



SPERLING
HANSEN
ASSOCIATES

THE HIGHLAND VALLEY CENTRE FOR SUSTAINABLE SOLID WASTE MANAGEMENT

Background

Even though most communities in British Columbia are trying their best to reduce, re-use and recycle, there is still a need for management of residuals that are left over. Sperling Hansen Associates proposes the development of an integrated solid waste management facility on top of existing waste rock dumps at Highland Valley Copper, Canada's largest open-pit mine, to manage the residuals and to take further steps in reducing the amount of waste going to landfill.

The mine is currently expected to close in 2009, or possibly three years later if a pit expansion is approved. Closure of the mine, particularly the loss of 900 direct jobs and up to 1,000 support service jobs will have a large impact on Logan Lake and surrounding communities, including Kamloops. A May, 2003 study by Peak Solutions Consulting and Lions Gate Consulting that was commissioned by HVC determined that the mine closure will result in the following losses in Logan Lake:

- 375 to 475 residents,
- \$17.9 million per year of after-tax income,
- \$691,871 in municipal revenues (34% of Logan Lake's budget)
- \$1,485 increase in property tax per household to maintain services

The integrated solid waste management centre is seen as a catalyst to promote continued economic activity in the region after closure. The vision is to incorporate a large regional landfill facility together with a high quality composting operation for organic waste and possibly a regional Materials Recovery Facility for recyclables. Another option would be to operate the landfill as a Bioreactor facility whereby the maximum amount of landfill gas would be generated for energy utilization. It is our vision that the project be used as a catalyst to attract other spin-off industries such as a truck fleet maintenance shop, green-houses, mushroom growing operations, a pulp chip facility, a facility for recycling electronic waste, for recycling latex paint, etc. As well, it is common practice for landfill projects to contribute financially to the host community.



Green house near Vancouver Landfill heated by LFG.

Size of Project

The project could be initiated to service only the Thompson Nicola Regional District which operates a number of landfills including Lower Nicola, Heffley Creek, Chase, Clearwater and Barriere. Kamloops operates the Mission Flats landfill on the banks of the Thompson River. All of these facilities are unlined, many are close to rivers, and a number of the facilities are running out of soil cover. Current operating costs of the TNRD facilities exceed \$100/tonne.

It is anticipated that integration of all of these landfills into a single facility would reduce TNRD's disposal cost to less than \$60 per tonne.

Integration of solid waste management systems is coming to B.C. Because it reduces the risk to the environment and lowers costs, it is already the standard way to manage solid waste in California, Oregon and Washington. Two major landfills (Waste Management's Columbia Ridge Landfill and Rabanco's Roosevelt Landfill) receive the majority of solid waste generated in Washington and Oregon.

Due to economies of scale (very large landfills are much cheaper to operate than small landfills) we believe that it would be beneficial for a regional landfill facility to be developed that would service other regions including the Okanagan and the Columbia Shuswap and possibly the Lower Mainland.

Environmental Protection

From an environmental perspective, we believe that the proposed Highland Valley site is the very best possible location for a regional landfill to service southwest British Columbia.

Foremost, the Highland Valley site offers a large area of suitable land with extensive cover materials and a well-established environmental management system that could be adopted to accommodate a solid waste management facility.

Unlike landfills on the coast that receive between 1,500 and 3,000 mm of precipitation, Highland Valley typically receives only 390 mm. Much of the precipitation falls as snow (it can be cleared off the landfill) and evapotranspiration rates are high. As a result, very little leachate will be produced at the site.

Notwithstanding, release of any leachate to the environment is to be avoided. Our vision is that the landfill would be underlain by a triple liner comprised of at least one metre of compacted clay, a bentonite clay liner and a primary high density poly ethylene (HDPE) geomembrane liner. This level of leachate containment would be unprecedented in British Columbia.

Placing a secure regional landfill facility at Highland Valley Copper mine will utilize an existing brownfield site that can

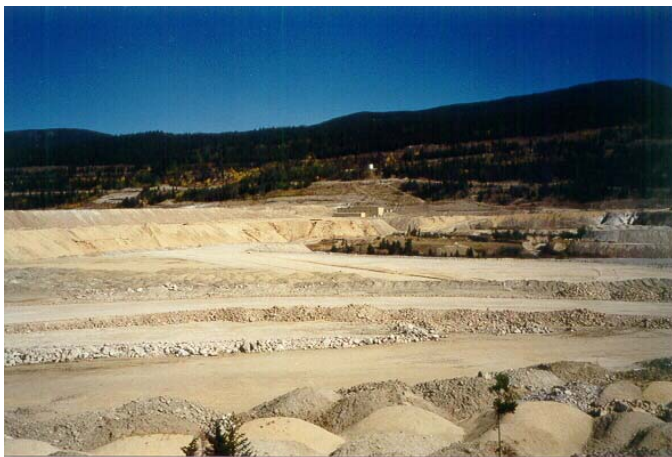
serve the needs of communities throughout southwestern British Columbia in an environmentally superior and fiscally responsible fashion for well over one hundred years. At the same time it will provide opportunities for other higher cost, poorly sited landfills to close.



Mission Flats Landfill in Kamloops is unlined and built close to the Thompson River.

Built on Highly Disturbed Site

The proposed landfill would be built on top of existing open pit waste dumps, piles of overburden and rock that are up to 50 m thick. In developing this site, undisturbed land elsewhere could be left intact. There would be no need to clear cut trees, no need to cover productive land in the ALR with a sprawling landfill facility.



The proposed waste dump site at Highland Valley Copper is highly disturbed right now (before reclamation).

In addition, the proposed facility would allow Highland Valley Copper to offset a portion of their mine reclamation costs because construction of the leachate containment systems for the landfill would effectively cap the waste dumps.

Proven Approach

The Cariboo Regional District has already developed a similar landfill facility at Gibraltar Mine, albeit on a much smaller scale. After searching for a new landfill for more than 10 years and encountering extensive not-in-my-back-yard (NIMBY) opposition at three proposed sites, Gibraltar Mine proposed that a facility be developed on their waste dumps. This win-win project, engineered by SHA, was widely supported by the residents with a record two year time span from conception, through approvals, design and construction to full operation.

Traffic Management

If developed as a regional site, the landfill would result in increased truck traffic to the area. A 500,000 tonne per year landfill, for example, would mean approximately 2 B-train trucks per hour. Of course, all of these trucks are already hauling chips to the coast and coming back empty. In comparison current levels of truck traffic hauling supplies to and concentrate away from HVC are similar.

One of the options for hauling refuse to the site from the Lower Mainland include coming up the Coquihalla to the Lac Lejeune interchange and then coming through Logan Lake to Highland Valley. Another option is to haul through the Fraser Canyon and up to the mine from Ashcroft. A third option is to ship to Ashcroft by rail using the intermodal system (where waste is placed in containers). Due the dense population and narrow road, hauling along the Mammette Lake Road from Merritt is not a safe option.

Conclusion

At SHA we believe that Highland Valley is the very best place to develop a large regional landfill in British Columbia. Although huge steps have been taken to reduce waste in B.C., the total quantity of solid waste has not declined much due to increases in the population. Solid waste will continue to be generated for the foreseeable future and will have to be managed. We believe it should be placed in the most secure location possible.

This project will move forward only if it receives public acceptance and approval from regulatory authorities that include the Ministry of Water Land and Air Protection, the Ministry of Mines, the TNRD and the GVRD. Please take the time to learn more about the proposal and make up your own mind whether you support the vision.

An open house will be held at the Arena in Logan Lake on Saturday, September 11th. The agenda includes an exhibit viewing at 11:00 am, a presentation at 1:00 pm, followed by discussions at 1:45 pm and a bus tour at 2:30 pm.

Should you have any questions before or after the presentation, please contact Dr. Tony Sperling, P.Eng. at

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