

Module 10: Operational Information

[§§77.452/77.456/77.563/77.564]

10.1 *Equipment and Operation Plan*

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting point; and the anticipated sequence in which the phases are to be mined.

The Northern Tract Quarry will be developed in three phases which will include some initial mining activities to extract the upper portion of metabasalt, followed by the primary quarry development. Initial site development (Phases 1 through 3) will generally consist of incrementally installing erosion and sediment (E&S) controls, incrementally completing clearing and grubbing activities, then removing overburden soil and cap rock (weathered metabasalt). Phase 1 will primarily include the establishment of two collection ditches which will encompass the upper portion of the Northern Tract Quarry and direct stormwater runoff back into the existing Pitts Quarry. Overburden soil and cap rock within the collection ditch perimeter can then be removed to facilitate mining of the metabasalt in the upper section of the Northern Tract Quarry. As overburden soil removal and mining continue, Phase 2 development will primarily consist of establishing a stormwater pond (NT Pond No. 1) and related collection ditches on the western perimeter of the Northern Tract Quarry to further increase accessibility to facilitate continued mining through incremental clearing and grubbing activities and the removal of overburden soil and cap rock material. Phase 3 will consist of establishing a stormwater pond (NT Pond No. 2) and related collection ditches on the eastern perimeter of the site, and will facilitate mining of the Northern Tract Quarry to its full extents (Primary Quarry Development) as depicted in the Exhibit 9 Operations Map. Refer to Modules 12 and 13 for further detail of the site development sequence and the related E&S controls.

NT Ponds No. 1 and No. 2 will be operated by maintaining their normal pool elevation near the sediment cleanout elevation via pumping. Accumulated water in the ponds will be routinely pumped to Pitts Quarry (if needed) and ultimately to the Lower Mill Pond system for discharge into Miney Branch via the permitted National Pollutant Discharge Elimination System (NPDES) outfall (NPDES Permit No. PA-0009059). This method of pond management will allow for storage volume to be preserved in the NT ponds from roughly the sediment cleanout elevation to the emergency spillway invert elevation. The NT Ponds are conservatively designed to provide a storage volume equivalent to the runoff volume of a 100-year, 24-hour storm event (that is, approximately 3,246,148 gallons for NT Pond 1 and 4,989,386 gallons for NT Pond 2). Thus, during storm or snowmelt events with runoff volumes up to and including that of a 24-hour duration and 100-year recurrence interval, the runoff will be stored in the ponds without discharging via the spillway to the unnamed tributary of Toms Creek. Use of the NT Pond emergency spillways would only be anticipated during storm or snowmelt events exceeding the volume of a 24-hour, 100-year event (that is, approximately 3,246,148 gallons for NT Pond 1 and 4,989,386 gallons for NT Pond 2), and the amount of water that would be discharged via the spillway system would only be that volume of runoff generated from the watershed controlled by the NT Ponds that exceeds this 24-hour, 100-year storm volume.

The Northern Tract Quarry will be accessed internally through SGI property by roads developed though or around the existing Pitts Quarry. Overburden soil and cap rock will be removed and stored in designated storage areas respectively. Stockpiled overburden soils will be hydro-seeded with a PADEP approved seed mix. Overburden soils may also be used in concurrent reclamation activities in the adjacent Pitts Quarry.

Once erosion and sediment controls described above are in-place and functional in contributory drainage areas, the quarry will be developed using open pit best mining/engineering practices to achieve the desired highwall/bench configuration. Drilling and blasting techniques (largely similar to those conducted in adjacent Pitts Quarry) will be used to break the rock which is then loaded and transported by haul trucks (approximately 1/2 mile) to the primary crushing facility located on the adjoining surface mine permit (6477SM5). More information is provided in Exhibits 16 and 17 regarding specific blasting techniques proposed for the Northern Tract Quarry permit area. Major equipment used will include track excavators, front end wheel loaders and 35- to 85-ton off-road haul trucks. Support for mining and hauling activities may be provided by dozers, track hoes, and excavators. Mining will generally proceed in a northerly direction from the Pitts Quarry towards the north via a junction at the existing 5th level (elevation 1090' MSL) until the eastern, western, and northern limits of the extraction area are reached.

NT Pond Nos. 1 and 2 will be established to control runoff from the Northern Tract Quarry area during initial disturbance and overburden soil removal. As the quarry is expanded, the area of runoff to each pond will be incrementally reduced. Therefore, the ponds will likely be eliminated as the quarry reaches its full lateral extent and their corresponding areas of runoff are eliminated. Prior to removal of NT Pond Nos. 1 and 2, a revised E&S plan will be submitted to the PADEP showing the proposed E&S control features for the pond removals since it is critical to prevent any erosion and drainage from the mining area discharging into Tom's Creek (HQ-CWF, MF) or the Unnamed Tributary to Tom's Creek. The NPDES Permit may have to be revised.

10.2 Pit Configuration

- a) Identify the maximum depth of mining and the elevation of the pit floor at the maximum depth of mining for each mining phase.

SGI intends to mine down to the 12th level (elevation 740' MSL). The maximum depth of mining in the proposed permit area is approximately 490 feet, as the highest elevation in the Northern Tract Quarry is approximately 1,230' MSL (there may be some temporary benching at the uppermost elevations).

- b) If mining consolidated rock, identify the maximum highwall height and the benching interval to include the distance between the benches measured vertically (i.e. height of the working face of the bench) and the width of the benches.

Maximum highwall height is 50 feet with the exception of the uppermost bench, which may be 65 feet in height; minimum width of the benches is 25 feet, but may be as wide as 40 feet.

- c) If mining consolidated rock and the reclamation plan is an alternative to approximate original contour involving restoration of the pit floor and final working face, identify the total acreage of pit floor and final graded slopes.

The total acreage of pit floor and graded slopes is approximately 63 acres.

10.3 Existing Structures

Identify and describe the intended use of all existing structures or facilities to be used in connection with or to facilitate mineral removal activities. (Common existing structures include impoundments, stream crossing facilities, water obstructions and processing waste dams.)

Not Applicable (N/A). There are no existing structures in the Northern Tract Quarry permit area.

10.4 Overburden Piles

Provide a narrative plan for reclamation of overburden piles specifying the timing and extent of overburden piles returned to the pit and final grading of the overburden pile areas for blending into existing contours.

Overburden from the Northern Tract Quarry permit area may be stored in existing stockpiles on the adjacent Pitts Quarry (SMP 01930302) and West Ridge (SMP 6477SM5) Permit Areas, placed in temporary stockpiles within the Northern Tract Quarry permit area, or used in reclamation of the Pitts Quarry. A portion of the overburden soils/caprock piles may be returned to the pit for use in reclamation upon depletion of the rock reserve to the 12th level (elevation 740' MSL) of the mine plan. If quarrying proceeds to the final depth in an area that can safely be reclaimed without affecting future mining operations or sterilizing future reserves, the area will be reclaimed as soon as practical.

Any overburden soils in excess of what is required to meet site reclamation requirements that is located in any excavated/borrow areas within the existing approved overburden/cap rock reclamation areas will be shaped (per the permitted reclamation surface), stabilized, and vegetated with the approved permanent seed mixture.

10.5 Final Grade and Drainage

Identify the final grading and drainage pattern, including topographic contours on Exhibit 18 and a description of compaction and stabilization techniques. Provide cross-sections or a contour map showing permit line setback(s), final postmining slopes, postmining watertable and safety benches.

The proposed quarry reclamation plan will result in an unmanaged water impoundment surrounded by forestland as the post-mining land use. Reclamation of the quarry will consist of blasting the highwalls and re-grading the quarry slopes with a bulldozer to grades of 35 degrees or less down to at least 50 feet below the final projected water level. Results of the Groundwater Model Report (which is being finalized and will be submitted with the formal application) indicate a projected final static water level of 1,020' MSL. The re-graded, non-inundated slopes will be covered with the stored overburden soil as the growing medium and revegetated/planted according to Module 23. Compaction will be accomplished with a dozer and slopes will be seeded to achieve stabilization. The success of the proposed reclamation is based on obtaining a quick growth of temporary grasses (annual ryegrass and small grain) on non-inundated side slopes to prevent loss of overburden soil by erosion before the permanent grasses, trees, and other natural vegetation are established. The reforestation plan for the non-inundated side slopes and support areas consists of planting at least two types of trees (early-successional species for wildlife and soil stability and commercially valuable crop trees), and using proper tree planting techniques. See Exhibit 18 and cross-sections for reclamation contours for the various options.

10.6 *Reclamation Timetable*

Provide a sequence of operations for the accomplishment of major stages in the reclamation plan demonstrating compliance with the concurrent reclamation requirements in 25 Pa Code 77.595. Include an estimated timetable for reclamation which is tied to the mining phases and the termination of mineral extraction.

Development of the proposed quarry will be dependent on specific site conditions encountered during construction, weather, market demand for the aggregate products, and related factors. However, rough estimates of the required time to complete each major phase of development are provided herein:

- **Initial Site Development and Overburden Removal – 2 to 4 years**
- **Level 3 Development (Cap Rock Removal) – 1 to 2 years**
- **Level 4 Development – 1 to 2 years**
- **Level 5 Development – 4 to 6 years**
- **Level 6 Development – 6 to 8 years**
- **Level 7 Development – 6 to 8 years**
- **Level 8 Development – 5 to 7 years**
- **Level 9 Development – 4 to 6 years**
- **Level 10 Development – 3 to 5 years**
- **Level 11 Development – 2 to 4 years**
- **Level 12 Development – 2 to 3 years**

Concurrent reclamation will take place to the fullest extent possible that active operations allow and as described in 10.4. Final reclamation will occur upon cessation of mining at the property. No exposed highwalls will remain in the pit following reclamation. The sequence for accomplishment of primary reclamation activities is as follows:

1. Reduce highwall slopes to 35 degrees or less through blasting and partial backfilling, regrade with overburden soils, and vegetate with a mixture of temporary and permanent grasses. Plant in accordance with Module 23.
2. Remove all equipment that may be in the permit area.
3. Regrade support areas.
4. Revegetate applicable support areas.
5. Reclaim and revegetate all appropriate erosion and sediment control structures.

Final Reclamation is anticipated to require roughly 2 to 3 years to complete.

10.7 *Identification of Toxic Materials*

When applicable (e.g., noncoal operation in coal measures) provide a detailed description of the methods used in the identification of potentially acid and toxic forming materials (boney, rooster, blossom or other inferior coal and noncoal strata) which will be encountered and separately handled. Correlate and identify these strata in the test hole data.

N/A

10.8 Special Handling of Toxic Material

When applicable (e.g. noncoal operation in coal measures) provide a detailed description of the methods to be used in the separation and handling of acid and toxic forming materials. Include transportation, storage, treatment and return of the material to the backfill. Identify the amount and source of clean fill to be placed above and below the material and the compaction and other methods to preclude combustion of the material and prevent groundwater contamination. Indicate all disposal areas on Exhibits 9 and 18.

N/A

10.9 Oil and Gas Wells

Where mining activities are proposed to be conducted within 125 feet of any oil or gas well, identify the location on Exhibits 6, 9 and 18 and provide a description of the activity. Provide a demonstration that the well has been sealed; or describe the measures to be taken to insure the integrity of the well, access to the well at all times and the well operator's consent to the proposed activity.

N/A

10.10 Wells, Exploration Holes and Bore Holes

Identify the type and location of wells, exploration holes, bore holes and monitoring wells and provide a description of the manner in which each will be cased, sealed or otherwise managed.

The locations of the monitoring wells and test borings within the Northern Tract Quarry permit area are shown on Exhibit 6.2. SGI will use several of the monitoring wells throughout the life of the quarry but will seal monitoring wells and test borings in accordance with standard geotechnical practice per 25 PA Code Chapter 77.503 at the appropriate time.

10.11 Underground Mines

Where proposed surface mining activities will be conducted within 500 feet of any point of either an active or abandoned underground mine (coal or noncoal), provide a description of the nature, timing, and sequence of the operation. Identify the location of each underground mine opening and the manner in which the opening will be sealed or otherwise managed including appropriate cross sections and design specifications for mine seals. Provide a description of the potential hydrologic impacts of the proposed activities, the effects on the existing groundwater system, and the effect the proposed activities will have upon abatement of pollution or the elimination of hazards to the health and safety of the public.

A relatively small cavern associated with an abandoned exploration adit from an attempted copper mining operation exists near the center of the Northern Tract Quarry. The location of this feature is depicted on Exhibit 6.2, 9.1, and 18. This cavern is located within the overburden/cap rock material that will be removed with development of the quarry. Given that the cavern will be removed, the cavern will have no potential hydrologic impacts and no effects to the existing groundwater system. Operations to remove the cavern will occur within the proposed erosion and sediment control features at the site to control potential sources of pollution. The cavern will not present a hazard to the health and safety of the public given that it will be removed.

10.12 Public Highways

Where opening or expansion of pits are proposed within 100 feet of the outside right-of-way of a public highway, or a relocation of a public highway is proposed, identify the name and section of the public highway involved, a description of the activities to be conducted and detailed plans and cross-sections of the proposed activities. Include the written approval of the government agency having jurisdiction over the highway.

(**Note:** If the initial public notice advertisement does not contain a notice of the variance request, attach the proof of publication for advertisement of the variance.)

N/A

10.13 Public Parks and Historic Places

Where the proposed mining activities may affect any public park or historic place, provide a demonstration of the measures which will be taken to minimize or prevent adverse impacts.

N/A

10.14 Utilities

Where the proposed mining activities may adversely affect services provided by oil, gas, and water wells; oil and gas pipelines; railroads; utility lines; and water and sewage lines, provide a demonstration of the measures which will be taken to minimize or prevent these impacts.

The northwestern portion of the proposed permit area is bisected by an existing natural gas right-of-way under the ownership of Columbia Gas (depicted on Exhibit 9); however, it is located outside of the proposed extraction area. A 200-foot offset for blasting activities from the gas line is being observed by SGI.