

ATTACHMENT SECTION 1-C

Anti-Degradation Supplement**Non-Discharge Alternatives Evaluation**

Heidelberg Materials is proposing to reclassify the existing NPDES Discharge Point 001 at Rock Hill Quarry to a stormwater outfall and add three (3) individual discharge points 002, 003, and 004. With these modifications, outfall 004 will be permitted with a discharge rate of 0.238 MGD consistent with the rate included in the existing permit. This rate is sufficient to support mining operations to be conducted above the water table that will not require dewatering of the existing water-filled quarry pit. Mining below the water table will require dewatering of the water-filled quarry pit. As previously noted, this potential dewatering operation will require PADEP approval.

The NPDES Discharge Modification report determined that dewatering of the pit can be accomplished by discharging at a rate of 4.46 cubic feet per second (cfs). No modifications and/or upgrades to existing Site and downstream features are proposed with the modification as the proposed dewatering discharge rate was determined based on the calculated limits of the existing conveyance system. In addition, no degradation in the watershed ecology will occur during the dewatering timeframe. Following dewatering, flows will return to approximate pre-dewatering rates. No water quality changes will occur during or following dewatering.

Currently there are two (2) sediment basins, a clarifying pond and three (3) non-discharging sediment traps that receive runoff from bonded support areas. A permit correction was issued on June 8, 2018, to authorize the implementation of the Erosion and Sediment Pollution Control Plan, including the above-mentioned impoundments. Per the June 28, 2018 approval letter, all impoundments were certified and approved by the Department and currently meet the requirements for EV watershed.

All efforts to route water around the project have been completed. The existing quarry pit receives precipitation that falls directly over the mining area and groundwater inflow. The water retained in the quarry pit discharges in two (2) ways: a gravity drainpipe to the Clarifying Pond, ultimately discharging through proposed NPDES 004 and evapotranspiration. It is estimated that the quarry pit is currently holding approximately 1,584 acre-feet or 516 million gallons of water and would require approximately 173 days of uninterrupted pumping to dewater to the permitted operating level of 464 msl, assuming no contributions from precipitation and groundwater. After depletion of the existing storage, the pumping rate needed to keep the Pit dry will decrease significantly to approximately pre-dewatering discharge rates.

Anti-Degradation Implementation Guidance (391-0300-002) (Guidance) was referenced as part of the following evaluation. The following describes specific non-discharge alternatives that will be used at the quarry and those that are infeasible.

Alternative Project Siting

The proposed project is an NPDES permit modification that also considers dewatering of the Rock Hill quarry pit impoundment. The Guidance states that the following factors must be considered in siting a project: infrastructure, utilities, transportation, raw materials, and work force. The guidance questions whether this watershed or specific stream segment is the only location that offers these requirements. When considering the existing quarry, all of the above are present in the existing location. The project is already at this site and cannot be relocated.

Alternate Discharge Location/Discharging to another (non-special protection) watershed

According to the Guidance, alternative discharge locations involve transporting the effluent, typically via pipeline, to a different watershed, generally a non-HQ/EV watershed. This alternative is most feasible when the project is located on a small HQ or EV waterway, tributary to some larger non-HQ/EV waterbody. This alternative may not be an environmentally sound option in cases where the project will generate a reliable HQ effluent and where low-flow augmentation would be beneficial to the HQ or EV water. In this setting, groundwater from the quarry provides low-flow augmentation to the tributary headwater. Further, installation of a pipeline to a neighboring non-EQ/EV watershed is infeasible.

As shown in the Water Quality Assessment (included as an attachment to the Anti-Degradation Supplement), the project will generate an effluent that will maintain the quality of Bog Run, consistent with HQ and EV designations.

Infiltration – Galleries or Land Application

Infiltration was evaluated as a non-discharge alternative. The area proposed for mining is situated atop a diabase formation. This area is known to have shallow bedrock overlain by soils that are unsuitable for infiltration.

Limiting Disturbed Areas

The area proposed for mining has already been disturbed, and the duration of disturbance cannot be shortened. Mining operations generally last for decades, and the active life is determined by growth in the area and the corresponding need for aggregate and associated products. Heidelberg Materials intends to conduct concurrent reclamation, to the extent possible, along highwalls where mining is complete. This reclamation will restore areas in accordance with the reclamation plan and create additional vegetated areas. These vegetated areas will promote evapotranspiration, thereby reducing discharge rates. There will be no negative impacts to the water quality as a result of this reclamation activity. Additionally, no new areas will be disturbed, therefore disturbed areas are limited to the degree possible.

Recycling/Reuse of Water Onsite

A portion of water collected in the quarry sump will be used to supply a water truck for dust suppression of roads throughout the Permit Area. In addition, the water will be utilized for stockpile dust suppression. A processing plant would most likely use water from the quarry sump. These activities would reduce the need for potable water through recycling/reuse and increase evapotranspiration and infiltration, thereby reducing the discharge to the highest degree practicable.

Constructed Treatment Wetlands

According to the PA DEP Stormwater BMP Manual, Constructed Treatment Wetlands are not typically considered a volume-reducing BMP. Constructed wetlands can achieve some volume reduction through evapotranspiration, especially during small storms. The primary function of constructed wetlands is water quality improvement. Constructed wetlands improve the quality of runoff through settling, filtration, uptake, chemical and biological decomposition, volatilization, and adsorption.

It is anticipated that the current discharge will maintain the existing water quality of Bog Run. Since the primary purpose of constructed wetlands is water quality improvement and not volume retention, constructed treatment wetlands are not a feasible discharge alternative for the Rock Hill Quarry.

Holding Facilities/Wastewater Hauling

Wastewater hauling would entail trucking of pit water, which is comprised of uncontaminated groundwater and surface water, to a publicly owned wastewater treatment facility (POTW). Considering the existing discharge volume and the distance to the closest wastewater treatment plant, this option would be unfeasible as a non-discharge alternative.

Injection Wells

A hydrogeologic investigation was conducted in support of the NPDES Permit Modification. Wells were monitored throughout the SMP Boundary and slug tests were conducted to determine aquifer parameters. Based on the outcomes of the investigation, the transmissivity of the formations within the SMP boundary and the well yields observed during monitoring well slug tests, the site would not be conducive for injection wells.

Vegetated Riparian Buffers

Utilization of a vegetated riparian buffer along these discharge locations would not be feasible as a non-discharge alternative. Considering existing site conditions including the site infrastructure (railroad and existing basins), shallow water table, seasonably variable infiltration and evapotranspiration benefits, and lack of a natural stream channel, the use of riparian buffer zones is not feasible as a non-discharge alternative.

Specific Pollution Prevention Processes

There is no manner in which the process by which water is generated in surface mining can be changed. Groundwater and precipitation discharged from the pit contribute to the overall health of the downstream swamp.

Heidelberg will employ feasible practices such as re-use and recycling of pit water and maintenance of riparian buffers as alternatives to discharging to prevent degradation of Bog Run. The discharge from the quarry pit through the Clarifying Pond and Outfall 004 is controlled and only discharges when the pipe valves are open. As directed by the NPDES Permit, Heidelberg will conduct monitoring of water quality prior to discharging the water to the Unnamed Tributary.