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PITTSBURGH, PENNSYLVANIA 15235-4559  
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June 28, 2018

Project No. 152596A

Pennsylvania Department of Environmental Protection (PADEP)  
Cambria District Office  
286 Industrial Park Road  
Ebensburg, PA 15931  
ATTN: Mr. Rock Martin, P.G., Chief Permits and Technical Services

**Transmittal**  
**Large Noncoal Surface Mining Permit Application**  
**Northern Tract Quarry**  
**Charmian, Pennsylvania Facility**  
**Specialty Granules LLC**  
**Hamiltonban Township, Adams County, Pennsylvania**

Dear Mr. Martin:

On behalf of Specialty Granules LLC (SGI), this letter transmits revised portions of the Large Noncoal Surface Mining Permit Application for the proposed Northern Tract Quarry Expansion at SGI's Charmian Facility located in Hamiltonban Township, Adams County, Pennsylvania. These revisions have been made in response to a technical review completed by the PADEP received in a letter dated May 18, 2018.

Four (4) hardcopies of the revised documents are provided herein. The copies are provided in the expandable folders. One (1) CD containing electronic files of the documents is also provided for your use.

We appreciate your efforts in reviewing this application, and are available for any questions or comments. Please contact SGI or D'Appolonia should you have any questions.

Very truly yours,  
*D'APPOLONIA ENGINEERING DIVISION OF GROUND TECHNOLOGY, INC.*

Michael D. Ward, P.E.  
Principal Engineer

Robert M. Shusko, P.E.  
Senior Principal Engineer

Attachments: Revised Northern Tract Application Documents (4 hardcopies and 1 CD copy)

- Cc: Mr. Matthew McClure – SGI (Letter Only)  
Mr. Anthony Shepeck – SGI (1 Copy and 1 Additional Drawing Set)  
Mr. Kevin Moore, P.E. – SGI (Letter Only)  
Ms. Laura Berra, P.E. – Skelly and Loy (1 Copy)

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Pennsylvania Department of Environmental Protection  
Cambria District Office  
286 Industrial Park Road  
Ebensburg, PA 15931  
ATTN: Mr. Chad Paronish, Geologic Specialist

**Response to SMP No. 01180301 Technical Review Letter  
Northern Tract Quarry  
Specialty Granules LLC  
Hamiltonban Township, Adams County, Pennsylvania**

Dear Mr. Paronish:

On behalf of Specialty Granules LLC (SGI), D'Appolonia Engineering Division of Ground Technology, Inc. (D'Appolonia) and Skelly and Loy, Inc. (Skelly and Loy) are providing responses to the letter dated May 18, 2018 from the Pennsylvania Department of Environmental Protection – Cambria District Mining Office (PADEP). Each of the review comments from PADEP's May 18, 2018 letter is reproduced in subsequent pages of this letter in normal font with responses following each comment in bold font.

**MODULE 1**

1. **Section C. Site Information:** Revise the acres shown in the mining area to only include the rock/mineral removal shown within the proposed Northern Tract Quarry permit area. Currently, the permit application is showing a total of 66.3 acres of mining however, a review of the mining area shown within the proposed Northern Tract Permit Area is approximately 62 acres. As indicated in your response letter dated April 17, 2018, the permittee will complete a permit revision to expand the rock/mineral removal area of the Pitts Quarry to include the mining area shown outside of the proposed Northern Tract Quarry. Also, see Module 10 comment number 1. (77.452)

**Module 1 has been revised as requested to indicate a mining area of 63.0 acres, based upon the limits of the proposed Northern Tract Quarry presented on Exhibit 9. The support area for the Northern Tract Quarry has been increased by a corresponding amount resulting in an area of 22.0 acres.**

2. Section H. Additional Related Information: Provide the proof of publication when received. (77.121)

**The proof of publication of the public notice has been provided to the PADEP under a separate cover.**

## **MODULE 8**

1. Module 8.3 Groundwater Information: Clarify how the average pump flow of 640 gpm that was used to calculate the pumping volumes was determined for Pitts Quarry. Also, explain the criteria used in determining the outlier pump flow data and the interval that the pump flow rate is recorded when pumping. Currently, the pump flow records range anywhere from one-minute to as much as six-hour intervals. (77.403(b)) (77.532)

**The pumping system established at the Pitts Quarry consists of two 12CLC, 5-Stage, vertical turbine pumps by Goulds Water Technology which are connected to a 12-inch inside diameter high density polyethylene (HDPE) pipe that travels out of the quarry and discharges to the “J-Stand”. The outlet pipe is equipped with a ModMAG M-Series M2000 electromagnetic flow meter to provide automated flow monitoring. A sump is established at the location of the pumps to provide a pool of water around the pump inlets. The pumps are operated in a manner such that only one pump is typically operated at any given time. Two pumps are maintained to provide redundancy in the event of a pump failure.**

**These pumps are single speed pumps and although their flow capacity can vary with the hydraulic head that exists in the system, the flow capacity is generally consistent. The pump flow rate data obtained by the flow monitoring instruments do vary, but that variability may reflect either changing conditions impact flow rates or errors are present in the flow monitoring data. Reviewing the historical data, we would observe that the higher flow rates observed in the data typically occur either in short isolated events, or at the beginning of a flow event. Accordingly, the higher reported flow rates are likely a result of the initial pipeline filling early in the pumping event, before the full hydraulic head is experienced by the system, or potential errors in the flow meter data created by factors such as air bubbles being introduced into the system at the intake or vibration of the piping during initial pump activation, which can inhibit the functionality of the flow meter.**

**In an effort to evaluate these potential factors, the theoretical capacity of the pumping system was calculated for comparison to the collected field data. Hydraulic calculations evaluating the capacity of the pumping system, including manufacturer data for the pump, are provided in Attachment No. 1. Based upon the manufacturer data for the pump and hydraulic calculations evaluating the pumping system, the capacity of the pumping system considering 302 feet of head (distance from pump location in quarry at El. 1080 to J-Stand at El. 1375 plus**

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minor headlosses) is approximately 835 gpm, which is much lower than what some outlier data would indicate.

As discussed earlier in comment responses, the previously submitted flow data was adjusted by removing perceived erroneous data points or outliers, which is generally based on the calculated, theoretical flow capacity of the pumping system. The raw pump data obtained from the recent flow monitoring indicated flow rates as high as 2,973 gpm, which greatly exceeds the observed and theoretical capacity of the system. This is evidence that some outlier points are present in the data and adjustment to the data is required to represent actual field conditions. Outlier points were identified as those points for which the recorded flow rate exceeds the discharge capacity of the pumping system (based upon field reconnaissance and theoretical calculations) or represents a statistical anomaly. The outlier points were removed from the data set and the remaining data points were averaged to determine an effective flow rate of approximately 640 gpm.

In order to use the flow monitoring data to determine the volume of water conveyed to the Pitts Quarry, the effective pump flow rate of 640 gpm was multiplied by the duration of pumping for each pumping event to determine the volume of water pumped.

The duration of pumping intervals vary because the pumping system is activated on an as-needed basis in response to the accumulation of water in the quarry. Larger precipitation events require longer pumping durations to accommodate for continued inflow into the sump, whereas smaller precipitation events may result in short duration pumping events. Flow data is captured in “snapshots” using a data collection software connected to the flow meter. Errors in this data collection process are also a contributing factor to the inconsistent intervals represented in the data tables for quarry pumping.

## **MODULE 10**

1. Module 10- Bond Calculation Summary-Noncoal Consolidated: As per Module 1 comment number 1, revise the bond calculation summary to reflect the mining and support area shown within the proposed Northern Tract Quarry permit area. (77.452) (77.193(b)) (77.202)

The bond calculations included with Module 10 have been updated per the changes in mining area requested under the Module 1 comments. Additionally, the acreage of bonding has been revised on Module 10.2.c.

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**MODULE 13**

1. **Module 13.3 Dams and Impoundments**: Since the operator has decided to design the sediment pond for a 100-year, 24-hour storm event, the operator must design the Peak Discharge and the Emergency Spillway Capacity on the Pond Certification sheet and in the pond design calculations for Ponds NT No 1 & 2 for the 100-year, 24-hour storm event. Presently, the Pond Certification sheets and design calculations do not provide this information. It should be noted the operator can discharge from these ponds since Specialty Granules, LLC submitted an Anti-Degradation Supplement for Mining Permits and their Social or Economic Justification was approved. (77.527) (77.531) & (Technical Guidance #363-0300-101) (Technical Guidance 363-2134-008)

**The basin is designed to retain a 100-year storm using size and gravity, the design does not redirect the stormwater thru an auxiliary spillway. The auxiliary spillway is only in use for any portion of a storm event in exceedance of a 100-year storm. The auxiliary spillways for Sediment Ponds NT No. 1 and No. 2 are designed in compliance with the laws, regulations and technical guidance applicable to the sediment ponds. The following is a table summary of the requirements applicable to the sediment ponds compared to the auxiliary spillway design, which meet or exceed those requirements. Although not required, the auxiliary spillway depth design is three times the size specified in the applicable design manuals. The requirements listed in the table below are from the Pennsylvania Department of Environmental Protection Erosion and Sedimentation Pollution Control Program Manual (March 2012), the Pennsylvania Department of Environmental Protection Engineering Manual for Mining Operations (January 1999), and the Natural Resources Conservation Service Conservation Practice Standard 378 [Pond 378] (February 2016). Please note that Section 3.1 of the Pennsylvania Department of Environmental Protection Engineering Manual for Mining Operations specifically references the requirements contained in Natural Resource Conservation Service (NRCS) Standards 378 [Pond 378] and Sediment Basin 350. Also, 25 Pa. code §77.531 cites NRCS Pond 350 as a design standard. These design documents are applicable to low hazard dams constructed by excavation, embankment fill, or a combination of excavation and fill and are commonly accepted as the standard in the industry and by governmental authorities.**

Pond Feature	Required Value			Value Provided by Proposed Pond Design	
	PADEP E&S Manual	PADEP Mining Manual	NRCS Pond 378	NT Pond 1	NT Pond 2
Sediment Storage Volume	1,000 cf/acre	2,000 cf	-----	2,000 cf/acre (min)	2,000 cf/acre (min)
Settling Volume/Detention Volume	5,000 cf/acre	5,000 cf/acre and contain 10-year, 24-hour storm in HQ watershed	-----	27,000 cf/acre	29,000 cf/acre
Freeboard	24 inches (min) or 12 inches (min) <sup>(1)</sup>	24 inches	12 inches	2.5 feet <sup>(5)</sup>	3.2 feet <sup>(5)</sup>
Design Storm Capacity	25-year, 24-hour or 100-year, 24-hour	25-year, 24-hour to 50-year, 24-hour <sup>(3)</sup>	10-year, 24-hour to 50-year, 24-hour <sup>(4)</sup>	100-year, 24-hour <sup>(6)</sup>	100-year, 24-hour <sup>(6)</sup>
Auxiliary Spillway Bottom Width	8 feet	-----	-----	8 feet	8 feet
Auxiliary Spillway Depth	6 inches <sup>(2)</sup>	-----	-----	18 inches	18 inches

**Notes:**

- <sup>(1)</sup> 24" minimum for 25-year storm, 12" minimum for 100-year storm  
<sup>(2)</sup> When not used to convey part of the design storm  
<sup>(3)</sup> 25-year storm for drainage area less than 20 acres, 50-year storm for drainage area 20 to 100 acres  
<sup>(4)</sup> Considering dam height less than 15 feet. 10-year storm for drainage area less than 20 acres, 50-year storm for drainage area 20 to 100 acres  
<sup>(5)</sup> Distance from peak 100-year storm level to top of embankment  
<sup>(6)</sup> 100-year storm runoff stored in impoundment with no discharge  
<sup>(7)</sup> cf = cubic feet

**MODULE 14**

1. **Module 14.3 Wetland Impact Analysis/Assessment (d)(2):** Revise the response found in paragraph two to remove the following statement, "This conclusion is supported by the model simulation of the proposed ultimate pit floor elevation where the reduction in baseflow contribution (loss) compared to total flow (runoff and baseflow) was calculated to be on the order of only 0.2% to 1.2%". The percentages of 0.2% to 1.2% are no longer supported with the removal of Table 10-Total Stream and Wetland Losses from the Groundwater Model Report.

**Per Module 14 comment above, the paragraph was revised as requested.**

The following Documents are provided to support the response to comments:

- Attachment No. 1 – Hydraulic Calculation of Pitts Quarry Pumping System
- Module 1
- Module 10 and Bonding Calculation Summary
- Module 14

We trust that the enclosed information addresses the PADEP's technical review comments. We appreciate your efforts in reviewing the application and are available for any questions or comments. Please contact D'Appolonia or Mr. Kevin Moore of SGI should you have any questions or require additional information.

Respectfully Submitted,  
*D'APPOLONIA ENGINEERING DIVISION OF GROUND TECHNOLOGY, INC.*



Robert M. Shusko, P.E.  
Senior Principal Engineer

Attachments/Enclosures

cc: Mr. Anthony Shepeck, SGI  
Mr. Kevin Moore, P.E., SGI  
Mr. Matthew McClure, SGI  
Ms. Laura Berra, P.E., Skelly and Loy, Inc.

Case# 18-01137