

Omya Community Issue Team – Quarry Issues

March 18, 2008 Meeting Summary

Location: Maclure Library, Pittsford, VT

Date: March 18, 2008

Time: 6:00 p.m. – 7:30 p.m.

Meeting Attendees (in alphabetical order):

John Lapre – Florence resident
Andy McIntosh– Omya employee
Bev Peterson - Florence resident
Bob Steibly – Omya employee

Absent:

Pat Church - Florence resident
Shawn Good – Florence resident
Amy Loomis – Town of Pittsford Zoning Administrator
Fred McAtee – Florence resident

Note taking: Mary-Kaye Macaulay – Omya
Dave Thayer – CLF Ventures

I. Welcome and Introductions

Issue Team co-facilitators Bob Steibly (Technical Manager) and Andy McIntosh (Geologist) welcomed the Team. The agenda and format for the second meeting was discussed. John Lapre (Florence resident) was introduced to team members present.

II. Old Business

Bob and Andy provided an overview of the previous meeting. Members were asked if they had any changes or additions to the meeting minutes of December 5, 2007. No edits or changes were made. Team accepted the minutes for posting online at www.omyainvermont.net.

III. Discussion of Prioritized Issues

Andy and Bob reviewed the Team Members three prioritized issues:

- (1) Water Quantity
- (2) Blasting Noise/Tremors
- (3) Noise from equipment

Before proceeding into Water Quantity, Andy presented members a bulleted summary on the Quarrying Process at the Hogback Quarry (see Appendix 1). This summary outlines the general steps used in quarrying and blending the rock for Omya's feed stone.

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Water Quantity

Andy explained that all individual water supply monitoring is conducted only with the well owner's permission.

Before the Hogback Quarry was opened, baseline data was collected during the Fall of 1994 prior to the beginning of any blasting, quarrying or quarry dewatering. This initial evaluation included:

1. Measuring static water level and pump testing wells in the area surrounding the quarry for up to 2 hrs.
2. Monitoring one unused spring-fed well and 2 springs associated with 2 spring-fed ponds near the quarry.
3. Comparison of results with an Agency of Natural Resources groundwater monitoring well in the area and annual precipitation data from the area.

Water supplies are monitored in the Fall because this is when the greatest effect from the quarry would be observed:

1. This is the time of year when seasonal groundwater levels tend to be at their lowest.
2. This coincides with the end of the annual quarry season when the water level in the quarry has been at the lowest elevation for the longest period of time.

Follow-up monitoring using the procedure of the 1994 baseline monitoring was conducted in 1995, 1996, 1999, and 2006. Monitoring during the first two years of quarrying provides more frequent monitoring during the initial development of the quarry. Since no impact was observed during the first two years, the first three years of monitoring (1994, 1995, and 1996) provides additional baseline data under a wider variety of annual rainfall for future comparison.

Water supply monitoring results to date indicate that:

1. None of the tested water supplies have been adversely affected by the quarry operation.
2. Regional groundwater levels have not declined.
3. Rates or volumes of groundwater movement within the shallow and deep aquifers have not changed. This is not surprising considering only a small amount of water seeps into the quarry on fair weather days. Also Vermont's relatively high rainfall keeps area groundwater aquifers full.

Omya's future plans will include periodic and ongoing monitoring of nearby water supplies. The frequency of the monitoring is expected to be about once every five years. However, the monitoring frequency may be altered based on the rate of pumping and draw down of the quarry water and on any issues that may occur with neighboring springs and wells.

Blasting Noise / Ground Shaking

Andy continued on to explain the blasting process and what neighbors are likely to experience when a blast takes place at the Hogback Quarry.

- **Neighbors may feel two types of effects from blasting.**
 1. **Ground vibration** is the high-frequency shaking of the ground from a blast. This is monitored by measuring the velocity of the movement of the ground in inches/second with a seismograph.
 2. **Air blast** is the low frequency noise generated by the movement of air caused by blasting. This is monitored by measuring both the audible and inaudible noise in decibels using a microphone.

- **Delay blasting reduces ground vibration and air blast.**

Omya's Hogback Quarry contractor employs a delay blasting technique to reduce ground vibration and air blast effects and improve rock fragmentation by detonating each blast hole separately about 25 milliseconds apart.

- **Using the proper amount of explosives reduces ground vibration and air blast and also reduces costs.**

Blasting is also most effective at minimizing ground vibration and air blast when utilizing the proper amount of explosives. Using too little explosive may create increased ground vibration since more energy is transmitted into the surrounding rock when the rock is not broken properly. This is also more expensive for Omya's quarry contractor due to the need for further breaking of the rock. Using too much explosive for the job may create additional concussion or air blast in blowing the rock out faster and farther. This is also more expensive for Omya's contractor in both the cost of the excess explosive and the cleanup of the widely scattered rock.

- **Blast monitoring benefits blast design AND it protects surrounding properties.**

Low ground vibration and low air blast are good indicators that the rock was broken properly during a blast. Higher ground vibration or higher air blast can often indicate that the rock did not break properly and an adjustment of the blast design might be needed. Sporadically, atmospheric conditions such as temperature inversions, low cloud cover or wind direction can enhance an air blast at unforeseen locations near the Quarry. If possible, the quarry contractor attempts to avoid blasting in weather that could possibly enhance an air blast. Low ground vibration and low air blast also results in neighbors feeling the blast less at their property.

Today's blasting technologies allow Omya's contractor to maintain ground vibrations and air blast well below the limits established by the U.S. Bureau of Mines and adopted by the Town of Pittsford.

One team member suggested that the team observe a blast at the Quarry and then observe another blast from a nearby home to fully experience the event.

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All agreed that this would be beneficial and Omya will schedule a viewing at a future date.

Noise from Equipment

A brief discussion was held on noise from equipment. At this time the issue is hard to evaluate due to the fact that the Quarry is not fully operational. This issue will remain a priority to be addressed when the Quarry is back in full operation and noise levels can be monitored. A question was raised about whether height of the stockpiles could be a contributing factor to the noise levels at the Quarry. Andy explained that the height of the stockpiles has not changed, but when work is being done on top of the stockpiles, neighbors may hear the equipment a little more.

Other

Bob addressed a question that was raised at the first meeting on the possibility of blown-in home insulation settling due to blasting effects. Bob cited information from the Cellulose Insulation Manufacturers Association (CIMA) and the North American Insulation Manufacturers Association (NAIMA) on the settling of both fiber-glass and cellulose insulations. No information was found that addressed settling as a direct result of blasting.

IV. Prioritized Issues and Next Steps

The team agreed to add Water Quality as it relates to future monitoring of Perchlorate in ground / surface water to the list of priorities.

Prioritized Issues:

- (1) Water Quality
- (2) Blasting Noise and Ground Vibration
- (3) Noise from equipment – to be addressed when Quarry is in full operation.

Next Steps:

1. Organize a blast viewing for team at Quarry & follow-up with home visits to experience the noise and ground vibration from a blast.
2. Provide the future monitoring schedule for Perchlorate as recommended by the Section 5 consultants.

In closing, Team membership was addressed. The Team was asked to speak with their neighbors about quarry-related concerns and to continue to look for interested neighbors directly impacted by the Hogback Quarry to join the Quarry Issues Team.

V. Next Meeting Date

The date set for the third Quarry Issues Team is Tuesday, July 8 at 6:00PM in the Maclure Library.

Appendix 1

Quarrying Process at Hogback Quarry

Since the bedrock needs to be broken, blended, free of dirt, and sized properly for Verpol feed stone; blasting, sorting, mixing, crushing, and screening are the best ways to do this. Following is a brief overview of the quarrying process used at the Hogback Quarry.

- In order to expose the rock, trees and dirt are removed from the bedrock surface.
- Next, holes are drilled vertically through the rock about 7 to 10 feet apart to prepare the rock for blasting.
- Explosives are placed in the holes and “wired” together under a carefully designed blast plan to minimize impact to the surrounding area and break the bedrock into a transportable size. Blasting is the most efficient way to break the rock.
- The broken stone is then sorted and mixed by a loader or excavator, placed in a dump truck and dumped into a crushing and screening plant for removing traces of dirt and sizing the stone for Verpol feed.
- The properly blended, screened, and sized stone is placed into another dump truck and dumped off of a stockpile with similar color (grayness or brightness) and tint (yellowness).
- The various colors and tints of stockpiled stone are carefully loaded into a highway dump truck according to a recipe to maintain a consistent color and tint for our Verpol plant.
- The properly mixed stone is then transported to Verpol where it is mixed again into an existing stockpile of blended Hogback Quarry stone.
- A loader then blends a detailed recipe of Hogback Quarry, Middlebury Quarry, and South Wallingford Quarry stone into the Verpol plant for further processing.