

Energy Fuels Resources Piñon Ridge Mill Montrose County, Colorado	SEDIMENTATION TRAP, STORMWATER AND EVAPORATION PONDS CLEANOUT PROCEDURE	Number: MP-040 Page: 1 of 4 Revision: 0 Date: 10/12/10
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1.0 PURPOSE

The purpose of this procedure is to clean out solution and solids from sedimentation traps and stormwater and evaporation ponds in order to maintain plant operations.

2.0 APPLICABILITY

This procedure applies to the Truck Wash Sedimentation Trap, East Stormwater Pond, West Stormwater Pond and Evaporation Ponds. The work to be performed may also be subject to the Radiation Work Permits Procedure RH-060 (see Section 7.1.2 below).

3.0 EQUIPMENT

3.1 EQUIPMENT

- 3.1.1 Portable generator or permanent power supply.
- 3.1.2 Properly sized horizontal or vertical centrifugal pumps, piping, hoses, valves and instrumentation materials suitable for the conditions of service.
 - 3.1.2.1 Carbon steel components are suitable for the wetted surfaces of the equipment used for neutral to basic pH's stored in the Truck Wash Sedimentation Trap, East Stormwater Pond and West Stormwater Pond.
 - 3.1.2.2 The acidic pH conditions of the Evaporation Ponds require that the wetted surfaces of the equipment be constructed of an acid resistant alloy steel, rubber, High Density Polyethylene or PVC.
- 3.1.3 Personal Protective Equipment (PPE)
 - 3.1.3.1 Standard site PPE includes identity and safety badges, hard hat, safety glasses, steel-toe boots
 - 3.1.3.2 The clean out crew members may require steel-toe water proof boots, rain suits (consisting of bibs and jacket), rubber gloves, goggles or face shield.
- 3.1.4 All terrain crane
- 3.1.5 Skid steer (sediment trap cleaning only)
- 3.1.6 Hand held radios
- 3.1.7 Temporary lighting (if working at night)

3.2 MATERIALS

- 3.2.1 Used conveyor belting, pieces of HDPE liner, geotextile or similar cushioning material for protecting the pond bottom and side slopes.
- 3.2.2 Slings and hand tools.
- 3.2.3 Fuel supply for the portable generator.
- 3.2.4 Washwater
 - 3.2.4.1 Raffinate may be used in the Evaporation Ponds
 - 3.2.4.2 Fresh water or stormwater is required for cleaning the sedimentation trap and stormwater ponds

APPROVALS	<i>Signature</i>	<i>Date</i>
GF		
Plant Manager		

Energy Fuels Resources Piñon Ridge Mill Montrose County, Colorado	SEDIMENTATION TRAP, STORMWATER AND EVAPORATION PONDS CLEANOUT PROCEDURE	Number: MP-040 Page: 2 of 4 Revision: 0 Date: 10/12/10
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4.0 OTHER DOCUMENTS

4.1 REFERENCES

- 4.1.1 Concrete Inspection and Maintenance Procedure MP-020
- 4.1.2 HDPE Inspection and Repair Procedure MP-030
- 4.1.3 Radiation Work Permits Procedure RH-060

5.0 RESPONSIBILITY

5.1 The Radiation Safety Officer (RSO) will review the solution and sediment chemical analysis results and determine the need for a Radiation Work Permit.

5.2 The General Mill Foreman is responsible for:

- 5.2.1 Ensuring that the Mill Foreman is proceeding according to proper procedures.
- 5.2.2 Assembling and staging all necessary equipment and materials required to cleanout the trap and/or ponds.
- 5.2.3 Determining the schedule of trap and/or pond cleanout operations.
- 5.2.4 Reviewing analysis of the solution and solids to determine the reentry point into the process streams.
- 5.2.5 Obtaining progress reports from the Mill Foremen and determining if additional equipment, materials, supplies or personnel are required to maintain satisfactory progress.

5.3 The Mill Foremen are responsible for:

- 5.3.1 Sampling the trap and pond solutions and sediment prior to cleanout as necessary.
- 5.3.2 Having all necessary materials and supplies in place before proceeding with the trap and/or ponds cleanout operations.
- 5.3.3 Ensuring that the trap and/or pond cleanout personnel are properly trained and aware of the cleanout methodology.
- 5.3.4 Periodically checking on the cleanout operations and verifying that the cleanout procedure is being followed by the cleanout crew.
- 5.3.5 Inspecting the trap and/or pond bottom for the level of remaining sediment.
- 5.3.6 Verifying that all equipment and material are removed from the trap and/or pond before placing the cleaned out structure back into service and returning the process plant to normal operating conditions.

6.0 PREREQUISITE INFORMATION

6.1 SAFETY

- 6.1.1 See Piñon Ridge Mill Health and Safety Plan.

6.2 FREQUENCY

- 6.2.1 As necessary in order to maintain adequate storage capacities.

7.0 PROCEDURE

7.1 PRE-CLEANOUT PLANNING PROCEDURES

Energy Fuels Resources Piñon Ridge Mill Montrose County, Colorado	SEDIMENTATION TRAP, STORMWATER AND EVAPORATION PONDS CLEANOUT PROCEDURE	Number: MP-040 Page: 3 of 4 Revision: 0 Date: 10/12/10
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- 7.1.1 The General Mill Foreman will plan and schedule the cleanout of the sedimentation trap and/or ponds.
- 7.1.2 The RSO will determine the applicability of the Radiation Work Permits Procedure RH-060 based on the chemical make-up of solutions and sediments and will follow the procedure where applicable.

7.2 *SEDIMENT TRAP CLEANOUT PROCEDURE*

- 7.2.1 Sample and analyze the solution and solids for pH, uranium and vanadium values in order to determine the best entry point back into the process streams for maximizing recovery and recycling of the decanted solution.
- 7.2.2 Install the equipment and materials prior to advising the mill operations that trap cleanout operations are commencing.
- 7.2.3 If required, place used conveyor belting or similar material atop any geosynthetic liner material before placing the pump discharge piping and nozzle.
- 7.2.4 Decant the solution from the trap.
- 7.2.5 Begin washing the trap with washwater through hand held hoses by cutting a channel through the solids to the trap low point. Maintain a pool of slurry of sufficient depth to prevent air from entering the pump impeller through the inlet piping and causing the pump to cavitate and lose prime. The cleanout crew will learn to balance the water volumes through experience.
- 7.2.6 Continue washing the solids from the high point of the trap to the low point until the trap bottom is exposed.
- 7.2.7 Remove the coarse solids from the sedimentation trap with the skid steer and place the saturated materials on the Five-Acre Ore Pad allowing them to dry out before sampling and being fed into the process circuit via the dump hopper.
- 7.2.8 Inspect the trap bottom and walls for holes, cracks, chips, or spalls and make repairs in accordance with the Concrete Inspection and Maintenance Procedure MP-020.
- 7.2.9 Remove the equipment and place the trap back into service.

7.3 *EVAPORATION AND STORMWATER POND CLEANOUT PROCEDURES*

- 7.3.1 Sample and analyze the solution and solids for pH, uranium and vanadium values in order to determine the best entry point back into the process streams for maximizing recovery and recycling of the decanted solution.
- 7.3.2 Install the equipment and materials prior to advising the mill operations that pond cleanout operations are commencing.
- 7.3.3 Place used conveyor belting or similar material atop any geosynthetic liner material before placing the pump or pump suction nozzle. Protect the geosynthetic liner if the pump discharge piping and nozzle rests atop another geosynthetic lined surface.
- 7.3.4 Decant the solution from the pond.
- 7.3.5 Begin washing the pond with washwater through hand held hoses by cutting a channel through the solids to the pond low point. Maintain a pool of slurry of sufficient depth to prevent air from entering the pump impeller

through the inlet piping and causing the pump to cavitate and lose prime. The cleanout crew will learn to balance the water volumes through experience.

- 7.3.6 Continue washing the solids from the high point of the pond to the low point until the pond bottom is exposed.
- 7.3.7 Inspect the pond bottom and side slopes for holes, tears or cracks. Refer to HDPE Inspection and Repair Procedure MP-030 for corrective action.
- 7.3.8 Remove the equipment and place the pond back into service.