

The Saga of the Colliery Dams

Chapter 1 The Announcement, October 29, 2012

<https://www.youtube.com/watch?v=rCMu5SrNBKM>

The announcement that the Colliery Dams were to be demolished took our community by storm and resulted in wide-spread disbelief and sadness. Nanaimo City Staff had presented a report to City Council on October 22 and explained that the Dams were vulnerable due to both a major seismic and flood event. The costs to rebuild the dams were said to be between 20 and 30 million dollars while removing them would cost about 7 million dollars.

As well, there was no confidence that the dams could be repaired and brought up to acceptable standards. Liability rested with the City for any damage or loss of life in the event of a dam failure and they wanted to eliminate this perceived imminent threat as soon as possible.

During the next few weeks the City hosted two open houses and started distributing information kits and evacuation maps to area households that would be affected by a breach of the dams. Thus began what appeared to be a shock and awe campaign to convince the public that there was only one real option. The lakes were to be drained and the dams removed during the summer of 2013 and the Chase River was to be re-naturalized.

Long term former city councillor, Bill Holdom stated in the Nanaimo Daily News on Nov 9: *"Denying the facts would be nonsensical. And doing nothing would be totally irresponsible. The council really had no choice but to order the removal of the dams."*

There was an insistence that safety and liability precluded any options to keep the park in its existing state and that time was of the essence. However, it wasn't long before people began to ask questions as to how the Dams had suddenly become, without any forewarning whatsoever, the greatest hazard that our City had ever faced.

Chapter 2 The Seismic and Flood Inundation Studies

During the first open house, I asked water resource manager, Bill Sims for the documentation and studies that indicated that the dams posed significant risk. Eventually I was able to obtain the reports that were currently on record. All regulated dams have mandatory inspections on a yearly basis. As well most dams are subject to a more thorough review every 7 or 10 years depending on their classification. While not considered mandatory, other studies may be requested.

In 2003, Golder Engineering conducted dam safety reviews on the Colliery Dams, and found no deficiencies. They appeared in as good condition as observed in the previous Dam Safety Report (DSR) in 1992. However, as societal expectations had changed, old dams are required to be comparable to new dams in terms of safety. Their recommendation was that the Colliery dams

should be improved from its current design of 1 in 100 year rare event (storm, earthquake) capability to something better than a 1 in 1000 year standard. To satisfy the new standards, an increase in spillway capacity would probably be necessary. As well, since the seismic resistance of the dams were uncertain, further studies were required. This was also recommended in the 1992 DSR. Golder rated both dams as High Classification. (potential loss of life between 1 - 10 people should the dams fail)

http://www.savecollierydam.org/files/7913/8983/2806/Lower_Chase_River_Dam_-_Dam_Safety_Review_2003.pdf

http://www.savecollierydam.org/files/7213/8983/2806/Middle_Chase_River_Dam_-_Dam_Safety_Review_2003.pdf

Two studies based on more recent standards basically condemned the Colliery Dams. These were the "*Seismic Hazard Assessment Middle and Lower Chase Dams*" by EBA Engineering and the "*Chase River Dam Breach Flood Inundation Study*" by Associated Engineering. The first report, dated April 14, 2010, was written by Chris Grapel, P.Eng. and was contracted by the City. The second report also contracted by the City, followed in September, 2012 by Michael MacLatchy.

<http://www.savecollierydam.org/files/7513/8983/2806/SeismicHazardAssessmentMiddleAndLowerChaseDams.pdf>

<http://www.savecollierydam.org/files/8813/8983/2805/ChaseRiverDamBreachFloodInundationStudy.pdf>

The 2010 seismic study came to some serious conclusions regarding the state of the dams. In summary, Grapel assumed that the quality of the concrete core walls of both dams were poor by today's standards and did not have reinforcing steel. This finding contrasted that of Golder's 2003 DSR which stated: "*There have apparently been no concrete cores taken over the years and the strength of the concrete is unknown. However, the concrete is weathering well and there are no apparent signs of deterioration (see Appendix B).*"

The greatest concern was a "sunny day" cascading failure of the dams during a seismic event. Basically, the premise was that the middle dam would fail quickly during a relatively minor quake. The discharge from the middle would overtop the lower which would then cause it to fail. Grapel noted that "*initial discussions with the City in December 2009 indicated that significant investment in new dams or extensive and expensive rehabilitation of the dams to maintain a public park may not be considered to be a wise use of tax payer funds.*" While he relayed options for rehabilitation and replacement, the preferred option was for the dams to be removed. Finally, there were numerous recommendations for further assessment in the follow-up flood inundation study. Such a study is not required by the DSS.

http://www.savecollierydam.org/files/5513/8983/2805/Scott_Morgan_-_Dam_Safety_Branch_-_Mar_25_2013.pdf

This study built on previous findings. MacLatchy determined drastic consequences should the dams fail, especially noting the potential cascading failure of the dams during a quake. Consequence of failure was pegged in the range of 80 (daytime) to 150 (nighttime) fatalities and economic damages in the range of \$38 million. As the spillway capacity of the dams had been determined

as being grossly undersized, the dams were also expected to fail due to a major flood event. Between 30 - 60 people were to perish with economic damages in the range of \$33 - \$36 million. MacLatchy assumed that the dams would breach in 3 minutes and 20 seconds and described buildings being destroyed or completely inundated by the resulting flood wave. Rapid onset of flooding combined with the depths and velocities would result in individuals being swept away by the flood wave or trapped in buildings whereby the water would, in many cases, exceed the height of the building. Thus his conclusions were *that "given the probability of failure combined with the consequences of failure, flood forecasting tools, educational programs for residents in the floodplain and evacuation plans would not be sufficient to avoid many casualties."* Therefore modifications were deemed necessary which meant that the dams needed to be upgraded, replaced, or removed. As a result, the dams were recommended to be re-classified from "Very High" to "Extreme" based on the B.C. Dam Safety Regulation. The "Extreme" classification (over 100 potential casualties) is the highest consequence classification under this regulation.

These two reports were very scary documents which broadcast great loss of life and property should the dams fail. This was the information that was brought to City Council in a closed meeting when they voted to have the dams removed. It was much later that their conclusions were both challenged and shown to be largely incorrect.

Chapter 3 Community Backlash

<https://www.youtube.com/watch?v=fJZoAZf5aFY>

After announcing that the Dams were to be removed, the City held two open houses on Nov. 05 and Nov. 08. It had also produced a polished hand-out describing the rationale for removal. Statements such as *"the dams have reached the end of their service life" and "while currently stable, could fail due to a quake or extreme rainfall event". All options, including reinforcing or rebuilding the dams had been considered and only removal and re-naturalizing the Chase River Valley were deemed the safest long-term solutions."*

There was acknowledgement that the park was a jewel of south Nanaimo and its use as a natural recreational area was not anticipated to change in any way. However, many considered that, if the dams were to be removed, thus resulting in the loss of the lakes, the intrinsic value of the park would be lost. I addressed this point with Councillor Anderson.

There was also information in the brochure about emergency planning, a brief history of the park, and a stated goal to create a similar atmosphere to Bowen Park.

At the first open house, many people were upset and frustrated, but there seemed to be no alternatives to the stated plan. The second open house was similar, but Mayor Ruttan attended as well as Chris Grapel, the engineer and architect of the seismic study, who had travelled from Alberta to assist in relaying information to the public. At this meeting, I remained outside and invited people to attend a community meeting on November 20 at John Barsby High School.

By this time, I had reviewed the engineering studies and, along with other community advocates including, Louise Bellanger, Cody Scott, and Brad Maguire, had made the decision to hold a public meeting to gauge community support. During this time, I met numerous people who eventually became part of a core group who offered time and support in efforts to save the park including . Geraldine Collins, a retired engineer technologist.

There was no way of knowing if people felt strongly enough about the issue to come to a public meeting. After all, there had been no discernible backlash when a pipeline had dissected the park and over 150 trees had been torn out to make way for the new city reservoir. Nevertheless, it was obvious that the only means of potential progress was to garner community support in order to contest the city's plans.

What occurred on Nov. 20 on a wet, dark blustery night, far exceeded any expectations that organizers may have had. The school gym was packed and well over 500 people signed a petition wanting the city to explore all options to maintain the Colliery Dam Lakes, while ensuring that risk factors were addressed, and that community values, lifestyles and opinions were respected in the decision making process.

Ms. Collins explained that the risk to the community was much less than had been portrayed. Bill Heathcote, a long term local resident and contractor who had worked on dams, declared that the costs of improvement of the dams had been greatly exaggerated. Dave Cutts said that he was willing to fight the destruction of the dams as he had in Clayoquot Sound. Many others expressed their deep and historical attachment to the Park.

Most of City Council attended this meeting but we had made a decision not to have them speak. I read an e-mail from Councillor McKay: *"After all, while they are immensely enjoyed for recreational and relaxation purposes, they serve no functional purpose to the City"*. This statement accentuated the lack of understanding how important the Park was to our community.

The meeting was a powerful and emotional moment for many and a clear statement that people were passionate about saving our Park and were doubtful of the intentions of the City.

<https://nanaimocityhall.com/2012/11/21/last-night-at-barsby/>

<http://www.nanaimo-info-blog.com/2015/09/colliery-dams-saga-look-back-first-30.html>

<http://www.savecollierydam.org/news-press/public-meeting-nov-20-2012/>

This was the beginning of a long and drawn out journey during which we heard many times that "this was a done deal" and "you can't fight city hall". I, and others, were novices to politics and the inner workings of management at the City and so were forced to take a crash course in order to understand the intricacies of the system. It was an eye-opening process and both fascinating and extremely unsettling at the same time.

Chapter 4 Presentation to Council Nov. 26, 2012

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW121126V>

Despite the excitement and energy produced by the successful public meeting a week previous, there was no clear understanding as to best to proceed. Certainly there was an acknowledgement that City Council understood that many people were very unhappy with their plans for the park but there was also uncertainty of the impact. The lead reporter from the Nanaimo Daily News, Spencer Anderson, had reported on the same date of our public meeting that the fate of the dams was seemingly sealed on November 19 after city council bypassed a 30 day deadline to bring the issue up for reconsideration. It appeared that he was basically questioning attempts to motivate the community at this point and did not attend the meeting.

Mark MacDonald, the editor of the paper took a slightly different slant. He acknowledged that it was unfortunate that community members did not understand the rules and process but that it was a shame that Council had chosen not to revisit the city's decision to take a second look at the removal of the dams. He also openly questioned the necessity for a rushed decision and the reluctance of mayor and council to challenge staff and their recommendations.

Our group decided to appear in front of Council on Nov. 26.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW121126V?start=1445>

There, I thanked members who had attended our public meeting, submitted our petition which now had over 600 signatures, reviewed some on the information on record, and stated that a major issue for our community was the lack of public consultation since the first study was released over two and a half years ago. That study indicated a substantial risk of failure should a seismic event occur and that loss of life would be expected and yet neither the public nor members of council had been informed. I noted that this represented a critical lost opportunity for allowing public consultation and deliberation.

At that point, I broke unknown protocols and referred to the involvement of Bill Sims, Manager of Water Resources, and who, I assumed, had custody of the file and therefore would have responsibility for its direction. I also submitted two documents. The first was dated May 15, 2010 from the Nanaimo Daily News. Sims was quoted as stating *"that it was a no-brainer to save the Westwood Lake Dam, but the answer may not be so clear for Colliery Dam Park". Crews could reinforce the Middle and Lower Chase River dams just like in the Westwood scenario but that means crews would be stretched even thinner during an emergency by having to deal with two leaking dams simultaneously. It could put further strain on emergency crews at the worst possible time. Another option is to replace the old dams with new ones, a project that would cost taxpayers tens of millions of dollars"*

I also submitted an e-mail to council from Sims to a neighbour dated on Mar 22, 2011.

http://www.savecollierydam.org/files/2113/8983/2806/Water_resources_manager_to_resident.pdf

The writer's question was with regard to the risk, in the case of a major earthquake, as she lives downhill from the dam. Sims' response was that *"it is very difficult to determine the true effect of an earthquake on these structures. There are so many variables that could occur. A large earthquake would cause considerable damage and devastation. The contribution to this damage from these dams is likely to be relatively small in comparison the overall damage. He added that failure of dams due to seismic activity are very rare based on world-wide experience". He then added that "in the near future, we will be initiating further dialogue with Council and seeking community input on future plans for these dams"*

Given this information, I assumed that there had been consideration of a plan to remove the Colliery Dams. (This was later confirmed in a telephone discussion with City Manager Tom Hickey in December.) As well, we became aware via Freedom of Information, (CON legislative services file No. 49-FOI-2014) that there had been a roundtable discussion on 2012Mar16 at Beban Park to discuss the Chase River Dams. At this meeting, there were 9 members of City Staff, 3 representatives from DFO, 2 from VIU, 3 from the province (FLNRO), and one member from Harbour City River Stewards. There was no representation from First Nations, Council, or the community.

<http://www.collierydams.org/wp-content/uploads/2018/01/49-FOI-2014-ResponsePackage.pdf>

I urged Council to ensure that a suitable plan be made to promote safety, keep our lakes, and to maintain the park as the precious resource that it is. Following my presentation, Ms. Collins, and Craig Evans, spoke to alternative plans for the park that we felt should have occurred over 2 years ago. A motion was then brought forward by Councillor Fred Pattje to have staff meet with members of our group with the goal of reviewing technical and engineering regarding the dams and the inundation area.

At this same council meeting, two contracts were handed out as recommended by Sims and senior staff. One was for fees estimated to be \$890,000 for the construction period engineering services for the #1 Reservoir, Energy Recovery Facility and inter-connecting pipelines. The second was to award the third phase of engineering services for construction period services for the Water Treatment Plant with fees estimated to be \$4 million.

Council approved motions for both contracts to be awarded to Associated Engineering.

Chapter 5 Dec 06, 2012 Meeting with Staff, Engineers and DSS

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/minutes-14.pdf>

This meeting occurred with 13 members of our community, city staff, engineers, and members of the Dam Safety Section. It lasted approximately 3.5 hours. I began with a statement that included a message from Council Pattje encouraging dialogue in effort at finding common ground around this issue. I also stated that our objective was to understand that reasonable consideration had been given to saving the dams while satisfying safety requirements. I also brought up a concern of a possible conflict of interest. Chris Grapel, was employed by Klohn

Crippen Berger and it was my understanding there was the possibility of an agreement of having KCB do the actual work on the Colliery Dam project. This particular segment was initially left out of the minutes of the meeting but inserted and documented at my request.

Our group had been very fortunate to have Lorne Gale approach us and offer his assistance. Gale is a local engineer and a project manager. He said that he was stunned to hear of the impending demise of the dams. He took a lead role in the meeting with most of the dialogue occurring between he and Grapel. Gale continued to play a prominent role over the next few years. Securing the services of an independent consultant was a major gain as we knew that many would be leery of coming forward given that the City is a major contractor.

While it was clear that cost estimates of \$20 - \$30 million to rehab or rebuild the dams were basically guesstimates, there was also a clear and firm direction that removal of the dams was the only viable option. Simply put, the inundation study had indicated that the dams posed too much risk and their classification had been bumped up to extreme. This made rehabilitation of the dams virtually impossible and the cost of replacement excessive. This was despite declarations from both Grapel and MacLatchy that there was no noticeable deterioration of the dams during the last few years. Gale pointed out that conclusions and costing were based on many untested assumptions and very conservative estimates. Towards the end of the meeting, the City's CAO, Al Kenning, stated that, as there were questions about the presumed costs, he would support a request to Council on Dec. 17 for an estimate on rebuilding the dams. However, he also made it very clear that this should not result in slowing down the work for their deconstruction. Tom Hickey stated that from what he had heard, he did not feel that remediation was an option and that it would likely be removal or rebuild.

After the meeting, I was filled with a sense of dread that there was to be little opportunity to save our dams. Staff remained firm that plans for deconstruction should continue and the offer to acquire more firm costing for their replacement seemed to be more a means to placate than to consider alternatives. This appeared to be a "shut-down" meeting. The "experts" had spoken.

Chapter 6 Dec. 17, 2012 Information for Council and a Proposed Plan

Headlines in the NDN on this date was **School adjusts safety plan over flood risk. Failed dams could hit John Barsby hard.** School Board Chair Jamie Brennan was quoted: *"If the dams do break quickly, it could release a tsunami-type wall of water through the area that will be carrying cars, trees and other debris and we are very worried about our students' safety."*

After Dec. 06, Gale had some further discussions from representatives of DSS. He also reviewed many of the engineering studies that were on record. The combination of the feedback that he had received and the information that he had gleaned from the city authorized documents, gave him great optimism that a solution to this dilemma was well within grasp. He felt confident that a presentation to Council would be well received. Gale and I co-signed a letter to Mayor and Council and Senior Staff on Dec. 11. Part of it read: *"We are excited*

and confident that there are numerous options to solve this problem that not only meet safety requirements but are also more cost effective than the proposed demolition. Some of these will be presented at the council meeting to show that there are many options that may deserve consideration. In addition, we are confident that there is an immediate measure that can be taken to eliminate the risk to downstream residents and by doing so, removes the rush for demolition"

As there had been discussion of employing Grapel for work on deconstruction we asked that staff wait until we had opportunity to present on Dec. 17.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C121217V>

The basis of the plan was simple. The most major concern was the supposition that the middle dam might topple during a quake. This failure could cause a cascading failure of the lower dam. The seismic study had offered solutions and cost estimates for both bolstering the dams and improving spillway capacity. However, those estimates were based on their classification at the time which was very high. The dams were now classified as being extreme consequence due to the findings of the inundation study. Gale's hypothesis was to interrupt the mode of failure by bolstering the middle dam. Gale said that his conversation with Scott Morgan from DSS indicated that they would be receptive of this concept and, given that the dams would no longer pose the same risk, work could ensue under their previous classification. During Gale's presentation, he referred to documents on record which included the proposed options and the associated costs. He also suggested de-watering the dams with siphons should there be an immediate concern. As a project manager he felt confident that the work required could well be achieved for the total cost of about \$3 million.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C121217V?start=5065>

Dr. Steven Hill who had also attended the meeting on Dec. 06, also presented and showed how hydro power could put green power in the grid at a surplus of about \$140,000 per year.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C121217V?start=6975>

Ms. Collins submitted "20 Excellent Reasons The Colliery Park Dams Decision Needs a Sober Second Look. She asked for new eyes to consider this a community driven, cost effective plan to support a legacy for the future. She also pointed out that DSS had stated that they accepted the safety measures that were now currently in place.

Finally Council was asked to **"Designate funds to the development of conceptual solutions and their costs estimates for the rehabilitation of the Colliery Dams and that no further plans for dam deconstruction proceed until further information is presented to Council."**

The presentations and the proposed motion resulted in considerable debate by Council members. A motion had been prepared by staff to allocate \$30,000 for attaining costs for building new dams. Council had appeared to be prepared to support this motion and were seemingly confused by our request to focus on rehabilitation. After a great deal of discussion, the motion that was finally passed was for one to have engineers develop conceptual solutions and their cost estimates for rehabilitating the dams and for building new dams. However, this

was to be done concurrently with the engineering and environmental studies already underway in relation to the deconstruction of the Colliery Dams and re-naturalization of the Chase River.

Many people thought that this was a significant win. It wasn't. By continuing the process for deconstruction, there would be no "new eyes". The momentum for the removal of the dams would remain unabated. Public safety was cited as a prime factor.

Chapter 7 The Fall-out

Our group had approached Council on December 17th with good intentions for what we considered to be a plan that would satisfy standards and was both sensible and cost-effective. However, rather than embracing and building on the concepts that had been introduced, the reaction was quite the opposite.

A request had been made for a delay in handing out any contracts until Morgan returned from holiday on January 7'th. We wanted to confirm that DSS would agree, in writing, to the information that Gale had received in his phone conversation with Morgan. We worried that information regarding what options could be considered would not be included.

On Dec. 24 the City issued a press release that KCB had been chosen to do the cost estimates on replacing or fixing the dams. This was in conjunction with work from the same firm that was already being done for their removal. A further contract was to be arranged for a peer review of KCB's work.

Furthermore, our request to have direct involvement with the engineers was denied. However, Kenning informed me that our group would be able to meet with the consultant who was to be hired to undertake the peer review. We were not the only ones who voiced similar concerns regarding this process. Jim Taylor wrote in his Info Blog. in Dec. 2012. *"Only after an organized, educated and unexpected push back came from a passionate group of Harewood residents was the city forced to take a second look at their decision. While the city would appear to be honouring the desire to have an unbiased second opinion of comparative costs to rehab the dams, the city seems to still be trying to stack the deck in favour of removing the dams. How? They are hiring the same engineering firm (already the benefactors of a \$400,000 sole source contract) to provide a study about rehabilitating the dams. This same firm is already employed to oversee the dams removal"*

<http://www.nanaimo-info-blog.com/2012/12/>

Mark MacDonald (NDN) wrote on Dec. 28 commending the decision to take a sober second look at the project. He also brought up two "red flags" pointing out that contracts were going out of town rather than to local engineering firms. As well, Klohn Crippen Berger Ltd. had been tasked to provide cost estimates for both rehabilitation while already employed to oversee the removal of the dams.

Chapter 8 Jan 21, 2013 The Worst Dams in B.C.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW130121V?start=6155>

Councillor Pattje had been sympathetic to our group's efforts and acted as a conduit to Council. It was he that we approached for guidance while explaining our frustrations at being excluded from sincere dialogue. He relayed our concerns to Kenning.

When Morgan did not return Gale's email or phone calls we asked city staff if they would arrange a meeting. Kenning did not offer to set this up but said that staff were willing to attend should such a meeting be arranged.

We went to Council on January 21 to request we be involved with the stakeholders, engineers, DSS, and city staff, regarding the options that would be explored. We were met with some reluctance in granting this request, being told that, as we were to be involved at the peer review stage, we would present our options at that time.

During this meeting a letter addressed to Sims from Scott Morgan was presented. This letter acknowledged the letter from October 29, 2012, advising the provincial office of the City of Nanaimo's decision to proceed with removal of the Middle and Lower Chase River Dams. It stated that their office accepted the decision to remove the dams as a viable option to eliminate the unacceptable risk to the downstream community posed by these two dams. He went on to say that due to the engineering studies, the consequence rating of the dams had been moved up to the highest risk level 1 - Alert. Their office was presently satisfied with the City's on-going response and emergency preparedness but it was also noted that of the 1649 dams in the province, 38 were rated as extreme consequence but only the Middle and Lower chase River Dams were currently at risk Level 1.

Morgan urged Council to proceed with the planned removal of the dams as soon as possible and confirmed that all dams in BC must conform to the standards set by the Canadian Dam Association Guidelines. As the Colliery Dams were rated as extreme consequence, they would need to withstand a 1:10000 earthquake and pass the probable maximum flood (1:50000)

http://www.savecollierydam.org/files/6813/8983/2805/January_21st_letter_fromDSB_extreme_dangerous_dams..pdf

There was no mention of council's decision to have engineers look at options for building new dams nor their rehabilitation. Nor was there any reference to the plan that Gale had brought forward after some previous discussion with Morgan.

Valid questions quickly arose after the presentation of this letter, particularly its sudden arrival 2.5 months after Council had been made aware of what was described as a serious and urgent situation. Given that there was no mention of options to keep the dams, the sincerity of the process to look at alternatives was in doubt.

Chapter 9 January 29, 2013 Meeting with DSS and Staff

We were eventually granted our request to meet with DSS. We had hoped that Council members would be present but, as in the Dec. 06 meeting, this did not occur. Attendees were Glen Davidson (Water Comptroller) and Scott Morgan from DSS, Susan Clift, Tom Hickey, and Al Kenning from the City, and Bill Heathcote, Lorne Gale, and I representing our group.

This meeting provided a perspective of the key players and decision makers. There was initial discussion of the safety of dams in general and particularly the Colliery Dams. Davidson referred to dams as being inherently dangerous structures and the Colliery Dams were now on their radar because they were probably the highest risk dams in the province right now. Regulations had changed after the 2010 failure of the Testalinden dam in Oliver which had caused significant damage. Heathcote pointed out that the Testalinden dam was an earth-filled dam on private property, had been leaking for days, and no preventative action had occurred despite it being reported.

Gale addressed the safety issue. He asked why we shouldn't lower the volume of the lakes immediately, if there was imminent risk. This would also allow more time to consider options. The response was that winter flows would present challenges and that the City had done a very good job with emergency preparedness. Clift (head engineer) added that should there be a shake, people needed to move to higher ground and if it's a flood, it was likely that people would have warning because there was monitoring twenty-four/seven, electronically of the water levels.

Gale then pointed out that it is up to Dam Safety to review the engineering reports and repeatedly questioned the subjective assumptions of the dams failing almost instantaneously during a quake. He described the scenario that led to the extreme classification. Middle dam fails, causes the failure of the lower with all the water rushing out at once. All the earth behind the dams would be displaced within a few minutes thereby exposing the concrete core wall which then falls over and all the water is released. He said that he struggled with these assumptions as there is weeks of work for an excavator to remove that material and the report has the dams draining in two hundred seconds. The answer was that it was possible. The City had paid good money for these studies from a reputable engineer and even if a conflicting opinion from another firm was offered, Davidson said that he would go with the worst case scenario. There was further discussion about development in the flood plain and the considerable life-cycle costs to the City for keeping a recreational dam.

In summary, the studies and findings were deemed acceptable. Safety measures already in place were seen as quite adequate and finally, this was the first time that development was brought up as a potential factor in the decision making process. There was no explanation for the rationale behind not sharing publicly the extreme concerns expressed in the seismic study of April 2010.

We felt similar frustrations from this meeting as during the one on December 06. DSS was not willing to consider any means to de-classify the dams which would have resulted in considerable savings for their rehabilitation. The goal of a sensible low-cost solution appeared to be slipping out of reach.

Chapter 10 Options to Save the Dams

Our next steps were based on feedback that we had now received from DSS and a phone conversation between Gale and Grapel who had been contracted for the design for removal and renaturalization. As the classification of the dams were based on the potential number of fatalities should the dams fail (in this case up to 150) the requirement would be that they would need to withstand a 1:10000 quake and a 1:50000 storm. The only way forward to change the classification was now deemed to be reducing the amount of flooding that could occur. This meant either reducing the amount of water in the lakes or eliminating one of the dams. An oversimplification could mean that half the water might only result in half or less fatalities. The benefit from a lower classification remained that it should be less costly to perform the necessary upgrades.

It was this information that we brought to the community at a public meeting on January 31, 2013. Numerous options for rehabilitation were proposed which included: berming with piles of rock strategically placed, driving pilings for strengthening, injecting grout cement, rock bolting (drilling and anchoring), making the spillways deeper, upgrade with concrete on the backside, or installing sheet piling.

Over 150 attended this meeting and the feedback was again overwhelming that people wished to see the dams and the lakes remain. There was some support for a reduced water level which could presumably result in less cost but less support for losing one of the lakes.

<http://www.nanaimo-info-blog.com/2013/01/>

Our goal was to discuss these options with the consultant engineers. We did not feel that we had the expertise to recommend the best approach but rather continue to suggest options that should be explored.

We were notified on February 20 that a peer review engineer had been hired and would be available to meet with us on March 06. Jim Smith from Hatch and Clift from the City were the only contacts that we would have during the current process. At this meeting, we submitted the options that we had discussed with the community. We were also told that it was now too late to recalibrate the numbers in our bid to explore reclassification if the water volume was lowered. We wrote to council and staff saying that we did expect that the option to reclassify with less water should occur as we expected this to be a relatively simple process.

We eventually received a chart regarding options that engineers would consider. They would also look at the 1:5000 classification should there be potential of significant savings. Finally, the chart submitted indicated that their study would look at keeping only the upper dam rather than the lower. We sent a correction as we had no community support for losing the lower dam as it was the most accessible.

During this time, the City website Question and Answers basically discredited the proposed options. We asked to have the wording changed on the Site from "The Colliery Dam Removal Project" in order to reflect the fact that options for

rehabilitation were being explored. With no response, we asked Councillor Pattje to make the same request. It was now named " Colliery Dam Seismic and Flood Risk Mitigation Project"

We waited with some foreboding for the results of the report from KCB which was to be expected in early May.

Chapter 11 Communicating our message

It was not a simple matter to get the message out about what was happening with the park. Certainly the facebook page started by Andy Carano <https://www.facebook.com/groups/SAVEcollierydams/> played a very significant role. It quickly had thousands of members and was very active.

We also established a web-site in order to lodge information. It is my understanding that senior management had approached both of our local newspapers with their own concerns about the coverage which had generally been supportive of community involvement. MacDonald of the Daily News refused efforts to temper his coverage and gave citizens liberal access to printing worthy letters. I was given considerable space to have our Society's questions and answers entered in a guest opinion column on March 28.

During these months, we continued to press on to keep the issue alive and ensure that people remain involved. We put up posters, handed out information, put together a video slide show, sold T shirts with the Society logo, produced bumper stickers, had a float in the Empire Days parade, and continued to send letters to council, the papers and anyone who would listen.

We held a rally in support of having Colliery Dam Park as part of the Harewood Neighbourhood Plan. We wanted the Dam to be in the Plan. As there was some who insinuated that we did not care about the safety of our fellow citizens, we also went door to door in the area immediately below the lakes and adjacent to the Chase River. Of the 90 households that we made contact with, 92% were in favour of upgrading the dams with only a few favouring their removal. We enlisted the services of a lawyer , Denelle Lambert, with partial support from West Coast Environmental Law, in order to ensure that we had access to legal advice, and we spoke with our local MLA's and attempted to keep a dialogue with our city council. We sent dozens of letters to the Comptroller of Water Rights citing the lack of due process.

MLA Doug Routley became a firm advocate for the community's efforts at keeping the dams which he described as a valuable asset. He went so far as to state in a letter to the paper that that "since the province set the standard for risk, they should help to find a solution" and he addressed the Legislative Assembly with these same thoughts. <http://www.savecollierydam.org/news-press/statement-doug-routely-legislature-mar-4-2013/>

This stance may have spurred Mayor Ruttan to make a similar request for financial assistance.

We attempted to broaden the exposure to this issue by contacting Vaughn Palmer, a former resident of Nanaimo, and a political columnist for the Vancouver Sun. We even met briefly with Premier Clark during her election campaign stop in Nanaimo. She was handed a brochure and an explanation that forced requirements for our tiny dams, if replicated elsewhere, could have serious financial implications throughout the province.

While we had limited faith that our efforts would be effective, we did feel strongly that getting information out and enlisting public support would maintain pressure on the decision makers.

It was a whirlwind of activity in support of the pledge for every effort be made to maintain the lakes within our park.

Chapter 12 May 06, 2013 The \$43 Million Fix

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC130506V>

http://www.savecollierydam.org/files/5513/8983/2805/130430R_KCB_Options_Cost_Estimates.pdf

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/presentation-4.pdf>

The studies for consideration of alternatives to removal and their costing were released on May 02. We were invited to a meeting to review the results. This meeting was attended by Jim Smith from Hatch, city staff, and for the first time, councillors. The peer review was to ensure that the costs prepared by KCB were reasonable. Smith declared that Hatch was in broad agreement with the technical evaluations and cost estimates from KCB.

Headlines in bold on the front page of NDN on May 03: **"Saving Colliery could hit \$43 million"** If life-cycle costs were to be included, remediation of both dams was estimated to be this amount. Furthermore, the engineers had a low level of confidence in these estimates due to many unknowns. Replacing the dams ranged between \$9.5 to \$11.2m while removal and re-naturalization projected a life cycle cost of \$7.5m.

On May 06, Council heard from Mr. Robin FitzGerald and Chris Grapel from KCB along with Mr. Smith from Hatch.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC130506V?start=8075>

The first two engineers spelled out the options and their associated costs and contingencies. Grapel made repeated reference to the extreme consequence of the dams given their proximity to residents, schools, and a day care. He also responded to a few questions that we had wanted answered. Grapel confirmed that in 2009 Bill Sims and Scott Pamminger had spoken to him about the possible reluctance of the city to support new dams or rehabilitate the existing ones.

Our group had received verification that Lewkowich Engineering had been enlisted to determine concrete strength, check for asbestos, and search for rebar.

http://www.savecollierydam.org/files/4813/8983/2806/130513L_Lower_Dam_-_Rebar_Detection.pdf

Grapel now said that he was surprised to know that there was indeed some metal reinforcement but that it was not sufficient to alter the performance of the dams during a seismic or flood event.

He did not offer a clear account as to the discrepancy of costing for new dams. While stating that initially he had talked about \$10m but then had said tens of millions. Grapel was asked about the amount of the direct award contract that he had been awarded. His reply was that, inclusive of the work by Fitzgerald, he thought it was about \$550 - \$600,000.

The drawings for dam removal were said to be 90% complete. FitzGerald told me during a break that even with the presence of rebar, he did not see a problem with popping the dams out during the summer.

Members of our group spoke at this meeting.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC130506V?start=12635>

Gale presented and defined potential cost savings.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC130506V?start=13122>

As well we presented a slide show.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/minutes-14.pdf>

Chapter 13 May 13, 2013 Changing Gears

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130513V>

Council had been given a week to ponder the information presented on May 06 and finalize their decision on May 13. Given the exorbitant costs stated by the engineers for remediation, our group had decided to pursue the option of replacing the dams. To this end, presentations were made on both dates encouraging Council to choose the option of building new dams. Previously we had arranged another community meeting which had about 400 attendees. It remained clear that the community was steadfast in support of the goal to keep our lakes.

We had a number of speakers on May 13 which included Kat Emery, a geological technologist who had a special interest in seismic activity.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130513V?start=2638>

Grace Neilsen, an important First Nations community member spoke:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130513V?start=5307>

Gale attempted to show Council that the difference between the costs of removal and that of building new dams was not enough to warrant destruction of the park.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130513V?start=5385>

He had confidence that new dams could be built for the stated rate of \$8.6 million. This plan was refined to show that removal of both dams in the summer would result in both greater cost and disruption. It would be far better to stagger construction over a two year period thus allowing habitat to be relocated between

lakes and keeping the park open and usable during the construction period. He added that he had spoken with Scott Morgan from DSS who had voiced approval of this plan. DSS had not mandated that the dams had to be removed in the summer but rather that the risks were mitigated as soon as possible.

There was considerable discussion by Council once again. A major factor in the decision making process was the arrival of a letter from Morgan only hours before the meeting. In it, he appeared to counter his previous statement that it was basically what the City wanted to do and whether they would accept the risk for another year. He was now stating that only de-watering of both lakes this summer would be acceptable. Councillor McKay called the arrival of this e-mail and the timing highly suspect.

Councillor Pattje presented a motion in support of the plan for sequential replacement of the dams in 2014 and 2015. Council was now firmly split. The motion was supported by Councillors Pattje, Bestwick, Kipp, and McKay. It did not pass. Councillor Brennan then proposed an alternate motion. Arguments for removal of the dams this summer revolved around solicitor advice, public safety and direction from DSS. The motion that was passed via support from Mayor Ruttan and Councillors Anderson, Greves, Johnstone, and Brennan was for the dams to be removed in the summer. The same motion included steps to be taken for building new dams with a provision for hydro generation at the lower.

On May 15, Tamara Cunningham reported that the province would have been "happy" with the decision to keep the Colliery dams intact for another year as long as officials mitigated the risk. They would be have been OK with the citizen proposal to deconstruct and rebuild in 2014 and 2015 if the city took action to lessen the risks. Morgan then sent a letter to the paper wishing to clarify the province's position on the removal of the Colliery dams. He now said that the only appropriate mitigation option that would allow the dams to remain for another year would be if they were drained.

Despite declaration of support for building new dams, there was a strong feeling that should they be removed in the summer, they would not be replaced. The following remarks from Dr. Steven Hill P. Eng. were published in the Nanaimo Daily News.

"Were it not for the letter from DSS stating that leaving the dams in place for another year was unacceptable, I feel sure, based on the comments of some of the councillors, that the motion to tear out the dams immediately would not have passed. Speaking as an engineer, I am sure that if the city proceeds with the tearing out of the dams, to be followed at some time in the future by the design and rebuilding of the dams, both the cost to the taxpayers and the environmental impact to the park will be significantly higher than removing and rebuilding the dams one at a time, as proposed.

If the city proceeds to tear out the dams immediately, I predict significant environmental degradation of the park, followed by years of discussion and hand-wring about the costs of the new dams, and a strong likelihood that they will never be built."

Dr. Hill summed up the scenario quite well. The City plan for removal of the dams would forge ahead with the next step of going to tender. A public notice was placed on June 15, 2013.

<http://www.savecollierydam.org/news-press/craig-evans-objection-dam-removal/>

Chapter 14 Consequence and Probability

As the dams were consistently said to be an extreme threat to public safety, it was predictable that questions were being asked about the legitimacy of this stance. The Hazard Risk and Vulnerability Assessment from the RDN rated dam failures as very rare in terms of frequency.

http://www.savecollierydam.org/files/9513/8983/2805/hazard_risk_and_vulnerability_Assessment_-_2009_update.pdf

Councillor Kipp, who had practical experience in emergency response, consistently spoke of probability as an important factor. The dams were now required to withstand extreme events that were either highly unlikely to occur or had never occurred previously. We attempted to point out that, should the standards that were being applied to our tiny lakes be applied throughout the province, costs to upgrade existing dams could well reach into the billions of dollars.

While there was concern that failure of the Colliery Dams could result in well over 100 deaths, it did not seem to relate well to factual data. Gail Radford-Ross, in her published letter on May 15, produced the following research. She found that only five deaths have ever occurred in Canada due to dam failure with only one in B.C. which occurred in 1912. As well, according to Natural Resources Canada, no casualties have ever been directly related to earthquakes although there are unconfirmed reports of a death in the 1732 Montreal quake. As Mr. MacLatchy had stated that there were no noticeable changes to the dams since 2010, she questioned the recent urgency.

Lawrence Rieper produced considerable research.

http://www.savecollierydam.org/files/2713/8983/2805/Lawrence_Rieper_-_Is_Nanaimo_Safe.pdf

http://www.savecollierydam.org/files/3113/8983/2806/Lawrence_Rieper_-_Deny_deny_deny_6.19.13.pdf

He pointed out that there have been tens of thousands of local earthquakes during the past century and the dams had withstood the 7.3 magnitude quake centred at Forbidden Plateau in 1946. This was the largest on-shore earthquake ever to occur in Canada.

We had hoped that this information might sway council to re-consider their plan. However public safety remained the predominant rationale for the dams to be removed in the summer. This was perhaps best exemplified by the conversation that Roblyn Hunter had with Councillor Johnstone who said that Bill Sims had told her that he had difficulty sleeping at night as he was so concerned that there would be a storm and the dams could be washed away.

Councillor Brennan declared their highest obligation was to protect and ensure public safety. The dams were too dangerous. However, there was no faith in her assertions that the dams would eventually be rebuilt after their removal.

<https://www.youtube.com/watch?v=OMGMkgM0PA4>

Despite the reluctance of Council to re-consider, it remained our intention to continue efforts. At the same time, a separate group was gearing up to occupy the park to prevent the dams being removed

Chapter 15 Impassioned Pleas, Tender for Removal, Civil Disobedience and Snuneymuxw

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130610V>

City officials made plans for pre-emptive action to stop planned civil disobedience at the Park before it could begin by filing for a court injunction on June 03. Randy Churchill, who was the city's manager of bylaw and security, said the pre-emptive measure to seek the injunction was rooted in public safety as any attempt to delay the removal of the dams could potentially put citizens at risk should the dams fail. The documents specifically named David Cutts, a member of "Veterans of Clayoquot" as well as Jane and John Doe, and would prohibit any person aware of the order from interfering with the removal of the dams. Furthermore, there would be a ban on entering certain areas of the park and organizing any demonstrations without a licence. Cutts called the city's court application an abuse of judicial process. B.C. Supreme Court Justice Douglas Thompson ruled that Cutts would be provided more time to prepare his case and the matter was suspended until July.

On June 10, over 40 members of the community came forward to address Council with pleas to re-visit their plan. At this same meeting Rick Earl of CanBuild Solutions submitted a plan for a "design build" removal and replacement of the dams for \$8.6 million.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130610V?start=2522>

He also offered an engineered solution to reduce the water levels to the satisfaction of DSS until reconstruction could begin in the summer of 2014. However, there was no movement from the previous vote and Council voted 5-4 to authorize staff members to proceed with a public tender call to remove the dams in the summer.

While disheartened at the result, there was renewed hope when MLA Doug Routley offered to assist by facilitating a meeting with provincial officials. He hoped to involve officials from V.I.U. and Snuneymuxw and he wanted some assurance that the province would approve replacement of the dams.

<http://www.savecollierydam.org/news-press/news-release-and-letter-doug-routley-june-5-2013/>

As well, Snuneymuxw First Nation stated in a press release on June 13 that they had growing concern with the City's approach in the matter of the Colliery Dams. Chief Douglas White¹¹¹ expressed a desire to have a new public process. Their stated goal was to play a positive and constructive role, while also ensuring that

their Treaty protecting fisheries on the Chase River was respected.

<http://www.savecollierydam.org/news-press/press-release-snuneymuxw/>

On June 24, Rick Earl presented an update to Council regarding his discussions with an engineering firm (KWL) regarding the potential option of reducing the water level.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130624V?start=9797>

He pointed out that pairing deconstruction and construction with an engineered plan was the most efficient manner of dealing with the issue. As well, he pointed out the concerns of sediment discharge should the dams simply be removed without a retention pond.

While there was to be further discussion between the City and Snuneymuxw, the community were notified that the parking lot would be made available for public gatherings and viewing areas were to be provided to witness the demolition of the dams.

<http://www.collierydams.org/wp-content/uploads/2018/01/News Release - Targeted Park Closure.pdf>

<http://www.collierydams.org/wp-content/uploads/2018/01/ConstructionMap 20130619.pdf>

Chapter 16 July 08, 2013 High Drama

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130708V>

On July 05, the B.C. Supreme Court rejected the City's application to prevent disrupting removal of the dams. However, Justice Thompson granted the City leave to bring forward another injunction application within one day's notice if protestors breach the city's park bylaws and interfere with the demolition process. Should an injunction be granted at a later date, people could be held in contempt resulting in possible arrest and court action.

The tender for removal of the dams was to be handed out on July 08. Our community was aware that should the tender be awarded, along with the City having obtained the right to return to court quickly to prevent civil disobedience, options were fast running out.

http://www.savecollierydam.org/files/9313/8983/2806/July_7th_Doug_Whites_letter_to_mayor_and_council.pdf

In a momentous occasion on July 08, Chief White addressed Council and asked that the rights of the Snuneymuxw nation be respected. He said that the current plan for removal of the dams and then rebuild them at some point with a hydroelectric component potentially posed the greatest risk to the health of the Chase River. He had no knowledge of a program for silt abatement and had been surprised that a contractor from the City was removing salmon fish fry from the river as a safeguard measure to protect the salmon population in the "unlikely" event of sediment release during the planned deconstruction of the dams. He added that it was extremely unlikely that the dams would be rebuilt as recreational dams had never previously been approved. He felt that there was time to consult and engage.

Staff made reference to engineering reports indicating that either the use of siphons or pumps to de-water the dams was not feasible given prohibitive costs and noise. The report stated that 40 pumps would be required and costs would likely exceed \$4,000,000 per dam for an 8 month winter program of lake dewatering.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/report-32.pdf>

Nevertheless, Councillor McKay proposed a motion that the City would seek to conduct further discussions over a 30 day period ending 2013-Aug-08 with Snuneymuxw, exhausting all possible options and considerations before awarding a contract for the removal of the Colliery Dams. This motion passed 7 - 1 with only Councillor Greves voting against.

On July 10, CAO Al Kenning announced his retirement and would leave his post on Sept. 03. He would be replaced by Ted Swabey, a long term veteran at the city.

The 30 day reprieve that was granted to allow for constructive dialogue was short-lived. Snuneymuxw First Nation withdrew from the consultation on July 19. The concern was the City was not acting in the spirit of the motion as it had been made clear that no further work would be done to revisit, reassess or confirm information on other options.

<http://www.nanaimo-info-blog.com/2013/07/sfn-withdraws-from-dam-review.html>

As well, Kenning in correspondence to the facilitator, Katherine Gordon, stated that: *"this was a very serious life safety issue and there was extreme danger to downstream residents. The magnitude of the damages could far exceed the ability of the city's insurers and the local taxpayers to pay, In addition the loss of life would be devastating beyond any financial measure. He added that the decision makers have potentially jeopardized the life safety of members of this community and the financial security of the entire community for an additional one year period by their recent decision to delay removal. The delay in awarding the deconstruction tender for 30 days would take away the opportunity to remove the dams and could be catastrophic to the community."* Staff indicated that the City had invested over \$600,000 in getting expert analysis of the options available to mitigate the risks from the dams.

Kenning denied that his staff had participated in the process in bad faith and that he had a professional opinion from the city solicitors about the liability issue to the City.

Councillor Greves indicated that he was willing to introduce a motion for a special meeting to award the removal contract.

In the interim, Snuneymuxw agreed to re-enter discussion with the City.

<http://www.nanaimo-info-blog.com/2013/07/30-day-colliery-dam-sfn-talks-back-on.html>

Chapter 17 August 07, 2013 Cancellation of the Tender

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC130807V>

The entrance of Chief Doug White and Snuneymuxw was a game changer in terms of direction. The community, while having unbridled passion for the park along with some personal and technical expertise, had no statutory authority in the decision making process. After re-convening the 30 day consultation process, it became clear that more time was required to develop strategies for both short and long term mitigation. A joint press release from the City and Snuneymuxw was released on July 30, 2013. <http://www.nanaimo-info-blog.com/2013/07/>

During discussion, it was determined that standards for both repair or rebuilding the dams had been based on a "no-maintenance" standard in that no work would be required after a catastrophic seismic event. Such a standard is higher than what is required by the DSS, which demands only that the dams not fail. Consultants were now being asked to compare the potential costs and requirements of building to a reduced standard.

Mayor Ruttan acknowledged that reviewing options would require more time but the extended process would mean that it would be very unlikely that the dams could be removed this summer. He added that the province has indicated a willingness to discuss risk mitigation measures to allow the dams to remain in place while talks continued.

On August 07, Council unanimously agreed to cancel the tender for removal of the lower and middle chase river dams.

Furthermore, Council also agreed unanimously to a motion put forward by Councillor McKay:

" It was moved and seconded that Council continue to engage the Snuneymuxw First Nation, the Colliery Dam Preservation Society and the public and return at the first opportunity deal with the long term mitigation of risks associated with the dams."

The cancellation of the tender and the motion to have the Society involved in long term mitigation measures was a huge victory. It appeared that the community would have an opportunity to be involved in long term planning. Hopes for sincere community engagement were re-kindled.

Chapter 18 Further Challenges

Despite what appeared to be a change in direction, we were well aware that staff had been very invested with their plan for immediate removal. Efforts for consideration of means to lower the water level to mitigate risk had not been well received or seen as feasible.

I had also become aware that the City had requested further inundation review/modeling from Associated Engineering at the end of July. Conversation had occurred between City staff and Michael MacLatchey and Andre Weins of A.E. I was able to receive the direction from the City and mapping of the inundation zone, given different scenarios. There was speculation that steel rebar could be brittle or plastic. The Titanic was cited as one of the characteristics of steel at the turn of the 20'th century. The original run had assumed a 3.5 minutes failure of the dams. Now, taking into consideration that there was rebar, failure was to be calculated at 4 minutes. The mapping, dated Sept. 19, 2013 continued to show severe flooding in the inundation zone even with the presence of rebar in the concrete wall, lock blocks placed on the lower dam wall, or with the spillway

lowered. These potential mitigation measures were seen as ineffective or even potentially increasing risk downstream.

The role of DSS had been openly questioned as being erratic and problematic. On July 24, I wrote to the facilitator, Ms. Gordon, that it would be difficult to deal with Glen Davidson who was the Water Comptroller. " *All of our appeals and concerns go to him. His conversation yesterday was disturbing as he has far outreached the boundaries of his office. There is no way that he should be insinuating that our group may in a minority nor should he suggest a referendum. He did not accept that new factual data regarding the structures of the dams as being potentially quite significant. There was no inclination to question the findings of the studies although some of the assumptions are based on incorrect information and on conjecture. Glen had no interest in seeing the Park and wanted nothing to do with a public meeting. He talked about dams being decommissioned but did not offer much in the way of assistance with keeping them, although the community and city council are advocating for dams. Finally, there is still no explanation for letters arriving from the DSS on Jan 21 and again on May 13 (just hours before the council meeting).*

It is difficult to envision that Glen can offer an unbiased opinion as we formulate plans"

These same concerns were sent to Minister Thomson and our local MLA's Routley and Krog as well as the facilitator on July 25.

When the School Board waded into the discussion things became even more heated. The most ardent supporters for removal of the dams were Councillors Brennan and Greves. The school board Chair, Jamie Brennan, is the spouse of Diane Brennan. He had already drawn the ire of the community in June in referring to dam supporters as "louts".

<http://www.nanaimo-info-blog.com/2013/06/jamie-brennan-displays-arrogance.html>

There was some discussion by Council on August 07 of having the School Board actively engaged in remediation options and planning. This did not go forward. However, the Board produced a letter to Thomson, Minister of Forests, Lands, and Natural Resource Operations on August 28, 2013 expressing their concerns.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/correspondence-25.pdf>

The final paragraph of the letter upped the temperature significantly. " *In light of the risk of failure of the Dams we ask your require the City to take immediate action to address the risks to life and property posed by the unsafe Dams. Should the City fail to take immediate action to address the extreme risks of damage and loss of life, we request that the water comptroller or regional water manager take immediate steps to address the risks posed by the Dams, and to recover any and all expended costs from the City as contemplated by the Water Act. "*

Yours truly

Jamie Brennan, Chair

Nanaimo Ladysmith Public Schools

The response from the Minister was measured.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/correspondence-24.pdf>

I responded to Mr. Brennan on Aug. 31 letting him know that Council had voted

unanimously in support of a short and long term plan and that Snuneymuxw and our Society were to be involved. I acknowledged that the dams would require some upgrading to current standards but that previous safety inspections had indicated that they are currently both fundamentally sound and stable . I referred to Brennan's statement that the dams may be vulnerable to an earthquake and stated that this assumption would be true for most every building in Nanaimo including many of our schools. I also reminded him that John Barsby High School was built more than 60 years ago and was built in a floodplain and that this floodplain will continue to exist with or without the Colliery Dams.

Brennan in a letter to the Nanaimo Bulletin on Sept. 17, 2013 stated that the dam follies left continuing risk to 600 students, staff, and the infants and toddlers in Little Ferns Child Care Center. *" Those "piddly dams" could cause great loss of property and life thanks to this summer's delays. "The Board does not care what replaces the dams, only that they be removed as soon as possible. I hope there is more emphasis on truth and less on factless emotions as this issue is resolved."*

Facts, truth, and logic were what we were searching for from the beginning. The ongoing sense of urgency remained a defining factor in both present and future planning regarding our park.

While we looked ahead tentatively to what we hoped would be a new process and proper engagement, we were not naive to the challenges that lay ahead.

Chapter 19 September 09, 2013 Short Term Mitigation Measures

Council unanimously approved measures aimed at curbing potential risk associated with the dams during the coming winter months. The plan would be to actively measure water levels and implement an early warning system. As well up to 80 signs were to be posted throughout the community. Sims said *"that previous efforts to measure water levels during the past 8 - 10 years was prevented by theft and vandalism by equipment on site"* (NDN Sept 07, 2013) This lack of factual data of flows remained a significant factor and determinant in the long term mitigation plan.

I explained at Council that this would be a difficult sell to the community.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C130909V?start=4512>

It had been pointed out that the condition of the dams had not changed whatsoever during the last number of years. It was only their recent classification that had brought on the sense of urgency. The current plan contrasted statements from Clift on Dec. 06, that sirens would serve little purpose and the City had taken adequate steps to alert the community during the previous winter (no signs previously required). Nevertheless, we saw little value in contesting this plan and even offered tentative support should it assist as a stop-gap measure to attaining a reasonable solution. A further goal would be that this type of planning could act as a model going forward. I had hoped that there would be a strong desire to do no more than what was absolutely required. Staff indicated that the cost for the plan would be between \$50 and \$100, 000.

The editorial in the Nanaimo Bulletin on September 12, 2013 spoke to some frustrations:

"A lot of folks outside Harewood are probably sick and tired of this whole dam issue and won't be impressed to learn that this month-long civic rendition of Kumbaya has cost them three quarters of a million dollars.

Whatever we decide with the dams, we had better make sure we get value for dollar the rest of the way. That should be a central tenet of any publicly funded project.

This dam dispute is getting costly and we've got nothing to show for it. And that isn't money well spent."

Quite unfortunately, we remained very much in the early stages of this affair. Both time and costs allotted would rise dramatically during the next few years.

Chapter 20 October 21, 2013 A Plan to Remediate

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW131021V?start=2467>

Basically one year to the date of the announcement that the dams would be removed, Council came full circle. The new plan that was approved was to engage in a collaborative process to renovate and repair the dams. Staff recommendation was a major shift from the initial plan to remove and re-naturalize and the following plan to remove and then replace. Only remediation was now to be considered as the preferred option. Staff acknowledged that the potential release of silt and sediment downstream was a concern of Snuneymuxw. The dams in place had acted as settling ponds for well over a century. A technical committee was to be formed with qualified engineers and include members of City staff, CDPPS and Snuneymuxw. The committee would be tasked with validating the information on record and developing options accordingly. As the costing for remediation had previously been expected to exceed \$20 million, the question was asked if the matter might have to go to referendum. My answer was that this should not be necessary and there should be viable options for far less cost. The goal of "least intrusive and most cost-effective" became our mantra for all further direction. We would finally have an opportunity for "fresh eyes" and the possibility of real input. While there remained deep distrust, we were much further along than we could have envisioned one year ago.

Swabey, the recently appointed city manager, estimated costs to date at between \$850,000 and \$1,000,000. By comparison, Westwood Lake Dam, was seismically improved in 2007 from a 1 in 50 year earthquake resistance to a 1 in 3,000 year standard. Westwood lake, which was built in 1907, holds about 10 times the water volume of both Colliery lakes combined. The costs for remediation was about \$500,000.

Chapter 21 The Technical Committee

Over the next few months, we walked a difficult path to initiate momentum towards a suitable and reasonable conclusion. The Directors of CDPPS met on Nov. 17 and agreed that while we were generally supportive of emergency preparation, we had been given no opportunity to be involved in planning. We considered the installation of a siren and placement of up to 80 tsunami signs in the floodplain as being impractical, excessive and costly.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW131125V?start=1546>

Nevertheless, in order to make every effort to work cooperatively with City staff, we co-hosted a community meeting at John Barsby High School on Nov. 26 with about 150 people in attendance. A previous effort on September 26 to discuss emergency measures

at the school led by Toby Seward and Karen Lindsay from the City had only drawn a few people. Nov. 26 included updates on emergency preparedness, the technical committee and long term planning for the Park. There was also an open mike to ask questions and receive answers. We considered the night to be a success and an example of the possibility of building a collaborative process.

Our representatives at the Technical Committee included Lorne Gale, Geraldine Collins, Leon Cake, and myself. Bill Heathcote also agreed to assist. Other members were Chris Good and Paul Silvey from Snuneymuxw and Toby Seward from the City. There was agreement that Katherine Gordon would act in the role as a facilitator and Golder would be hired as the engineering consultants. They were to review information on record which included historical documents that we had been able to locate. As well, Golder was to arrange a survey and testing. A Risk Management approach was to be included in planning.

We began this process with high hopes and expectations.

Chapter 22 Efforts to Set a New Direction

The general feeling amongst our group was that there was opportunity for success. We had access to a skilled facilitator and the representatives from Snuneymuxw, while very independent, had expressed some support and understanding of the community's desires. We had not previously dealt with Mr. Seward but there were hopes that he would be more open to our input. As well, Golder had previous knowledge and involvement with the Colliery Dams. Their lead, Herb Hawson, had completed the 2003 Dam Safety Review and his summary and recommendations appeared very reasonable.

http://www.savecollierydam.org/files/7913/8983/2806/Lower_Chase_River_Dam_-_Dam_Safety_Review_2003.pdf

http://www.savecollierydam.org/files/7213/8983/2806/Middle_Chase_River_Dam_-_Dam_Safety_Review_2003.pdf

On December 20, 2013 I sent the following note to all members of the technical committee:

"As we move into the next stage for the technical committee, I would like certain issues to be considered. During the past year, there was considerable effort made to convince the public that these dams are the most dangerous in the province. When Council was first presented with the information, they were told that immediate action (dam removal) was required. It was strongly recommended as the only appropriate action. Some of the councillors still believe this. If we are to be successful in not only finding a reasonable solution but also one that will be acceptable to both Council and the community, we need to put a lot of effort into education about the real risk and we need to do this in conjunction with the technical work."

I included excerpts from the "Report to Council" dated May 06, 2013

https://www.nanaimo.ca/meetings/pdf/2013_Council_Agendas/SOC130506A.pdf

I also referenced the correspondence between former city manager Kenning, to Katherine Gordon and Mayor and Council, dated July 15, 2013 in which urgency and liability factors cited as important factors.

I summarized: *"I refer to the above in order to put some perspective on the task before us. Part of our role will be to explain how, for one year, these dams have been portrayed*

as the "most dangerous" in B.C. to now perhaps being of less consequence and requiring less work than previously thought. Golder is now considering the information on record and will receive more data after further testing occurs. This will allow a much greater understanding of the actual make-up of the dams and how they may react due to dramatic events. In the interim, there is reason to begin to portray the dams in a different light."

The goal of easing the sense of urgency and need for immediate action was not realized. This became abundantly clear in short order.

Chapter 23 January 11, 2014 Rains and Near Panic

Nanaimo experienced a good rainfall on this date. While this was not an unusual occurrence, the messaging afterwards continued to set a disturbing tone. Seward sent the following message to the Technical Committee recounting the analysis of water rise at Colliery Dam Jan 10-11, 2014: *"Due to the rainfall overnight Friday and Saturday morning, we had Operations staff in the Yard monitoring and addressing a number of issues. We now have a bit of time to breathe and do a post-mortem on (among other things) how the Chase Dams spillway monitoring went. We experienced 50mm of rainfall in about 9 hours, a significant, but not unusual amount. In terms of dam safety risks, this would be considered a very minor storm."*

Seward further commented that: *"We were very fortunate that there was no snow in the Chase watershed prior to this event as the rate of rise would have been quicker. Had the rain continued, we were about 4 hours away from initiating the Emergency Action Plan, and 8 hours away from activating the ECC (12 hours from initiating an Evacuation Alert)"*

The headline on Jan. 17 in the NDN was **Heavy rains prompt city to closely monitor structures**. Bill Sims was quoted in this article: *"Given the risks we were aware of, we were probably four or five hours away from activating our emergency response plan. It's not to overstate we were on the verge of panic, but we were getting close enough to going to the next level of alert"*

Front page in the Bulletin on Jan. 21 read: **City puts dams and evacuation warning system to test**. There was a picture of children from Little Ferns Daycare, all wearing life-preservers, being led to the playground behind the school practising emergency evacuation.

Sirens were to be tested monthly.

I spoke at the technical committee to the inappropriate messaging that was being put out. I also appeared at Council on Feb. 24 and said that there was some confusion in the community.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140224V?start=8188>

I referred to a full picture of the marker at the lower spillway. I explained that the water had risen to .4cm which was below the lowest beginning mark (.6cm). I also explained that the water would have had to rise another full 5 feet or 1.6 meters in order to overtop the dam which was the only concern.

Ilan Goldenblatt had a letter in the Bulletin on January 23. **The headline was Flood hazard sirens senselessly scaring people.** Goldenblatt said that he was born and raised in Israel which has sirens throughout the country but were used rarely, usually to mark days of mourning. He did not see the justification of monthly testing of the sirens and wondered if the administration of the City had an interest in keeping people extra fearful and on edge about the dams.

Unfortunately, the above concern echoed that of many in the community. On Jan. 28, I sent a note to Ms. Gordon which included the following:

"It is obvious that the City has had no intention of moving from the position of the dams being extreme danger. For months we have provided the means to move away from that outlook but they have become more entrenched. Our goal was to be pragmatic and responsible but lessen the concern. By having the bar a bit lower, it would be easier to move to a more appropriate common sense solution. We have consistently looked at being fiscally and morally responsible. We have also wanted the city to have the means for "face saving" should the dams require much less work than previously considered. At this point, I am becoming much less concerned about them saving face. There has never been an acceptance of any responsibility for the incredible waste and outrageous approach that the city had taken."

Chapter 23 Factual Engineering Data

There is a considerable information provided and lodged on the City's website: Golder's reports are on record as well.

<https://www.nanaimo.ca/your-government/projects/projects-detail/colliery-dams-information>

If there are no "as built" designs on record, it is difficult to determine the actual construction methods and materials used. The Colliery Dams, as many other century old structures, had no original design drawings available to allow for assessment of their integrity. In these situations, the most conservative assumptions are usually made. The DSR in 2003 had the following recommendation: *The seismic resistance of the dam is uncertain, and needs to be determined by further studies.* These were also recommended in the 1992 DSR.

Core drilling at the lower dam commenced on Feb. 13. The next day Bruce Downing from Golder sent the following note to Lorne Gale. *"The second bore hole in the concrete core is now complete so we now have answers to many of the questions we had at the start of the program. We now know that the dam was indeed placed in a deep and narrow cleft (as reported in the 1910 article) CH-14-2 and CH14-03, which were separated horizontally by about 10m, encountered rock at an elevation difference of almost 10m- indicating a very steep slope in the rock profile. As important, the holes have provided very good information on the quality of the concrete and the quality of the bedrock foundation and foundation contact. "*

Indeed, the geophysical results of testing provided key information. Its findings were released at the end of April.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/report-20.pdf>

The drilling confirmed quite the opposite of previous assumptions that the concrete was honeycombed, of poor quality, not reinforced, and possibly not built on bedrock. As well, there was significant fill behind the lower dam ranging to over 70 feet deep at one point of which much was rockfill.

The newspaper article that Downing was referring to was from the Nanaimo Free Press dated November 10, 1910. A local resident, Darraugh Worledge, highlighted some important observations from this article *" In the first place then, and it is the first thing that strikes the visitor, the company have found an excellent location for their dam. Running out of a large and wide basin, with gently sloping sides and a level bottom, the creek passes through a deep and narrow cleft and here is a reservoir ready made which will hold an immense quality of water. The bed of the creek, or in other words the cut into the rock made by the creek was deeper than was anticipated ,and as a consequence there was more excavating than was expected to get to solid rock."*

As well, in conjunction with site investigations and consideration, the technical committee decided to employ Dr. Bill Roberds, GA Principal, Decision and Risk Analysis, to formulate a risk-assessment based approach to development of options for remediation. The thinking was that our dams had been noted as being the worst in the province and therefore a comprehensive risk assessment was required. The 2013 revision of the Dam Safety Guidelines included the following. *"The CDA clarifies its endorsement of the use of a risk-informed approach, which includes traditional deterministic standards- based analysis as one of many considerations. Society does not have infinite resources to spend on managing risks and often the resource spent inefficiently in one area is the same resource that is missing in another area where investment could be more beneficial."*

Our group thought that the risk assessment would be a valuable tool for attaining the goal of the least intrusive and least costly option. However, the voices of our members were severely muted in the make-up of the committee. Despite our concerns and objections, DSS representatives were invited and sat at most meetings. As well, Snuneymuxw's election on Dec. 07, 2013 brought a change in leadership and a change in representation at the technical committee. Raymond Lamont replaced Paul Silvey on the committee. While Snuneymuxw were independent, our members felt that we had previously shared common goals along with some recognition that we had people with the ability to analyze the technical data from the consultants.

However, from this point onwards, we were isolated and had little ability to carry our message effectively.

Chapter 25 Options

Because of the pressing urgency of the situation, Golder brought four potential options to the committee on March 04. Each were based on remediation of the lower dam only. The engineers consultants felt that it was most cost-efficient to improve only the lower dam thus avoiding work on the middle. The options presented were based on the current classification and with the information that was currently on record. Preliminary cost estimates ranged between 1.5 and 2.6 million. The committee was asked to choose two options so that Golder could proceed to refine both work and costs. CDPPS were the

only ones to choose soil stabilization (preventing erosion on the downside embankment should overtopping occur). CON and Snuneymuxw chose the labyrinth spillway. On March 11, 2014, Ms. Gordon presented a report to the executive committee with a summary and update. She acknowledged that the technical committee were considering two options but was not prepared to provide any recommendations until further work was completed.

The Risk Assessments provided a comprehensive analysis of probability and consequence should the dams fail.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/report-24.pdf>
<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/report-22.pdf>

It is very difficult for one engineering company to overrule the findings of another. The closest that we got to this was the statement that Dr. Roberds made on March 05, 2014 during a meeting of the technical committee. *Roberds stated that Associated Engineering was clear that certain aspects of that 2013 study were beyond their scope of work; they didn't consider breach times which are incredibly important. They took a very conservative number.*

The 3 minutes and 20 second breach model of the Colliery dams was seen by Golder as being almost instantaneous (pretty much impossible). They also noted that *"One of the most remarkable results taken from the tests on rockfill dam model is their capability to resist the overflow and percolation flow when compared with earth dams"*

The Colliery Dams are hybrids with a resistant concrete wall and supportive rockfill berms. They are significant structures.

Golder was so confident that the dams would not fail dramatically in a quake, that they made no recommendation for seismic upgrading. Further mapping from AE showed that while the dams might crack and leak due to a quake, they would have almost no impact whatsoever to downstream residents.

The most urgent and disconcerting scenario of great loss of life and destruction that had prompted an emergency response, was now considered highly implausible.

An update was released on May 26, 2014

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/information-archive1e24b0391b316d6b9fc9ff00001037d2.pdf>

Highlights: Risk classification reduced. Risks related to the dams are in fact significantly lower than previously believed. The dams appear to be in the same condition they were when remediation work was done on them in 1980. Testing has shown that the concrete walls are in good condition with very limited signs of deterioration. There is an extremely low probability of a dramatic rupture in an earthquake that would put public safety at risk. Very unlikely to fail in a manner that would result in loss of life. If the dams were to be damaged by an earthquake, it would most likely be manifested through slow leaking through cracks in the dam walls rather than a sudden failure. The results of the analysis also indicate that risks of serious damage resulting from a severe storm are lower than previously thought. However, spillway capacity must be addressed to reduce the risk further to the level required by dam safety standards.

We had definitely come a long way but like most everything else that happened since October 2012, the path forward was not as clear as we would have hoped.

Chapter 26 The Flood

The dams had been said to be at risk of collapse due to major events including an earthquake or a storm. The latter was never considered to be as urgent a priority. Quakes can happen at any time with little warning. Major flooding does not happen instantaneously. This was explained by Will Jolley from DSS on Dec. 06, 2012.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/minutes-14.pdf>

On page 58 Will Jolley from DSS explained the difference between the risk from a quake and that from a flood:

" there are two very separate kinds of failures. - One is the earthquake shaking which can cause disintegration of the dam or some serious leakage which would result in a quick failure, and then there's the flood failure. - They are very different. - One is instant and the other one takes maybe a day or two.

The dams have been there for over 100 years and they have experienced some big floods."

Chris Grapel also described a PMF (probable maximum flood) on p. 57

"For a flood event, the PMF event isn't going to happen overnight. - The PMF comes after 40 days and 40 nights of rain"

Our group had seen great opportunity for the entire process to be slowed down and re-evaluated. What occurred was pretty much the opposite. Golder brought back their update and costing of the spillway and overtopping options.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/report-18.pdf>

The Labyrinth Spillway was now projected to cost \$8.1 million and the Overtop Option was to cost \$7.3 million.

The technical committee met on May 21 and 22.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/minutes-2.pdf>

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/minutes-1.pdf>

We were being tasked with choosing one of the two options for remediation of the lower dam spillway. As well, we were told that there could well be an expectation, at a later date, that some work could be required at the middle dam.

Our group was opposed to the Labyrinth for some of the following reasons: It would be big, ugly, cumbersome, and dangerous. The upgrade is 60 ft. wide by 17 ft. deep. 90% of the time it would have only a few inches of water running at the bottom with maybe over a foot in winter time. Public safety costs were not calculated. We will have destroyed the park for a very small chance that an event may occur. We questioned why we were designing for one inch of water 99% of the time.

We supported the overtopping option because it was the least invasive and most cost effective but we remained the only ones who preferred this option.

There is nothing on record of overtopping at the lower dam and yet the spillway was said to be undersized by 7 times and the dam would overtop in a 50 year storm. As the dam

has existed for over a century with no issue, this did not make sense. However the scenario was still seen as a safety issue and upgrades were necessary.

Tsunami signs would remain in the community until the "significant" risk from the dams was remediated.

The staff report to Council on March 24, 2014 reported that \$470,000 had been spent to the end of February and an additional \$300,000 was projected to be spent up until early May.

Chapter 27 The Illusion of Inclusion

For months we continued with the T.C. despite ongoing frustrations in order to collect as much information as was possible. Instead of celebrating the newly discovered fact that the dams posed little or no risk to the public, plans steamrolled ahead to pursue hugely expensive and invasive upgrades. There was now even preliminary plans and designs for the middle dam. Our group was wanting to avoid ongoing attempts at solving a problem that did not appear to exist. To this end we made a few last attempts to get some movement in the direction that we thought appropriate.

On May 13, I sent a note to all members of the T.C. that we were concerned that the agenda of the T.C. was going off-track and may not meet the goal of having an environmentally minimally invasive, cost, and time-effective remediation solution.

On June 05, Lorne Gale, always pragmatic, urged members to consider a reactive stance to the dams after a major flood event just as we had done with the quake. After all, putting out millions to avert the possibility of the dam being overtopped during a hypothetical storm event may not be considered the best use of our resources.

The T.C. met on June 27 and Gale presented the scenario whereby such a flood event would allow considerable time for evacuation should it be necessary.

Since improvements were now costed in the multi-million dollar range and we had no clear understanding of how the dams would react should such an event ever occur, Gale wanted to know why we shouldn't consider his proposal of adopting a reactive stance as we had done with the seismic scenario.

This proposal did not gain any traction whatsoever.

As well, since we had followed up on a referral from Councillor McKay with Peter Bullock from Geostabilization (GSI). Bullock presented to the T.C. and said that this company was capable of providing a solution to the issue at much less cost than what Golder had proposed. He was not well received by the city staff nor the engineers from Golder.

Since there continued to be a determined effort to do some remediation work (whether or not it was necessary) we wanted to remain true to the goals of least costly and least invasive. As we felt ignored in our efforts, CDPPS suspended our involvement with the T.C. on June 28. We now had the ability to speak freely.

Council received an update on July 14

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140714V?start=1103>

Our members of the T.C. presented a summary of our involvement and explained that the work was not yet complete. The proposal to blow up the existing spillway and increase capacity by over 3 times was destructive and costly (\$8.1 million).

As well, a written proposal from GSI was read aloud. Bullock offered to do a design-build engineered solution to overtopping erosion protection at both dams for \$3million or less. Cost saving to the City would be \$5.1million compared to the spillway option for the lower dam only and \$4.2 million compared to the overtopping option for the lower dam only. GSI fees were all inclusive.

Council voted 4 - 3 to ignore this option and proceed to next steps.

Costs were now stated to be \$1.35 million for ongoing work along with \$1 million spent previously. Mr. Seward also proposed setting aside further millions for eventual work on the middle dam.

Chapter 28 Get the Dam Facts

Our group re-organized for the next battle. The recommendation to Council was to proceed with the labyrinth spillway. In order to counter this push we produced and distributed an information pamphlet. It read in part: *The City of Nanaimo is recommending blasting the lower spillway and deepening it by 10 feet, at a price tag of over \$8 million. This is by far the most invasive and costly option to fix a problem and is of questionable benefit. The Labyrinth spillway being recommended will be more than 16 feet deep to manage the projected flow of a flood event which has the probability of occurring as being 1 in 35,000 during any given year. .*

For much of the year we have about 1 inch of water in the spillway and rarely have more than one foot. Constructing the spillway means blasting into the bedrock and removing the bridge.

Both lakes would be lowered 5 meters during the construction period of 4 months the following summer which would seriously impact the eco-system of the lakes and the entire park.

The lower dam area would be shut off to the public for all of next summer.

No study has been done to see how our dams would react in huge flood. Just as it was established that the dams wouldn't fail in an earthquake, a study might find that the dams, as they are, would withstand a huge flood as well.

The park was on the agenda at Council on August 11.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=1231>

Peter Bullock from GSI spoke at this meeting. Bullock made every effort to simplify the scenario. He had also spoken with DSS. The design qualifications were now on record and he felt very confident that they could do the work at significant cost savings as to what Golder had proposed.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=1881>

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=7862>

Councillor McKay spoke about the possibility of managing and diverting the water.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=6159>

Both Geraldine Collins and I spoke about the issue as well.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=2840>

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=3120>

While there was no doubt that the GSI proposal was the best alternative in front of us at the moment, we continued to question the urgency to finalize a plan. No work was expected to occur until the summer of 2015. We felt that there was ample time to collect further information.

Numerous other issues were discussed.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140811V?start=5574>

An information meeting led by the engineers was not approved. Tsunami signage had to remain but the number might be reduced to 50 from 70. Minutes of the T.C. from the June 27 meeting would not be released. Seward said that the minutes had not been approved and there were some inappropriate comments. Since we had recorded the meeting, I offered to transcribe the statements that were left out.

I believe that he was referring to the following: *"We have had a lot of difficulty with respect to the role that DSS has played. Despite the fact that everyone seemed to know that the previous reports were way off base, DSS accepted outright that the dams could fail in 3 minutes and they have made comments that maybe this should go to referendum and that we were in the minority about wanting to keep the dams. DSS seem to think that they have given us a gift with de-classification of the dams. They never should have been classified as extreme to begin with. For DSS to have accepted that everyone in lower Harewood would die because of the dams was ludicrous.*

We also stated that the dams are not at any severe risk of failure. If they fell down tomorrow, no one will die and the dams will not be replaced by the City because they are only used for recreation. We have to justify the cost for whatever we propose so that it makes sense to the public. DSS needs to accept what the risk analysis means. Cost and intrusiveness are important issues and we need to do as little remediation as possible."

As well, we had consistently indicated that the dams posed little risk based on Golder's scenarios, we brought this up at the meeting. Golder confirmed that the scenarios were done with status quo of the Lower Dam. SC12 indicated that a 1000 year flood would not result in any fatalities **IF** both dams should fail in 60 and 120 minutes respectively. While Council did agree to potentially consider the GSI option, the conversation from staff placed numerous roadblocks and it did not seem likely that GSI would be given fair consideration. There was also no indication that that we would have opportunity to finish the work of the technical committee.

Chapter 29 A Surprising Twist

On Sept. 08, Councillor Kipp put forward a motion asking for approval of a hydraulic study for the Colliery dams. He advocated for the direction that our group had repeatedly urged. The study would help define how the dam would react in a storm event rather than deferring to the most conservative assumptions. He referred to the securing of proper information as prudent money management in ensuring that only absolutely required work should be pursued.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C140908V?start=12586>

The motion was withdrawn after the majority decided to refer the matter to staff. On Sep. 15, staff presented their recommendation to Council for remediation.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW140915V>

There were 4 options presented but, as Councillor Bestwick pointed out, "everything steers to #4 which was to proceed to design/tender for the labyrinth spillway at an estimated cost of \$8.2 million. Much was said of the qualifications of the engineers, the risk of liability to the City, the uncertainty of the GSI solution, the lack of clear benefit and considerable expense of the hydraulic study, and the role of DSS and the goal of maintaining a good relationship with the provincial authority. According to C.A.O.. Swabey, it did not matter so much that risk was no longer the main issue but rather the fact that the dams did not meet current standards.

I spoke to a power point presentation and attempted to cover the history and main issues. It remained my intention to promote time for good research and base decisions on securing that crucial information.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW140915V?start=5499>

What occurred during discussion amongst Council as they deliberated planning took many by surprise. For this one night, the balance of power on Council shifted. Councillor Anderson, who had remained steadfast in previous support of staff recommendations along with Mayor Ruttan and Councillors Brennan, Johnstone and Greves, voted for some further testing and the Society's involvement of the wording of the requested study.

We considered this to be a major win and created opportunity. We seemed to have avoided a major intrusion which would have come with considerable financial costs. There was a tiny glimmer of hope.

Chapter 29 A New Proposal

In latter September and October, members of our Society had dialogue with Toby Seward and met with Bruce Downing from Golder at the Park. Those conversations indicated that the engineers did not think that a modelling of the rate of erosion would be a worthwhile endeavour. The lower dam was still stated to overtop in a 50 year storm and there would be some erosion. As the top layer of the embankment below the dam was coal slag and was found to have some contaminants, any erosion would not be considered acceptable. Basically, we told that it really didn't matter if the dam wall withstood the design storm event as contaminants could be released downstream and work would be required nonetheless. The fact that the coal slag has been in place for over a century and there would be other much more serious ramifications from such a storm, was not considered to be determining factors.

During the site visit, we had further discussion about a concept that had previously been put forward by Lorne Gale and Leon Cake. On April 28 they had sent a note to the Golder engineers discussing the low lying area to the south of the lower dam. They considered the natural grade and basically a clear path probably following the old railway could potentially allow for substantial additional flow to Harewood Creek. The proposal was for box culverts that could flow in excess of 50cu.m/sec. The supposition was that with the reduced classification (and requirement) along with minimal upgrades to the

existing spillway, we could well reach the intended goal of satisfying DSS standards and minimal disruption to the park.

Downing now appeared willing to consider this concept and it eventually became part of the recommendations at the Council meeting on Nov. 03.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW141103V>

On October 27 I sent a note to Seward on behalf of the our T.C. members. This note was sent to Mayor and Council on Nov. 02 in order to explain our intentions and what we felt is required before proceeding with next steps. I stated that: *"we are supportive of the exploration of an emergency spillway and had long considered this as potentially a cost effective alternative to the present options. This would be even more true should it be less expensive than further investigation and analysis in efforts to determine the actual performance of the dam in the design flood event. Simply put, if an auxiliary emergency spillway to Harewood Creek would satisfy the design flood requirements and is more cost effective and less invasive than previously portrayed, then it should be given further consideration. We can suggest several possible concepts which may deserve more detailed evaluation. While I believe that the community would be interested in this concept, it would be important to be able to visually describe any proposed changes to the park along with associated costs.*

However we do require some basic information before deciding on any course of action. At minimum we would like the capacity calculations/modelling reviewed to confirm or determine an accurate capacity of the spillway. We would also like mapping of where the water will disperse prior to overtopping. Having this information will allow us to proceed too the next step of determining what may be required. It is a very positive development that it appears that creative solutions are being considered."

I spoke to this issue at the Council meeting and, once again, urged patience and the allowance for our further involvement.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW141103V?start=1956>

Councillor Kipp suggested deferring any recommendations to the newly elected Council. We had asked for two small studies with an associated cost of between \$4 - \$6,000.

However Council decided to approve the expenditure of between \$26 - \$42,000 in order to review the concept of an alternate drainage course to Harwood Creek.

This decision set us on a new direction with a new Council to be handed some difficult decisions as to how best to proceed.

Chapter 31 The Election

For many months, we had remained one vote shy of setting off in a different and, what we had hoped, would be a more positive direction. Councillors, Bestwick, Kipp, Pattje, and McKay appeared to grasp our message and had been willing to challenge the status quo. On our side, we had been aware since the beginning that we did not have support from staff or the provincial authority. The current leadership at Snuneymux did not exhibit much interest in our goals. Golder engineers had seemed very willing initially to engage with us (especially with Gale) but as noted at the T.C., the City were their

clients. Therefore, we had consistently approached our elected representatives with pertinent information in our bid to enlist their support.

The Park had remained a high profile news story over the last few years. It promised to play a significant role in the civic election in November. However, the resignation of the editor of the NDN, Mark MacDonald, at the end of September, made the task of relaying our message more difficult. MacDonald had been a firm advocate for our Society's intentions and had been critical of the manner in which city administration had handled the entire affair. Nonetheless, because of the high interest in the Park, many members of the community had become engaged. There was an increased awareness and concern for the manner in which the City was being managed.

With the decision of Councillors Johnstone and Anderson not to pursue re-election, we knew that there would be opportunities for new voices at the table.

Initially, Councillor Bestwick had declared that he would run for Mayor but he decided to run for Council instead. Councillor McKay chose to go for the top job. It was natural for many Park advocates to support McKay. He had come to many of our meetings, was largely supportive, and seemed well versed in the issue. He sent a note on F.B. on July 15 encouraging "*our group to play a bigger part than ever now to defeat the fearsome five.*" "We were asked to "*Stand tall and be strong.*" He spoke about the Colliery Dams on more than one occasion and voiced his position on the issue.

<https://www.youtube.com/watch?v=4G0J7o4p9Q0>

<https://www.youtube.com/watch?v=4CQWdiJf3Bg>

Councillors, Kipp, Bestwick, and Pattje had consistently been very receptive to our intentions and many hoped that they would be re-elected. As well, there were numerous new candidates who were vying for a position on Council. Most predominant for our group were Gordon Fuller, Bill Yoachim, Leon Cake, and Jim Taylor. Each had followed the story from the beginning and each, in their own way, had lent their support for our cause.

McKay was elected Mayor. Councillors Bestwick and Kipp were re-elected. Fuller and Yoachim were newly elected. Pattje finished 100 votes shy of re-election with Councillor Brennan winning the eighth and final spot.

The results of the election once again offered renewed hope for both the Park and for the City. We felt that the pooled resources and talent of individuals now on Council showed promise for a satisfactory conclusion to the park dilemma and a new direction for the City. This hope evaporated in a few short months.

Chapter 32 The Push for Inclusion

After the election, our goal was to remain involved and continue the push for a reasonable solution. We eventually did receive some feedback regarding the two studies that had been requested. Capacity of the lower spillway was now pegged at 55m³/sec. This was a bit more than double the 25m³/sec that Golder had initially adopted and used as an input into the risk analysis. We speculated that this information, if produced earlier, could have positively impacted findings and recommendations.

The community had been shaken by the near death experience of Councillor Fuller in late January and, as we waited for him to heal, we also anxiously awaited the next staff report to Council. This occurred on Feb. 02, 2015.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150202V?start=4786>

Staff recommendation was to proceed with the auxiliary spillway. The dimensions were to be 10 - 30 meters wide and 5 - 6 meters deep to handle almost double the flow of the existing spillway. Cost was estimated at between \$3 - \$6 million. While the report indicated that our Society would be afforded the opportunity for input, we knew from previous experience, this would be extremely limited.

Members of our group had spoken with some on Council and had assisted in the drafting of a motion that was put forward by Councillor Yoachim. The motion, if accepted, would be to NOT proceed with any expenditure for the alternate spillway. As well, the emergency measures currently in place were to be reviewed and the schedule for remediation was to be amended. CDPPS and Snuneymuxw were to be consulted and engaged in future process, planning and remedial measures.

There were a number of speakers at this meeting including: Geraldine Collins:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150202V?start=6419>

Darraugh Worledge explained that the risk from contaminants from the coal slag was not significant:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150202V?start=6734>

My presentation gave a further summary:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150202V?start=7048>

We were not asking for a mandate to "do nothing" as some suggested. We were asking for the opportunity to take a bit more time to get it right. We continued to reject the urgency to rush this through.

The motion passed 7 - 1 and appeared to finally give us a legitimate seat at the table.

Chapter 33 Shutting the Door

Glen Davidson, Comptroller of Water Rights, sent out two letters to the City with firm expectations of a plan of action to remediate the lower dam.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/correspondence-20.pdf>

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/correspondence-20.pdf>

The date of March 27 was set for compliance. The letters ended in "*Failure to comply may result in compliance and enforcement action being taken against the City*"

Repeated attempts to get back to the table fell on deaf ears. We were told by Swabey that they were waiting for comment from DSS. We indicated our willingness to meet and would appreciate the opportunity to discuss and move forward with the steps directed in the Motion. On March 01 we sent a further note to express our disappointment that the Motion of Feb 02 had basically been ignored and there had been no effort by staff to

comply with the directions of the Motion. The Directors of the Society then appeared at Council on March 02.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150302V>

CDPPS presentation: History, DSS, and how Council prioritizes spending from limited resources:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150302V?start=7127>

Terrance Wagstaff asked the question of hydrology of the watershed. This issue was to become even more relevant down the line:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150302V?start=12468>

Mayor McKay talked about his conversation with a local MLA about criminal negligence, climate change, flooding in Calgary, and putting his personal assets on the line

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150302V?start=10438>

Councillor Thorpe asked for Council to re-consider the options presented one month previous. He wanted Council to get on with a decision. This motion was defeated and we were left with the expectation that the Feb 02 motion would be adhered to .

Chapter 34 Council Proposes an Interim Option

Colliery Dam was on the agenda for March 16.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150316V>

Jim Taylor spoke to those on Council possibly being in conflict due to pecuniary interest:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150316V?start=2532>

My presentation regarding concerns, history, asset management, and the importance of how decisions are made:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150316V?start=4264>

Motions to re-consider the options previously presented were defeated once again. Staff reminded Council that DSS was wanting compliance and that there was now indication that work would be expected as well at the middle dam.

Councillor Fuller, who was recuperating from a serious health issue, made a surprise appearance at this meeting. He brought forward another motion:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150316V?start=7494>

This motion directed that staff work with the Colliery Dams Technical Committee to develop and implement a revised and comprehensive Emergency Preparedness Plan, develop and implement a surveillance plan to track potential flood events and measure water flow and volume , to develop and implement a Dams flood routing capacity action plan and confirm with DSS that these plans provides an acceptable approach to issues identified in the letter of February 25, 2015.

Staff indicated that this motion would be sent to DSS but it was unlikely to be deemed acceptable.

MLA Doug Routley addressed Council. He talked of doing the right thing, as had Councillor Bestwick, and that he has had numerous discussions with the Minister who was concerned about the division and unrest in the community due to this issue:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150316V?start=8378>

On March 23 we sent another letter from our Directors to voice concern that the deadline imposed by DSS was rapidly approaching and it appears that the City staff have adopted a "do-nothing" position. We were eventually offered a meeting time with Seward and it was set for March 27 which was the same day of the deadline from DSS. I said that I would hope that councillors and DSS would be in attendance. On March 26, the Directors met to strategize and discuss how best to approach this meeting. We agreed that we would push for re-instatement of the T.C. so as to complete the work that was required. If, however, there was an extreme push for some physical work to be done immediately, we could recommend GSI overtopping at the middle dam. This would be the least expensive and intrusive option. Even Golder, who had initially considered that no work should be required at the middle had suggested this type of remediation option if mandated. However, we were certain that GSI would provide the same service for less cost.

The meeting with staff and the representative from Snuneymuxw, Raymond Lamont, did not go well. We were told that the T.C. does not exist and cannot be brought back without First Nations participation. Lamont was not receptive to being further involved. He said that they had made their decision months ago. He asked why he was there. Seward asked if we could propose an option. I explained that Gale, who had always been our lead, would be returning to Nanaimo in early April and I felt extremely confident that we could then come to some decision in short order. I asked that staff make a request to DSS for an extension.

Craig Evans spoke to McKay after the meeting who expressed an interest in further dialogue. An informal Board meeting was held on March 28 to decide if we should meet with the Mayor the next day. The decision was made that the entire Board should go but only for information purposes. We were not in a position to offer a "solution". This meeting also did not go well. Seward was present along with McKay and Councillors Kipp and Fuller and the Society Directors. There was some heated dialogue and little productive conversation. There was a push for a plan but, of course, we could not simply advocate for anything at this point. However, Seward did say that GSI had remained interested and that this option could be viable.

From this point onward, there would be no further legitimate community engagement nor a cohesive approach for resolution. The City would remain bogged down with the Colliery Dam issue for many more months.

Chapter 35 DSS Issues an Order

Mayor McKay, along with Seward met with Davidson (water comptroller) and Tom Ethier, assistant deputy minister for Forest Lands and Natural Resources Operation on March 23. No councillors were present for this meeting. Given the recent approach that Mayor McKay had been taking, which was appeared at odds with the majority on Council, there were concerns about the nature of the conversation. What we do know is that DSS, on April 09, placed an order on the City to select a remediation option for

work by May 01 and a separate deadline of May 22 to submit design and construction plans.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/correspondence-17.pdf>

This matter was discussed at Council on April 13.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150413V>

Councillor Bestwick spoke to a motion that he would be bringing forward after a presentation from Councillor Kipp. The proposal was to appeal the order from DSS and submit a plan for the GSI overtopping option for both the middle and lower colliery dams.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150413V?start=1865>

Councillor Kipp made an extensive presentation regarding risk management, dealing with "potential" safety hazards, and the GSI solution which would include improvements to the park.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150413V?start=2076>

After the presentation, there was considerable debate as to how best to proceed. The decision was made to ask for a stay and appeal of the order, while bringing the GSI option forward. Staff felt that there was some positive development as council was agreeing to propose a plan but they were not optimistic about the proposal from GSI being accepted by DSS.

The Park issue had created divisions on Council and in the community. It had been a difficult two plus years and many were tired about hearing about the Colliery dams. Given the existing pressures, and despite some hesitance that work was actually required, Council decided to push for what was then considered the least costly and least intrusive option.

In conversation with some on Council, I voiced concern that the plan to introduce GSI for work at the lower dam would not be supported by DSS. Many of the roadblocks that were mentioned at Council on April 13 had come up previously. Staff and DSS had not previously supported the concept and there was no reason to think that Golder would welcome losing out on further work. Nevertheless, we had wanted Council to take control and advocate for a reasonable plan, and while not optimal, this appeared to be a good effort.

Chapter 36 Misdirection

It was easy to understand the rationale behind Council's efforts on April 13. They wanted an end to this issue and acting on the design build contractor's offer to harden the embankments of both dams for \$3 million seemed to be easily the most reasonable and direct path to this goal. I asked to be further involved in discussions with staff and DSS.

Swabey informed me on April 21 that the February 02 motion had been replaced with new motions and since an order was now in place, T.C. members could no longer be involved at this point. While it was clear that there would be no allowance for CDPPS to be further engaged in the conversation, there remained an obligation to state our thoughts. Therefore, on April 17, we released a statement indicating support for

Council's decision to appeal the order and to consult with GSI. However, because of the concerns that the GSI option would not gain acceptance at the lower dam, I made contact with those on Council who seemed both informed and supportive, and urged them to proceed with work only at the middle dam this year.

Council met on April 27.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150427V>

Seward said that there it was probable that a stay of one month would be granted to consider the third option. However, there was also a recommendation for \$400,000 to be allocated to consultants to be retained and do the work that was required.

I presented our proposal at Council:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150427V?start=215>.

We indicated support for a staged approach to this project, beginning with remediation of the middle dam, and allowing DSS to establish protocols for this type of project. The goal would be to have this work completed at the middle dam before the end of 2015. Discussion and any potential subsequent remediation measures could be completed work at the lower dam by the end of 2017. The proposal did not gain support.

Council engaged in extensive conversation. They wanted to pursue the GSI option and wanted staff cooperation. A meeting had occurred on April 22. Councillors Kipp and Bestwick and staff had met with members of DSS. The Councillors felt that the meeting was positive and that there was a willingness to consider the GSI option. Staff had a slightly different take with the expectation that there would be more work required than just the overtopping solution. Councillor Yoachim expressed his frustrations:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150427V?start=3193>

Eventually, staff recommendations were approved. An alternative option was to be explored and \$400,000 was to be allocated for consultants. An option was to be decided upon by June 01. Despite the intentions of Council to pursue the GSI option, it appeared to me that we were now much closer to building an auxiliary spillway. The plan to have GSI harden the embankment of the middle dam in 2015 while planning for the lower dam continued was eventually to be re-visited.

Chapter 36 Growing Discord

Despite what had been described as a positive meeting in April with GSI, staff now indicated that this firm had now indicated that they would no longer remain involved in the process. Staff said that GSI could not meet design specifications as set out by the city's main consultant. This point was later in dispute.

On May 19, the city's solicitor, Reece Harding, was brought to the public meeting to speak to a stay and appeal of the order from DSS. He was asked to waive rights to solicitor client privilege against staff advice. His opinion was that there were weak grounds for an appeal and the opportunity to obtain a stay is very low. A major hurdle was the imposed deadline of May 29 to submit its materials.

Council voted to proceed with the appeal and also voted to request a meeting with provincial officials, with some members urging increased political pressure.

Numerous members of the public spoke at this meeting. I did as well, and urged the City to proceed. I said that we had questioned the role of DSS on more than one occasion and were partially responsible for the City being put in this position. There is no recording available of this meeting on the City's website.

As preparations were continuing for a meeting with provincial authorities, the disharmony on Council became more obvious. Councillor Bestwick had requested that MLA, Doug Routley, former Chief Doug White and engineer Lorne Gale attend with them. Mayor McKay was quoted that he had called the ministry and expressed frustration at the latest turn of events. *"it's just bizarre. It's ridiculous. We're getting absolutely nothing else done because we're concentrating on this"*.

Councillor Bestwick said that he wanted to see people with knowledge and expertise of the dams present at the meeting and that the majority on council would feel that this is an appropriate request.

On May 29, the City was granted a temporary stay of the order. A meeting was scheduled with the deputy minister for June 04. Councillor Bestwick wanted some discussion on goals and objectives of the delegation that would be heading to Victoria. The goal was to make sure that this opportunity was not wasted. Bullet points were discussed as to how best to proceed.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150601V?start=11348>

The entire 8 page document that was prepared by councillors and community members that was presented to the Minister and DSS which highlighted history and gaps in information:

<http://www.collierydams.org/wp-content/uploads/2015/07/Colliery-Dams-Report.pdf>

Further discussion occurred at Council on June 22

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC150622V?start=28671>

The wording of the statement from Council and documents pertaining to the stay request were to be sent to the Environmental Appeal Board (EAB). The request was made to complete due diligence by having time to accumulate accurate information before deciding the type of work required at the lower dam. In the interim, Council wanted to pursue the GSI solution at the middle dam. Mayor McKay was opposed to the proposal and wanted Council to decide on one of the already approved options.

<http://www.collierydams.org/wp-content/uploads/2015/07/CityProposal.pdf>

The comptroller submitted his response to the City's bid to have the order for upgrade work stayed. He was opposed, and called the city's grounds for an appeal baseless and unsubstantiated as to be frivolous.

On June 30, the EAB ruled against the City's request for a stay or suspension of the order. "The potential for loss of life and the damage to private properties and the environment in the event of a significant flood event or a breach due to seismic activity (which could happen at any time) outweighs the harms identified by the city said the written submission, signed by Alan Andison, EAB chairman."

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/legal-6.pdf>

Mayor McKay had made some remarks that there were only about 40 people involved in the Colliery Dam situation. This had sparked considerable backlash and T-Shirts were printed and many people came to council to voice their disapproval. As well, Citizen Bob made a video.

<https://www.youtube.com/watch?v=zeTIwtl0g0k>

Council met on July 06.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOCOW150706V>

Staff recommendation was to have Council approve a remediation option for the lower dam. The motion that was approved was to receive the staff report but not make any decision regarding the Park at this time. Councillor Fuller made notice of motion that he would be putting forward to have a select committee oversee planning. While some on Council still felt that nothing really needed to be done, there was an insistence that they would approve some work but wanted opportunity to choose how best to proceed. As it did not seem possible to complete any work by November, the plan remained to do overtopping protection at the middle and take time to ensure that the required information was received in order to make a decision about the lower.

Bruce Downing from Golder was present at this meeting and answered some questions. At question period, McKay said that he would not support the proposed motion of a select committee nor the plan that the majority of council had approved.

Staff voiced the concern that time was of the essence with a July 24 deadline ahead of them.

MLA Routley had a letter in the NDN on this same date. He said that it was important to remember history. *"Had the city rushed ahead, based on faulty and meager information, taxpayers would have paid unnecessarily and the park would have been impacted. Surely the lesson learned should be that due diligence is required and surely, those who were so right in the first place deserve to be heard."*

The issue was again heard at Council on July 13

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150713V>

My presentation along with that of Leon Cake referred to there being missing information and the requirement of one year to complete the necessary studies in order to see what was required. <https://www.nanaimo.ca/meetings/VideoPlayer/Index/COW150713V?start=5790the>

Councillor Thorpe brought forward the motion as recommended by staff. It consisted of proceeding with the design and installation of an auxiliary spillway. It also called for the development of conceptual plans for the middle dam and ceasing further efforts at contesting the order from the province. This motion was defeated 5 - 4.

Councillor Fuller then brought forward a motion to proceed with the GSI solution at the middle dam and the establishment of a select committee to gather further information. This motion passed 5 - 4.

The NDN reported on July 15. *"Province eyes up dam enforcement"* The province acknowledged that it had a wide array of possible actions it could take including imposing hefty fines or removing the dam at the city's cost. Another option would be to seek to have the City charged on sections 93 or 94 of the Water Act, which could result in fines of \$200,000 per day or even more stringent penalties of up to \$1,000,000 per day.

Chapter 39 An Auxiliary Spillway

Once again the dams issue was on the agenda on July 20. I spoke to it and talked of the ramifications of the impending decision, its impact locally and provincially, and mainly the process. I also expressed grave concerns for the ability of this council to function in a cohesive and effective manner.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150720V?start=1358>

Dave Cutts spoke about possible civil disobedience.

MLA Doug Routley spoke of his displeasure with the provincial government and their handling of this situation. He referred to the process as bullying.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150720V?start=2276>

Councillor Yoachim brought forward a motion that was eventually spoken to:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/C150720V?start=13748>

The motion was tabled and sent to staff for review and brought back. It incorporated the major portion of previous motions of going ahead with the design and tendering of the auxiliary spillway, making conceptual plans for the middle dam, having a select committee oversee the process and seek additional information including the hydrology of the watershed, and having an investigation of the Colliery dams process focussing on problems and issues. The City was to abandon its ongoing legal appeal to the provincial order.

The motion passed unanimously. Council had succumbed to enormous pressure that they were under. Councillor Bestwick was quoted in the NDN on July 22. "Quite frankly we were left with no option" He cited "continuous threats by the province to penalize the city as one of the factors in his decision. A classic case of the senior levels of government justifying a wasteful expenditure of tax payers' dollars on speculation. We fought hard to do what was right and what I still believe to have been right"

The auxiliary spillway would go ahead.

Chapter 40 The Select Committee

Terms of reference for the select committee was discussed at Council on July 27:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC150727V>

I spoke to the issue but did not wish to commit to this new process immediately. However I indicated that we would be quite willing to offer our assistance should there be the feeling that the committee could be productive.

The motion put forward was to broaden the authority of the committee and allow it to have oversight into the design of the auxiliary spillway as well as consideration of other matters that were deemed necessary. Staff voiced concerns predominantly about the short time frames and the DSS order mandating the city to meet deadlines. Work needed to begin in Sept for substantial completion by Nov. 15. The motion did pass and Michelle Corfield was to be asked to act in a facilitative role.

At the meeting I asked about costs since disbanding the T.C. and received the following response from Mr. Seward on July 29.

"At Monday's Council meeting you asked how much money had been spent on Colliery Dams since the completion of the Technical Committee. All invoices have not been received. The estimated costs from July 2014 to date are \$500,000-\$700,000."

On Aug. 10, Council declared the representatives for the select committee which would be comprised of two councillors, two representatives each from each SFN, CDPPS, and the general public:

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC150810V?start=5240>

The contractor selection process for the auxiliary spillway was also decided. Staff recommended approaching 4 contractors and enter into a "cost plus" contract. Leon Cake explained the problems with such a contract and there was considerable discussion.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC150810V?start=5556>

Council agreed to staff recommendations despite the concerns of costs being exaggerated due to unknowns and a rush to have substantial completion of the spillway by November 15 as directed by the province.

Ron Bolin's letter in the NDN on August 15 summarized. *"Nanaimo council voted to forgo the rules of money management which are meant to ensure public and transparent use of city funds. We will enter into a "cost-plus" contract which places the full onus of all project costs on the city and its taxpayers."* He added that the reasons for such precipitous and fiscally risky actions are laid at the feet of the B.C. Comptroller of Water but also should be at the doorstep of both Council and staff.

The select committee met on August 18. Questions were raised as to the proposed location of the spillway amongst other issues:

https://www.nanaimo.ca/meetings/pdf/2015_Committee_Minutes/SOCDSC150818M.pdf

The select committee met again on August 24. Councillor Kipp indicated that he did not wish to remain on the committee.

https://www.nanaimo.ca/meetings/pdf/2015_Committee_Minutes/SOCDSC150824M.pdf

A further meeting was attempted on August 31 but could not convene as there was a lack of quorum.

https://www.nanaimo.ca/meetings/pdf/2015_Committee_Minutes/SOCDSC150831M.pdf

Council was to select a contractor for the auxiliary spillway on August 31. This did not occur and the meeting was adjourned because of issues.

<https://www.nanaimo.ca/meetings/VideoPlayer/Index/SOC150831V?start=11499>

Chapter 41 A Monument to Waste and Stupidity

On September 02, the cost-plus contract for the auxiliary spillway was awarded to Copcan. A motion brought forward by Councillor Bestwick that would have provided the city with a review of other possible locations in order to confirm the proposed route was defeated on a tie vote. Council also voted to disband the select committee. Councillor Fuller said that it would have no say in the design or location and served no purpose.

On September 15 there were two arrests and about 15 bylaw tickets were issued at the Park as people attempted to interrupt the removal of dozens of trees. The area was fenced and security remained on site during the entire course of construction.

The City felt pressure to adhere to the order for substantial completion of the spillway by mid November. It was completed in May, 2016.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/update-2.pdf>

Costs of the spillway was stated to be \$4.5million. Total costs since 2012 related to dealing with the Colliery dams were \$7 million.

<https://www.nanaimo.ca/docs/your-government/projects/2015-colliery/update-1.pdf>

I have repeatedly referred to the spillway as a monument to waste and stupidity. Despite our concerns of erecting such a structure in a prime recreational area, we are left with a serious man made hazard. This became obvious during the summer of 2016 when children were observed running along the spillway walls. It is a 10 foot drop to the concrete floor.

https://www.youtube.com/watch?v=fg_xlnzt8Bk&feature=youtu.be

Chapter 42 The Middle Dam

<https://www.nanaimobulletin.com/news/further-work-postponed-on-middle-colliery-dam/>

In October, 2016, members of CDPPS, Peter Urquhart, Mary Montague, and I were granted an opportunity to meet with City Manager Brad McRae and Poul Rosen, Senior Manager of Engineering. The goal was to initiate a dialogue as to how they now wished to deal with the middle dam. The order from DSS had wanted an approved plan by the end of 2017. We discussed some of the information on record and also what may be missing. The meeting was upbeat and there was the strong impression that the City did not want to do any more work than was absolutely required. Obviously, we were in total agreement with this approach and had felt that this opportunity had not been afforded previously. This was the first time that there was a feeling that our intentions and that of the City were aligned. It was also surprising to hear that engineering at the City had never previously been given conduct of the file and thus had no input into previous decisions.

We met again in December. Staff had concluded that with monitoring and the ability to get better data, there was an opportunity for a more accurate assessment of the design flows. I was a bit surprised at this bold move. As previously mentioned, it is difficult for one engineering firm to counter the findings of another. I had thought that referring back to the risk analysis may have been a more preferred option. Others continued to question the calculations of spillway capacity. Nevertheless, we welcomed the initiative of Rosen to secure actual factual data that was still missing.

Staff engaged the services of Urban Systems to re- analyse the hydrology calculations based on information gleaned from the sensors that are currently in place. This allowed for about three years of data. Another supplemental study of a regional analysis complemented the previous findings and the sensors would be renewed.

The results of these two studies were eventually released on January 16, 2017.

<https://www.nanaimo.ca/docs/default-document-library/urban-systems---middle-dam-hydraulic-assessment-memo---march-2017.pdf>

<https://www.nanaimo.ca/docs/default-document-library/urban-systems---nanaimo-chase-river-regional-analysis-memo---september-2017.pdf>

The results of these two studies dramatically contrasted those of Golder's. The findings of the Golder Study predicted design flows that significantly exceed the capacity of the spillways, indicating a high risk of dam overtopping.

In April, 2014, Lorne Gale had asked specifically about the peak flow rates for the dams. He said that he struggled to understand how Golder had determined that they had reduced the PMF from 200 m³/s to 165m³/s while the 1000 yr. flood which had previously been calculated as 68m³/s and had now been increased to 107m³/s. The answer from Golder included their methodology and information from previous studies. The summary was that they felt that they had a good handle on the capacity and performance of the existing spillway at the lower dam.

The assumption had been that the lower spillway had been under capacity by 7 times for the initial design flood despite it having handled every storm event over the last century. The middle dam was said to be approximately half of what it should be according to its current classification of "high".

If the numbers for shorter time periods are not adequately defined, the projection (extrapolation) of those numbers for hypothetical 1,000 or 50,000 storm events can be greatly exaggerated. This may well have occurred with the Colliery Dams.

Chapter 43 DSS Issues a New Order

<https://www.nanaimo.ca/docs/default-document-library/province-to-city-january-2018.pdf>

There has always been the hope that we would eventually have closure regarding the whole dam situation. The new order does not provide for a final conclusion. Rather, the provincial authority, while accepting the City's plan to monitor and accumulate more data, also leaves the possibility open that further work may be necessary. There is no outright acceptance of the latest findings. This last point is somewhat understandable, as Urban Systems was operating on only 3 years of data. On the other hand, other engineering companies had come to their conclusions without even this factual information being available. What has been disregarded is that we have dams that have operated efficiently for over a century. For many, that is ample proof that the engineers who built them in 1910, and those who oversaw upgrades in 1980, knew what they were doing. The other fact that was established was that the dams, even in worst case scenarios, pose little or no risk to the public. This too, has consistently been a factor that has been either disregarded or diminished.

The bottom line is that an order remains in place on the middle dam until 2023 when the next dam safety review is set to occur. Therefore, the final chapter of the Dam Saga has yet to be written.

Chapter 44 Whatever Happened to ___ ?

There have been numerous staff changes at the City during the last few years. Many had involvement with the Park discussion. Senior City Managers, Doug Holmes, Ian Howat, Tom Hickey, Susan Clift (engineering), and Phillip Cooper (communication) and Brad McRae are no longer employed in Nanaimo. Ted Swabey left his post as CAO for a similar position in Maple Ridge in Dec. 2015. He is currently employed as CAO in North Cowichan. Toby Seward retired in June 2016. Bill Sims has recently been appointed as director of engineering and public works. Glen Davidson (water comptroller) is not currently in this position with DSS. Scott Morgan remains in his position at DSS.

Chapter 45 Why??

While it appeared obvious that staff had made a decision that the park was not worth maintaining in its present state, there are different theories as to the rationale behind the decision making process. I can only list some of the theories that were presented:

- Recreational dams in other jurisdictions have been removed due to costs and increasing mandated standards.
- Some City staff were unfamiliar with the long history of the Park in our community and the deep ties that remained.
- There had been considerable expenditure for the Conference Center and staff may have looked at different cost saving measures.
- Increased development south of the Park is ongoing. The Park may have been deemed to be in the way.

Chapter 46 Gains and Losses

The question has often been asked if our group felt that we won. Personally, I do not consider the Colliery Dams scenario as a win/lose situation. While it is true that the most prominent goal of saving the park has been essentially realized, it is also true that part of the park was decimated at great upset and monetary expense along with incredible amount of staff and council time being monopolized. Building a multi million dollar spillway to ensure that not one drop of water would ever flow over the existing dam, while creating a man-made hazard, should not be considered a proud accomplishment.

The City had the potential of leading the way in terms of assessment of risk and delegating limited resources accordingly as allowed in the revised dam guidelines. This goal was not realized.

For example, currently about 4 people die each month in the Nanaimo area from drug related issues. This is an actual crisis rather than a hypothetical one. As well, an opportunity for successful and meaningful community engagement ended poorly.

Furthermore, given the perceived misguided direction, there has developed a deep distrust of the intentions of bureaucrats, governing agencies, and consultants. Elected politicians are reliant on the expertise of those who have training in their specific field. Without proper and sound information, elected officials flounder. This scenario has led to further issues and challenges within the workings of the City which have not been resolved.

Finally the investigation of the Colliery Dam fiasco never occurred.

Jeff Solomon