



Agenda No: 2.1

Mtg: Date: October 14, 2010

Regional Board Report

TO: Regional Board
FROM: Chris Radford
Director of Engineering Services
DATE: October 7, 2010
SUBJECT: Biosolids Management Plan

RECOMMENDATION:

THAT the Regional Board authorize staff to proceed with implementation of a short term (2-year) Biosolids Management Plan with SYLVIS.

This is for your consideration.



Agenda No: 3.2

Mtg Date: Oct. 14 /10

ENVIRONMENTAL SERVICES DEPARTMENT REPORT

TO: Governance and Services Committee

FROM: Chris Radford, Director of Environmental Services

DATE: October 7, 2010

SUBJECT: Biosolids Management

RECOMMENDATION:

1. **THAT** the Committee recommend to the Regional Board authorizing staff to proceed with implementation of a short-term (2 year) biosolids management plan with SYLVIS.

BACKGROUND:

The Regional Board authorized staff to engage the services of SYLVIS to prepare a Biosolids Management Plan for the Westside Regional Wastewater Treatment Plant (WRWWTP) earlier in 2010. It was evident that not only long-term options be examined, but a short-term plan be explored due to the time constraints of the current disposal options. Currently, these biosolids are transported and disposed of at the Glenmore landfill in an agreement with the City of Kelowna and the Ministry of Environment. It has been confirmed with City of Kelowna staff that this disposal option will not go beyond the end of November 2010.

RATIONALE:

1. Project Description

The short-term plan will address the urgency that the Regional District and the stakeholders currently face with disposal of the biosolids produced at the WRWWTP. The land application process has been previously performed in the general area currently being proposed with good results, endorsed by the MOE and the MOTI. The proposed site is an MOTI gravel pit (Bob's Lake Pit). An MOU has been signed with MOTI for land application. SYLVIS would be responsible to follow all criteria outlined in the Organic Matter Recycling Regulation. The company has a great track record and a great familiarity with the regulation as they assisted with drafting the document for the Province. Year 2 will likely see collaboration with a local woodlot as identified in the proposal. Bob's Lake pit is located approximately 67 km from the WRWWTP, about 3 km off of highway 97C.

2. Budget

The proposed 2 year agreement will ensure turn-key operation for the Regional District for Biosolids disposal options, excluding associated transportation costs. The cost included in the proposal is \$78/tonne. This is currently lower than the \$90/tonne being charged at the Oogrow facility. In recent discussions with City of Kelowna staff all current operational numbers are being prepared and run through a financial model to ensure tipping fees and operational costs are sustainable. Although the option of becoming a tipping fee customer at the Oogrow site is potentially an option, it would not be in the short-term. Through a progressive introduction plan to the site, both Vernon and Kelowna have committed to specific timelines that would not see additional biosolids accepted before Spring of 2011.

3. Long-term Management

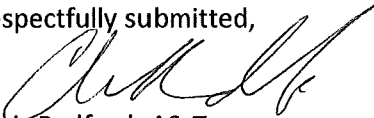
Although most of the focus has been directed to short-term options, the original work plan required to address biosolids management beyond 2012 is underway. The range of options will be assessed on a variety of considerations: environmental, social, economic, technical and market potential.

Long-term options in terms of the potential partners include:

- Woodlots and Private Forest Land
- Land Reclamation
- Value Added Products
- Agriculture

The Select Committee was recently provided with a presentation from SYLVIS and the opportunity to ask questions on the proposed land application process. Once a final Biosolids Management Plan is prepared, it would be recommended it be brought forward to the Governance and Services Committee with the possibility of a short presentation prepared and delivered by SYLVIS.

Respectfully submitted,



Chris Radford, ASCT

Director of Environmental Services

September 7, 2010

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Re: Biosolids Beneficial Use – Modified Turnkey Program Proposal

Dear Chris:

Further to the short-term options assessment Technical Memorandum that SYLVIS prepared for the Regional District of Central Okanagan (RDCO, July 5, 2010) and our recent email discussions, I have prepared a scope of work and proposal for your consideration. This scope of work is based on your stated request to advance the concepts provided in the Memorandum examining short-term options for the beneficial use of biosolids from the Westside Wastewater Treatment Plant (WWTP), and begin steps to undertake these beneficial use management options.

As per the recommendations provided in the Memorandum, this proposal offers service for two years, during which time a parallel project to develop a long-term programme should be undertaken. To simplify the process for RDCO, SYLVIS has prepared the scope of work as a "turnkey" proposal, providing all the necessary services to accomplish a successful land application programme for the Regional District.

BACKGROUND

The RDCO operates the WWTP. The WWTP is located on Gellatly Road in the recently incorporated District of West Kelowna. The WWTP accepts sewage from the District of Peachland, the Westbank First Nation (Reserves #9 and #10) and the District of West Kelowna. The original plant was constructed in 1989 to service 7,000 people and an average flow of 2,800 m³/day. Upgrades completed in 1989 and 2007 increased the service capacity to 35,000 people and a flow of 14,000 m³/day. The original treatment plant has been decommissioned and further upgrades commencing in 2010 will increase the service capacity to 42,000 people and a flow of 16,800 m³/day.

Approximately 5,000 tonnes (equivalent to approximately 5,000 m³) of biosolids are generated per year at the WWTP. Biosolids are currently transported to the

City of Kelowna's Glenmore Landfill for disposal. This option may cease to exist in summer 2010.

SYLVIS has been retained by the RDCO to assist in the preparation of a biosolids management plan for the biosolids produced at the WWTP (the Plan). The Plan will consider management options over the long term, strategic advantages / disadvantages and preliminary cost estimates. The options and recommendations must reflect the RDCO's commitment to promoting public health, environmental sustainability, flexibility and cost effectiveness.

The first component of the Plan was the Memorandum which focused on short term options, recommending several options that appear to be ideal candidates for rapid development into a beneficial use management program.

SCOPE OF WORK

The scope of work is divided into three major components through each of two years (six components total). These components are the following:

- Development of Land Application Plans (LAPs) to manage the total volume
- Operational stockpiling and application of biosolids to the sites
- Monitoring and reporting

The following sub-sections describe the details of each major component. The development of a beneficial biosolids program is a fluid process, dependent upon technical challenge, regulators, community sentiment, and stakeholder opinions. It is important to highlight that the details provided below are an idealized guideline.

Transportation is currently not included in the scope of work and subsequent cost. The RDCO can choose to coordinate transportation themselves, or have SYLVIS complete this aspect as well. This is discussed further in the cost section.

Site Identification and Due Diligence

At the request of the RDCO, and their residuals management committee, SYLVIS has been asked to provide an indication of the intended land application locations for consideration by the committee. In providing a series of four ranked sites, SYLVIS cautions that successful land application programs require substantial due diligence prior to, and during the development of land application locations. This means that while we provide a list of target sites for land application, including contingencies, these sites are subject to modification and change if matters arise that would preclude land application from the site or make it unfeasible to pursue as a short term option.

The sites that have been identified for potential land application are identified here:

- Bob's Lake Aggregate Pit managed as a right of way by the Ministry of Transportation and Infrastructure, located approximately 65 km northwest of the WWTP off Highway 97c (Okanagan Connector).
- Woodlot Number 1618, Managed by Montane Resource Management, access from Bathfield Road, Summerland, approximately 55 km southwest of the WWTP, accessing forestlands beyond the Summerland Landfill.

- Woodlot Number 1615, Managed by Jim Stewart, access from Old Vernon Road to Bata Forest Service Road, Ellison, approximately 45 km southeast of the WWTP, accessing forestlands above the Kelowna Airport.
- Woodlot Number 0344, Managed by the Marak Family, off McCurdy Drive, Kelowna, approximately 40 km southeast of the WWTP, accessing forestlands above Kelowna.

The sites above have been chosen as short term beneficial use opportunities based on their distance from populated areas (greater than 1 km from any dwellings), and the interest in the opportunity indicated by the land owners or managers. Further due diligence with respect to transport routes and disruptions, nearby public sentiment, and adjacent district cooperation is all recommended and will be provided. In addition to these sites, two further contingency sites have been included. While this contingency site is a significant distance from the WWTP, it is a site under which due diligence is secured, and land application of biosolids is a common management tool:

- Rey Creek Ranch, Logan Lake, BC
- Similco Mines, Princeton BC.

Development of a Land Application Plan

SYLVIS will develop LAPs required to allow the beneficial use of biosolids under the BC Organic Matter Recycling Regulation (OMRR). Land application plans must be written by a qualified professional, and then that professional ensures that the LAP is adhered to throughout the land application. Components involved in the development and submission of a Land Application Plan to the Ministry of Environment generally include the following:

- Relationship development with the landowner
- Liaison with all regulatory and stakeholder bodies, including:
 - RDCO
 - Ministry of Environment (MoE)
 - Interior Health Authority
 - Agricultural Land Commission (where required)
 - Other regional districts that may be involved
 - First Nations (where required)
 - The community
- Pre-application soil sampling at the proposed site, and any further sampling required by regulators or agreed to with stakeholders
- Production of all authorizations for each parties convenience
- Obtaining all title certificates, and undertaking due diligence for the proposed land application to ensure its technical success.

- Production of the LAP and submission to the required regulators
- All correspondence with regulators and stakeholders in regards to the proposed land application

The result of successful LAP development is the submission and notification of a LAP, which forms the basis for the legal application of biosolids to land. The notification period, once submitted to MoE is 30 calendar days. Once the LAP notification has been completed, stockpiling at the site and land application can commence, and the application window of one year begins.

The scope of work below provides RDCO with a comprehensive service that SYLVIS would provide for an all-inclusive price (per tonne) to develop a beneficial use program focusing on options that are of interest as long-term opportunities, for the two-year term identified in the Memorandum.

Operational Stockpiling and Land Application

One of the logistical challenges in a successful land application program is the challenge of transporting and stockpiling enough material at a site to undertake the application. SYLVIS recommends that RDCO immediately seek out an appropriate contingency storage facility for long-term use. The contingency storage facility should be able to accommodate 2 years worth of current production, be paved and bermed on three sides (with lock blocks or an earth berm) to allow stockpiling of the biosolids. It is unlikely, considering the dry climate in the area that a stockpile should have to be covered. The site should have access to a loader, to facilitate loading of biosolids for transport to land application sites. SYLVIS recommends approaching the Glenmore Landfill to provide contingency storage space while a more permanent site can be found, as this is the currently used disposal option.

It would be the ultimate goal to coordinate direct transport from the WWTP to each land application site; however, a contingency storage facility is required to ensure that any gaps in delivery or seasonal delays can be managed effectively. Contingency storage is a necessity in such a program.

With contingency storage in place, SYLVIS will work to organize logistics for each of the proposed land applications, to ensure where possible that stockpiling takes place at the site, and biosolids at the contingency storage are removed to a site as soon as a site becomes available. Temporary stockpiling at each site prior to application would ensure that biosolids handling would be minimized as practicable. Transport costs have not been included in this proposed scope of work, but if incorporated as an additional expense would be passed on at cost to RDCO.

SYLVIS would then work with the landowner to carry out the stockpiling and land application. This procedure involves multiple steps:

- Selection and construction of temporary stockpile areas with the land owner
- Road maintenance to ensure accessibility for transport vehicles to the stockpile
- Pre-application survey of the site, and flagging all buffers and boundaries as per the LAP
- Setting application vehicle routes and designing the application

- Erecting signage for the stockpile and the application as per the requirements of OMRR
- Supervising and managing the stockpiling of biosolids, including operation of an excavator to ensure complete emptying of the transports at the site and ensuring transports are not tracking biosolids to public roadways
- Calibrating the application apparatus, and ensuring the rates are applied as specified in the LAP
- Application using SYLVIS-owned and maintained equipment, and experienced SYLVIS operators.
- Ensuring that roadways and right of ways are tidy and neat throughout the application
- Overall project supervision by a SYLVIS project manager and qualified professional
- Production of letters of completion, including all metrics of the application (volume, rate, area) to be provided to RDCO and MoE

Once the land application is complete, monitoring of the site post-application can be required as per the LAP. This monitoring generally takes place one growing season after land application.

Monitoring and Reporting

SYLVIS will provide RDCO with a Land Application Summary Report, also known as a Qualified Professional's Letter. The letter is provided within 2 years of the submission of the LAP. The Summary Report is a terse letter-style report that provides the RDCO with the following metrics:

- Quantity of biosolids beneficially used
- Type of use and rates applied
- Nature and area of site

Within one year of completion of the land application, or immediately following the post-application monitoring, SYLVIS will include any additional monitoring within the Summary Report, including the monitoring results themselves and any additional comment about the success of the land application in terms of compliance with the LAP.

Additionally, SYLVIS will provide periodic updates (usually at two-week intervals) that will provide qualitative or subjective information relating to the land application:

- Challenges faced and resolutions
- Landowner relationship status
- Regulator interest and issues
- Stakeholder interest and issues arising

- Potential for further land application at the site
- Indication of the success of the application

This short term option will provide the RDCO with useful information, experience, and several initial land application sites that demonstrate the benefits of beneficial use for proponents and stakeholders that are potential partners for the long term program. It is important to understand that these short-term opportunities are intended to represent potential long-term options, but are not the long-term options themselves. There may be scope to prolong some of these short term opportunities, but their usefulness lies in laying the foundation for a diverse long-term program.

PROPOSAL OF WORK

SYLVIS proposes to provide the RDCO with turnkey biosolids management over the next two years. During this time the RDCO will be able to develop long-term biosolids management plans based on the recommendations of the forthcoming options report that SYLVIS is preparing.

The turnkey program that SYLVIS proposes includes all three major components above. There is an option for RDCO to provide transport services for the biosolids or to allow SYLVIS to coordinate these services at an additional cost to be determined on a project by project basis. The proposal effectively requires SYLVIS to select and undertake biosolids beneficial use based on approval of the proposed uses by the RDCO's representative. RDCO would be required to develop a contingency stockpile from which transport calculations would be derived. It would be RDCO's responsibility to ensure transport of the biosolids to the contingency storage when required, and to ensure its maintenance and compliance. Stockpiling at the application site will be undertaken when it is possible, but this is not always guaranteed.

SYLVIS considers that this proposal offers RDCO a simple, effective mechanism through which to develop a beneficial use system that will generate enough interest with local interested parties to generate substantial beneficial use opportunities that will be the basis of the RDCO's long-term beneficial use program.

PROPOSED COST

The proposed cost of undertaking a turnkey biosolids program for RDCO is calculated on a per tonne basis. SYLVIS proposes a cost of \$78 per tonne (plus applicable taxes), based on approximately 5,000 tonnes per year production. If the production varies from 5,000 tonnes by greater than 10%, the price may need to be re-evaluated. It is expected, with the development of a robust and diverse beneficial use program, that these costs would decrease over the long term.

This cost does not include loading or transport from either the WWTP or the contingency storage to the site. If RDCO wishes SYLVIS to manage this transport, then SYLVIS will arrange contract transport and loading and pass this cost on to RDCO. If requested, SYLVIS can also add this logistics component to the program, and provide a modified price per tonne for all services including transportation.

Payment for the project would be an even monthly sum based on production that is delivered to either an application site or to the contingency storage. SYLVIS would then assume responsibility for biosolids.

September 7, 2010

TIMELINE

SYLVIS is able to commence work immediately on developing the opportunities for land application. It is anticipated that the first LAP would be completed for submission in early autumn 2010, with land application commencing in October and operating through until snow. Be advised that land application onto snow is not permitted under OMRR, so land application ceases during winter. Stockpiling biosolids at the contingency storage site would be required in this instance, unless transport and road maintenance to storage at the application site can be guaranteed throughout the winter.

We have recently received your permission to proceed with the project, subject to SYLVIS providing more detail about the prospective land application sites, which have been enclosed herein. If you have any questions, please contact me at your convenience. As per your additional requests, please find an overview of SYLVIS and our services, as well as several project profiles, including several letters of reference from regulatory authorities and satisfied municipal clients.

Yours truly,



John M. Lavery, MSc, AAg
Senior Environmental Scientist

cc: Ms. Denise Vieira, SYLVIS
Mr. Mike Van Ham, SYLVIS

encl: SYLVIS overview
SYLVIS project profiles
Reference letters

