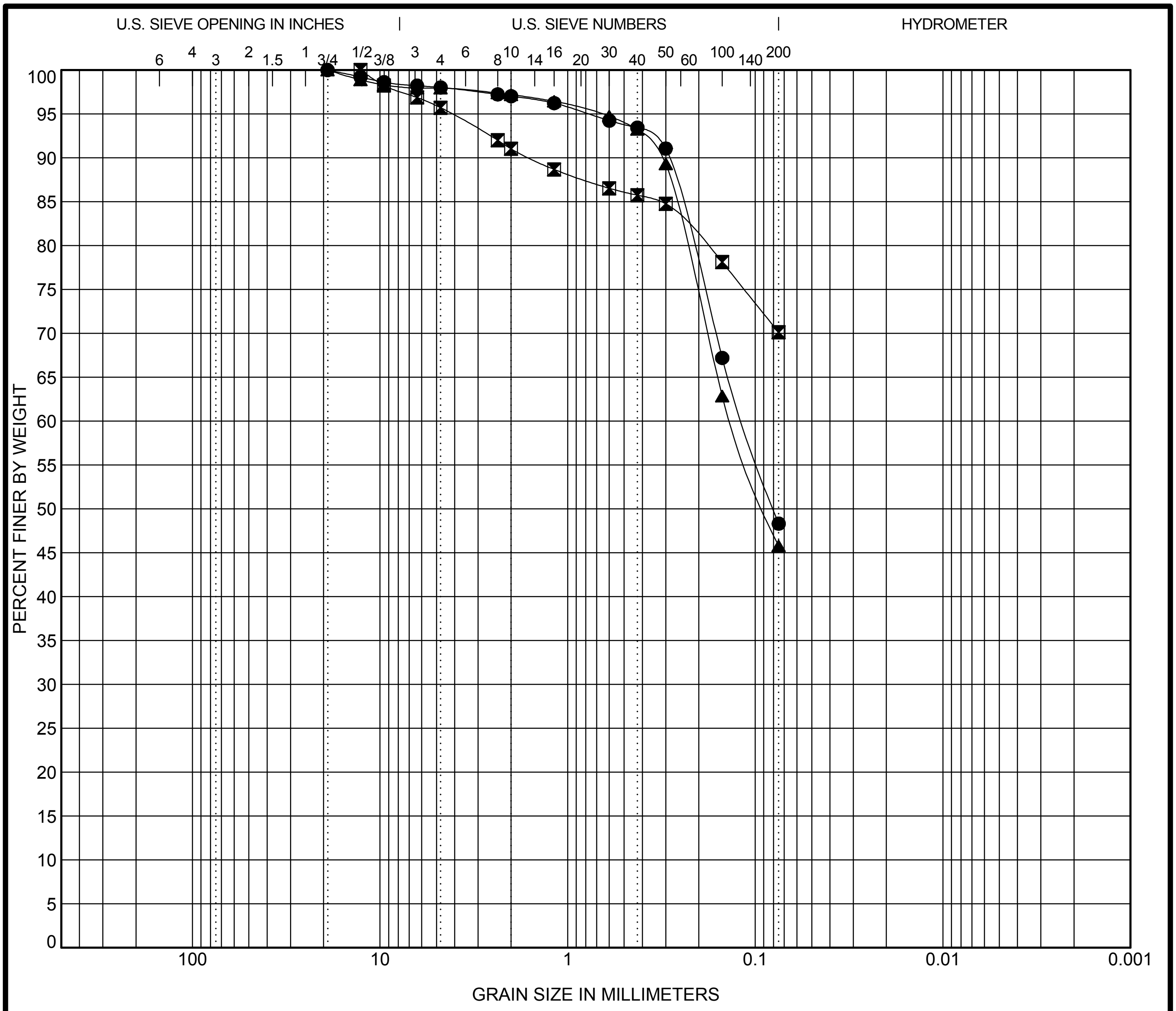
ATTERBERG LIMITS

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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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℃ (±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
Project: Mt. Taylor Mine
Lab ID: C12041338-001
Client Sample ID: MTE-1

Report Date: 06/01/12
Collection Date: 04/23/12 10:20
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-002
Client Sample ID: MTE-2

Report Date: 06/01/12
Collection Date: 04/23/12 10:25
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-004
Client Sample ID: MTE-4

Report Date: 06/01/12
Collection Date: 04/23/12 10:58
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-007
Client Sample ID: MTE-7

Report Date: 06/01/12
Collection Date: 04/23/12 11:30
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-010
Client Sample ID: MTE-10

Report Date: 06/01/12
Collection Date: 04/23/12 12:52
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-012
Client Sample ID: MTE-12

Report Date: 06/01/12
Collection Date: 04/23/12 13:40
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-013
Client Sample ID: MTE-13

Report Date: 06/01/12
Collection Date: 04/23/12 13:55
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-015
Client Sample ID: MTE-15

Report Date: 06/01/12
Collection Date: 04/23/12 14:45
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Lab ID: C12041338-016
Client Sample ID: MTE-16

Report Date: 06/01/12
Collection Date: 04/23/12 14:50
DateReceived: 04/30/12
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
Project: Mt. Taylor Mine
Report Date: 06/01/12
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
Project: Mt. Taylor Mine

Report Date: 06/01/12
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
Project: Mt. Taylor Mine

Report Date: 06/01/12
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.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

Workorder Receipt Checklist

Rio Grande Resources Corporation

C12041338

Login completed by: Corinne Wagner
Reviewed by: BL2000\cwagner
Reviewed Date: 5/2/2012

Date Received: 4/30/2012
Received by: tj
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℃		
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

Page 1 of 2

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: Rio Grande Resources 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

SEE ATTACHED

R U S H — Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Sample results needed within 30 days.

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

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

Custody Record MUST be Signed

Relinquished by (print): Stan Fitch	Date/Time: 04/26/12 11:00	Signature:	Received by (print):	Date/Time:	Signature:
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	Date/Time: 9:20	Signature: 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.

Page 2 of 2

Company Name: Rio Grande Resources Corporation #C11115

Report Mail Address: PO Box 1150
Grants, NM 87020-1150

Invoice Address: PO Box 1150
Grants, New Mexico 87020

Project Name, PWS, Permit, Etc.: Mt. Taylor Mine

Contact Name: Joe Lister, Manager

Phone/Fax: (505) 287-7971

Invoice Contact & Phone: Joe Lister 505-287-7971

Sample Origin State: NM

Email:

Purchase Order:

EPA/State Compliance: Yes ☑ No ☐

Sampler: (Please Print) Stan Fitch

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)
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															

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Sample results needed within 30 days.

Shipped by:

Cooler ID(s):

Receipt Temp ____ °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): Stan Fitch Date/Time: 04/26/12 11:00 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: 4-30-12 9:20 Date/Time: Tracy Judy Signature:

Sample Disposal: Return to Client: ____ Lab Disposal: XXXXX

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

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℃ (±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:**	07/05/12
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-002
Client Sample ID: S1-01-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:50
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.
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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: C12040804-003
Client Sample ID: S1-01-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:00
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-004
Client Sample ID: S1-02-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:40
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	0.023	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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-006
Client Sample ID: S1-02-03

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 13:22 / 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

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:30
DateReceived: 04/13/12
Matrix: Sediment

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-007
Client Sample ID: SA-01-01

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

		Revised Date:	07/05/12
Client:	Rio Grande Resources Corporation	**Report Date:**	06/13/12
Project:	Mt. Taylor Mine Closure Plan	**Collection Date:**	04/10/12 11:35
Lab ID:	C12040804-008	**DateReceived:**	04/13/12
Client Sample ID:	SA-01-02	**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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-010
Client Sample ID: SA-02-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:48
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-012
Client Sample ID: SA-02-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:48
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	**Revised Date:**	07/05/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12040804-013	**Collection Date:**	04/10/12 13:00
Client Sample ID:	S8-01-01	**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

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:09
DateReceived: 04/13/12
Matrix: Sediment

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-014
Client Sample ID: S8-01-02

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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-015
Client Sample ID: S8-01-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:09
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-016
Client Sample ID: S8-02-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:26
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-017
Client Sample ID: S8-02-02

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:36
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-018
Client Sample ID: S8-02-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:36
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-019
Client Sample ID: S8-02-04

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:39
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-023
Client Sample ID: S7-01-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:22
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	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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-025
Client Sample ID: S5-02-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:20
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

		Revised Date:	07/05/12
Client:	Rio Grande Resources Corporation	**Report Date:**	06/13/12
Project:	Mt. Taylor Mine Closure Plan	**Collection Date:**	04/10/12 14:09
Lab ID:	C12040804-027	**DateReceived:**	04/13/12
Client Sample ID:	S5-01-02	**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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-028
Client Sample ID: S3-01-01

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:15
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

Revised Date: 07/05/12
Client: Rio Grande Resources Corporation
Report Date: 06/13/12
Project: Mt. Taylor Mine Closure Plan
Collection Date: 04/10/12 08:50
Lab ID: C12040804-029
DateReceived: 04/13/12
Client Sample ID: S3-01-02
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

Revised Date: 07/05/12
Client: Rio Grande Resources Corporation
Report Date: 06/13/12
Project: Mt. Taylor Mine Closure Plan
Collection Date: 04/10/12 09:40
Lab ID: C12040804-030
DateReceived: 04/13/12
Client Sample ID: S3-01-03
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

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:30
DateReceived: 04/13/12
Matrix: Sediment

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-033
Client Sample ID: S3-02-03

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

		Revised Date:	07/05/12
Client:	Rio Grande Resources Corporation	**Report Date:**	06/13/12
Project:	Mt. Taylor Mine Closure Plan	**Collection Date:**	04/10/12 15:45
Lab ID:	C12040804-034	**DateReceived:**	04/13/12
Client Sample ID:	S7-02-01	**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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-036
Client Sample ID: S7-02-03

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:55
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12040804-037
Client Sample ID: S3-01-04

Revised Date: 07/05/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:46
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

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: 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

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: 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

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: 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.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

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

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_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.

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										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

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										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

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

C3888

Page 1 of 4

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

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	~~RCI~~ BG 4/11/12					SEE ATTACHED	Normal Turnaround (TAT)
1	SI-01-01	4-10-12	10:45	Sediment		X	X	X								x
2	SI-01-02	4-10-12	10:50	Sediment		X	X	X								x
3	SI-01-03	4-10-12	11:00	Sediment		X	X	X								x
4	SI-02-01	4-10-12	11:40	Sediment		X	X	X								x
5	SI-02-02	4-10-12	11:43	Sediment		X	X	X								x
6	SI-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

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

LABORATORY USE ONLY

C12040804

Custody Record MUST be Signed

Relinquished by (print): BARBARA EVERETT Date/Time: 4/11/12 12:00 Signature:

Relinquished by (print): KENTOIU WATTS Date/Time: 4-12-12 @ 0930 Signature: KW

Received by (print): KENTOIU WATTS Date/Time: 4-12-12 @ 0700 Signature: KW

Received by (print): Date/Time: Signature:

Sample Disposal: Return to Client: Lab Disposal: X

Received by Laboratory: Kris Gesse Date/Time: 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 sched

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

C-3888

Page 2 of 4

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	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	~~14:30~~ 14:05	Sediment	X	X	X	X			x

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

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		KENTON WATTS	4-12-12 @ 0700	
KENTON WATTS	4-12-12 @ 0930				

Sample Disposal: Return to Client: ____ Lab Disposal: ✓

Received by Laboratory: Date/Time: 4-13-12 9:40 Signature: Kris Goss

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

Page 3 of 4

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

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

	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	LABORATORY USE ONLY
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		C12040804
9				Sediment											x		
10				Sediment											x		

Custody Record MUST be Signed

Relinquished by (print): BARBARA EVERETT Date/Time: 4/11/12 12:00 Signature:

Received by (print): KENTON WATTS Date/Time: 4-12-12 @ 0700 Signature: KW

Relinquished by (print): KENTON WATTS Date/Time: 4-12-12 @ 0930 Signature: KW

Received by (print): Date/Time: Signature:

Sample Disposal: Return to Client: ______ Lab Disposal: X

Received by Laboratory: Date/Time: 4.13.12 9:40 Signature: Kris 6.5x

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

Page 4 of 4

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

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]
Custody Seal 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						SEE ATTACHED	Normal Turnaround (TAT)	RUSH		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~~-03 • 02 KW PER LABEL, BH	4/10/12	10:30	Sediment	X	X	X									x			
✓	7 S7-02-01 •	4/10/12	15:45	Sediment	X	X	X									x			C12040304
✓	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		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 Bass 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°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:**	07/10/12
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

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:15
DateReceived: 04/20/12
Matrix: Sediment

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-002
Client Sample ID: MT-2-D (6" B.G.)

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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-003
Client Sample ID: MT-3-F (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 11:10
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-005
Client Sample ID: MT-5-F (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:00
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-006
Client Sample ID: MT-7-C (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:45
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	0.002	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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-007
Client Sample ID: MT-OP-E (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:00
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-008
Client Sample ID: MT-A-C (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 10:55
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

		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 11:00
Lab ID:	C12041044-009	**DateReceived:**	04/20/12
Client Sample ID:	MT-Borrow/Background	**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	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-010	**Collection Date:**	04/10/12 14:05
Client Sample ID:	MT-4-D-S1 (0-6" B.G.)	**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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-011
Client Sample ID: MT-4-D-S2 (14" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:10
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

Client:	Rio Grande Resources Corporation	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-012	**Collection Date:**	04/10/12 14:20
Client Sample ID:	MT-4-D-S3 (48" B.G.)	**DateReceived:**	04/20/12
		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	**Revised Date:**	07/10/12
Project:	Mt. Taylor Mine Closure Plan	**Report Date:**	06/13/12
Lab ID:	C12041044-013	**Collection Date:**	04/10/12 13:35
Client Sample ID:	MT-4-E-S1 (0-4" B.G.)	**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.	MCL - Maximum contaminant level.
	QCL - Quality control limit.	ND - Not detected at the reporting limit.
	MDC - Minimum detectable concentration	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: C12041044-014
Client Sample ID: MT-4-E-S2 (10-12" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:40
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-016
Client Sample ID: MT-4-E-S4 (48" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:45
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.	MCL - Maximum contaminant level.
	QCL - Quality control limit.	ND - Not detected at the reporting limit.
	MDC - Minimum detectable concentration	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: C12041044-017
Client Sample ID: MT-6-A-S1 (0-5" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:05
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-018
Client Sample ID: MT-6-A-S2 (12-20" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 15:10
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

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-019
Client Sample ID: MT-6-B-S1 (8-10" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:30
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	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

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 14:35
DateReceived: 04/20/12
Matrix: Sediment

Client: Rio Grande Resources Corporation
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-020
Client Sample ID: MT-6-B-S2 (30" B.G.)

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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-021
Client Sample ID: MT-OP-C-S1 (0-6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:20
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-022
Client Sample ID: MT-OP-C-S2 (20" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:25
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-023
Client Sample ID: MT-OP-C-S3 (48-50' B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:25
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-024
Client Sample ID: MT-OP-C-S4 (72" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 13:30
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-026
Client Sample ID: MT-OP-D-S2 (48-50" 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	0.001	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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-027
Client Sample ID: MT-OP-D-S3 (76" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 12:50
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
Project: Mt. Taylor Mine Closure Plan
Lab ID: C12041044-028
Client Sample ID: MT-8-F (6" B.G.)

Revised Date: 07/10/12
Report Date: 06/13/12
Collection Date: 04/10/12 09:25
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

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: 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
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: 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.
ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration
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

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: 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.

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

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

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_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

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_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
Reviewed by: BL2000\kschroeder
Reviewed Date: 4/26/2012

Date Received: 4/20/2012
Received by: kg
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:	11.2℃ 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.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 1 of 3

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)	R U S H	Comments:
3	1 MT-1-F	4-10-12	10:45	Soil ~~Sediment~~	X	X	X								x		6" B.G.
4	2 MT-2-D	4-10-12	10:15	Soil ~~Sediment~~	X	X	X								x		6" B.G.
4	3 MT-3-F	4-10-12	11:10	Soil ~~Sediment~~	X	X	X								x		6" B.G
4	4 MT-4-F	4-10-12	9:35	Soil ~~Sediment~~	X	X	X	X							x		6" B.G
4	5 MT-5-F	4-10-12	10:00	Soil ~~Sediment~~	X	X	X	X							x		6" B.G.
5	6 MT-7-C	4-10-12	9:45	Soil ~~Sediment~~	X	X	X								x		6" B.G.
5	7 MT-OP-E	4-10-12	9:00	Soil ~~Sediment~~	X	X	X								x		6" B.G.
[illegible]	8 MT-A-C	4-10-12	10:55	Soil ~~Sediment~~	X	X	X								x		6" B.G.
.	9 MT-Borrow/Backyard	4-10-12	14:00	Soil ~~Sediment~~	X	X	X								x		6" B.G.
	10			Soil ~~Sediment~~											x		~~6" B.G.~~

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

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: 4/11/2012 Signature:
Received by (print): Barbara Everett Date/Time: 4/11/2012 15:00 Signature:
Relinquished by (print): BARBARA EVERETT Date/Time: 4/19/2012 16:00 Signature:
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: 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.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 2 of 3

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

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

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

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	**Number of Containers** Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other **MATRIX**	ANALYSIS REQUESTED SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI					SEE ATTACHED	Normal Turnaround (TAT)	RUSH	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

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Ed Loescher Date/Time: 4/11/12 Signature: Ed

Received by (print): BARBARA EVERETT Date/Time: 4/11/12 15:00 Signature:

Relinquished by (print): BARBARA EVERETT Date/Time: 4/19/1600 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 Grissom

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

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 3 of 3

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

Shipped by: FE-MDA
Cooler ID(s): 6 buckets
Receipt Temp 11.2 °C
On Ice: Yes [✓ No]
Custody Seal Intact Y [✓ N]
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Number of Containers	SPLP Extract	RCRA Metals + Uranium	Ra226 & Ra228	Cl & SO4 by IC 300.0	RCI					SEE ATTACHED	Normal Turnaround (TAT)	RUSH	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		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-8-F	4-10-12	09:25	Sediment		X	X	X	X							x		6" B.G.

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): ED LOESCHER Date/Time: 4-11-12 Signature:
Received by (print): BARBARA EVERETT Date/Time: 4/11/12 15:00 Signature:

Relinquished by (print): BARBARA EVERETT Date/Time: 4/19/12 16:00 Signature:
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:

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°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
Project: Mt. Taylor Mine
Lab ID: C12050924-001
Client Sample ID: MT-WP-SM1

Report Date: 07/05/12
Collection Date: 05/18/12 09:30
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	0.04	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	**Report Date:**	07/05/12
Project:	Mt. Taylor Mine	**Collection Date:**	05/18/12 10:00
Lab ID:	C12050924-003	**DateReceived:**	05/24/12
Client Sample ID:	MT-WP-SM3	**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

Project: Mt. Taylor Mine

Report Date: 07/05/12

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
Project: Mt. Taylor Mine

Report Date: 07/05/12
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

Reviewed by: BL2000\kschroeder

Reviewed Date: 5/25/2012

Date Received: 5/24/2012

Received by: kg

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℃		
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

PLEASE PRINT- Provide as much information as possible.

Page 1 of 2

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

ANALYSIS REQUESTED

SEE ATTACHED

Normal Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	Isotopic Uranium	Radium 226
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						

Shipped by: ups - 6

Cooler ID(s): Bo+

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): Joe Lister Date/Time: 05/22/12 09:19 Signature:

Received by (print): Date/Time: Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Sample Disposal: Return to Client: ____ Lab Disposal: XXXXX

Received by Laboratory: Date/Time: 5-24-12 9:15 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, 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

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,

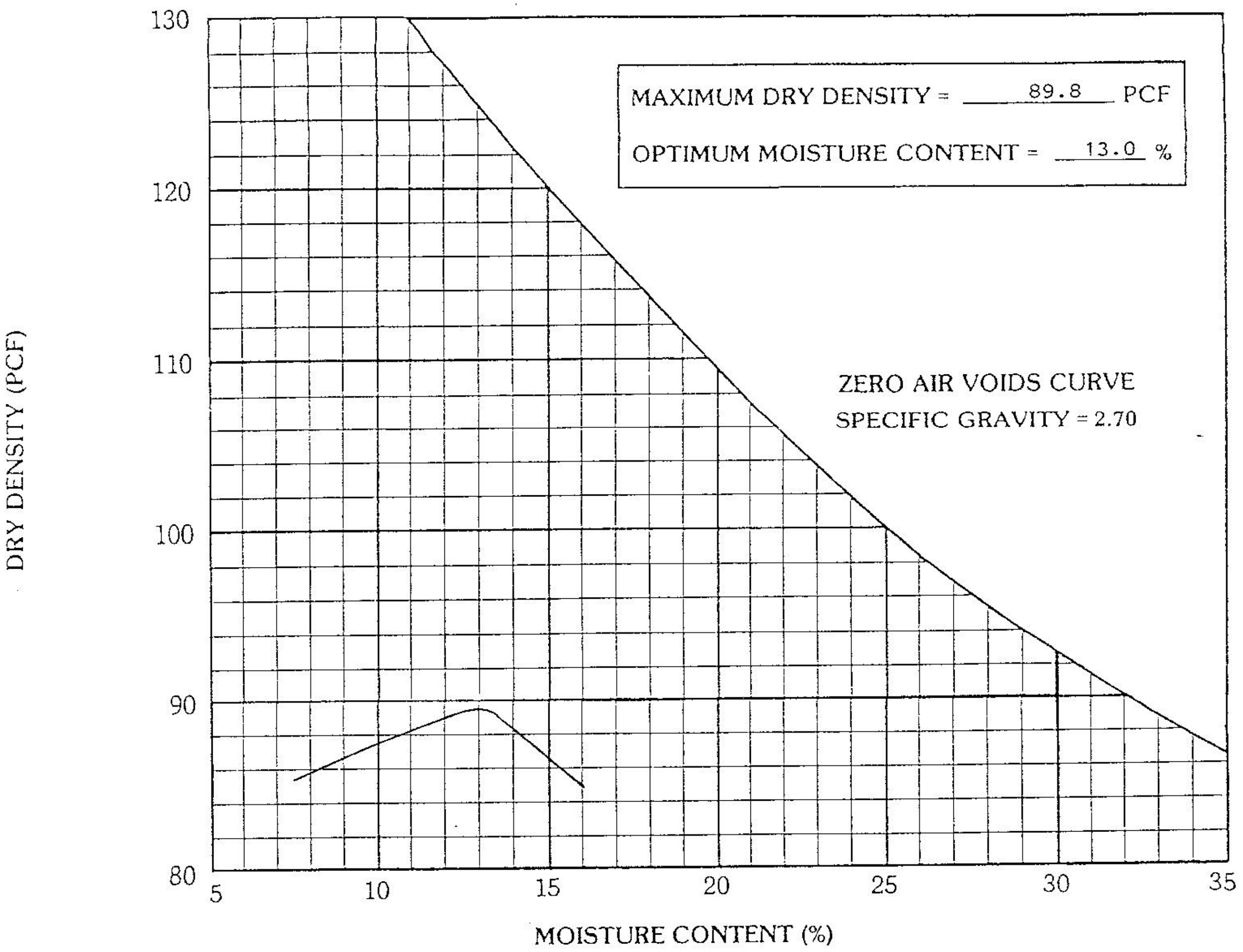
Martin D. Vinyard, PE

Attachments: Data Sheets (10)

cc: Addressee (1)

V & A

COMPACTION TEST RESULTS


MAXIMUM DRY DENSITY = 89.8 PCF

OPTIMUM MOISTURE CONTENT = 13.0 %

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 %

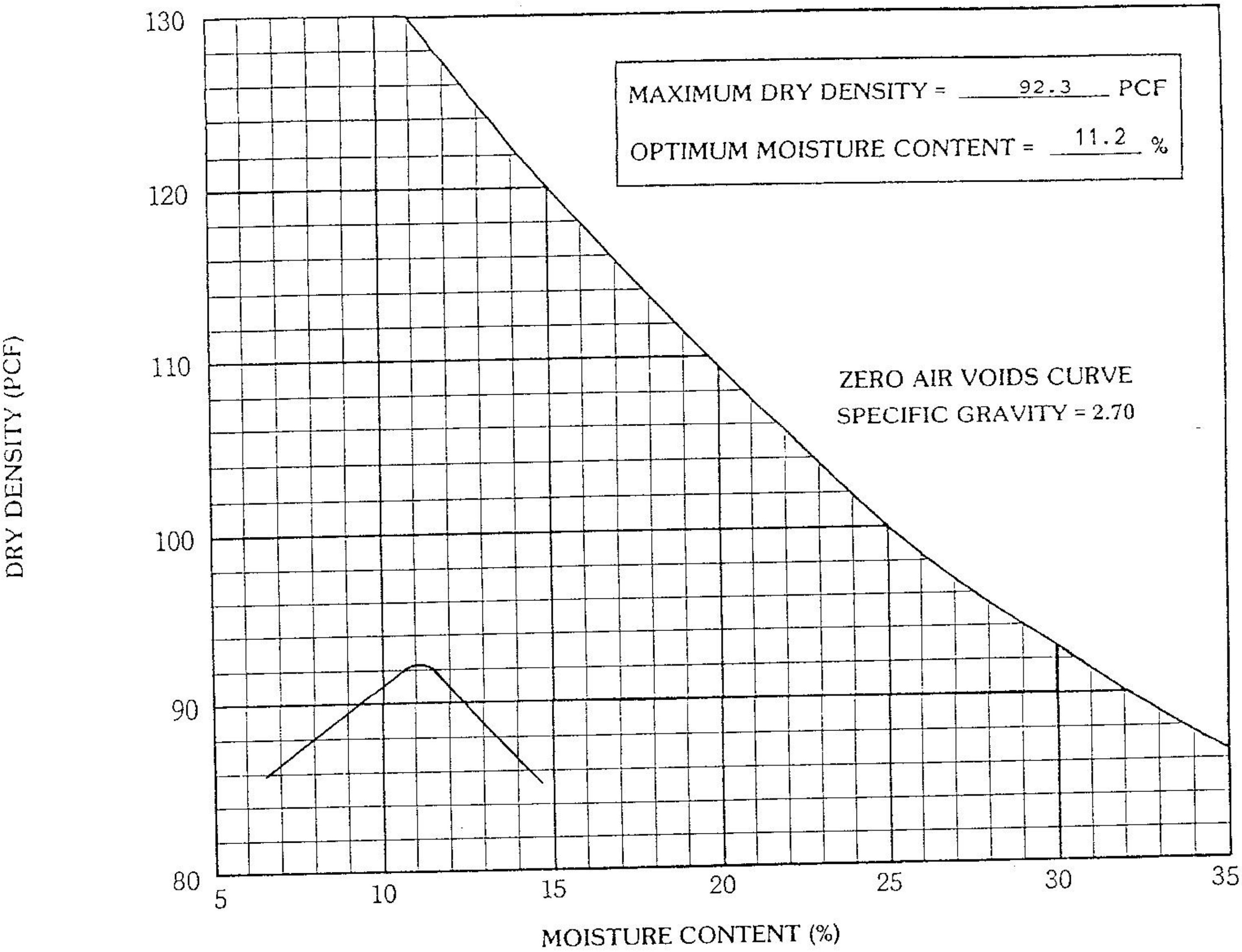
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
					100	99	96	79	66.4

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

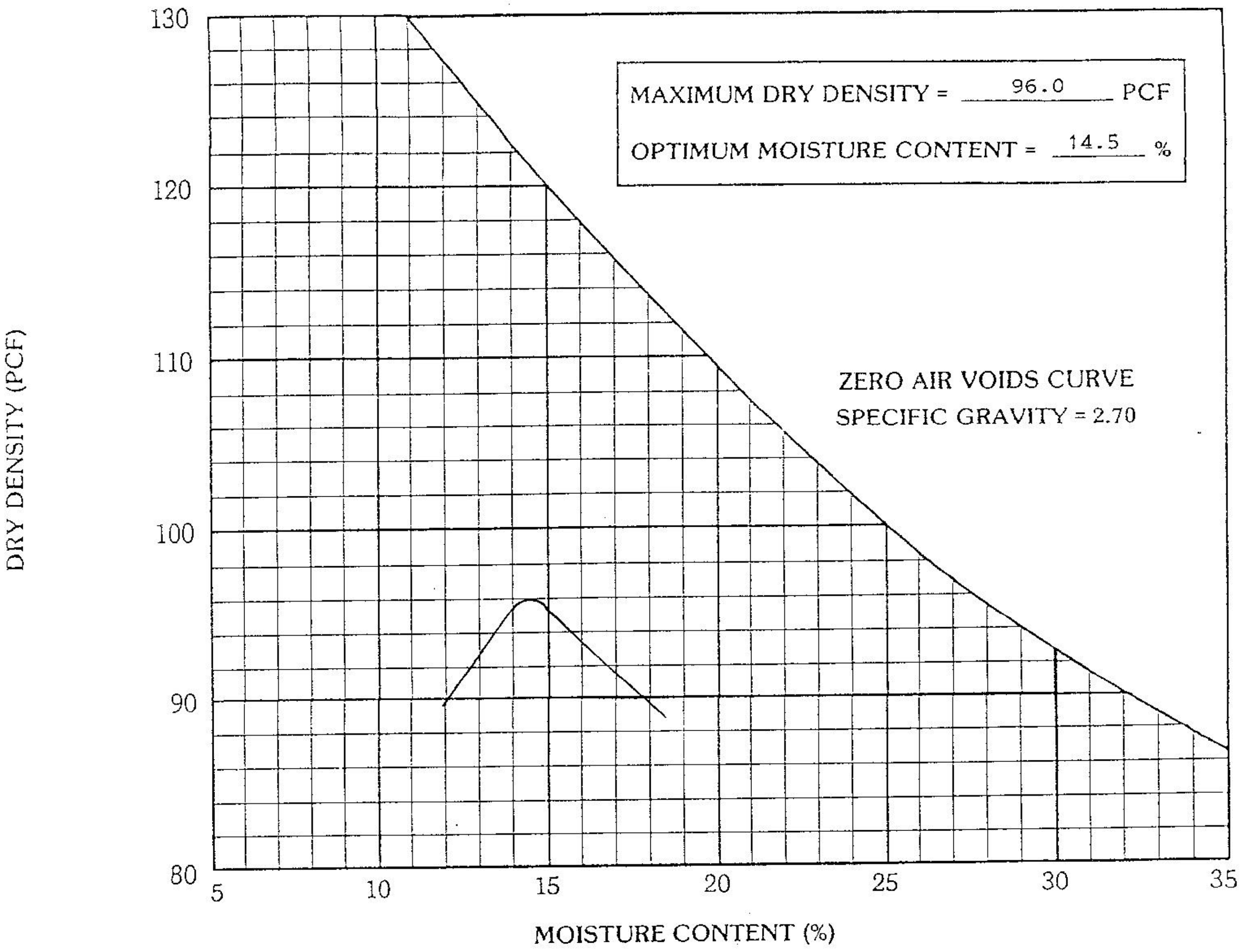
ATTERBERG LIMITS: LL 39 % PI 21 %

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



MAXIMUM DRY DENSITY = 96.0 PCF

OPTIMUM MOISTURE CONTENT = 14.5 %

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 %

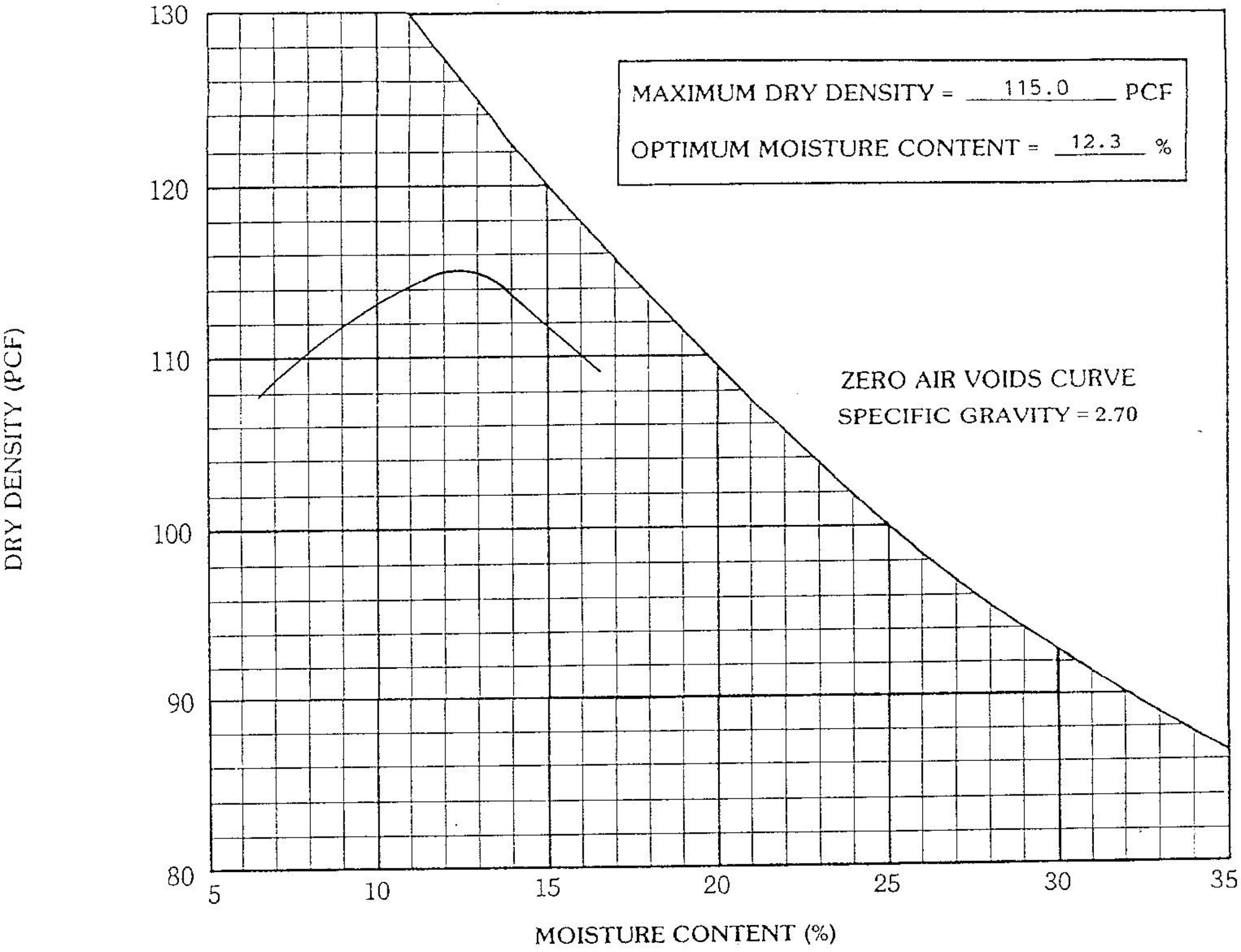
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
		100	99	98	95	93	89	63	48.5

Project No: 95-1-245

Figure

V & A

COMPACTION TEST RESULTS


MAXIMUM DRY DENSITY = 115.0 PCF

OPTIMUM MOISTURE CONTENT = 12.3 %

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 %

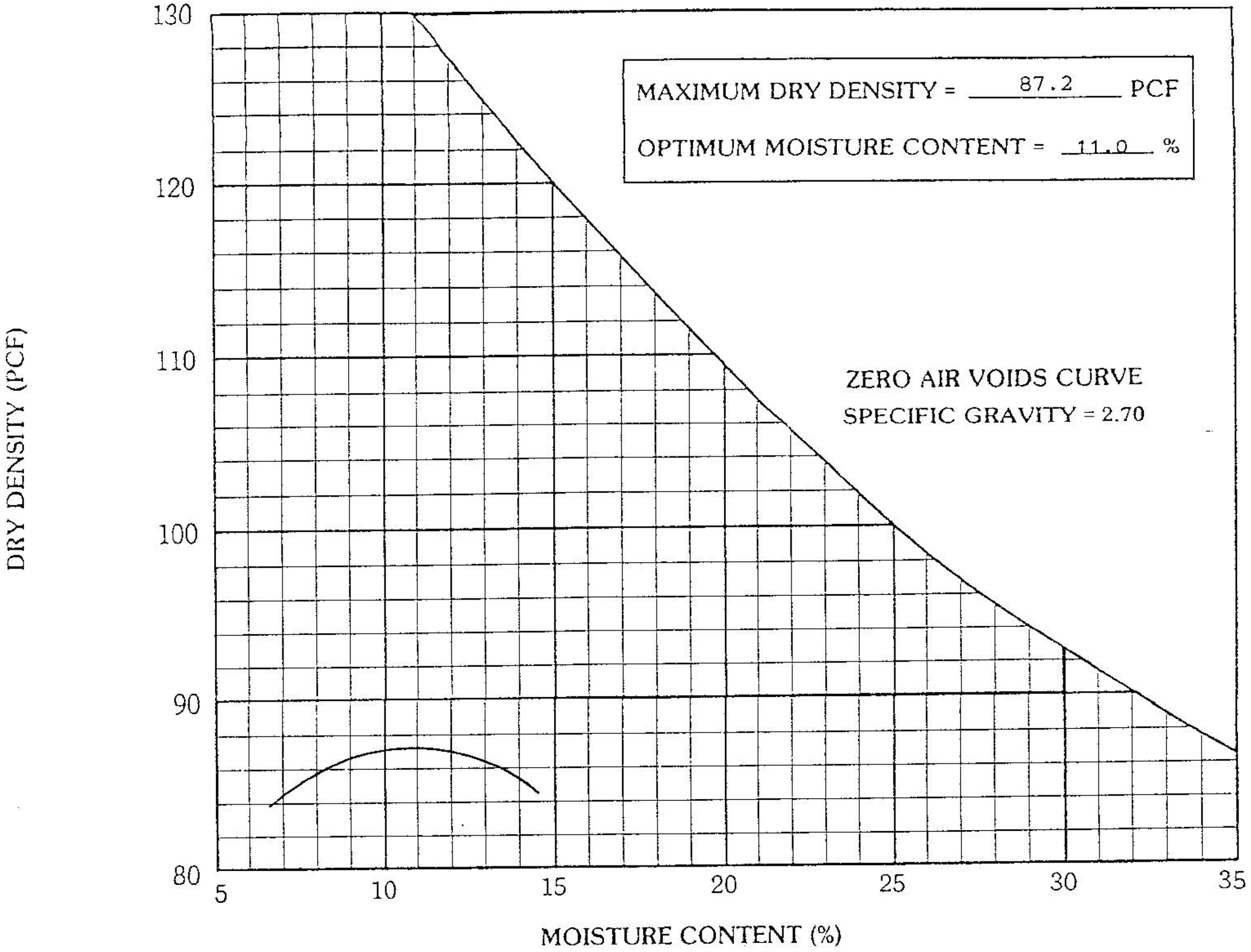
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
				100	99	96	92	76	67.3

Project No: 95-1-245

Figure

V & A

COMPACTION TEST RESULTS



SAMPLE LOCATION: TP-8

SOIL DESCRIPTION: CLAY, very sandy

UNIFIED SOIL CLASSIFICATION: (CL)

AASHTO SOIL CLASSIFICATION:

TEST METHOD: ASTM D-698

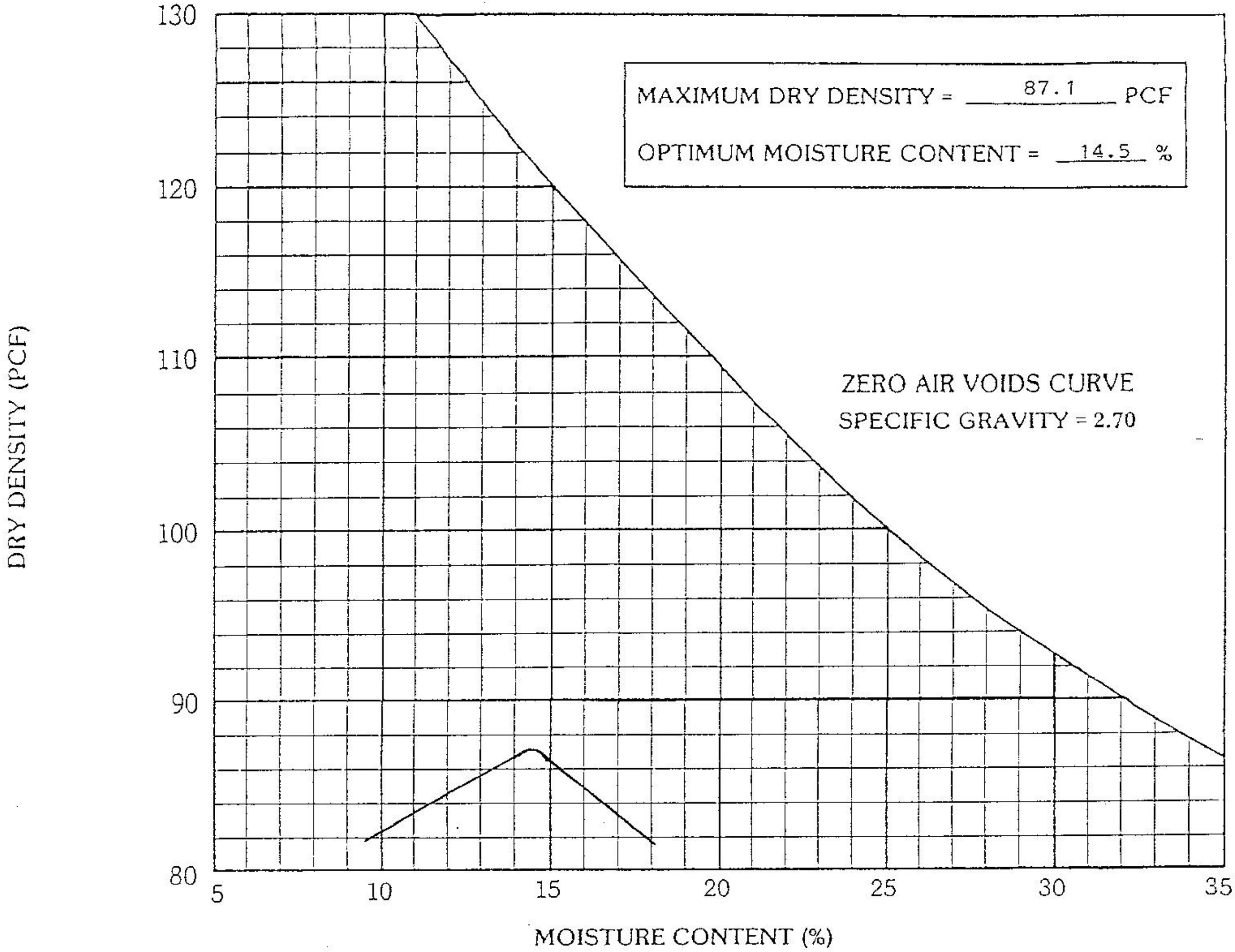
ATTERBERG LIMITS: LL 37 % PI 20 %

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 %

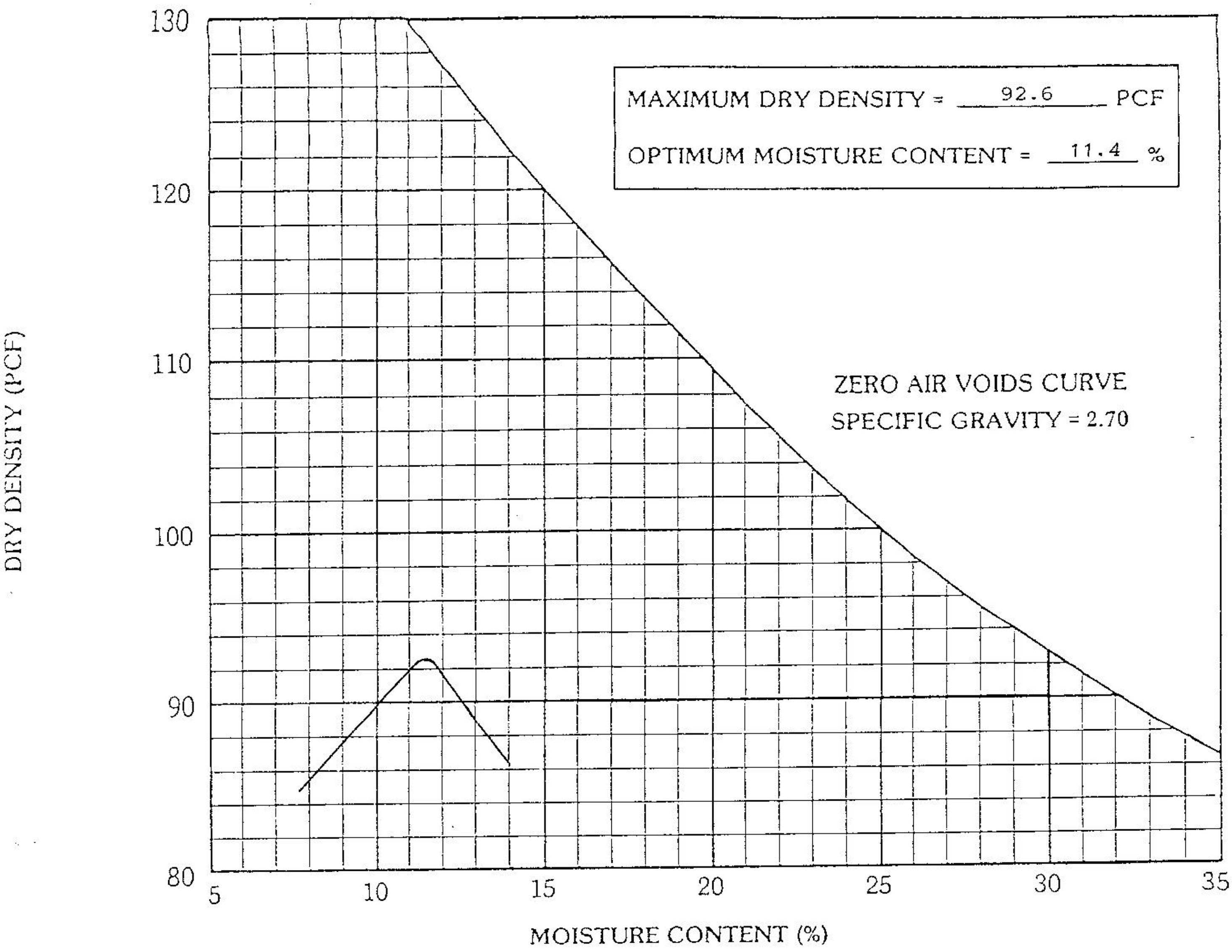
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
					100	99	97	90	79.5

Project No: 95-1-245

Figure ____

V
&
A

COMPACTION TEST RESULTS



MAXIMUM DRY DENSITY = 92.6 PCF

OPTIMUM MOISTURE CONTENT = 11.4 %

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 %

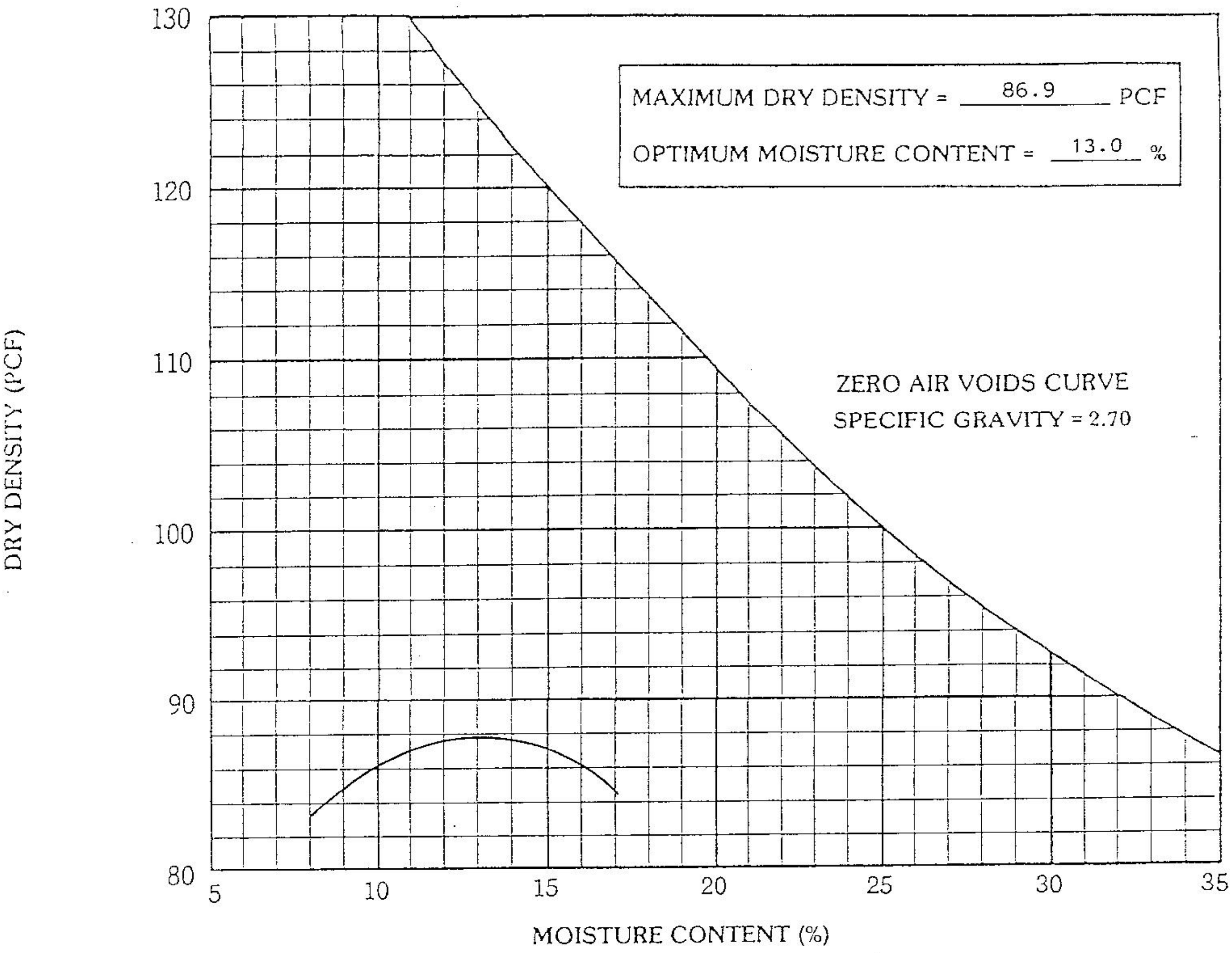
SIEVE ANALYSIS - % PASSING									
1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
			100	99	99	98	95	82	72.8

Project No: 95-1-245

Figure

V
&
A

COMPACTION TEST RESULTS



MAXIMUM DRY DENSITY = 86.9 PCF

OPTIMUM MOISTURE CONTENT = 13.0 %

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

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

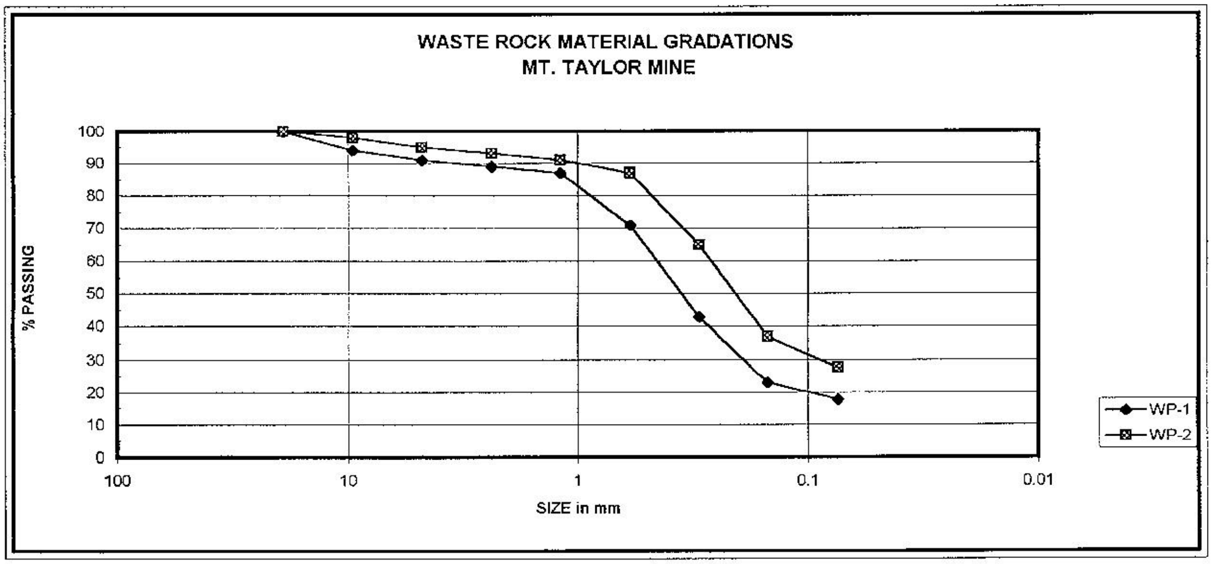
WP-1 + 3/4" material = 2.7% of total sample weight

WP-2 + 3/4" material = 6.8% of total sample weight

WASTE ROCK CHARACTERISTICS
MT. TAYLOR MINE

SIZE GRADATIONS

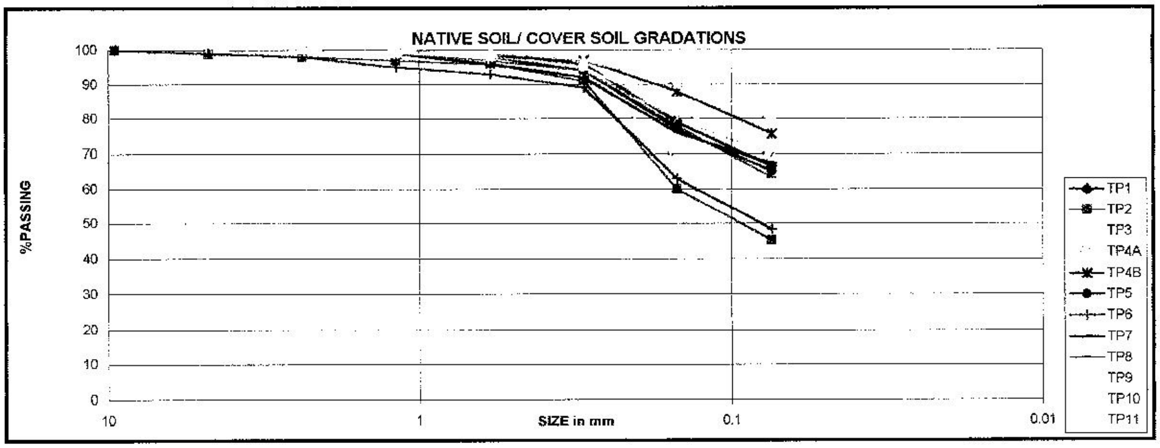
SIEVE #	SIZE in mm	% PASSING	
		WP-1	WP-2
3/4"	19.1	100	100
3/8"	9.52	94	98
4	4.76	91	95
8	2.38	89	93
16	1.19	87	91
30	0.59	71	87
50	0.297	43	65
100	0.149	23	37
200	0.074	17.8	27.7



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

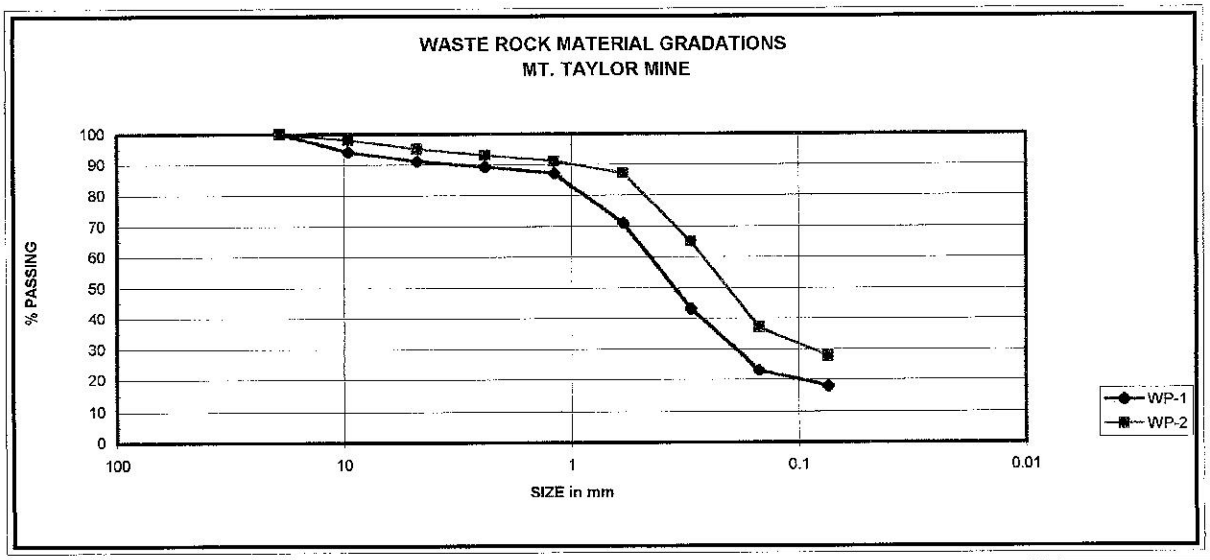


WASTE ROCK CHARACTERISTICS
MT. TAYLOR MINE

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
4	4.76	91	95	93
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

d75 = 0.5mm
d50 = 0.3mm



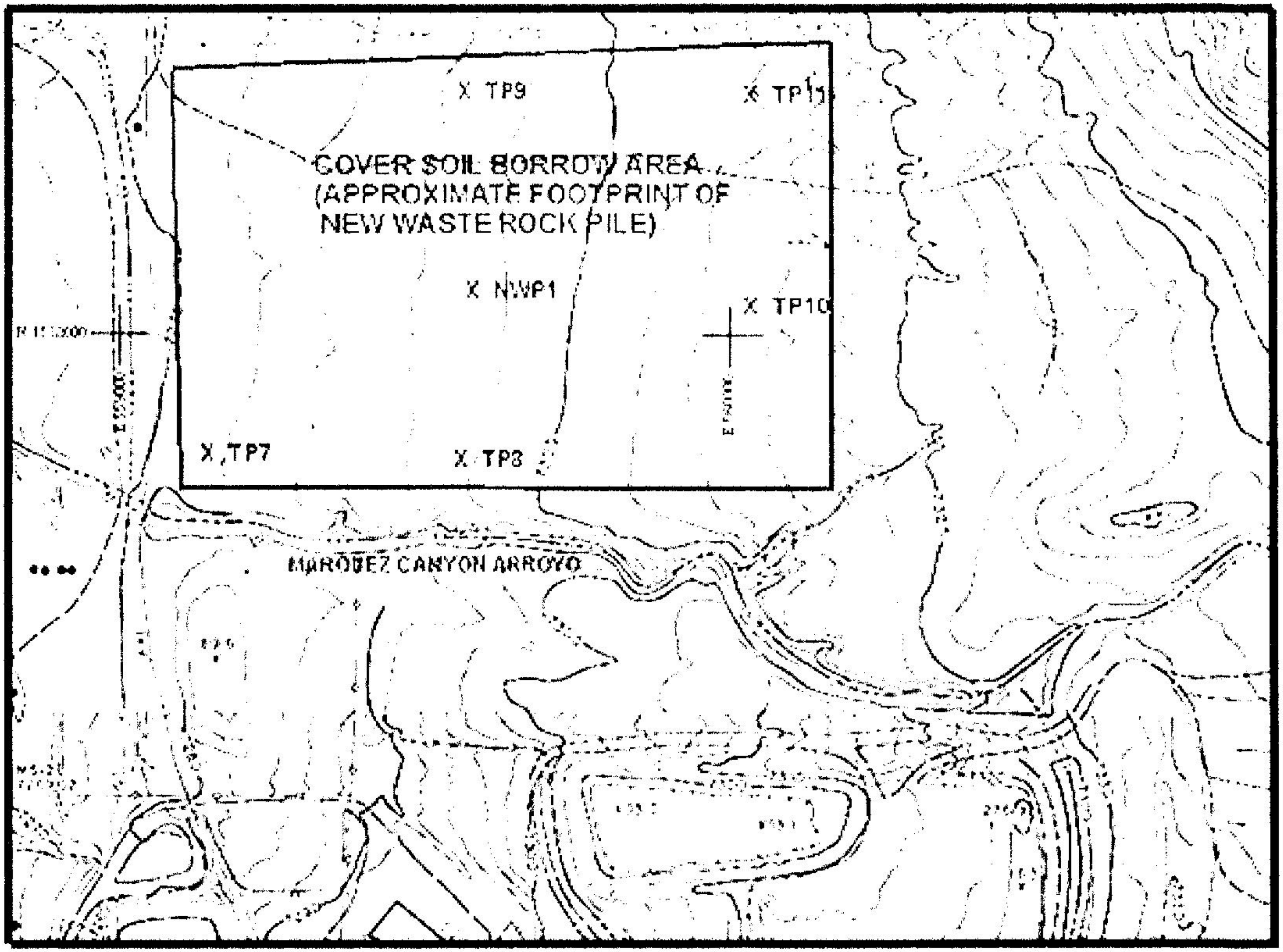


FIGURE A-1 LOCATIONS OF SOIL SAMPLES WITHIN DESIGNATED COVER SOIL BORROW AREA

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
Lab ID: 0398S04751
Matrix: Soil
Condition: Cool/Intact

Date Received: 08/20/98
Date Reported: 09/17/98
Date Sampled: 08/19/98
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: ______________________

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 E

COST ESTIMATE
FOR
MT. TAYLOR MINE CLOSEOUT/ DP-61 CLOSURE

COST ESTIMATE MT TAYLOR MINE CLOSEOUT/ DP-61 CLOSURE

Rev.1 November 2013

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1	**Direct Reclamation Costs**							
1.1	**Shaft Closures**							
1.1.1	**Production/ Haulage (24 ft) Shaft Shaft Fittings and Equipment**							Remove to plug level; Cut and drop in shaft
		crane	day	$ 1,245	10	$ 12,450	RSM 01 54 19.50 0100	12-ton crane with crew
		demo crew	day	$ 1,156	10	$ 11,560	RSM Crew B-1A	
1.1.2	**24 ft Shaft Headframe**							
	24 ft Production Shaft Headframe - drop using explosives, dozers	structural steel	leg	$ 1,785	8	$ 14,280	RSM 31 23 16.30; RSM 02 41 13.78 0800; WYDEQ, App. E	Assume each leg of headframe is equivalent to one radio tower 120 ft high
	Cut and remove to shaft, 20 ft max lengths	cut structural steel	hour	$ 220.70	53	$ 11,697	Piñon Ridge Mill Decommissioning and Reclamation Cost Estimate, Attachment G, item 8a2	http://www.structural-drafting-net-expert.com/steel-sections-i-beam-w-shape.html; estimated 10 cuts per hour by CAT 365 with hydraulic shear
	Cut vent pipe, decking, stairs, railing, cable, sheet metal, etc. to size	fabricated metal materials	SF	$ 0.29	3750	$ 1,088	RSM 02 41 16.13 0500	Wheel skidder with grapple, same production as CAT 365
	Load, haul, dump in shaft	steel, scrap	hour	$ 59	40	$ 2,360	Piñon Ridge Mill Decommissioning and Reclamation Cost Estimate, Attachment G: RSM 01 54 33 20 4896	Wheel skidder with grapple, same production as CAT 365
	Remove concrete from slab outside of collar, ore loading area	concrete	CY	$ 264.06	226.90	$ 59,916	RSM 02 41 16.17 0420	AutoCad base dimensions; concrete re-cycled for erosion protection per 1.4.4
1.1.3	**24 ft Shaft Plug**							
	Backfill Slurry batch plant		mo	$ 4,600.00	3	$ 13,800	RSM 01 54 33 50 0300	
	Set steel support	crane	day	$ 1,245.00	5	$ 6,225	RSM 01 54 19.50 0100	12-ton crane with crew
		crew	day	$ 1,434.00	5	$ 7,170	RSM B-2 crew	
	Cast Plug	concrete	CY	$ 94.50	215	$ 20,318	RSM 03 31 05.35 4350	1000 psi flowable; includes vent raise and tunnel to bulkhead
		placement	CY	$ 13.27	215	$ 2,853	RSM 03 31 05.70 3000	
		crane	day	$ 1,245	5	$ 6,225	RSM 01 54 19.50 0100	12-ton crane with crew
	Backfill (Shaft above plug, tunnel and vent raise)	mix	CY	$ 81.50	2847	$ 232,031	RSM 03 31 05.35 4100	Slurry of ore/cement/water. Includes vent raise and shaft tunnel to bulkhead at utility tunnel
		pumped placement	CY	$ 5.29	2847	$ 15,061	RSM 03 31 05.70 2900	
1.1.4	**Manway/ Ventilation (14 ft) Shaft Fittings and Equipment**							Remove to plug level; Cut and drop in shaft
		crane	day	$ 1,245	5	$ 6,225	RSM 01 54 19.50 0100	12-ton crane with crew
		crew	day	$ 1,156	5	$ 5,780	RSM Crew B-1A	

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.1.5	**14 ft Shaft Headframe**							
	14 ft Vent/ Manway Shaft Headframe - drop using explosives, dozers	structural steel	leg	$ 1,590	6	$ 9,540	RSM 31 23 16.30; RSM 02 41 13.78 0700; WYDEQ, App. E	Assume each leg of headframe is equivalent to one radio tower 60 ft high
	Cut and remove to shaft, 10 ft max lengths	structural steel	hour	$ 220.70	29	$ 6,400	Piñon Ridge Mill Decommissioning and Reclamation Cost Estimate, Attachment G, item 8a2	http://www.structural-drafting-net-expert.com/steel-sections-i-beam-w-shape.html; estimated 10 cuts per hour by CAT 365 with hydraulic shear
	Cut vent pipe, decking, stairs, railing, cable, sheet metal, etc. to size	fabricated metal materials	SF	$ 0.29	1215	$ 352	RSM 02 41 16.13 0500	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support: Includes heater buildings.
	Load, haul, dump in shaft	steel, scrap	hour	$ 59	24	$ 1,416	Piñon Ridge Mill Decommissioning and Reclamation Cost Estimate, Attachment G: RSM 01 54 33 20 4896	Wheel skidder with grapple, same production as CAT 365
	Remove concrete slab outside of collar	concrete	CY	$ 264.06	29.64	$ 7,827	RSM 02 41 16.17 0420	AutoCad base dimensions; concrete re-cycled for erosion protection per 1.4.4
1.1.6	**14 ft Shaft Plug and Backfill**							
	Set steel support	crane	day	$ 1,245.00	4	$ 4,980	RSM 01 54 19.50 0100	12-ton crane with crew
		crew	day	$ 1,434.00	4	$ 5,736	RSM B-2 crew	
	Cast Plug	concrete	CY	$ 94.50	153	$ 14,459	RSM 03 31 05.35 4350	1000 psi flowable
		placement	CY	$ 13.27	153	$ 2,030	RSM 03 31 05.70 3000	
		crane	day	$ 1,245.00	3	$ 3,735	RSM 01 54 19.50 0100	12-ton crane with crew
	Backfill (Shaft above plug, vent raise and tunnel)	mix	CY	$ 81.50	764	$ 62,266	RSM 03 31 05.35 4100	Slurry of ore/cement/water. Includes vent raise and shaft tunnel to bulkhead at utility tunnel
		pumped placement	CY	$ 5.29	764	$ 4,042	RSM 03 31 05.70 2900	
1.1.7	Access/ Utility Tunnels Backfill	mix	CY	$ 81.50	3480	$ 283,620	RSM 03 31 05.35 4100	Slurry of ore/cement/water. Includes all tunnels except shaft tunnels
		pumped placement	CY	$ 5.29	3480	$ 18,409	RSM 03 31 05.70 2900	
1.2	Well and Conduit Plugging							
1.2.1	**Mine Conduit**							
	Conduits (2)	4 ;1 cement bentonite grout mix	LF	$ 6.60	6400	$ 42,240	WYDEQ, App. L	10.5 inch ID x 3200 ft; plugging per 19.27.4 NMAC
1.2.2	**Well Abandonment**							
	Deep wells (21)	4 ;1 cement bentonite grout mix	LF	$ 6.60	67205	$ 443,403	WYDEQ, App. L	7 inch to 9 5/8 inch diameter casing grouted in all wells; plugging per 19.27.4 NMAC
	Abatement monitoring wells (5)	cement bentonite grout	ft	$ 4.20	180	$ 756	WYDEQ, App. L	2 to 6 inch diameter casing

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.3	**Surface Facilities Demolition**							
1.3.1	**Compressor Building**	Steel Frame (2)	CF	$ 0.145	25921	$ 3,759	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1620	$ 2,527	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	1620	$ 7,922	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.2	**York Chiller Refrigeration Equipment and Building**	Steel Frame (2)	CF	$ 0.145	150000	$ 21,750	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	5000	$ 7,800	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	5000	$ 24,450	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.3	**Pump Building (Chill Water Pump House)**	Steel Frame (2)	CF	$ 0.145	15360	$ 2,227	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	960	$ 1,498	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	960	$ 4,694	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.4	**Shaft Heating Building**	Steel Frame (2)	CF	$ 0.145	24000	$ 3,480	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1500	$ 2,340	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	1500	$ 7,335	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.5	**Hoist House**	Steel Frame (2)	CF	$ 0.145	24000	$ 3,480	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1500	$ 2,340	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete hoist pedestals	CY	$ 207.50	148	$ 30,741	RSM 03 05 05.10 0070	Excavator with hydraulic hammer; tow heavily reinforced concrete pedestals 20' x 10' x 10'
		concrete slab	SF	$ 4.89	1500	$ 7,335	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.6	**Service Building (Office and Warehouse)**	Steel Frame (2)	CF	$ 0.145	642528	$ 93,167	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	53544	$ 83,529	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	53544	$ 261,830	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.7	**Electrical Building**	Steel Frame (2)	CF	$ 0.145	29760	$ 4,315	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1860	$ 2,902	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	1860	$ 9,095	RSM 02 41 16.17 0420	assume 0.5 ft thickness

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.3.8	**Water Treatment and Boiler Building**	Steel Frame (2)	CF	$ 0.145	49600	$ 7,192	RSM 02 41 16.13 0500, 5000	
		equipment, various	SF	$ 1.56	3100	$ 4,836	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	3100	$ 15,159	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.9	**Fuel Storage Tanks**	Steel tanks at surface	EA	$ 1,000.00	7	$ 7,000	RSM 02 65 10.30 1029	7 tanks @30' x 8 '
1.3.10	**Storage Building**	Steel Frame (2)	CF	$ 0.145	13440	$ 1,949	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	840	$ 1,310	Note 3	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	840	$ 4,108	RSM 02 41 16.17 0420	assume 0.5 ft thickness
1.3.11	**Glycol Heat Exchanger**	Steel Frame (2)	CF	$ 0.145	24000	$ 3,480	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1500	$ 2,340	Note 3	assume 1 ft^3 volume per ft^2 gutted area
		concrete slab	SF	$ 4.89	1500	$ 7,335	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.12	**Chlorine Building**	concrete block	CF	$ 0.145	6120	$ 887	RSM 02 41 16.13 0080	
		equipment, various	CF	$ 1.56	360	$ 562	Note 3	assume 1 ft^3 volume per ft^2 gutted area
		concrete slab	SF	$ 4.89	360	$ 1,760	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.13	**Flocculant Treatment Building**	Steel Frame (2)	CF	$ 0.145	8280	$ 1,201	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	690	$ 1,076	Note 3	assume 1 ft^3 volume per ft^2 gutted area
		concrete slab	SF	$ 4.89	690	$ 3,374	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.14	**Barium Chloride Treatment Building**	Steel Frame (2)	CF	$ 0.145	16000	$ 2,320	RSM 02 41 16.13 0500, 5000	
		equipment, various	CF	$ 1.56	1000	$ 1,560	Note 3	assume 1 ft^3 volume per ft^2 gutted area
		concrete slab	SF	$ 4.89	1000	$ 4,890	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.15	**Ion Exchange Building**							**Radiological D&D, including removal of resins and IX equipment, is covered under separate FA with NMED Radiation Control Bureau**
		Steel Frame (2)	CF	$ 0.145	392000	$ 56,840	RSM 02 41 16.13 0500, 5000	
		concrete slab	SF	$ 4.89	9800	$ 47,922	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.16	**Mine Water Treatment Pond Hydraulic Structures**	concrete	CY	$ 69.45	80	$ 5,556	RSM 03 05 05.10 0050	Disposed in pond basins
1.3.17	**Mine Car Rails**	90 lb steel rail	lineal ft	$ 8.76	8787	$ 76,974	WYDEQ, App. K; RSM 02 41 13.33 3500	Dwg C-159, -160, F-119; field survey "Rail Footage"; assume 4 lineal ft = 1 ft^3 volume
	Concrete base for rail	low strength concrete	SF	$ 4.89	8569	$ 41,903	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.3.18	**Shaft Exhaust Fans and Vents**	light structural steel, sheet metal	CF	$ 0.145	18750	$ 2,719	RSM 02 41 16.13 0500, 5000	
1.3.19	**Cooling Towers**	Steel frame and plate	CF	$ 0.145	46875	$ 6,797	RSM 02 41 16.13 0500, 5001	
		equipment, various	CF	$ 1.56	5625	$ 8,775	RSM 02 41 19.21 1000	assume 3 ft^3 volume per ft^2 gutted area
		concrete slab	SF	$ 4.89	1875	$ 9,169	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.20	**Mine Water Discharge Pipes**	12in. Sch 40 PVC	LF	$ 3.18	3000	$ 9,540	RSM 02 41 13.38 1800	Remove only the portions of pipes extending beyond the tunnel. 0.1 ft3/ ft volume
1.3.21	**Treated Water Discharge Pipeline**	steel	LF	$ 23.96	23000	$ 551,080	RSM 22 05 05.10 2155; http://www.engineeringtoolbox.com/ansi-steel-pipes-d_305.html; RSM 22 05 05.10 2220	Assume scrap at $180/ton, 2.56 tons per 30 ft length = $352,280. Pipeline will be cut in 30 ft lengths and staged on site for sale and removal by purchaser.
1.3.22	**Truck Wash**	plumbing, frame, siding, roof (2)	SF	$ 1.55	10295	$ 15,957	Piñon Ridge Mill Decommissioning and Reclamation Cost Estimate, Attachment G, item 8a2 x 12.55% of 2009 Unit $; RSM Crew B-1A	Estimated 200 SF per hour cutting with CAT 365 with hydraulic shear and crew support
		concrete slab	SF	$ 4.89	14875	$ 72,739	RSM 02 41 16.17 0420, 5000	assume 0.5 ft thickness
1.3.23	**Manholes and culverts**							
	Remove manholes and catch basins	steel, concrete	ea	$ 186	2	$ 371	RSM 02 41 13.33 0030	Remove only above final grade in ore pad and truck wash areas. Backfill below grade with soil/cement slurry.
	Remove culverts		LF	$ 23.00	1220	$ 28,060	RSM 02 41 13.33 2960	Trench to remove, then backfill
	Backfill trench		CY	$ 2.04	1084	$ 2,212	RSM 31 23 16.13 3020	
1.3.22	**Non-contaminated debris hauling and dumping/ stacking for salvage or disposal in pond basins**		CY	$ 2.78	3897	$ 10,834	RSM 31 23 23.20 5130	Assume 1 cf debris per 1sf of buidling floor area. 2000 ft average cycle distance
1.4	**Earthwork**							15 % swell of BCY to LCY assumed
1.4.1	**Ore Pad**							
	Excavate, load, haul, dump Travel Course/ Drainage Layer		LCY	$ 4.05	15906	$ 64,419	RSM 31 23 16.50 2100; Caterpillar Performance Handbook	21 CY scraper 3000 ft haul;
	Remove catch basins and culverts, dispose in Pond #1 basin		LF	$ 36.92	1220	$ 45,042	RSM G1030 805 1430; RSM 02 41 13.33 2960	Trench to remove, then backfill
1.4.2	**Excavation and Disposal of Contaminated Soil**	soil above 23 mR/hr, 6.8 pCi/g Ra						Disposal in pond basins and waste pile
	Mine Water Treatment Pond Area (less pond basins)	total pond area less pond basins	BCY	$ 4.31	24943	$ 107,504	RSM 31 23 16.50 2430: Caterpillar Performance Handbook	21 CY scraper, 3000 ft haul; 2000 CY/day; calc MT12.08-B
	County Road ROW		BCY	$ 3.31	3791	$ 12,548	RSM 31 23 16.50 2420: Caterpillar Performance Handbook	21 CY scraper, 1500 ft haul; calc MT12.08-B
	Borrow Soil Area		BCY	$ 4.31	7395	$ 31,872	RSM 31 23 16.50 2430: Caterpillar Performance Handbook	21 CY scraper, 3000 ft haul; 2000 CY/day; calc MT12.08-B
	North of Marquez Arroyo		BCY	$ 4.31	12707	$ 54,767	RSM 31 23 16.50 2430: Caterpillar Performance Handbook	21 CY scraper, 3000 ft haul; 2000 CY/day; calc MT12.08-B
	Service and Support Area		BCY	$ 3.31	34104	$ 112,884	RSM 31 23 16.50 2420: Caterpillar Performance Handbook	21 CY scraper, 1500 ft haul; calc MT12.08-B
	South Storm Water Pond		BCY	$ 2.81	1514	$ 4,254	RSM 31 23 16.42 1601; RSM 31 23 23.20 4014	Assume 1 ft of contaminated sediment; CAT 980 loader 3 cy bucket, 20 cy truck 0.5 mi cycle

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.4.3	**HDPE-Liner Ponds -Water Treatment (MWTU) Ponds and Ore Runoff Retention Pond Backfill**							
	Pond sediment excavate, load, haul dump on waste pile	Contaminated pond sediments	BCY	$ 7.33	7716	$ 56,558	RSM G1030 140 4400	CAT 960 with 4.5 CY bucket and 20 CY trucks with 2 mi RT; calc MT13.07 and .08
	Remove HDPE liner from anchor trenches and tops of pond slopes	Fold HPDE membrane intp pond to 4 ft below final grade	SF	$ 0.081	121778	$ 9,864	RSM B-6 Crews	laborers, operator, backhoe, truck, dozer for 2000 SF/hr; calc MT13.07
	Pond backfill by pond berm excavation and placement as backfill	large scale earthwork	BCY	$ 2.54	170,060	$ 431,952	RSM 31 23 16.46 6035; Caterpillar Performance Handbook	CAT D11, < 200 ft push
	Mine Water Treatment Pond Area cut/fill	total pond area less pond basins	BCY	$ 3.31	58,195	$ 192,625	RSM 31 23 16.50 2420: Caterpillar Performance Handbook	21 CY scraper, up to 1500 ft haul; calc MT12.08-B
1.4.4	**Waste Pile Buildout Stabilization (4)**							Progessive buildout to final 5H:1V slopes with contemporaneous cover, erosion protection and revegetation
	Disposal Cell for final pond sediments							
	Place and compact disposal cell berms	contaminated soil	BCY	$ 1.46	17,400	$ 25,404	RSM 31 23 16.46 6036; Caterpillar Performance Handbook	Cell and berm dimensions per MT13Drawing - dozer tread compaction on 50 ft haul. Construct with contaminated soil from site cleanup.
	Excavate, load , haul and place liner soil	clean clayey soil	BCY	$ 4.31	2,489	$ 10,727	RSM 31 23 16.50 2430: Caterpillar Performance Handbook	21 CY scraper, 3000 ft haul; 2000 CY/day; calc MT12.08-B; Clean soil fro m borrow area.
	Place and compact disposal cell liner	clean clayey soil	LCY	$ 2.43	2,862	$ 6,955	RSM 31 23 16.46 6006 and 31 23 23 23 5620; Caterpillar Performance Handbook	CAT D11, max. 50 ft push; 1.0 ft across cell surface; sheepsfoot compaction; calc MT12-08-F
	Cover soil excavate, load, haul, and place	clean soil	BCY	$ 4.31	34,905	$ 150,442	RSM 31 23 16.50 2430: Caterpillar Performance Handbook	21 CY scraper, 3000 ft haul; 2000 CY/day; calc MT12.08-B; Clean soil fro m borrow area.
	Cover placement - disposal cell and top of pile	stockpiled shaft muck, clean soil	LCY	$ 1.46	40,141	$ 58,606	RSM 31 23 16.46 6036; Caterpillar Performance Handbook	Cell and berm dimensions per MT13Drawing - dozer tread compaction on 50 ft haul. Construct with contaminated soil from site cleanup.
	Cover grading	grade to design slope	acre	$ 936.54	8.30	$ 7,770	RSM 31 22 16.10 3312	AutoCad measured
	Erosion control mat	tobacco netting	SY	$ 0.50	26614	$ 13,307	RSM 31 25 14.16 0300	Exposed slope during buildout, after reshaping for activation
1.4.5	Riprap and Water Bars							Placed as needed on waste pile and channels, using all recycled concrete from facilities demolition.
	Rock and concrete crushing	concrete, rock	CY	$ 1.67	2496	$ 4,178	MB America Robbett Eyler, pers comm Nov 2013; RSM 31 23 16.42 0300	MB America BF90 crusher bucket on CAT 320 excavator, minus 4 inches at 46 CY/hr
	Concrete debris, rock loading and hauling	concrete, rock	CY	$ 8.22	2496	$ 20,514	RSM G1030 150 7000	Concrete broken by hydraulic pulverizer during facility demolition; CAT 980 with 5 cy bucket, D250E truck
	Screening	concrete, rock	day	$ 532.20	14.26	$ 7,590	RSM 01 54 33 3710	150-200 CY/day
	Placing channel riprap	concrete, rock	SY	$ 28.50	889	$ 25,333	RSM 31 37 13.10 0200	1500 CY machine placed, 2 ft thick
	Placing on waste pile slope	concrete, rock	CY	$ 25.87	1607	$ 41,568	RSM 31 37 13.10 0300	Placed on slope for rock mulch or spreading in finish grading

Item #	Description	Material(s)	Units	$/Unit	Quantity	Cost, $	Cost Reference	Quantity Reference
1.4.6	**Finish grading**							pond/ ore pad/ borrow area +surface facilities + waste pile
	Mine Water Treatment Pond area		acres	$ 75.25	28.0	$ 2,107	WYDEQ, App. G	AutoCad measured
	County road ROW		acres	$ 75.25	4.7	$ 354	WYDEQ, App. G	AutoCad measured
	Ore pad and borrow soil area		acres	$ 75.25	19.0	$ 1,430	WYDEQ, App. G	AutoCad measured
	Waste pile area	waste pile and adjacent area	acres	$ 75.27	14.7	$ 1,109	WYDEQ, App. G	AutoCad measured: calc MT12-08-B
	Pipeline corridor		acres	$ 75.25	15.6	$ 1,177	WYDEQ, App. G	Estimated
	Bench wall slope reduction		BCY	$ 2.78	1852	$ 5,148	RSM 31 23 16.42 0300; RSM 01 54 33 0347; Caterpillar Performance Handbook Model 160 hammer in massive sandstone	Drag slope to flatten from vertical to 1H:1V, all rock. CAT 320 excavator with hydraulic hammer, 200 CY/day
	North of Marquez Arroyo		acres	$ 75.25	17.6	$ 1,326	WYDEQ, App. G	AutoCad measured
	Service and Support Area		acres	$ 73.79	39.3	$ 2,902	WYDEQ, App. G	AutoCad measured
1.5	**Revegetation**							
1.5.1	Seeding		acres	$ 871.20	100	$ 107,158	RSM 32 91 19.14	finish-graded area
	Mulching and Fertilizing		acres	$ 1,933.63	100	$ 192,748	RSM 32 91 13.16 0350, RSM 32 01 90.13 0140	finish-graded area
	Fencing		LF	$ 1.49	10000	$ 14,892	WYDEQ, App. H	Chain link fence around final pond and waste pile areas
1.5.2	Fencing		LF	$ 1.49	10000	$ 14,892	WYDEQ, App. H	Chain link fence around final pond and waste pile areas
1.6	**Environmental Controls (temporary)**							
1.6.1	Dust control	water truck	hours	$ 89.15	1600	$ 142,640	RSM 01 54 33 40 6950	earthwork periods, 200 days
1.6.2	SWPPP implementation	silt fence	LF	$ 0.60	3000	$ 1,800	RSM 31 25 14.16 1000	
Total Direct						**$ 4,934,919**		

2	**Indirect Reclamation Costs (3)**	**% of Direct Cost (3)**				
2.1	Mobilization and Demobilization	2%				$ 98,698
2.2	Contingencies	10%				$ 493,492
2.3	Redesign Costs	6%				$ 296,095
2.4	Profit and Overhead	18%				$ 888,285
2.5	Contract Management Fee	7%				$ 345,444
2.6	MMD Procurement Cost (2%-10%)	6%				$ 296,095
Total Indirect						**$ 2,418,110**

NOTES:

(1) RSM = RS Means Heavy Construction Cost Data 2013

(2) Cost includes loading and hauling 1 mi. RT

(3) Demolition cost per cubic foot = excavator $81.05/hr (RSM 01 54 33 20 0200) + Shear $14.05/hr (RSM 01 54 33 20 0347) + two operators $48.80/hr @ (RSM Crew A-3H) + labor crew $72.90/hr (RSM Crew B-1) + Skid steer with grapple $46/hr (RSM 01 54 33 4890), = $311.60/hr, 200 cf/hr=$1.56/cf. Volume base on 1 cf/sf of floor area.

(4) No costs for reclamation of the North (future) waste pile are included. If this pile is needed, costs will be included in a future update of the Financial Assurance estimate.

Total Direct + Indirect		**$ 7,353,029**	
Location Cost Index - Cost adjustment to RS Means 2013 costs based on location versus national averages,		0.879	RSM 2013 page 592, 615, Location Factors for Albuquerque, Gallup
Total Direct + Indirect, Present Cost P, Location-adjusted		**$ 6,463,312**	
New Mexico Gross Receipts Tax (NMGRT)	6.6875%	**$ 432,234**	
Total Direct + Indirect, Present Cost P, Location-adjusted, with NMGRT		**$ 6,895,547**	

Escalation (Inflation)

Rate, i, per CPI-U, updated 4/2/2013	2.0%		
Future cost, F=P*(1+i)^n	n, years from 2013	**F, Future Cost**	
in 2013	0	$ 6,895,547	
in 2014	1	$ 7,033,457	
in 2015	2	$ 7,174,127	
in 2016	3	$ 7,317,609	

http://www.bls.gov/news.release/pdf/cpi.pdf

The inflation rate is based on the year-to-year Consumer Price Index U. S. City Average for 2013 (ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt).
The average rate for the preceding five years (2008-2012) was 2.06, so 2% represents a reasonable estimate based on recent history as the basis for projection over the current standby permit period.

APPENDIX F

REVEGETATION AND WEED MANAGEMENT PLAN

MT. TAYLOR MINE

RIO GRANDE RESOURCES

November 2013

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 as concurrently as practical 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, but increments will be implemented during mine operations. Specifically, to achieve revegetation as early as possible on final surfaces, the lower slopes of the south waste pile will be reshaped to final grade and revegetated as part of mine reactivation. Additionally, a test plot will be established on the cover of the reactivation waste disposal cell located on the south waste pile. This test plot will be used to verify and refine revegetation methods and seed mixes proposed in this Plan. The areas to be revegetated include:

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. Of that area, 117 acres will be revegetated consisting of:

- Support (Service and Support) Facilities – 55.7 acres
- Mine Water Treatment Area - 28 acres
- Treated Water Discharge Pipeline - 15 acres (most beyond the mine surface area)
- Ore Stockpile - 6.8 acres
- Waste Pile - 11.5 acres

The remainder of the disturbed area not to be revegetated includes the buildings, roads and storm water ponds preserved for PMLU.

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 (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. Temporary runoff and erosion controls, specified in the Stormwater Pollution Prevention Plan

(SWPPP) prepared by the earthwork contractor, will be employed to management sediment generated during closeout earthwork.

Grading operations will be performed by dozers, scrapers, graders or other support equipment. An excavator with hydraulic hammer will be used to reduce the high wall to 1H:1V slope. Finish grading will create the grades and slope directions shown on the drawings (MT13-CL-07 through -13), 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 that specification.

Topdressing (Topsoil) Removal, Stockpiling, and Redistribution

At the Mt. Taylor Mine, the bedrock outcrops in many places and is otherwise 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 topdressing or topsoil consists of “A” horizon soils. All site soils fit this definition of topsoil. The agronomic descriptions of these soils are given in the CCP, Section 4.4.

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 construction pond berms and to adjust grades for mine surfaces facilities. Excess excavated soil was stockpiles in the borrow area east of the ore stockpile (Drawing MT13-CL-04). Topdressing soil will be obtained from regrading of pond berms, the borrow area, and other grading performed during ground preparation. Table 4.2 (CCP) lists the available soil volumes versus borrow soil required for closeout; ample soil is available from these various sources, all on site.

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 4.2 of the CCP) will be applied as necessary.

The nutrient level in the topdressing will be determined through soils analysis. Where needed, custom fertilizer blends will be applied to the topdressing to enhance deficient nutrient levels based on this testing. Fertilizer will be applied using either a spreader or broadcaster. Fertilization will occur during the season most conducive to application of the elements involved. For instance, stable elements (phosphorus) 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 topdressing materials that have been stockpiled for over a year will be analyzed for nutrient content. Any fertilizers deemed necessary to enhance plant growth will be distributed and disked into the topdressing.

The surfaces of the topdressed areas 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.

Revegetation Species and Planting Rates

Species of plants selected for seeding are compatible with the pre-mining and post- mining land use of grazing. 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 proposed seed mixture for permanent seeding and planting rates are contained 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
- modify the moisture regime to supply sufficient water.

Seedbed preparation will be conducted on the contour to reduce erosion. Discing will be utilized to:

- ameliorate compaction of the topdressing to facilitate penetration of roots by seedlings;
- prevent surface crusting of the topdressing; 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. 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.

Before seed is applied, the ground surfaces will be scarified 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.

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 will be mulched utilizing native grass mulch, straw or other approvable mulch material at an application rate of 1.5 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 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 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 two phase approach. The initial phase will use an interim technical standard based on range site descriptions described in Table C.5.2.

The second phase will be a test plot program. This program will begin at the time of mine reactivation, well before closeout, providing ample time for the test plot to be planned, implemented, and evaluated before site revegetation occurs at closeout.

Interim Technical Standard

An initial interim 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 E.2). This standard will remain in effect until either the volunteer revegetation success is determined to support a higher standard or a test plot program has produced acceptable results that support a more site-specific standard. The NRCS information will be coupled with data collected from undisturbed vegetation types on the area north of Marquez Canyon arroyo to estimate appropriate standards for cover, which could include:

- % by species,
- production in lbs/ac,
- density (number of shrubs/ac), and
- diversity (richness and/or evenness).

Range sites described in accordance with the Soil Conservation Service, 1976, National Range Handbook, U.S. Department of Agriculture, as amended, may also be used in part to develop the technical standards.

The initial interim technical standard will be refined by results from a vegetation survey on 40 acres of undisturbed land north of Marquez Canyon arroyo. Sites for each vegetation type to be sampled will be at least one acre in size. Vegetation types to be sampled for developing the technical standard will be representative of mine area and in as good or better condition than existing vegetation in the mine area. To the extent possible, vegetation sampling will be done during a normal precipitation year and during the peak period of the growing season.

This information will be combined with the NRCS information to make the interim standard specific to the Mt. Taylor Mine site and will also be used to plan the test plot program.

When the interim technical standards has been developed then reviewed and approved by the MMD, a plan for periodic monitoring of the vegetation in the technical standards area will be proposed. This monitoring program will provide the basis for comparison between the vegetation of the test plot and the natural vegetation of the technical standard area. If justified by these comparisons, the test plot program can be revised or the revegetation standards can be revised. All data and copies of all documents and reports used to develop the technical standards used to develop and evaluate or monitor the technical standard will be made available to the MMD. Vegetation types to be sampled for developing the technical standard should be in as good or better condition and should be representative of areas to be disturbed.

Test Plots

A test plot will be developed on the cover of the activation waste disposal cell on the south waste rock pile. This plot will serve several purposes:

- Demonstrate and document the success of selected plant species, amendments, and planting methods
- Verify adequacy of 2.0 ft of cover thickness for support of vegetation
- Measure and document the radon attenuation of the cover with vegetation

The test plot area, approximately 1.6 acres, will occupy the entire cover of the activation waste disposal cells, as shown on Figures 3-2 and 3-3 of Revision 1 of the Application for MMD Permit Revision and Modification of DP-61 (RGR 2013b). Once this cover is in place, this area will not have any traffic and will be fenced to prevent casual access.

The test plot area will be subdivided into not fewer than 10 individual plots, each not more than 30 feet wide by not less than 100 feet long. Two plots, one without amendments and the other with amendments to be determined, will be used for each of the following seed mixes:

- Western Wheatgrass
- Alkali Sacation
- New Mexican Feathergrass
- Blue Grama, Spike Mulhy Galleta
- Fourwing Saltbush
- The proposed Initial Interim Standard mix on Table F.2

The planting rates for each species will be those listed in Table F.1

The test plots will be monitored by RGR will assistance from a vegetation consultant. Less formal monitoring shall be conducted through the year by RGR personnel to identify conditions in the revegetated areas that may require attention. The test plot program will continue until the three purposes of the program, listed above, have been achieved to the satisfaction of MMD.

The monitoring data will include measurements of species composition and vegetation cover, frequency, density, reproductive status, and overall vigor. Vegetation sampling should be done during a normal precipitation year and during the peak period of the growing season (i. e. summer). These data will be compared to the interim success standards for refinement of those standards and for making adjustments in the test program. For at least the first two years, these data will be collected in the spring, summer and fall (end of growing season). Thereafter, an annual survey of the revegetated areas shall be conducted toward the end of the growing season, no later than early September 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. All data used to develop and evaluate or monitor the test plots, and copies of all documents and reports used to develop the interim technical standards, will be made available to the MMD.

IMPLEMENTATION

Revegetation will occur incrementally over the life of the mine on the waste pile slopes and after completion of other closeout activities on the other disturbed land surfaces. Implementation of revegetation will be performed in accordance with this Plan and Technical Specification C.5. Subsequently, a period of revegetation success monitoring will occur during the last 2 years of bonding period. The period of responsibility will continue after completion of closeout until release of the bond.

SUCCESS CRITERIA

The vegetation success standards, determined through refinement of the interim standards by results of the test plots, will be used as the basis for determining revegetation success for perennial vegetation cover and herbaceous productivity. Revegetation will be considered successful for vegetation cover and herbaceous productivity if the reclaimed area and cover and productivity are not significantly different from 90% of the success standard at a 90% level of statistical confidence.

Sample Adequacy

Reclaimed and test plot areas will be sampled separately to allow separate determination of sample adequacy. A minimum of 20 cover transects and 20 productivity quadrats will be sampled in the test plot area. On the revegetated disturbed areas, a minimum of 15 transects, 100 m long, will be located randomly, and for consistency these transects will be revisited for each sampling event.

The minimum sample size will be the larger of:

- The N_{min} value using the methods of Cochran, W.G., 1977. *Sampling Techniques*, 3rd ed. John Wiley and Sons, New York, N.Y. or
- The minimum size required for the specific sampling method

All parameters should be tested at the 90% confidence level with a 10% change in the mean (d=.1).

Sampling Methods

The following sampling methods for conducting vegetation studies will be used for determining revegetation success of test plots and reclaimed areas.

For sampling methods that require the use of quadrats, each quadrat will be rectangular or square plots of m^2, or ¼ m^2 or 20 x 50cm in size or a ¼ m^2 – m^2 circular plot.

Species Diversity

Vegetation cover data will be used for determining revegetation success with respect to species diversity. A technical standard for diversity will be applied which will include the following criteria:

- The revegetated area will have at least three perennial grass, two perennial forbs, and two shrub species.
- The diversity of species will be similar to the NRCS Range Site Descriptions.

Cover

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 test plot area and 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.

Cover classes, listed in the table below, will be used to supplement the line intercept method in the test plots. A minimum of two quadrats will be randomly placed within each individual test plot. The percent of ground covered by vegetation to the nearest cover class will be estimated for each quadrat, and values will be reported by species and total vegetation cover. Each quadrat or frame plot is considered one sampling unit. The mid-point of each class is used to calculate the mean and standard deviation.

Cover Class	Range, %	Mid-point, %
1	0-1.0	0.4
2	1.1-3.0	2.0
3	3.1-5.0	4.0
4	5.1-10.0	7.5
5	10.1-15.0	12.5
6	15.1-25.0	20.0
7	25.1-35.0	30.0
8	35.1-45.0	40.0
9	45.1-55.0	50.0
10	55.1-65.0	60.0
11	65.1-75.0	70.0
12	75.1-85.0	80.0
13	85.1-95.0	90.0
14	95.1-100	97.5

Reference: Daubenmire, R., 1959. *A Canopy-Cover Method of Vegetational Analysis.* Northwest Science 33:43-63.

Density

Because of the sparsity of natural trees and shrubs in the area, density will be measured by exact count. In test plots, the entire plot will be counted. In revegetated areas, the counts will be made the line interception transects.

Productivity

Productivity will be measured by clipping from quadrats established for cover classes. Plants will be clipped by life form (e.g., herbaceous or woody) 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 oven 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. Report Productivity will be reported as pounds/acre.

The minimum samples size for the test plots will be two quadrats per plot or a total of 20 quadrats. For the revegetated areas the minimum sample size will be 10 quadrats.

Similarity/ Diversity Indices

Either Jacard's Community Coefficient or Sorensen's Similarity Index will be used to evaluate diversity.

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 topdressing 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.

REVEGETATION SCHEDULE

After disturbed lands have been regraded and topdressed, 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 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. Assuming that all residual water in those ponds can be evaporated during the year in which other facilities demolition and earthwork is accomplished, the pond earthwork will be completed in the second year of closeout. Therefore, revegetation of the entire mine area should be completed in the late summer or fall of that year.

WEED MANAGEMENT

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
- IWN 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

Upon reactivation of the mine, 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, mechanical removal, or burning.

Monitoring

The effectiveness of the weed control efforts will be evaluated through annual monitoring usually at he 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.

Table F.1 Seed Mix: Selected Species and Planting Rates

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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 *(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, grows on rock slopes.

4. Galleta *(Hilaria jamesii)* Rate: 6 PLS/ft^2
5. Alkali Sacaton *(Sporobolus airoides)* Rate: 6 PLS/ft^2
6. Mountain mahogany *(Cercocarpus montanus)* Rate: 2 PLS/ft^2
7. Fourwing saltbush *(Atriplex canescens)* Rate: 2 PLS/ft^2

    Evergreen native perennial shrub, reproduces from seeds, grows on grassy uplands, excellent reclamation species.

8. Globemallow *(Sphaeralcea fend/en)* Rate: 2 PLS/ft^2
9. Narrowleaf Penstemon *(Penstemon angustifo/ia)* Rate: 2 PLS/ft^2
10. New Mexican feathergrass *(Stipa neomexicana)* Rate: 6 PLS/ft^2

    Cool season native perennial grass, reproduces by seed and tillers, growth starts mid-spring, grows on rocky slopes.

11. 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: Seed should 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 may be used. All seed must be certified, and each seed bag must have attached to it a complete label with certification information.

TABLE F.2

INITIAL INTERIM 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

PROPOSED INITIAL INTERIM STANDARDS

Plant Species	Expected Percentage of Production	Standard
Western Wheatgrass	32	20-45
Alkali Sacaton	20	5-40
New Mexican Feathergrass	20	10-30
Blue Grama, Spike Mulhy, Galleta	16	10-25
Fourwing Saltbush	6	3-10
Winterfat	2	1-3
Mountain Mahogany	1	0-5
Globemallow	1	0-5
Narrowleaf Penstemon	1	0-5
others	1	0-10
Ground Cover, --- 50% of potential		
Production, Ib./acre --- 70% of potential		

Variations and substitutions may be made in the seed mix, based on seed availability and cost at time of closeout.