REPORT

STORMWATER MANAGEMENT PLAN

Piñon Ridge Project, Montrose County, Colorado

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EXECUTIVE SUMMARY

Energy Fuels Resources Corporation (EFRC) proposes to license, construct, and operate a conventional acid leach uranium and vanadium mill at the Piñon Ridge Mill site (Site) in western Montrose County, Colorado. The Site covers approximately 880 acres in the southeastern portion of Paradox Valley. At the start of operations, the mill, tailings cells, evaporation ponds, ore pad, and on-site ancillary facilities will encompass approximately 220 of the 880 available acres, with the mill processing up to 500 tons of ore per day. Over the life of the operations the mill facilities will gradually expand to encompass approximately 360 acres, with a potential to expand production capacity to up to 1,000 tons per day. The projected life of mill operations is 40 years. The Stormwater Management Plan (SWMP) is developed for the initial and ultimate build-out of the mill facilities area and is provided to outline the measures that will be implemented to address the surface disturbance and the affect that the mill facilities will have on-site stormwater discharges.

The Piñon Ridge Mill site is a zero-discharge facility. The waste products from the milling operation are disposed on-site, in engineered facilities designed to protect the environment. These waste disposal facilities include the tailings cells and evaporation ponds and are designed to contain all generated wastes for the life of the operations. Precipitation and stormwater runoff contacting the mill facilities, ore pad, tailings cells, and evaporation ponds will be contained in lined ponds and used on-site within the stormwater retention area. The stormwater ponds, tailings cells, and evaporation ponds have sufficient cumulative capacity to contain the 1,000-year, 24-hour storm event. Diversion berms and channels are designed to divert run-on from the 1,000-year, 24-hour storm event around the mill facilities.

Construction and operation of the mill facilities will generate potential stormwater pollutants that will be controlled during construction and over the life of the mill. The primary method of preventing pollutants from contacting stormwater and exiting the property is through the use of Best Management Practices (BMPs). Stormwater BMPs are techniques, measures, or structural controls designed to manage stormwater runoff in such a way as to avoid pollution of stormwater in a cost effective manner. During construction, temporary BMPs will be necessary primarily to control erosion and sedimentation in the disturbed areas. After construction, permanent BMPs will be employed to meet the criteria for site-generated runoff. There are two primary categories of BMPs: non-structural and structural.

Non-structural stormwater BMPs are techniques and measures taken on an administrative level, such as good-housekeeping practices, employee training, periodic inspections and maintenance and spill response procedures, to educate employees and avoid scenarios that could potentially pollute stormwater runoff. Structural BMPs include engineered measures designed to minimize pollution of stormwater runoff from the Site. During construction, the structural BMPs may consist of erosion control matting, silt fence, straw wattles, check dams, and other various measures. After construction has ceased, the structural BMPs to be permanently utilized on-site will include diversion channels and berms, a water

quality swale between the Site access road and State Highway 90, the East and West Stormwater Ponds, the evaporation ponds, and a pipeline connecting the stormwater ponds to the evaporation pond system.

Inspections of structural stormwater management measures, erosion and sediment controls, and other structural BMPs are conducted on a monthly basis. Stormwater discharges from four pre-existing surface water sampling stations will be sampled quarterly after major runoff events. Comprehensive site compliance evaluations are performed on a semi-annual basis to evaluate the effectiveness of the stormwater management system and the SWMP. EFRC will prepare an annual report summarizing stormwater compliance and will submit the report to Colorado Water Quality Control Division, with copies to the Colorado Radiation Control Program, no later than February 15 of the following year.

1.0 INTRODUCTION

Energy Fuels Resources Corporation (EFRC) proposes to license, construct, and operate a conventional acid leach uranium and vanadium mill at the Piñon Ridge Mill site (Site) in western Montrose County, Colorado. The Property is located approximately 13 miles west of Naturita and approximately 7 miles east of Bedrock, along Colorado State Highway 90. A site location map is provided on Figure 1.

The Site covers approximately 880 acres in the southeastern portion of Paradox Valley. Site facilities will include an administration building, a 17-acre mill, tailing cells totaling approximately 30 acres (expansion capacity to 90 acres), 40 acres of evaporation ponds (expansion capacity to 80 acres), an approximately 6-acre ore storage pad, and access roads. Site layout plans for initial construction and operation and eventual full build-out are provided in Figures 2A and 2B, respectively. The mill will process ore produced from mines within a reasonable truck-haul distance.

The milling operation involves grinding the ore into a fine slurry and then leaching it with sulfuric acid to separate the uranium and vanadium from the remaining rock. Uranium and vanadium are then recovered from solution and precipitated as uranium oxide concentrate (yellowcake) and vanadium oxide concentrate, respectively. These dry concentrates are sealed in 55-gallon, steel drums and transported off-site for further processing by others. In addition to the mill, primary process facilities include an ore stockpile pad, tailings cells, and evaporation ponds. The process facilities incorporate engineered systems designed to protect human health and the environment.

At the start of operations, the mill, tailings cells, evaporation ponds, ore pad, and on-site ancillary facilities will encompass approximately 220 of the 880 available acres, with the mill processing up to 500 tons of ore per day (see Figure 2A). Over the life of the operations the facilities will gradually expand to encompass approximately 360 acres (see Figure 2B), and may potentially expand production capacity to up to 1,000 tons per day. The expected operating life of the mill is 20 to 40 years, depending on the production rate.

The Piñon Ridge site is estimated to receive an average of 12.7 inches of total precipitation per year, as recorded at the Uravan weather station from 1961 to 2007 (Golder 2008). Total lake evaporation in the area is estimated at approximately 38.0 inches annually (Golder 2008). Surface water run-off from the mill area generally drains to the northeast to the East Stormwater Pond, and to the northwest to the West Stormwater Pond. Collected water is either recycled for use at the mill or evaporated from within the stormwater ponds for most rainfall events, with extremely large events overflowing to the evaporation ponds for subsequent reuse or evaporation. The mill, ore pad, and waste disposal areas comprise a zero-discharge area, with un-impacted water diverted around the zero-discharge area and allowed to discharge off-site. The zero-discharge area encompasses approximately 120 acres during initial operations and 240 acres at full build-out of the mill (see Figures 2A and 2B).

The Stormwater Management Plan (SWMP) is developed for the initial and ultimate build-out of the mill facilities area and outlines the measures that will be implemented to address the surface disturbance and the affect that the mill facilities will have on site stormwater discharges. The information within this document is provided to meet Colorado Department of Public Health and Environment's (CDPHE's) Water Quality Control Division and Radiation Management Program requirements for permitted stormwater discharges as part of the application for the radioactive material license.

2.0 FACILITY INFORMATION

2.1 Physical Address

Energy Fuels Resources Corporation (EFRC) proposes to license, construct, and operate a conventional acid leach uranium and vanadium mill at the Piñon Ridge Mill site (Site) in western Montrose County, Colorado. The Site address is:

Piñon Ridge Mill
16910 Highway 90
Bedrock, CO 81411

2.2 Permitting Requirements

The following permits are required by the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE) for the Site:

- Colorado Discharge Permit System Permit for Stormwater Discharge Associated with Construction Activities (General Permit No. COR03-0000); and
- Colorado Discharge Permit System Permit for Stormwater Discharge Associated with Metal Mining (General Permit No. COR04-0000).

The construction stormwater permit will be obtained as part of the final design of the mill. The operating stormwater permit will be obtained in advance as part of the overall facility permitting with CDPHE. A process water discharge permit for the mill is not required because the mill is a zero-discharge facility. All stormwater discharges associated with the facility are from undeveloped areas and ancillary facilities such as roads, production wells, monitoring stations, truck scales, and the administration building.

The permitee for the Site is:

Energy Fuels Resources Corporation
44 Union Boulevard, Suite 600
Lakewood, CO 80228

2.3 Personnel

The SWMP Administrator for the Site will be the Assistant Radiation Safety Officer (Assistant RSO). Currently, the Assistant RSO for the Site is Zach Rogers (303-974-2151).

3.0 EFFLUENT LIMITATIONS

The Piñon Ridge Mill is a zero-discharge facility. The waste products from the milling operation are disposed on-site, in engineered facilities designed to protect the environment. These facilities are designed to contain generated wastes for the life of the operations. Diversion berms and channels are designed to divert run-on from the 1,000-year, 24-hour storm event around the mill and waste disposal facilities. The mill area, ore stockpile pad, tailings cells, and evaporation ponds are designed to contain precipitation and runoff from the 1,000-year, 24-hour storm event within lined ponds. Ancillary mill facilities including soil stockpiles, the administration building and parking lot, access roads, truck scale, and various monitoring stations are not part of the zero-discharge facility. Surface water runoff within these ancillary facilities and the undeveloped portion of the property will drain to existing ephemeral washes within the Site.

As shown on Figure 3, portions of five drainage basins encompass the Site. Of these drainage basins, three are large enough in extent to generate surface water runoff sufficient for sampling during precipitation and/or snow melt events. Surface water samplers S-1, S-2, and S-3 were installed in these three basins (Basins 1, 4, and 5) at the points where surface flows exit the property (i.e., northwest corner, northeast corner, and east property line). A fourth sampler (S-4) was installed in Basin 1 where surface water runoff enters the property (i.e., north property line). Since these samplers were installed in February 2008, ten snowmelt and precipitation events have occurred that generated sufficient runoff for surface water sampling. Samples were typically collected at S-1 and S-3; however, only two samples were collected at S-2 (both snowmelt events) and one sample was collected at S-4 (intense precipitation event) (Golder 2009).

Based on field reconnaissance, it was determined that drainage Basins 2 and 3 and their associated washes were not large enough to generate sufficient runoff to allow for sampling. These drainages will be further truncated by the construction of the evaporation ponds.

Samplers S-1 through S-4 will continue to be monitored during facility construction and operation on a quarterly basis. Sampler S-2 will need to be temporarily removed and later reinstalled during the construction of the permanent Site access from Highway 90 and the water quality swale. The water quality swale is to be constructed in the segment of channel between the access road and SH 90 for the purpose retarding flow before crossing the highway and leaving the property. This swale acts as a final stormwater and sediment control facility before the runoff collected from the access road exits the Site. Similar controls are not proposed for Basins 1 and 5 because they will remain largely undeveloped and will not be impacted to the same extent as Basin 4.

The four samplers will be checked after significant storm events (i.e. greater than 0.1 inches of recorded precipitation depth) or snowmelt events. When water is flowing sufficiently to be collected in the surface water samplers, a minimum of one sample will be collected and analyzed per quarter per sampler and for

each type of event (i.e. snowmelt and storm). The results will be compared to the collected baseline data (Golder, 2009) for the Site and to the regulatory standards for Segment 3a of the Dolores River and agricultural use. These guidelines and standards do not apply to non-point discharge sources at the Site, but will provide a relative gauge of the water quality of the Site's runoff. Additional details on the surface water monitoring program are presented in Section 8.2 and the Operational Monitoring Plan (Visus, 2009b).

4.0 STORMWATER MANAGEMENT CONTROLS

4.1 Site Overview

Existing drainage across the property is in generally a northern direction. Elevations across the Site range from 6,020 feet above mean sea level (amsl) on the lower flank of Davis Mesa to the south, to 5,417 feet amsl near the center of Paradox Valley to the north. The majority of the Site is relatively flat with less than 300 feet of relief from south to north, and is crosscut by minor, ephemeral arroyos or washes.

Within the facility footprint, the mill, ore pad, tailings cells, and evaporation ponds are designed as "zero discharge" facilities. Precipitation and stormwater runoff that contacts these areas will be contained on-site in lined ponds or cells and evaporated or recycled for use in the mill. Within the mill operations area, the runoff is directed to two stormwater ponds. The West Stormwater Pond was sized to collect and store the entire 100-year runoff volume generated by a majority of the mill area within a lined impoundment for disposal by evaporation. The East Stormwater Pond was sized to collect and store the 100-year runoff volume generated by the ore pad, the truck decontamination station, and a small portion of the mill area within a lined pond for disposal by evaporation. Additional volume is provided in each pond for storing and routing the 1,000-year runoff volume into the Stormwater Ponds Overflow System (Kleinfelder 2009a; 2009b).

The Stormwater Ponds Overflow System is a storm drain system consisting of 18 to 36-inch diameter high density polyethylene (HDPE) pipe. This storm drain receives outflows from the East and West Stormwater Ponds in excess of the 100-year pond elevation and is designed to convey the entire 1,000-year runoff. The storm drain system outfalls into the evaporation ponds near the north end of the Site. The evaporation ponds have sufficient capacity to contain the 1,000-year flow volumes. The evaporation pond system will have channels along the south edge of its footprint to divert run-on to the east and west into drainages that discharge off-site. The tailings cells are protected from run-on by the mill area and embankments and have sufficient capacity for tailings storage and direct precipitation from the 1,000-year, 24-hour storm event. From a previous Site drainage study, the 100-year, 24-hour rainfall depth was determined to be 3.0 inches and the 1,000-year, 24-hour rainfall depth impacting the Site is 4.4 inches (Kleinfelder 2009a; 2009b).

Precipitation and runoff from the surrounding undisturbed/unimproved areas will be diverted around the zero-discharge area into the existing drainage network. Diversion berms and channels are located near the southern end of the Site around the perimeter of the mill area and the ore stockpile to divert stormwater run-on. These drainage facilities will remain in place after closure and have been designed with the capacity to contain or convey the 1,000-year, 24-hour rainfall event. Stormwater runoff from the administration facility and other ancillary site structures (e.g., monitoring stations, water supply well field, access roads) outside of the zero-discharge area will be handled using best management practices

("BMPs") for stormwater and erosion control. See Figures 2A and 2B for an overview of the site layout and the proposed drainage design after Phase 1 construction and at full project build-out, respectively.

4.2 Potential Pollutant Sources

Potential pollutant source activities and areas and their associated potential pollutants are summarized in Table 1. See Figures 2A and 2B for the locations of these areas and facilities.

4.2.1 Disturbed Areas

Various disturbed areas will be located within the Site over the course of the initial construction through expansion and ultimate build-out. Topsoil and subsoil will be removed and stockpiled along the west side of the property during construction activities. Since the south diversion channel and berm have been designed to divert stormwater run-on around the Site, the disturbed areas will predominately be cut and fill slopes necessary to construct the individual facilities within the Site. The south diversion channel and berm will remain in place after closure and reclamation of the facility, and has been designed for the 1,000-year, 24-hour storm event.

Disturbed areas will be re-vegetated with a native seed mix to stabilize the surfaces when no further construction activities are planned in the near future. Temporary erosion control measures will be implemented and maintained in the disturbed areas until permanent vegetation is established. Temporary erosion controls may include, but are not limited to, straw wattles, straw bale barriers, silt fences, erosion control blankets, temporary vegetation, rough-cut grading and sediment traps.

4.2.2 Ore Pad and Ore Unloading

A six-acre engineered ore pad will be constructed in the area immediately east of the mill to receive and store the ore that is delivered to the Site for processing. Approximately one acre of the ore pad located closest to the feed hopper and conveyor will be lined with concrete. The remaining five acres will be lined with a geosynthetic clay liner covered with a protective layer of compacted native soils and roadbase materials. Stormwater run-on to the area is diverted by the south diversion channel. Stormwater runoff from the entire ore pad area will drain into a concrete-lined sediment basin (i.e., truck decontamination station) at the northeast corner of the ore pad before ultimately draining to the lined East Stormwater Pond.

Ore will be delivered to the Site in 24-ton capacity highway trucks via State Highway 90. The delivered ore will be stockpiled on the ore pad and ultimately processed in the mill. Haul trucks entering the Site will be weighed at an on-site truck scale before continuing to the ore pad facility. After being weighed, trucks will move onto an elevated dumping platform at the east end of the ore pad and dump their loads over a retaining wall onto the ore pad without entering the ore pad area. If the haul truck is not equipped to end dump the ore, the haul truck may access the ore pad via an access road on the south side. Haul trucks driving directly on the ore pad will require decontamination at the truck decontamination

station prior to exiting the licensed area. Haul trucks accessing the dumping platform will be scanned and decontaminated, if necessary, prior to exiting the Site. A front-end loader will move the ore from below the dumping platform to one of several ore stockpiles or directly to the mill feed hopper. Stormwater runoff from the elevated dumping platform will be directed to the riprap-lined diversion channel located on the west side of the Site access road. Fugitive dust and sediment loading of runoff will be minimized by the use of chemical soil stabilizers on the ore pad area.

4.2.3 Access Roads

There is one main access road into the mill area, with direct access from State Highway 90 (SH 90). The initial 150 feet of this road is asphalt and the remainder will be gravel. Chemical stabilizers will be applied to the gravel portion of the road per manufacturer's recommendations to minimize dust generation from Site traffic. The access road is sloped to direct stormwater runoff from the road to a riprap-lined diversion ditch along the west side of the road. Runoff entering the ditch will flow into the water quality swale (monitored at S-2) before crossing under SH 90 via a culvert and exiting the property. Motor oil and lubricants on the main access road may be present in *de minimus* quantities.

There are also a series of secondary roads throughout the Site, which range from gravel to two-track roads. Gravel roads will be maintained in the same manner as the main access road. Dirt and two-track roads will see very little traffic and will not be sealed or watered.

4.2.4 Structural Fill Stockpile

Excess excavated soil suitable for placement as Structural Fill during future site expansion or Radon Barrier material during tailings cell closure will be stored in a stockpile near the western property boundary. The stockpile, which is outside of the zero-discharge facility, will be stabilized with vegetative cover as soon as practicable to prevent erosion. Permanent vegetative cover will be established with a seed mix applied during the fall season. Drainage from this area resulting from storm events flows through the northwest corner of the property and joins other ephemeral drainages prior to discharging into East Paradox Creek. An existing surface water monitoring station (S-1) is located within the drainage near the property boundary.

4.2.5 Topsoil Stockpile

Topsoil will be removed and stockpiled along the west side of the property prior to construction activities and during phased expansion of the facility. The topsoil stockpiles will be stabilized with vegetative cover as soon as practicable to prevent erosion. Permanent vegetative cover will be established with a seed mix applied during the fall season. The Topsoil Stockpile is outside of the zero-discharge area and drainage from this area is similar to that described for the Structural Fill Stockpile above.

4.2.6 Mill Area

Chemical reagents, diesel fuel, gasoline, and propane used in the ore processing operation will be stored on-site in closed tanks and/or weatherproof buildings within the mill area. A summary of the chemicals stored on-site in significant quantities with a description of secondary containment measures is presented in Table 2.

Mill employees and contractors will be trained in proper handling, storage and use of the chemical reagents and fuels consumed on-site. The storage and use of these products, including procedures for emergency response, cleanup of spills, and spill reporting have been defined in Section 6.0. Additional measures associated with the handling and storage of these materials can be found in the Material Containment Plan (EFRC, 2009a) and Spill Prevention Control and Countermeasure (SPCC) Plan (EFRC, 2009b) for the Piñon Ridge Mill.

Uranium yellowcake and vanadium recovered from the milling process will be packaged in 55-gallon steel drums for shipment. The exterior of each uranium yellowcake barrel will be washed and monitored for radioactivity and then labeled according to Department of Transportation requirements. After packaging and prior to shipment, the drums will be temporarily stored in a secure facility at the Site.

Other sources of runoff within the mill facility footprint include the gravel parking lot, mill buildings, and process equipment and tanks. All processing areas are provided with secondary concrete containment with double-contained collection sumps. Stormwater run-on to the mill area is blocked by the southern diversion berm and channel. Stormwater runoff from the mill area collects in either the East or West Stormwater Pond.

4.2.7 Evaporation Ponds

Excess solution that remains after the uranium and vanadium minerals have been recovered (i.e., the raffinate solution) will be pumped to a series of connected, shallow pond cells for evaporation. The raffinate solution contains high levels of salts and cannot be easily recycled. Evaporation of the raffinate solution may be enhanced by mechanical means (i.e., the use of bubblers, fountains, or sprinklers) within the central area of the ponds.

The evaporation pond system will have channels along the south edge of its footprint to divert stormwater run-on to the east and west into drainages that discharge off-site. The evaporation ponds will have sufficient capacity to contain the raffinate solution, the precipitated salts, the direct precipitation from the 1,000-year, 24-hour storm and the 1,000-year flow volumes from the East and West Stormwater Ponds such that no stormwater runoff exits the evaporation pond area.

4.2.8 Tailings Cells

The tailings cells are synthetically-lined impoundments approximately 70 feet deep. The tailings consist of all materials remaining in the ore following the extraction of uranium and vanadium plus chemical reagents consumed during processing. The main radioactive materials remaining in the tailings in small percentages are Thorium-230 and Radium-226. After the tailings slurry is discharged to a cell for permanent disposal, the tailings materials (i.e., silts and sands) settle and the majority of the water is recovered by a floating pump barge. In the summer months, the deposited tailings may dry out making it necessary to spray these areas to mitigate dust. Additionally, each cell or subcell has an underdrain system, designed to recover any water seeping through the tailings which is not recovered by the surface reclaim pump system. The recovered water is returned to the mill for reuse.

Stormwater run-on is effectively diverted by the south diversion berm and channel, on-site facilities, and tailings cell into drainages that discharge off-site. The lined tailing cells are designed predominantly below ground level with sufficient freeboard to contain the direct precipitation from the 1,000-year, 24-hour event.

4.2.9 Truck Decontamination Station

Under certain situations, haul trucks may not use the dumping platform, instead entering directly onto the ore pad to dump their loads. Upon leaving the ore pad, these trucks will be washed at the on-site truck decontamination facility and screened for radiation prior to leaving the Site. Equipment and other materials used within the licensed area will also need to be washed and scanned prior to leaving the Site for repairs, disposal, or other purposes. The truck decontamination facility is a partially enclosed and fully automated system consisting of a heavy-duty angle iron truck platform with high pressure water sprays mounted both below and on the sides. A concrete sediment basin collects water and sediment from the wash cycle. Water that collects in the sediment basin is pumped back to the truck wash for filtering prior to being reused. Sediment collected in the bottom of the sediment basin is removed periodically and placed in a designated area on the ore pad where it is allowed to dry. After drying, it is mixed with ore and processed in the mill. Motor oil and lubricants collected at this station may be present in *de minimus* quantities.

Stormwater run-on is effectively diverted by the south diversion channel and surrounding on-site facilities. Stormwater runoff from the truck decontamination station is directed to the concrete sediment basin that collects the wash water. This basin is hydraulically linked to the East Stormwater Pond.

4.2.10 Administration Building and Other Ancillary Facilities

The Administration Building is located in the northeast corner of the property near the Site access. It is accessed by a secondary gravel road and has a gravel parking lot. The road and parking lot will be sealed with a chemical stabilizer on a routine basis. The Administration Building is outside of the zero-discharge area.

Runoff from the Administration Building area is directed toward the Water Quality Swale and will be controlled with BMPs. Other smaller structures on-site that are outside of the zero-discharge area include the Guard House, air and ground water monitoring stations, production wells, and the truck scale. Runoff from these areas will also be controlled with BMPs. Stormwater impacts from these ancillary facilities are expected to be minimal given that most of these structures are on flat to moderate slopes and are surrounded by undeveloped land with mature vegetative cover.

5.0 BEST MANAGEMENT PRACTICES

On-site stormwater management includes maintaining the natural flow of stormwater through the property to the extent possible, with some flows that come into contact with processing or waste disposal areas are captured, as necessary, to avoid potential contamination of the Site drainages. Stormwater is controlled on the Site by use of Best Management Practices (BMPs). Stormwater BMPs are techniques, measures, or structural controls designed to manage stormwater runoff in such a way as to avoid pollution of stormwater in a cost effective manner. During construction, temporary BMPs will be necessary primarily to control erosion and sedimentation in the disturbed areas. After construction, permanent BMPs will be employed to meet the criteria for mill-generated runoff. Stormwater BMPs can be divided into two types: non-structural and structural.

5.1 Non-structural BMPs

Non-structural stormwater BMPs are techniques and measures taken on an administrative level to educate employees and avoid scenarios that could potentially pollute stormwater runoff. Non-structural BMPs are to be implemented both during construction and for the life of the mill operations. Non-structural BMPs include good housekeeping, preventive maintenance, spill prevention, inspections, and employee training.

5.1.1 Good Housekeeping

Good housekeeping on the Site refers to proper storage of materials and disposal of wastes. Improper storage and waste disposal techniques often contribute to stormwater pollution. The following good housekeeping practices are implemented at the Site:

- Adequate garbage, construction waste, and sanitary waste handling and disposal facilities are provided to keep the Site clear of potential pollutants and pollutant sources.
- Wastes are disposed of in accordance with manufacturer's instructions and applicable state and federal guidelines.
- Materials and wastes no longer required for the operation of the mill will be removed from the Site or disposed of in a Tailings Cell as soon as practicable.
- Potential pollutants and pollutant sources are handled in such a way as to minimize contamination of stormwater.
- Chemicals and petroleum products stored on-site will be covered, contained, and protected from accidental release.

5.1.2 Preventive Maintenance

Preventive maintenance includes maintaining facility structures and equipment to reduce the likelihood of pollutants reaching the stormwater system. The following measures are taken to accomplish this task:

- Identification of potential pollutant sources, including roads, the ore pad, parking lots, truck decontamination station, stockpiles, fueling areas, evaporation ponds, tailings cells, material storage areas, and the mill facility.

- Monthly inspections and semi-annual comprehensive site compliance evaluations of potential pollutant source.
- Appropriate and timely maintenance, repair, or replacement of control measures and equipment. This may include repair to structural BMPs such as removing sediments and vegetation from stormwater culverts.

Section 8.1 provides more detailed information regarding the procedures for the monthly site inspections. Appendix C provides a sample site inspection form for documentation purposes.

5.1.3 Spill Prevention and Response Procedures

Appropriate storage and containment facilities have been designed and provided for chemical reagents, petroleum products, and wastes. In addition, training on the proper and safe use of the storage and containment facilities is provided to the employees that use these facilities. In case of a spill, appropriate response and reporting procedures shall be taken. These procedures are outlined in detail in the Piñon Ridge Mill Materials Containment Plan (EFRC, 2009a) and SPCC Plan (EFRC, 2009b). Copies of these plans will be available at the mill facility.

5.1.4 Inspections

BMP inspections and comprehensive site compliance evaluations of areas of the Site with potential pollutant sources will be conducted on a monthly and semi-annual basis, respectively. Additional site stormwater inspections may be conducted more frequently, especially following significant storm events. Details regarding the evaluations are included in Sections 8.1 and 8.3. Completed inspection reports are to be inserted in Appendix D.

5.1.5 Employee Training

Stormwater management training is provided to each site employee upon hire. In addition, on-site training is provided to site personnel responsible for compliance with the SWMP on an annual basis or more frequently, as-needed. Training is conducted by a member of the pollution prevention team or other qualified professional. Training may be included in other formal training sessions (e.g., safety training) related to activities and operations at the Site. Training components include goals and requirements of the SWMP including, but not limited to the following:

- General Stormwater Management
- Spill Response
- Good Housekeeping
- Material Management Practices

The date and time, topics, instructor and attendees of the stormwater training sessions are to be documented in Appendix E. General safety and orientation training for new employees that includes stormwater topics does not need to be recorded on the stormwater training documentation form.

5.2 Permanent Structural BMPs

Structural BMPs include engineered measures designed to minimize pollution of stormwater runoff from the Site. Permanent structural BMPs are implemented for the life of the mill operations. The permanent structural BMPs utilized at the Site are shown on Figures 2A and 2B for the Phase 1 facility and for the full build-out, respectively, are described in the following sections. A summary of the permanent structural stormwater controls and the design of these controls is provided in Appendix A.

5.2.1 Sediment and Erosion Controls

Sediment and erosion control at the Site is accomplished through the use of diversion channels, ditches and berms designed to divert stormwater run-on around the on-site facilities. Although the mill facility will be developed in several phases, the permanent sediment and erosion controls necessary for the full site build-out will be constructed during Phase 1. The southern diversion channel and southern berm will be constructed at the beginning of construction to effectively divert run-on around the site facilities. During Phase 1, the evaporation pond system will have channels constructed along the southern edge of its footprint to divert stormwater run-on to the east and west into natural drainages that discharge off-site. Since the Phase 1 evaporation pond footprint is the furthest upstream of the proposed ponds, the Phase 2 expansion of the evaporation ponds will not be subject to run-on. The soil stockpile areas on the west side of the Site will also incorporate berms to effectively divert run-on for Phase 1 construction through subsequent expansion. Stormwater runoff from the main access road is conveyed by a riprap-lined ditch along the west side of the road. This ditch will flow into the water quality swale before exiting the property.

5.2.2 Water Quality Swale

The water quality swale at the downstream end of the haul road ditch is designed to significantly slow down the flow velocity of runoff within the ditch in order to provide sediment settling. With the incorporation of vegetation in this channel, minor pollutant removal can be achieved prior to flows crossing State Highway 90 and exiting the property. Additional design details regarding this swale are provided in the drainage design report prepared for the Site (Kleinfelder 2009b).

5.2.3 Stormwater Impoundments

The East and West Stormwater Ponds are provided to intercept and store runoff originating predominately from the mill area and ore pad. These ponds are designed to store the 100-year runoff volume from these site facilities. If these ponds receive additional runoff exceeding the 100-year storage capacity, the impounded water will be routed to the evaporation pond cells via the on-site storm drain system. The evaporation cells contain sufficient capacity to retain the 1,000 year runoff volumes.

5.3 Temporary Structural BMPs

Temporary structural BMPs will be necessary during construction of the initial phase and future expansion phases within the Site to mitigate erosion during construction and to minimize the amount of sediment entering a watercourse and exiting the property. The primary goals of temporary structural BMPs are to promptly stabilize disturbed soils, prevent soil erosion, and prevent sediment from exiting the Site. Examples of temporary structural BMPs are detailed in the following sections, but additional BMPs may be necessary depending on specific conditions encountered during construction. Installation and design specifications for many of the temporary BMPs that may be used are provided in Appendix B.

5.3.1 Soil Stabilization

Soil stabilization measures include applying water and binders for dust control and seeding or placing geotextile mats on exposed slopes. These measures are to be used to stabilize disturbed areas if construction activities have temporarily ceased. When construction is completed, these measures are also used in the interim prior to permanent stabilization of these areas.

5.3.2 Erosion Control

Erosion controls include the use of erosion control blankets, turf reinforcement mats and rock outlet protection. Erosion control blankets or turf reinforcement mats are more appropriate along steeper slopes. Rock outlet protection is to be placed at the outlets of the proposed drainage culverts to prevent erosion within the receiving ditch or swale until these areas are permanently stabilized.

5.3.3 Sediment Control

Sediment controls such as silt fences, straw bale barriers, straw wattles, check dams, sand bag barriers and stabilized construction entrances can prevent sediment from exiting the property. Silt fences, straw bales and straw wattles are to be installed along level contours and can be used along moderate slopes not subject to concentrated flows. Check dams can be used within the channel and swale bottoms to retard flow and promote sediment deposition. Straw bales and straw wattles can be used as check dams for small runoff volumes in unlined ditches, but rock check dams are to be used for larger flows or where channel lining would interfere with proper installation. Sand bag barriers installed upstream of culvert inlets will prevent deposition of sediment within the culverts. Stabilized construction entrances, consisting of a nominal thickness of angular aggregate, are to be placed at the area where construction vehicles enter and exit the Site from a paved roadway (i.e., SH 90) to prevent tracking of sediment onto that roadway.

6.0 SPILLS AND LEAKS

Any spills or leaks of toxic or hazardous pollutants will be contained and cleaned immediately. A Materials Containment Plan (EFRC, 2009a) and SPCC Plan (EFRC, 2009b) have been prepared for this Site. These plans outline measures taken to prevent spills and, in case of a spill, measures to be taken to contain, clean, and report the spill. Spill clean-up materials for small spills are located on-site and are inspected regularly. In addition, heavy equipment is available on-site to respond to larger spills. Spills or unauthorized discharges of toxic or hazardous pollutants over the term of the stormwater discharge permit shall be documented in Appendix F and reported to the CDPHE in accordance with the Materials Containment and SPCC Plans.

7.0 NON-STORMWATER FLOWS

Non-stormwater flows at the Site consist primarily of non-potable water and recycled or evaporated process water. The non-potable water is used as make-up water for uranium and vanadium processing, truck decontamination, equipment cleaning and dust suppression. During emergency situations, the non-potable water will be used for fire suppression purposes, possibly resulting in non-stormwater flows. The recycled water obtained from the tailings cells is also used for processing to minimize freshwater consumption. Excess raffinate solution from the solvent extraction system is pumped to the evaporation ponds.

8.0 INSPECTIONS AND MONITORING

Different types of inspections and monitoring of the stormwater facilities and discharges are performed on a monthly, quarterly, and semi-annual basis. Inspections are conducted by a member of the pollution prevention team or site personnel that have been specifically trained to conduct the inspections. The contents and requirements of these inspections are described in the following sections. Blank and completed inspection forms are included in Appendices C and D, respectively.

8.1 Monthly BMP Inspections

Inspections of structural stormwater management measures, erosion and sediment controls, and other structural BMPs are conducted on a monthly basis. Monthly inspections will concentrate on the collection and diversion channels and berms, fueling areas, and chemical storage areas. These inspections can be conducted anytime during the month and do not need to be conducted following a storm event. However, inspections immediately following storm events can reveal weaknesses or inadequacies of BMPs and should be performed when possible. The content of these inspections include observations of evidence of, or the potential for, pollutants entering the drainage system and erosion and sediment controls. In addition to stormwater controls, the stockpiles and stormwater ponds will be inspected for potential stability problems during the monthly BMP inspections. Observations of the inspections will be documented on the BMP Inspection Form included in Appendix C. The completed inspection forms will be retained in Appendix D.

8.2 Stormwater Sampling Program

Surface Water Samplers S-1, S-2, S-3 and S-4 will be checked after storm and snowmelt events. If a sufficient volume of water is present in a sampler, samples will be collected and analyzed. Sample collection will be limited to one snowmelt and one precipitation event per quarter per sampler. An effort will be made to collect a stormwater sample from each sampler every quarter. However, the drainages are typically dry for a large portion of the year and it may not always be possible to collect a stormwater sample from each sampler in each quarter.

The on-site samplers consist of a polyethylene catchment box, nested inside a Quazite concrete composite vault. The double-box arrangement is installed below grade and at sufficient depth to resist displacement during storm events. Within the box system a series of 0.020-inch slotted 4-inch diameter polyvinyl chloride (PVC) tubes are used for pre-filtration to reduce sediments in the water samples. (Kleinfelder 2008)

Samples will be collected as grab samples from the PVC tube inserts. During each sampling event the sampling technician will record the volume of water removed from the sample collection catchment and the precipitation total on the adjacent rain gage. Samples for dissolved constituents will be field-filtered into laboratory prepared sample containers. When suspended solids are high, it may not be practical to

field-filter the dissolved constituents samples. In this case the sample will then be collected without filtration or preservation. Special instructions will be given to the laboratory to filter and preserve these samples in the laboratory. Samples for the total constituent analysis will not be filtered. (Kleinfelder 2008).

The samples that require preservation will be preserved using the specific acid preservative required for the constituent analysis (nitric acid, sulfuric acid, etc). The samples will be stored and chilled to 4°C with ice, immediately upon collection. Chain of Custody (COC) documentation will accompany the samples from the time of sampling to laboratory receipt. Anytime the samples are transferred from one party to another, each individual will record the date and time of transfer and sign the COC document (Kleinfelder 2008).

Visual observations of the stormwater sample will be documented including color, odor, clarity, solids content, and evidence of pollutants in the stormwater discharge. In addition to these characteristics, the examination date and time, examination personnel, nature of the discharge, and probable sources of any observed stormwater contamination will be noted. Visual examination of the sample is made during daylight hours, when possible, and in a well lit area when sample collection occurs otherwise. Visual observations will be noted on the Stormwater Sampling Form, included in Appendix C. The completed sampling forms will be retained in Appendix D.

Analytical results of the stormwater samples will be compared to previously collected baseline (Golder, 2009) and operating sample data for the Site. The results will also be compared to the Colorado Water Quality Control Division's (WQCD's) water quality standards for agriculture and Segment 3a of the Lower Dolores River Basin and to Federal Effluent Limitation Guidelines and Standards for uranium, radium and vanadium ores. These guidelines and standards do not apply to non-point discharge sources at the Site, but will provide a relative gauge of the water quality of the Site's runoff. The parameters to be analyzed for are listed in Table 3.

In the event that concentrations of one or more constituents in the sampled runoff exhibit significant increases at one or more samplers, the source of the increased concentrations will be identified and mitigated. Mitigation may include repairs or modifications to structural BMPs at the Site. The results of the stormwater monitoring program will be reported annually to Colorado's WQCD and Radiation Management Program. Additional sampling and analytical information is provided in the Operational Monitoring Plan (Visus, 2009b)

8.3 Semi-Annual Comprehensive Site Compliance Evaluations

Comprehensive site compliance evaluations are performed on a semi-annual basis, in the spring and fall, and are designed to evaluate the effectiveness of the stormwater management system and the SWMP, modifying them accordingly.

8.3.1 Facility Inspection

The facility inspections include the same equipment and areas with potential pollutant sources as the monthly BMP inspections. However, the semi-annual comprehensive site compliance inspections are to evaluate whether the structural stormwater management measures, erosion and sediment controls, and other structural pollution prevention measures are adequate, properly implemented and operating correctly. The inspections will also help to determine whether additional control measures are required. In addition, equipment needed to implement the SWMP, such as spill response equipment, is inspected. Observations of the evaluation will be documented on the BMP Inspection Form included in Appendix C. A summary of the inspection with recommendations will be prepared by the inspector and reviewed by the SWMP Administrator. Completed inspection forms and the summary report will be retained in Appendix D.

8.3.2 Modification to the SWMP

Based on the results of the semi-annual comprehensive site compliance inspection, the stormwater compliance program and/or SWMP may be revised as appropriate. Following review of the comprehensive site compliance evaluation summary report, the SWMP Administrator, in consultation with the Plant Manager and Vice President of Regulatory Affairs, will determine which changes, if any, will be made to the stormwater compliance program and/or SWMP. Implementation of required stormwater and erosion controls identified during the inspection will be made as soon as practicable.

9.0 REPORTING

EFRC will prepare an annual report summarizing stormwater compliance and will submit the report to the Colorado WQCD and the Colorado Radiation Control Program. The annual report will include the following items:

- Implementation of stormwater measures taken;
- Changes or improvements to BMPs;
- Employee training;
- Spills, if any;
- Changes to the SWMP, if any;
- Summaries of semi-annual comprehensive facility inspections including findings and actions taken; and
- Results of the stormwater monitoring program.

The annual reports will be retained in Appendix D for a minimum of three (3) years.

10.0 CLOSING

The Stormwater Management Plan for Piñon Ridge Mill was developed using standard industry practice and the best available information. This SWMP may be modified in the future to better suit conditions encountered on-site that were not anticipated during the preparation of this document.

Respectfully Submitted,

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SPS/KFM/kag

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TABLES

TABLE 1
POTENTIAL POLLUTANT SOURCES

Potential Pollutant Source	Potential Pollutants
Disturbed Areas	Sediment
Unloading Operations	Dust generation, ore
Haul Roads	Dust generation, sediment, *de minimus* amounts of motor oil or lubricants
Ore Pad	Dust generation, sediment, *de minimus* amounts of motor oil or lubricants
Structural Fill Stockpile	Sediment
Topsoil Stockpile	Sediment
Mill Area	Leaching chemicals, reagents, diesel fuel, gasoline
Evaporation Ponds	Raffinate, salts
Tailings Cells	Dust generation, raffinate
Truck Decontamination Station	Ore, sediment, minor amounts of motor oil or lubricants

TABLE 2

STORAGE TANK INVENTORY

Type	Size	Contents	Location	Secondary Containment
AST	2 @ 129,000 gallons	93% Sulfuric Acid	Mill Facility (SE Corner)	Concrete containment (See Note 1)
AST	12,000 gallons	Ammonia	Mill Facility (NW Corner)	Concrete containment (See Note 2)
Storage Hopper	6,280 cubic feet	Ammonium Sulfate	Mill Facility (West Side)	Concrete containment (See Note 1)
AST	11,800 gallons	Ammonium Sulfate Solution	Mill Facility (West Side)	Concrete containment (See Note 3)
IBC	4 @ 275 gallons	50% Sodium Hydroxide	Warehouse	Concrete containment (See Note 4)
AST	4,500 gallons	8% Sodium Hydroxide	Mill Facility (West Side)	Concrete containment (See Note 3)
AST	98,100 gallons	39% Sodium Chlorate	Mill Facility (West Side)	Concrete containment (See Note 1)
AST	26,400 gallons	31% Sodium Carbonate	Mill Facility (West Side)	Concrete containment (See Note 1)
AST	15,200 gallons	15% Sodium Carbonate	Mill Facility (West Side)	Concrete containment (See Note 1)
AST	7,100 gallons	50% Hydrogen Peroxide	Mill Facility (West Side)	Concrete containment (See Note 3)
AST	38,100 gallons	Kerosene	Mill Facility (NW Corner)	Concrete containment (See Note 1)
IBC	4 @ 275 gallons	Amine	Warehouse	Concrete containment (See Note 4)
IBC	4 @ 275 gallons	Isodecanol	Warehouse	Concrete containment (See Note 4)
AST	30,000 gallons	Propane	Mill Facility (SW Corner)	Concrete containment (See Note 2)
AST	6,000 gallons	Propane	Administration Building	Concrete containment (See Note 2)
AST	12,000 gallons	Diesel Fuel	Mill Facility (NW Corner)	Concrete containment (See Note 5)
AST	3,600 gallons	Diesel Fuel	Emergency Generator Mill Facility (East Side)	Concrete containment (See Note 5)
AST	300 gallons	Diesel Fuel	Fire Water Pump Mill Facility (West Side)	Concrete containment (See Note 5)
AST	2,000 gallons	Gasoline	Mill Facility (NW Corner)	Concrete containment (See Note 5)
AST	321,700 gallons	Raw Water	Mill Facility (West Side)	None
AST	2 @ 10,200 gallons	Process Water	Mill Facility (West Side)	Concrete containment (See Note 3)

AST (Above-ground Storage Tank) IBC (Intermediate Bulk Container)

Table 2 Notes:

1. Concrete containment consists of reinforced concrete pad with walls sized to contain largest tank volume plus 10% and double-contained collection sump to collect any leakage or precipitation.
2. Concrete containment consists of reinforced concrete pad and walls for protection from vehicular traffic.
3. Indoor concrete containment consists of reinforced concrete floors and walls sized to contain largest tank volume plus 10% and double-contained collection sump to collect any spillage.
4. Indoor concrete containment consists of reinforced concrete floors and walls sized to contain largest tank volume plus 10%.
5. Fuel tanks are double-walled for secondary containment and located on concrete pads with protection from vehicular traffic.

TABLE 3

STORMWATER ANALYTICAL PARAMETERS

Parameter
General Water Quality Parameters
Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
pH
Nitrate plus Nitrite (as N)
Fluoride
Dissolved Metals
Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium (total)
Copper
Iron
Lead
Manganese
Mercury (inorganic)
Molybdenum
Nickel
Potassium
Selenium
Silver
Thallium
Uranium
Vanadium
Zinc
Total Metals
Chromium
Dissolved Radionuclides
Gross alpha
Radium-226
Radium-228
Thorium-230
Lead-210
Total Radionuclides
Radium-226
Radium-228
Thorium-230
Lead-210

FIGURES