

Sediment Drying Area Plan and Procedures

Site Description

SCM proposes constructing a sediment drying area located on the east side of the Par 1 reclamation area. The area has been previously disturbed due to mining in Pit #2. The drying cells would be located in close proximity to the wash bay facilities and existing landfarm. The size of the proposed facility will consist of five 50' x 200' cells. The overall facility will measure approximately 800' long x 200' wide. The clay liner will be machine compacted in two size inch lifts to a thickness of twelve inches. The sump will be lined and compacted in a like manner. The sump and drying cells will be visually monitored monthly for side berm and erosion potential. Periodically, the accumulated water will be removed for re-use or proper disposal. Sampling for the TPH will occur prior to any release of fluids from the drying area.

Local hydrology conditions are presented visually on the enclosed map. Ground water monitoring wells SP-1 and 81-115-IBW are located near the proposed drying area. The proposed location is located approximately 100' feet south of Pond 7. Spring Creek, an ephemeral drainage, is located approximately 200' to the west of the site across the Neco Road. Due to the proposed compacted liner and the associated containment berm, no contamination of the hydrologic regime is anticipated.

Operation & Sampling

SCM will haul wash bay sump sediment to the drying cells. The cells will be graded to drain the water to the drying cell sump. The sump will be approximately 50' x 30'. The material will be sampled as per section III of the "Landfarm Site Plan and Operation Procedure" as stated in section 17.24.505A with the exception of the liner sampling requirement. Also we propose testing the sediment for TPH as the source of a hydrocarbon will be unknown. If the test results are at or below 100 ppm the material will be taken to the pit area for final placement. If the test results are higher than 100 ppm (unless otherwise approved by the MDEQ) the material will stay in place and be treated or they will be taken to the existing landfarm for treatment. Quality Assurance/Quality Control will also be as per the section III of the "Landfarm Site Plan and Operation Procedure" unless approved by the MDEQ.

SPRING CREEK COAL LLC
LANDFARM PLAN AND OPERATION PROCEDURES

I. Site Description

Spring Creek Mine (SCM) manages three soil treatment facilities (known as Landfarms 1 and 2 and 3) in the Pit areas as shown on the Field Map Plate 8. The location of Landfarm 1 is approximately 800' down gradient of Storage Pond 2A and 50' up gradient of Sediment Control Trap 28. Spring Creek, an ephemeral drainage, is located approximately 150' to the west and 250' to the south of Landfarm 1. Landfarm 2 is located between PAR 4 and PAR 6, entirely within backfilled mine spoils; it is 1,700 feet north of reclaimed South Fork Spring Creek. Landfarm 3 is located entirely within backfilled mine spoils approximately 1,400 feet west of Landfarm 2 between PAR 2 reclamation and ramp 35. Their locations are shown on Plate 8.

Nearby monitoring well locations, static water levels and quality information is reported in the Annual Hydrology Report. Landfarm 1 is located approximately 860' west of well SP-1. The 2014 Interim Hydrology report indicated the elevation of this well to be 3,536'. The elevation of Landfarm 1 is approximately 3650'. Landfarm 2 is located approximately 75' south of spoils aquifer monitoring well SP-5. The elevation of Landfarm 2 is approximately 3770' and the groundwater elevation in nearby SP-5 is at approximately 3,649 as reported in the 2014 Interim Hydrology report. Landfarm 3 is located approximately 1,800' northeast of well SP-2 and 1,700' west of well SP-5. The 2014 Interim Hydrology report indicated the elevation of well to be 3,727'. The elevation of Landfarm 3 is approximately 3,925'.

Site geology from drill hole lithology records of the Landfarm 1 area indicate permeable soils in this area. Therefore, SCM will construct a liner for Landfarm 1 that will contain the petroleum contaminated materials. The liner and containment berms will be constructed of grey-clay-shales. The liner will be machine compacted in two (2) six (6) inch lifts to a thickness of twelve (12) inches.

Because Landfarm 2 and 3 will be constructed on mine spoil, no liner is necessary. The landfarms will be constructed at no greater than a 1% slope and constructed to the size shown on Plate 8. The landfarms will contain a 20' access buffer around the inner perimeter of the cell. The landfarms will also include a sump and a containment berm around the entire structure. The landfarms will be designed to prevent runoff from surrounding areas that drain into each landfarm. Landfarms will be designed to only accumulate rain from within each landfarm. Each landfarm sump will be lined and compacted in a like manner and be of sufficient size to contain the 2 year 24 hour storm event from each landfarm area. The sumps will be visually monitored, at least monthly, for potential fluid accumulations. Periodically, the accumulated fluid will be removed for re-use or proper disposal. Sampling for TPH will occur prior to any release of fluids from the contained area.

Due to the proposed compacted liner, presence of mine spoils, depth to groundwater, and associated containment berm, no contamination of the hydrologic regime is anticipated.

II. Wastes Treated

The Company will use the soil treatment areas for the remediation of petroleum hydrocarbon contaminated soils originating from spills/leaks on the mine site. These soils will not contain over 5% by weight (50,000 ppm) TPH or a quantity of other contaminants which may be toxic to soil microbes or cause leaching into sub-soils. Petroleum hydrocarbon contaminated soils are comprised primarily of the following components: gear oil, engine oil, hydraulic oil and diesel fuel. Contaminated soil from hydraulic spills will be separated from material contaminated from fuel spills. No waste that meets the definition of hazardous waste will be stored, treated or disposed of at the soil treatment facility.

III. Sampling

Landfarm soils will be sampled during treatment and once final remediation objectives have been met. Unless circumstances dictate otherwise, soils under treatment in each landfarm will be sampled annually (September-October) at the close of the tillage season. Each sample will be a composite of five sub samples collected from the lower half of the treatment zone. The number of samples per landfarm acre will conform to Table V, as follows, of the DEQ's "Guidelines for the Operation of a Soil Treatment Facility....".

ACREAGE OF TREATMENT FACILITY NUMBER OF SAMPLES

<1/2	2 total
1/2-1	3 total
1-2	4 total
2-4	5 total
>4	1 per acre

The sampling grid, as displayed on each landfarm layout, will have stakes located every 25' along the x and y axes. Each sampling event will utilize the randomized number procedure. This procedure has been established as an appropriate sampling scheme for vegetation monitoring. The exact sampling locations will be reported with the Annual Landfarm Sampling Report.

Analytical Methods:

Per Section III of the DEQ's "General Guidelines for the Operation of a Soil Treatment Facility...", soil contaminated by diesel fuel will be analyzed for TPH as diesel by EPA 8015 or by Diesel Range Organics (DRO) and, if contaminated by hydraulic oil, will be analyzed by EPA 8015 with modification of TPH as hydraulic oils. Gasoline contaminated soils will be analyzed at a minimum for TPH as gasoline (8015) or by Gasoline Range Organics (GRO), and for BTEX by EPA method 8020.

Quality Assurance/Quality Control:

Sampling equipment will be decontaminated prior to collecting each sample by a detergent/brush wash and deionized water triple rinse. Composite samples will be collected by placing sub-sample volumes in a decontaminated glass or stainless steel bowl, thoroughly mixed, then placed in containers with sufficient content and appropriate preservative as provided by the laboratory. The sampling event will be properly documented, i.e. time and date, required analysis, preservative used, if applicable, cell code and waste stream. The samples will be properly stored and transported in conformance with analysis requirements to the analytical laboratory. All pertinent records will be kept on file at the mine office for inspection.

IV. OPERATION AND MAINTENANCE

New additions, applied in lifts no greater than twelve (12) inches, of contaminated soils will be segregated from remediating soils unless contaminant concentrations are similar to the concentration of the remediating material. All remediating soils will be kept at a thickness no greater than twelve (12) inches. Each treatment cell will be marked for easy identification. Contaminated soils will be aerated twice during the first month after initial application and monthly thereafter. The entire depth of the contaminated soil lift will be aerated in varying directions to disrupt compaction. Equipment utilized for this operation will be, but not limited to, a motor-grader and/or a farm tractor with a harrow or disc attachment. Spring Creek Mine investigated alternative methods of bioremediation such as soil amendments and/or fertilizer and has concluded the best method is mechanical manipulation. However, use of nutrients and microbe additions may be considered and/or implemented to enhance treatment. If contaminant concentrations remain high after a number of seasons of aeration treatment, the Company will consult with the Department for alternative remediation procedures.

V. REPORTING

Annual Landfarm sampling records will be kept at the mine office and a copy submitted to the department. Records will include the volume of contaminated soil undergoing treatment within each landfarm, contaminant concentration, sample dates, analyses performed, analytical results, date remediated material was removed from each landfarm and location of final placement.

VI. REMEDIATION AND CLOSURE

When remediation of a contaminated soil lift is complete (TPH levels below 100 ppm), the remediated soil will be spoiled into the pit. The material will not be placed at an elevation which might be subject to saturation upon restoration of the hydrologic regime after final pit reclamation. The material will be buried at least eight feet below the regraded spoil surface in accordance with ARM 26.4.501(2). If three successive annual sample analyses indicate that contaminant degradation in the treatment zone with C6 to C24 hydrocarbon contaminants has reached a maximum and proper operational and /or treatment procedures of each landfarm are documented, the Company may request the Department's acceptance of a higher final concentration for attainment of remediation. Before final closure of each landfarm site, soils beneath the treatment zone will be sampled to assure no contamination remains at the site.