



SPERLING
HANSEN
ASSOCIATES

THE CRYSTAL MOOSE NEWS

North Vancouver, B.C.

February 2004



Dr. Tony Sperling, Editor

HAPPY NEW YEAR, and welcome to our semi-annual Newsletter. Once again, we have an opportunity to reflect on the past year and to look forward to 2004. Last year was the busiest ever at SHA with six major construction projects completed

in Whistler, Mission, Chilliwack, Hope, Prince Rupert and Gibraltar, addition of six new staff and moving to a bigger, more modern office.

Many of our clients were super busy in 2003 as a result of the forest fires that raged across the province, particularly in the TNRD, RDOS, CORD and CSRD. Tolko Industries, one of our private sector clients, in Louis Creek B.C. lost the entire sawmill operation. The facility's landfill survived. I was very impressed that solid waste management issues continued to be advanced by regional staff despite all the other demands of their time. SHA wishes all those affected by the fires a speedy recovery to normal operations.

2004 promises to be even busier with major construction projects scheduled for Nanaimo (Geogrid Berm supported expansion), Hartland (internal liner and leachate collection system / rock quarry), Mission (lateral expansion), Chilliwack (Transfer Station), Hope (liner and expansion), and Eurocan Pulp Mill (sludge containment berm).

SHA is also working closely with the District Council of Logan Lake to assess the feasibility of developing a major regional landfill at the soon to be closed Highland Valley Copper Mine near Merritt B.C. Following on the excellent example of a new landfill at Gibraltar Mine (see article inside), the site promises to raise the bar of environmental sustainability for landfill siting in British Columbia.

At SHA we value the business and support provided by our many repeat clients. For some of you, this growth in our business has provided challenges in terms of meeting dead lines. I personally wish to thank those clients who received projects later than usual. In particular, projects not driven by tight construction deadlines were affected. I am super proud of the staff at SHA who volunteered to come in on many evenings and weekends to get through the work. It is our goal for 2004 to continue to provide the same level of technical excellence that has been the hallmark of SHA over the years, but to deliver our services in a timely manner. We are currently adding new staff to achieve this goal. All of us at SHA will continue to do our very best to meet your needs. Thank you for your continued support.

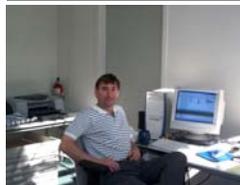
Office Move



This July Spierling Hansen moved to a new location in North Vancouver right across the street from the North Shore Winter Club. The new office is in the Keith Business Centre at #8 – 1225 East Keith Road. SHA staff was involved in designing the layout of the office and a local contractor made it all come together. The office has lots of light, including four skylights, a kitchen, a meeting area, four enclosed offices, two washrooms, an

equipment storage area and more parking than at the other location. The North Vancouver location gives us good access to Highway #1 and the Sea to Sky Highway for travel to many of BC's landfills.

Environmental Site Investigations and Remediation



by Frank Wright

Many corporations, communities, and regional districts outside the Lower Mainland have few alternatives for processing or handling of contaminated soil. Spierling Hansen Associates has

worked with government and industry to perform property investigations and provide cost effective solutions if site contamination is identified. Often the most practical methods for some areas is to utilize their secured landfill facilities for treatment and disposal of this soil. Over the past year, SHA has been expanding their services to include contaminated site remediation. This includes the addition of senior staff with experience in wastewater and soil remediation for a variety of contaminants. This approach has shown to be a natural fit with our work in municipal landfill engineering, solid waste planning, and our long-term experience with monitoring and treatment of leachate. It allows us to provide realistic solutions not readily apparent to the traditional methods that can involve sending soil long distances for treatment.

Our work over the last year has included projects in a number of communities including Prince Rupert, Fernie, Whistler, and with the most extensive programs happening in Squamish. SHA has been involved with five separate site investigations in Squamish, the majority involved with exciting plans to revitalize waterfront areas that have had extensive historical industrial activity.

REGIONAL PROJECTS



by Dr. Tony Sperling

The following paragraphs provide highlights of a number of exciting projects that our staff have been involved in over the past year around the province.

Mission: The District commenced progressive closure on a completed portion of the Minnie’s Pit Landfill in 2003. As well, engineering work commenced on a major lateral expansion of the landfill into an old gravel pit. A state-of-the-art leachate containment system will be installed in the expansion area in 2004.

Nanaimo: The Regional District of Nanaimo Board approved construction of a lateral expansion at Nanaimo Regional Landfill for 2004. The lateral expansion, first of its kind in British Columbia, will be supported by a Geogrid retaining wall. The expansion will extend the landfill lifespan by a further 18 years, avoiding the need to transfer refuse to the Cache Creek Landfill.

Chilliwack: Upgrading of the Bailey Landfill in Chilliwack continues at a fast pace. In 2003 SHA teamed up with Southwest Contracting and KC Environmental Liners to complete a challenging design-build project that involved installation of a double liner system and coarse rock drainage blanket on a very steep (2H:1V) side slope. Janet Demarcke and Tara Flundra are also planning to relocate and upgrade the transfer station and scale areas in 2004.

Hope: A fully lined lateral expansion of the Hope Landfill was completed in early 2004 by District of Hope staff under the direction of James Storey, working together with Western Tank and Lining and SHA. A new small vehicle lock-block transfer station is on the drawing board for 2004.

Squamish: Environmental upgrading continued at Squamish Landfill. Completed slopes were progressively closed with a clay cover. To provide a one time clean-up of an ongoing problem, old biosolids stored in large ponds at the landfill site were bulked up with saw-dust and then landfilled in trenches excavated into the MSW. A new in-vessel composting facility to manage future biosolids is coming on-line at Carney’s Waste Systems this spring. The District of Squamish is also working on plans to convert the existing Squamish Landfill into a fully compliant Regional Landfill, one that could service all of the Sea to Sky corridor for many years to come.

Whistler: A third fully lined lateral expansion was completed at the Whistler Landfill by K-Lor Contractors and Western Tank and Lining. All drainage materials were produced on site by screening sands and gravels from within the expansion area footprint. With the Olympics coming, plans are underway to close the existing landfill facility by 2008.

Capital Regional District: SHA has worked with the CRD Engineering team to develop a solution for controlling leachate mounding within the landfill. An internal liner and drainage blanket system will be constructed in 2004. Additional horizontal drains / gas collection laterals will be added as the landfill is expanded. Also, a large rock quarrying

project (238,000 m³) will be completed during the summer of 2004. The crushed rock will be used for operational cover.

Vancouver: Beneficial use of landfill gas commenced at Vancouver Landfill in 2003, with the landfill gas being piped to Can-Agro’s green houses where it is used to power several electrical generators. Off heat from the engines is used to heat the green house. In 2003 SHA, together with Sylvis, Sharp and Diamond Landscape Architects, Golf Design Services and Golder Associates prepared a comprehensive landfill closure plan for the western most 40 ha area of the site. Several end-use options were identified, all incorporating the same final grading plan.

Prince Rupert: Despite economic challenges with restarting the Skeena Pulp Mill, the City of Prince Rupert has continued to maintain and upgrade the solid waste system. A new septage treatment facility was constructed in 2003. Construction of a peat lined lateral expansion of the landfill is planned for 2004/2005.

Norampac: The Norampac Paper Mill in Burnaby added a perimeter leachate collection ditch and a fully lined surge pond to the environmental protection system at its landfill facility. The majority of leachate is now captured and conveyed to the mill’s effluent treatment system.

Landfill Fires: Our LANDFILL FIRE CONTROL team responded to a rash of fires this winter, including a wood waste fire in Gitwangak near Terrace, an MSW fire in Indiana, and a DLC fire at Trail’s McKelvey Creek Landfill. Plans are being made as this newsletter goes to print to respond to a major landfill fire in the Bahamas.

The Fifth Annual Indian Arm Thigh Burner:

by Sharon Tenenbaum



Sharon Tenenbaum

The fifth annual Thigh Burner took place this year on September 20, 2003. Just like it’s title, it did burn our thighs! This year the less experienced riders were transported by truck to the top of the 3,000’ high pass below the Sky Pilot massif. However, the brave ones took up the challenge and rode or pushed their steeds to the top. From there, it was an easy 20 km downhill coast to Wigwam Inn at the head of Indian Arm with numerous scenic viewpoints along the way. Thanks to all riders who helped raise \$875 for Linda Carney’s memorial fund at the Squamish Rotary. Once again, the ride finished with a much welcomed rest and salmon barbeque social at the Sperling waterfront home on Indian Arm.

The sixth annual Thigh Burner will take place on September 18, 2004. If you want the full burn or you just want to tough it out for the barbeque afterwards, please give Tony a call or drop an email to book your spot. The cost of the event is by donation (\$25 to \$50), with all proceeds going directly to charity.

The New Gibraltar Mine Landfill:

by Dr. Tony Sperling

During the 2003 construction season a brand new, state-of-the-art landfill was constructed at Gibraltar Mines near Williams Lake. The landfill is a FIRST in B.C. It is constructed entirely on top of a completed waste rock dump beside the huge Gibraltar pit.



To provide secure leachate containment the landfill has been constructed with a double liner system using 1,000 mm of local glacial till, overlain by a 60 mil textured HDPE liner. Leachate is conveyed to a large double lined leachate storage and treatment lagoon.



The landfill was constructed by Gibraltar's operating staff. Using mine scale equipment including 90 tonne trucks and a D10 Dozer, the earth moving on this project was completed much faster than the norm.

The landfill serves as the waste disposal site for Williams Lake where the CRD constructed an innovative transfer station using lock blocks and a flexible fabric roof.

Construction and operation of the landfill is a joint effort by the Cariboo Regional District and Gibraltar Mines Ltd. To date, only the first landfill Phase has been constructed. However, the landfill has been designed to be expanded to a total capacity of 1.3 million m³, providing at least 60 years of landfill life for the CRD.

Training News and Upcoming Events

In 2003 SHA's training team was super busy. In April, Tony and Dennis and Paul Henderson from the City of Vancouver participated as instructors during SWANA's Manager of Landfill Operations Course (MOLO). In May, SHA teamed up with the City of Kelowna to host the 2003 B.C. Landfill Operators Course in Kelowna. The course was well attended with nearly 40 participants from all areas of B.C. Many thanks to Alan Newcombe, Gord Light and Beth Cavers for helping to organize the event.

B.C. Landfill Operator's Course: On March 31st through April 02nd 2004 SHA is teaming up with the Northern Waste Manager's Association (NWMA) and Carney's Waste Systems to once again offer the B.C. Landfill Operator's Course. A highlight of the course will be a full day tour to Carney's brand new in-vessel composting facility, the integrated MRF and the Squamish Landfill. To make the course easily accessible to as many northern communities as possible the NWA requested that the course be held near the Vancouver Airport. The course will be held at the Best Western Inn Richmond. Please see the attached brochure for more details. We hope to see someone from your organization there.

Landfill Operator Certification: Building on the very successful MOLO course for landfill managers, the B.C. Pacific SWANA Chapter is spearheading an initiative to put in place a voluntary certification program for all solid waste management professionals in B.C., modeled on the successful program in Alberta. Options for training courses are currently being explored. The Chapter's goal is to have a practical course and certification program for all landfill staff in place by the end of the year. SWANA encourages all Regional Districts and private landfill operators to require that all landfill staff be certified by placing a training requirement clause in your landfill operating contract or job description. If you would like to obtain a typical clause for your contract please contact Lisa Tsiandolous, 604-730-0705 at the B.C. Pacific Chapter.

Crystal Moose Award: To promote excellence in landfill operations in 2001 SHA initiated the Crystal Moose Award to recognize landfill managers and operators who continually strive to make their landfill operation the best it can be. Past recipients of the Crystal Moose Award for the most improved landfill in Northern B.C. have been Gitlakdamix Band in the Nass Valley, and the Islands Landfill in Port Clements.

In 2003 SHA expanded the program to recognize operators throughout B.C. Three awards were made by Dr. Tony Sperling during SWANA's Northwest Regional Conference before more than 200 industry peers, including the Honorable Joyce Murray, the Minister of Environment. The award for the most improved landfill in Northern B.C. was presented to the Fraser Fort George Regional District for the many improvements implemented at the Foothills Boulevard Landfill. The award for the most improved landfill in Southern B.C. was made to the Regional District of Nanaimo and accepted by Carey McIver.

A special Crystal Moose award for the best landfill in B.C. was made to the Capital Regional District for operating the Hartland Landfill to the highest standards. Chris Riddell and his staff were recognized for their leadership role in solid waste management and landfill operations and for graciously sharing their knowledge and experience with all other professionals who ask. Keep up the great job!!!



We encourage all solid waste professionals to attend SWANA's 2004 N.W. Regional Symposium that will be held in Everett, Washington on April 8th & 9th 2004.

Staff Travels



by **Todd Baker**

What do you get when you cross a small, hard-working engineering firm with a little free time? The answer, lots of travel. It seems as though everyone did his or her best to get as far away from the office as possible this past year.

Tony, Aljeh and Angus used their play-time to visit sunny beaches and to get a glimpse of wild kangaroos, camels, emus and that rare breed of human, Steve Irwin, Crocodile Hunter. The Sperlings very much enjoyed their 5-week trip to Australia.

Poul, managed to get away to Japan, New York and England. And those are the ones we remember, we can't keep track of the guy!

Frank explored the west side of Vancouver Island on a 4-day kayaking trip in the Broken Islands. He had a whale of a time!

Todd visited the nearby planets of Ontario and Saskatchewan to see family members in the former and MC his dad's wedding in the latter. Oh Canada!

Dennis is pseudo-retired so he likes to spend most of his free time golfing. The destinations don't matter, golfing does. Mexico and mid-eastern USA were par-fect for him last year.

David met up with family members in New Zealand for an extended stay. When he came back he looked a bit sheepish! Last weekend David and his wife Annie won this year's Cariboo Marathon, a 50 km classic cross-country ski event through the beautiful terrain in 100-Mile House. This was the

first time in the events 25-year history that a husband and wife won the event at the same time.

Sharon's travels took her to Nevada where she pretended to live the high life of a big shot gambler. She said she couldn't resist seeing the Hoover Dam, it sucked her right in! Ha Ha!

Barry visited China, Singapore, and the Island of Panang off the west coast of Malaysia. A trip to Busby Alberta topped off his exotic destinations.

Anne's vacation highlights included her homeland, England, and Spain where her son participated in a sailing championship. Anne's son couldn't believe there is so much "old stuff" in England.

Barbara recently travelled to her native Poland to see her mother who has been ill. We're all happy to hear that things are improving.

Finally, having completed his master's degree, **Scott** is taking a well earned extended vacation to Australia. Bon Voyage.

Staff Changes at SHA:

Frank Wright, P.Eng. has brought contaminated sites and treatment expertise to SHA. Under Frank's direction, we are now helping a number of municipal clients manage the clean up and development of contaminated sites.

Scott Paddington is applying his slope stability and geotechnical skills to landfill projects. Scott recently completed an M.Sc. degree at Simon Fraser University on terrain stability on steeply forested slopes.

With the addition of **Barbara Ramza**, we have also added depth to our drafting department. Barbara is now helping Barry Munro to CAD design drawings and report figures, adding her special flare to the task.

After four years, **Tareq Islam, P.Eng.** moved to a newly created position as Manager of Solid Waste at the Regional District of Okanagan Similkameen in Penticton.

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 A photograph of a moose with large, velvet-covered antlers splashing in water. The moose is facing forward, and water droplets are visible around its head.