

EXECUTIVE SUMMARY

Interim Certification Application Tailings Management Areas Omya Inc., Verpol Plant Florence, Vermont

The following summarizes the information contained in the Interim Certification Application (Application) and its various parts, attachments, and appendices. This executive summary does not contain all of the detail and specifics of the Application. In this summary, cross references are provided to those sections of the Application where more detailed information is provided. The summary is intended to be read in conjunction with, and as a part of, the Application. All parts together are intended to provide the reader with information necessary to review and understand the Application as a whole.

I TECHNICAL SUMMARY

Facility Location

The Omya Inc. (Omya) mineral processing plant (Verpol plant) is located in an area zoned for industrial activity in Florence, Town of Pittsford, Rutland County, Vermont on approximately 385 acres.

II TAILINGS MANAGEMENT AREA OPERATION

General Discussion

Ground calcium carbonate is produced at the Verpol plant, and as with mineral processing operations worldwide, a tailings product is generated. It is the management of the tailings product with which this Application is concerned. The tailings product results from the flotation of calcium carbonate from marble ore, which is supplied from various quarries in Vermont. Calcium carbonate is used in the manufacture of paint, paper, plastics, and numerous other consumer goods. The finished calcium carbonate product is shipped both in slurry (solids suspended in a water matrix) and dry form.

The operation of the TMAs is a necessary component of the operation of the Verpol plant. Omya estimates that its annual production of tailings product will not exceed 150,000 tons per year. Since Omya began production at the Verpol plant in 1979, it has worked to improve ore management and its flotation process. These improvements have reduced the generation rate of tailings product, and reduced the relative amount of process water and energy used at the plant. To continue to supply high-grade ground calcium carbonate to the market, Omya must maintain the ability to remove mineral impurities from its marble ore. A designated on-site tailings product storage location ensures the continuity of hundreds of jobs and operations at the Verpol plant.

Omya always has retained control of the tailings product on its own site in order to be able to reclaim the calcium carbonate content of the tailings product, or find a market for it. To date, the technology has not been refined to enable broad-scale reclamation and re-use of the calcium carbonate content, nor has Omya been successful at its efforts to find alternative uses for the tailings product (i.e., soil amendments, admix in the production of various cementitious products). Omya has been working with the United States Environmental Protection Agency (US EPA) to investigate potential use of the tailings product as a buffering medium for passive treatment of acid mine drainage. While economically viable markets for the tailings product are being sought, and while the technology to recapture and reduce the calcium carbonate content of the tailings product continues to be developed, the tailings product has been stored at the Verpol plant tailings management areas (TMAs) as originally permitted under Act 250. Omya intends to continue the use of the TMAs as described in the Application on an interim basis until an alternate management method and/or beneficial re-use is identified and implemented.

The tailings product slurry is dewatered and stored in three TMAs that are situated in former rock quarry areas at the Verpol plant. The areas are identified as: (i) the Dolomite Quarry; (ii) the Kane & Drake Quarry; and (iii) the Loveland (aka Dog Leg) Quarry. For purposes of the Application, only the Dolomite and Kane & Drake TMAs are proposed for use. Considering the limited capacity remaining in those TMAs, and the need to accommodate the continued operation of the Verpol plant, Omya is reserving the remaining capacity in the Loveland TMA. Placement of tailings product in the TMAs follows three steps as outlined below.

Dewatering

The tailings product slurry is pumped into one of the two settling cells. The solids are allowed to settle in the cells and the decant water is removed and recycled back into the production process. The dewatered tailings product in the settling cells periodically are excavated and transferred to the TMAs. Currently, each cell holds about six months production of tailings product.

TMA Filling Sequence

The TMAs will be filled in general accordance with the sequence set forth in the plans presented in Part D-2 of the Application. As required by Section (§) 6-702(d)(7) of the Vermont Solid Waste Management Rules (VSWMRs) the final cover system is to be constructed within 90 days of attaining final grade or capacity, or from the last date of receipt of tailings product. In addition, grass or ground cover is to be established within four months of constructing the final cover system as segments are completed, weather and seasonal conditions permitting.

Maintenance

The transportation and placement of the tailings product is performed under controlled conditions. Nuisance issues typical of municipal solid waste landfills (e.g., vermin, odors, litter, and dust) related to the tailings product have not been experienced, and are not anticipated. The tailings product, being primarily an earthen material, is not a food source for vermin, a source for

odors, nor does it generate litter. Furthermore, the very nature of the tailings product, which is produced, handled, and placed in the TMAs in a damp condition, is not a source for dust generation.

On the occasion when TMA site access roads are dry, operations personnel use water tank trucks to treat the roads and other accessible areas to control dust generation from on site traffic. In addition, once the exterior slopes of the TMAs reach final grade, the tailings product is seeded, fertilized, and mulched to maintain overall TMA integrity and aesthetics.

Going forward, Omya intends to complete engineering, seek additional permits (e.g., Act 250), to acquire the necessary equipment, construct, and institute the use and application of a dewatering facility, which will have the following benefits:

- Terminating the use of existing settling cells for initial dewatering of the tailings product by using an engineered system of process equipment and tanks;
- Eliminating the need for final dewatering in the Kane & Drake TMA;
- Reducing the volume of water transferred to the TMAs; and
- Creating a paste that exhibits a low hydraulic conductivity, allows for more efficient placement in the TMAs, and improves market opportunities for the tailings product.

III FACILITY CLOSURE

Closure of the TMAs will be performed when one or more of the following milestones occur:

- Placement of the tailings product achieves the desired final grades in the TMAs;
- The term of the certification has expired; or
- On-site storage of tailings product no is longer needed.

Pursuant to 10 VSA § 6605b(c)(7), the term of an interim certification is limited to two years. As such, the Verpol plant TMAs would be closed within two years of the date of certification unless either a one-time two-year extension to the interim certification is approved or the TMAs are certified otherwise.

The closure design for the TMAs consists of the following three components: (i) final grading; (ii) erosion and sediment control/stormwater management; and (iii) final cover system and re-vegetation. A brief discussion of each component follows.

Final Grading

The proposed final grading is based on containing future placement of the tailings product to within the Dolomite and Kane & Drake Quarry areas. The final TMA grades in areas where tailings product will be placed, where possible, will provide a maximum slope of 3H:1V (horizontal to vertical) and minimum slope of 5 percent per §6-606(b)(2)(N) of the VSWMRs. Disturbing the existing in-place tailings, which currently are well vegetated and stable, will be minimized so as not to increase the potential for erosion.

Erosion and Sedimentation Control / Stormwater Management

Because the closure of the TMAs essentially is an earthwork project, the design incorporates the erosion and sedimentation controls and stormwater management features necessary to comply with state requirements and the associated Construction General Permit for such a project. Stormwater runoff from the TMAs will flow to the existing stormwater management system of the Verpol plant. Calculations related to the design of the proposed stormwater management features are provided in Attachment D-3 of the Interim Certification Application.

Final Cover System and Re-Vegetation

Based on the characteristics of the tailings product, it is anticipated that the tailings material will be used for the earthen material components of the final cover system as the tailings satisfy both the hydraulic conductivity requirement and the vegetation support requirement of §6-606(b)(2)(M) of the VSWMRs.

Closure Compliance

Omya will assure compliance with the closure requirements by retaining a professional engineer, licensed in the State of Vermont, to serve as a quality assurance consultant. The quality assurance consultant will be tasked with auditing the closure construction and preparing the application for Closure Certification. The application will include a closure construction documentation report, the survey record drawings, and the CQC test results. In accordance with §6-1003(c) of the VSWMRs, Omya will also submit a complete Post Closure Plan.

IV TAILING MANAGEMENT AREA CHARACTERIZATION AND MONITORING

The tailings management at the Verpol plant has been investigated via characterization of the tailings product, study of the site geology and hydrology, and water quality monitoring. Extensive testing of groundwater and surface water on and off the Omya property, including public and private wells and springs, has been conducted. In addition, Omya has instituted a comprehensive and ongoing groundwater monitoring program as outlined below.

Tailings Product Characterization

Tailings product consist primarily of minerals, which comprise approximately 99.6 percent of the mass. Physically, the tailings product resembles a sandy silt material. Minerals in the tailings product include roughly equal amounts of calcium carbonate and other minerals.

The non-mineral components of the tailings product (approximately 0.4 percent) were studied in order to understand the properties and chemical constituents. Omya's production process was reviewed and chemicals used in the plant were inventoried. Testing of the tailings product then was performed for the chemicals on the inventory, including those that are not involved in the flotation process, but rather are used in other parts of Omya's operation. In addition, in the evaluation of the site, compounds not related to the tailings product or to the plant's processes were identified and added to the list of compounds to be monitored.

The non-mineral components of the tailings product are found in varying concentrations. To provide the greatest factor of safety, the highest end of the ranges of concentration for each of the components was selected as the "design concentration" for testing and evaluation; see Table 7 in Part C-1 of the Application.

Site Characterization

Hydrogeology

The following geologic methods were used to evaluate the hydrogeology of the Verpol plant site and to select well drilling locations:

- Fracture trace analysis;
- Geologic map review;
- Field mapping of bedrock outcrops;
- Borehole logging with a down-well video camera;
- Water elevation contouring; and
- A field reconnaissance using very-low frequency (VLF) radio and geomagnetics.

The fracture trace analysis, measurements of outcrop strike, and mapped geologic contacts all indicated a predominant south-southeast to north-northwest structural alignment at the site, which dictates the local flow of groundwater.

Groundwater at the Omya plant site has been studied in detail via a network of 14 onsite bedrock wells, and four surface water sampling stations. The on-site monitoring network includes four pre-existing wells, 10 geologically sited wells, and seeps and springs. The wells were appropriately sited to capture data representative of the influence, if any, of the tailings product; some wells were drilled directly through TMAs as well as downgradient of the TMAs (based on the measured groundwater flow direction). The fracture trace analysis and geophysical testing were used to site monitoring wells along significant bedrock fractures where groundwater flow

occurs. Additionally, off-site monitoring locations include seven wells and springs including private and public water sources, gravel and rock wells, and four surface water locations along the "Post Office Swale".

Groundwater contour mapping shows a predominant north-northwest flow direction in the bedrock groundwater under the site, which is consistent with the fracture trace analysis, geologic mapping, and outcrop measurements.

Groundwater Monitoring

Groundwater and surface water samples have been tested for compounds associated with the tailings product, as well as other compounds typically associated with mineral processing and industrial emissions in general regardless whether the compounds are used at the Verpol plant. The list of tests, which was developed based on the inventory of chemicals used at the Verpol plant and on analyses of the tailings product and the site, is presented below:

- Volatile Organic Compounds (VOCs) by method 8260B;
- Semi-Volatile Organic Compounds (SVOCs) by method 8270C;
- Acrylamide monomer (SW 8032);
- Free chlorine (SM 4500 CI-G);
- Isopropanol (8260 B screen);
- Methyl isothiocyanate (8260 B screen);
- Monomethyl amine (SW 8015);
- Ortho phenylphenol (OPP) (8270C Screen);
- Petroleum products (8270C Screen);
- Stearic Acid (8270C Screen);
- Tall Oil Imidazoline Based Reagent (OMYA AG 24); and
- pH.

A summary of the test data is presented in Table 8 in Part C-1 of the Application.

The groundwater and surface water test results presented in Table 8 demonstrate that the water quality is in compliance with Vermont's Groundwater Enforcement Standards, Drinking Water Standards, and Water Quality Standards.

Ongoing Monitoring

Groundwater quality in and around the Verpol plant is monitored using a series of groundwater monitoring wells and surface water monitoring locations.

Twice-yearly monitoring is proposed during April and October of each year. It is noted that the Pittsford Conditional Use Permit (CUP), authorizing the previously proposed expansion of the Dolomite TMA to include lands surrounding the Quarry, requires annual springtime sampling of

seven identified off-site locations and of six noted on-site locations. To accommodate the different monitoring requirements of the CUP and the VTDEC, the proposed monitoring plan incorporates different wells during the fall and spring rounds. In addition, Omya proposes to implement a monitoring component to acquire background data from water supplies of all properties adjoining the plant site.

For each sampling location, water samples will be collected for laboratory analysis of the following parameters:

- Volatile organic compounds (EPA method 8260B, 67 compounds; except for the Florence public water supply, which also includes EPA method 524.2, 58 compounds);
- Semi-volatile organic compounds (EPA method 8270C, 78 compounds);
- Acrylamide monomer (SW 8032);
- Free chlorine (SM 4500 CL-G);
- Isopropanol (EPA method 8260 B screen);
- Methyl isothiocyanate (EPA method 8260 B screen);
- Monomethyl amine (SW 8015);
- Orthophenylphenol (OPP) (EPA method 8270C Screen);
- Petroleum products (EPA method 8270C Screen);
- Stearic acid (EPA method 8270C Screen);
- pH (EPA method 150.1); and
- Tall Oil Imidazoline Based Reagent (OMYA AG 24).

In addition, the following parameters will be field analyzed for the on-site wells:

- PH;
- Temperature;
- Conductivity;
- ORP (redox potential); and
- Dissolved oxygen.

Analytical results will be reported twice yearly, after the results from each sampling event have been received. Monitoring reports will be distributed by Omya to the VTDEC, the Pittsford-Florence Water District, the District Environmental Commission, and all off-site well/spring owners who agree to participate in the monitoring.

A contingency plan also has been prepared and will be implemented in the unlikely event that groundwater impacts are detected; in such an event a specific corrective action plan would be developed in cooperation with State and Town officials as more particularly described in Part C-2 of the Application.

V Interim Certification Application Process Summary

This application is being submitted to the Vermont Department of Environmental Conservation (VTDEC) on August 15, 2005. While limited requirements for public review of an application for Interim Certification exist, Omya supports a public process with the goals of eliciting stakeholder comments on the application.

In the absence of applicable process requirements, it is anticipated that the public review process will involve the steps as described below.

Public Notice

Omya will provide notice of the application to the general public by advertisement in the Rutland Herald and the Rutland Tribune. The public notice also will be issued to all residences and landowners within a one-half mile radius of the Verpol plant, or to the nearest one hundred (100) residences and landowners, whichever is the lesser number.

Municipal Notice

In addition to notice to the public, Omya will send notice of the application to:

- Town Manager, Town of Pittsford;
- District No. 1 Environmental Commission, Rutland, Vermont;
- Town of Pittsford Zoning Board of Adjustment;
- Town of Pittsford Planning Commission;
- Rutland Regional Planning Commission;
- Rutland County Solid Waste District; and
- Rutland Economic Development Corporation.

Review and Public Comment

Following receipt of the application, the Solid Waste Program will prepare draft Findings of Fact, which will be issued for public review and comment. Comments on the draft Findings of Fact will be accepted and reviewed. When the draft Findings of Fact are determined by the Solid Waste Program to be accurate and complete, the application will undergo technical review by the Solid Waste Program staff.

The Application will be available for review during normal business hours at the Town of Pittsford offices and at the Omya Verpol plant. The application also is available for review at the Solid Waste Program's offices in Waterbury, Vermont, between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday.

VI ADMINISTRATIVE SUMMARY

The Application was prepared and submitted in response to the requirements outlined in a June 20, 2005 letter from Commissioner Wennberg of the VTDEC to James M. Reddy, President of Omya.

In his June 20, 2005 letter, Commissioner Wennberg presented two options for Omya to consider with respect to certification of the Verpol plant TMAs: (i) Interim Certification pursuant to 10 V.S.A. §6605b; or (ii) Facility Certification pursuant to 10 V.S.A. §6605. The enclosed application was prepared pursuant to 10 V.S.A. §6605b (i.e., Interim Certification) for the following reasons.

- i. Interim Certification provides a means to address current site conditions because the TMAs, developed under the original Act 250 permit requirements, do not meet all requirements for certification pursuant to the requirements of 10 V.S.A. §6605 (i.e., Facility Certification). Interim Certification also enables Omya to operate the facility for a period of time necessary to: (i) complete research, planning, construction, installation, or operation of an approved facility; (ii) obtain permits necessary for and to acquire and install new technology to enable the dewatering, production, and handling of a homogeneous tailings product; or (iii) close the existing TMAs.
- ii. An application for full Facility Certification, including all necessary variances, could not be prepared within the specified timeframe.
- iii. The statutory requirements contained within 10 V.S.A. §6605b(b) can be addressed within the time permitted.

The information presented in the Application addresses the requirements outlined in §6-306 of the VSWMRs and 10 V.S.A. §6605b(b) (i.e., Interim Certification). Sanborn, Head & Associates, Inc., prepared the Application with support from Omya and its other consultants (Heindel & Noyes, Golder Associates, and GeoDesign).

As noted in the Application and previously in this summary, the TMAs at the Verpol plant include the former Dolomite, Kane and Drake, and Loveland (aka Dogleg) Quarry areas. For purposes of the Application, only the Dolomite and Kane & Drake TMAs are proposed for use during the two-year term available to Interim Certification.

The Application contains and specifically addresses each of the following requirements in accordance with §6-306 of the VSWMRs.

- i. Information required for facility certification pursuant to §6-304 (i.e., Facility Certification) of the VSWMRs.
- ii. Where Omya believes it cannot demonstrate conformance with §6-304 of the VSWMRs, Omya has provided information pursuant to §6-306(b) of the VSWMRs and 10 V.S.A. §6605b(b). Such information includes:

- a. Evidence of the necessity of facility operation and public benefits derived from the operation;
- b. An assessment of currently available methods to manage the tailings product stored at the site;
- c. An assessment that there is no present reasonable, alternative means for management of the tailings product;
- d. Evidence that Omya needs to continue to operate the TMAs for a period of time in order to complete research, planning, construction, installation of new technology to improve its manufacturing process or close the TMAs;
- e. A schedule to complete activities resulting in proper closure or full certification of the facility;
- f. Monitoring plans for groundwater and surface water, including summaries of existing available data;
- g. An evaluation that the TMAs will not create an unreasonable risk to the public health nor be unreasonably destructive to the environment;
- h. Evidence that the construction, alteration, continued operation of the facility, or continuation of the activity is consistent with regional solid waste plans, if any, and the state waste management plan; and
- i. Evidence that Omya meets the disclosure requirements of 10 V.S.A. §6605f(a)(1) and (2) (i.e., waste management personnel background review).