

# **“Hydrological Assessment for Flood Control Planning”**

## **Page by Page Comments**

- Page 7, para 2. “greatest impacts began circa 2005”. In fact, the greatest impact is the longstanding agricultural practice since the 1880s to drain private land and pass the problem downstream to other people and local governments to deal with. The problems associated with this practice were worsened by heavier than normal precipitation around 2005.
- Page 7, para 3. “roadbeds of Highway 16 and the CPR are also threatened or nearly so as in 2011”. There is no documentation that HWY 16 and the CPR were threatened nor does the consultant cite correspondence from the affected government department or the CPR.
- Page 7, para 5. The consultant provides a historical account of infrastructure projects by the CPR and Highways. He claims that “during a recent improvement of Highway 16, more water was diverted that has to pass into the Salt Lakes system or find its way through other watershed locations to end in the Oak River”. What does “find its way through other watersheds” mean? Also, the Department of Highways policy does not allow the department to change water flow when construction projects are undertaken. Highways staff have indicated to us that additional water in ditches along the highway near Strathclair was the result of illegally draining private land into ditches along HWY 16.
- Page 7, para 6. “the only means available other than emergency releases... is evaporation”. The consultant does not seem to acknowledge that over 90% of drainage from private land is illegal (Broughton Creek study, 2010). Closing at least some of these illegal drains certainly should be an option.
- Page 9, para 4. “flowed in an uncontrolled manner for some weeks”. In fact, according to Perry Stonehouse, the RM did not adequately fill in the drain installed as an “emergency measure” in 2010. The problems of excessive water in Salt Lake was exacerbated because the single outlet culvert was apparently improperly installed and inadequate in diameter (30 inch instead of the required 36 inch).
- Page 11, para 1. Inexplicably, under the heading Nip Creek, the consultant outlines his “strategy”. He leaps to the conclusion that “the best case solution forms around turning North and especially Center Salt Lake into a connected reservoir to regulate releases...”. From the information presented to this point it is difficult to understand how the consultant managed to make the leap to this conclusion.
- Page 11, para 3. The consultant refers to “recent climate change”. While climatologists around the world still debate the validity of climate change and what the impact on local weather may be, the consultant definitively states that the higher than normal precipitation over the past 5 to 10 years is the result of climate change. The consultant states that “any future excessive rain event will not pass through the sole submerged culvert under Highway 16 fast enough to prevent flooding and unsafe conditions. The CPR railway bridge would also be strongly affected.” What evidence does the consultant have that this is the case? Does he have correspondence from HWYs that there will be unsafe conditions? Does he have documentation from the railway that the railway bridge will be strongly affected (note:

meaning unclear)? Or, are these conclusions just something he has surmised based on cursory field observations?

- Page 12. After plugging his unsupported conclusion into the Nip Creek section, the consultant jumps back into background information. The organization of this report is to say the least confusing.
- Page 12, para 1. “Salt Lakes, by their very nature (?) depend on wind and sun induced evaporation”. In fact, Salt Lake has a historical outlet. There is a lot of information in this paragraph about evaporation and how it works. The consultant states that “evaporation is reduced proportionally”. Statements like this should have supporting references.
- Page 12, para 3. This entire paragraph is speculative. The consultant’s version of “climate change” resulting in high precipitation may, just as easily change to a period of drought. Therefore, he cannot definitively conclude that “levels will continue to rise”.
- Page 13. The consultant is back to outlining his conclusions.
- Page 13, para 1. The consultant again recommends “that Central Salt Lake and the upper layer of North Salt Lake be converted to reservoirs to retain water until after flows have peaked in the Oak River system...”. This is one of several examples where the consultant does not consider the levels of water in Salt Lake. He does not discuss appropriate levels for Salt Lake, or recommend measures to ensure that Salt Lake does not reach flooding level as it did in 2010 and worse yet in 2011. What does the consultant mean by the upper layers of North Salt Lake - isn’t it impossible to draw water from the lower layer?
- Page 13, para 2. Two planned releases are indicated. No where is the level of Salt Lake considered when determining if a release is to occur in either the spring or the fall.
- Page 13, para 3. The consultant provides exact levels that are to be achieved in Center Salt Lake and North Salt Lake, but again does not indicate the maximum levels (x meters) that Salt Lake would be subjected to, nor the ideal managed level (y meters) for Salt Lake. Salt Lake water management is ignored throughout the report. This is unacceptable.
- Page 13 para 5. Again the level of Salt Lake at the time of release is completely ignored. The level of Salt Lake must also be the primary consideration. A proper outlet control structure must be installed at the southwest end of the Salt Lake. The guideline must be that water shall not be released into Salt Lake unless it is at or near a prescribed ideal level. Then the water levels in the Oak River system shall be considered. Therefore, the levels in both Salt Lake and the Oak River system must be at or below prescribed levels prior to release of water from Center Salt Lake.
- Page 14. Downstream effects are inadequately outlined.
- Page 14, para 2. It is stated that care is needed prior to release of water from Center Salt Lake because of concern about the levels in the upper Oak River System. Again there is no consideration of Salt Lake levels. It is recommended that the “culvert at the Riley road would serve as an indicator culvert”. This is unacceptable because as noted previously Salt Lake could be flooding while the Riley culvert may signal that a release is allowable. In discussing the use of the Riley culvert as an indicator with local residents it is clear that the Riley culvert may not be flowing while land in the vicinity is inundated. Both the level of the upper Oak River system and Salt Lake must dictate when a release is permitted.
- Page 14, para 3. Don’t know what the consultant is talking about.

- Page 15, para 2. Unlicensed drainage from private land contributed to the problem.
- Page 17, para 3. We are not sure what the consultant is talking about. We note that whatever it is, he notes that there are two major hurdles - then he lists five points.
- Page 18, last para. This action (which may be a good idea) should be taken as phase 1, not after a drain has been installed from Center Salt Lake to Salt Lake. We are very concerned that if the Center Salt Lake drain is installed then it will be a green light to drain more water into the Salt Lakes.
- Page 19 to 21. The list of drainage options from Center Salt Lake were evaluated in a superficial way. We believe that the discussion provided is inadequate to draw the conclusion that the route must pass through Salt Lake. In virtually all options that circumvent Salt Lake the excuse is mainly that it would be too costly to “consider reasonable for funding as a project by a Rural Municipality”. This is an interesting conclusion since it is apparently based on absolutely no cost analysis. The consultant also uses the rationale that Route 10 would result in a “major hazard in the form of a deep, roadside trench”. There are steep slopes by hundreds of roads and highways across Manitoba - Is there a particular guideline or bylaw in the RM of Strathclair that bans a deep ditch adjacent to this road? The consultant also states that some of the options “would be a nuisance to agricultural practices”. It seems that he would prefer to potentially degrade Salt Lake rather than cause a nuisance to farming on a 1/4 section of agricultural land. There could be a host of alternative drainage procedures that have not been considered.
- Page 21, route 7. The consultant indicates that this route “was successfully used during the first EMO release in 2009”. In fact, that drain had almost zero impact on the water level of Center and North Salt Lakes because the drain was initially dug so there was only a trickle of water; then it was further excavated to allow more water to flow, only to have EMO order the drain closed because the situation did not qualify as an emergency (personal communication with EMO staff).
- Page 21, route 9. After minimal analysis it would appear that the option for lowering Center and North Salt Lakes through Salt Lake was inevitable.
- Page 22, para 1. The consultant opines that Winstone property “cannot be considered a barrier to the rising waters in Center Salt Lake... as proven in 2011”. Our information based on discussions with Water Stewardship staff would indicate a contrary conclusion. The water flowed across the Winstone property largely because the 2010 drain was not properly filled (shoulder to shoulder) nor packed. The high water in Center Salt Lake easily eroded a path through the improperly filled 2010 drain. The effect on Salt Lake “was disastrous” because water flowed unimpeded from Center Salt Lake and the resulting damage to shorelines, cottages and habitat was greatly magnified because the undersized and improperly positioned Salt Lake outlet culvert could not accommodate the flow.
- Page 24, para 6. “Emergency trenches have been filled in as per requirement of such EMO prerequisites”. This was not done according to Perry Stonehouse of Water Stewardship. In fact, part of the drain (more proximate to the Moffat property) was not filled in at all.
- Page 29, para 1. The consultant states that “based... on costs, the recommendation forwarded is...”. To repeat there was absolutely zero cost analysis.

- Page 29, para 5. Detailed plans for how water will leave Center Salt Lake are provided in the forgoing pages but there is absolutely no discussion or plans for how water will efficiently leave Salt Lake. The consultant does not appear to get it - when you add more water to a lake, the level will rise unless you allow more water to leave the lake.
- Page 31, para 2. The consultant indicates that water flows would be regulated to match flows allowed by the Oak River watershed sections and prevent excessive water elevations in South Salt Lake". This cannot happen since even when there is near zero flow in the upper Oak River system, Salt Lake may be at flood stage (as is currently the case - October 2011). As always, the consultant does not address Salt Lake water management. The best he can do is "prevent excessive water elevations". Excessive is not defined, yet he is quite specific when he discusses acceptable water levels in Center and North Salt Lakes (see page 13).
- Page 32, para 6. The consultant indicates that the intent is to drain "over and extended periods... without creating flooding and shoreline erosion on South Salt Lake" This is good but again the level that is considered flood stage is not specified. Also, the consultant indicates that the intent is not to "overwhelm" the 90 cm (36 inch) Salt Lake outlet culvert to be installed later in 2011. As noted above, a 36 inch culvert will be inadequate, and the current culvert is set about 0.5 to 0.75 meters too high, since the lake is still at flood stage but the existing culvert is barely draining.
- Page 33. The drainage structure seems to be planned to prevent excessively rapid flow and to prevent siltation and erosion into Salt Lake. This is good.
- Page 37, para 2. The consultant claims that there was no overland flooding in the Oak River system. There certainly was flooding on private land down stream from the Salt Lake outlet. This flooding was worse because water was allowed to flow into Salt Lake all through this past summer. The flooding in the Oak River system was limited somewhat because the water from Center Salt Lake was impeded from flowing out of Salt Lake because of an inadequate outlet culvert. As a result the most serious flooding occurred in Salt Lake.
- Page 37, para 3. There is no analysis to defend the conclusion.
- Page 37, para 4. The consultant concludes that "concerns over the 'polluting' of the south lake are unfounded". There is no evidence or analysis anywhere in this report that shows that introducing water from Center and North Salt Lakes will not degrade the water quality of Salt Lake.
- Page 37, para 5. Observations made by boaters from the south shore indicated that by June 2010, the lake was clear in the south basin but murky in the north half of the lake. Later in 2010, the entire lake was murky. In 2011, Salt Lake was murkier than pre-2009. Normally, by August the lake clears after the end of the algae bloom. This year, after the algae bloom the lake remained murky until late September.
- Page 38. It seems that actions such as Phase 2 should be done first along with other actions to stop water from entering North Salt Lake.

# **“Environmental Impact Assessment”**

## **Introduction**

A senior scientist from the Water Science and Management Branch with specific expertise in the area of surface water quality prepared a preliminary report on the water samples taken from the Salt Lakes in 2007 and 2009. The following conclusions were made:

- Salt Lake had better quality of water than either Middle or North Salt Lake.
- More information on water quality in these lakes is required to assess potential impacts of water diversion from North or Middle Salt Lakes to Salt Lake. A better understanding of water quality in these three lakes could be gained through implementation of a seasonal monitoring program including sampling for general chemistry, metals, and nutrients in spring, summer, fall and winter. Given the differences in water quality observed in April 2009 between the three lakes, potential affects of water diversion could include impacts on the aquatic community, recreation and use of water from South Salt Lake for drinking, livestock watering or irrigation/garden watering.

Regarding this final conclusion note that there could be a concern regarding recreational use and livestock watering. Both activities occur on Salt Lake. There is no recreational activities on Middle or North Salt Lake.

The Environmental Impact Assessment provided the raw data from 2011 water samples but does not provide one observation, discuss the implications or draw one conclusion based on the data. The consultants only conclusion is that the water is “free of contaminants”. This would appear to be merely an opinion.

## **Page by page Comments**

- Page 7, para 2. Where is the evidence or reference that the effects of the abattoir “have been long since degraded”. This may be just another opinion.
- Page 7, para 4. The consultant states that there are no “harmful factors” at the old landfill site. There may not be any measurable effect now but there is no guarantee that it cannot happen in the future. In fact, on page 22, para 5 the consultant states that “the abandoned land fill does not, *at present*, create any detrimental effects...”. The consultant seems to be backtracking by suggesting there is no threat “*at present*”.
- Page 7, para 5. What is the relevance of referring to two local rate payers as “squatters” when they have permission from the landowner to use the site.
- Page 7. The consultant neglects to mention that the license for the water treatment lagoons stipulates that outflow from the lagoons shall not flow to Salt Lake. Since the consultant has clearly stated that the Center and North Salt Lake complex is all interconnected during high

water, opening a drain from Center Salt Lake to Salt Lake will result in effluent from the lagoon reaching Salt Lake.

- Page 8, para 4. This ‘guideline’ indicates that the RM should consult Water Stewardship and the RM of Blanshard “before commencing any releases of water” from Center Salt Lake into Salt Lake. In reality, if a license is granted for this drainage, we would have to rely on the integrity of the RM to only release water when conditions will not result in downstream catastrophes. Based on the past record of the RM, we have no confidence that the drainage will be conducted in a professional manner.
- Page 9, para 2. The consultant states that “more fresh water is ‘flushed’ through the system”. This statement is based on nothing. Almost all parameters measured in Center Salt Lake have concentrations from 2x to 10x higher than Salt Lake. That is not fresh water - that is water of poor quality.
- Page 11, para 3. How can he state that there will be no impact on the campground when with the existing Salt Lake outlet culvert, water was impeded from leaving the lake. The entire beach and some campground facilities were inundated. He provides no remedy for this.
- Page 12, para 1. “Care must be taken to not interfere or damage docks...”. Again very unspecific guidelines when Salt Lake is discussed. There should be a prescribed Salt Lake level that shall not be exceeded under any circumstances.
- Page 12. The science lesson regarding swimmer’s itch is irrelevant.
- Page 13. Mainly irrelevant..
- Page 13, para 5. What does this mean? Salt Lake levels can certainly be reduced if the lake levels are managed with an proper outlet control structure. If the outlet is lowered Salt Lake could be lowered by at least a 0.5 meter from the current level (October 2011).
- Page 13, para 7. The consultant declares that “Salt Lake will not be reduced in volume or depth...”. Why not? It is in flood stage. Installation of adequate outlet control structures at the proper elevation will regulate its level. The rest of the stuff in this paragraph is irrelevant.
- Page 13, para 8. Irrelevant.
- Page 14, para 1. This is the extent of the analysis of water samples. Has the consultant any expertise in this area?
- Page 14, para 2. The consultant is suggesting that turbidity was not the result of water rushing through a mud ditch through a farm field. What “study” revealed the true source? What was the study methodology? A few photos. He concludes that water draining slowly off agricultural land caused the turbidity but not water rushing through a muddy ditch for five months from Center Salt Lake to Salt Lake. The photo on page 14 of a drain shows a very flat ditch - would water be gushing through here picking up silt? The photos of ditches shown on page 15 seem to be covered in vegetation - this is a source of silt? Not convinced.
- Page 17. All three sections seem to be filler. What is the relevance? This was a year of high numbers of salamanders but none was observed by the consultant.

- Page 18. More irrelevant stuff.
- Page 19. What is the point? This is a grade 6 field trip.
- Page 20. What is a basic invertebrate?
- Page 20. Under Impact on Aquatic Vegetation (bullet 1), the consultant states that the long-term effects on the upper Oak River watershed should be monitored over the first decade. He does not recommend the same for Salt Lake. The impacts on Salt Lake should also be a priority! The third bullet is not a scientific or measurable means of determining impact, this is high school.
- Page 21, para 1. Again, Salt Lake is ignored. The consultant is only concerned about effects downstream of Salt Lake.
- Page 21, para 4. This is a condescending paragraph and makes no sense. The flow into Salt Lake came through a ditch that should have been properly blocked in 2010 but was not. We asked the RM to put in a proper Salt Lake outlet culvert long after high waters in the Oak River system declined. The RM refused and continues to refuse to install a proper culvert. Therefore, this paragraph is nonsense. “These very folks have been opposed to the control structure and trench” because we have had no assurance that the water would not degrade the quality of Salt Lake and because we had no confidence that the drainage would be conducted in a professional way thereby protecting our concerns about excessively high water. Comments like this by the consultant seems to demonstrate a level of bias against the interests of those concerned about the integrity of the Salt Lake ecosystem.
- Page 21, para 7. The consultant again opines that the effluent is “of small consequence”. He apparently does no know that effluent from the lagoons cannot be directed to Salt Lake, which does occur during periods of high water.
- Page 22, para 1. The consultant states the land fill has been a source of “virulent rhetoric”. This is another condescending statement, indicating a possible bias against those who oppose this drainage project. The comments submitted to the RM have in fact been based on a sincere concern about the quality of Salt Lake. That is not rhetoric.
- Page 22, para 2. What is a disinterested third party? Is this party someone the consultant hired because he felt that he was not unbiased or does he consider himself to be a disinterested third party? Don’t really know.
- Page 22, para 3. This paragraph may also show some bias on the part of the consultant by virtue of its pejorative nature. He states that the water sample was taken by the old landfill where some people “claimed pesticide residue *supposedly* was leaking through the soil into the lake”.
- Page 22, para 4. The consultant again demonstrates the lack of analysis and perhaps understanding of the water sample parameters. He indicates that no indicators were found in the water samples to suggest any strong sources of pollution, pesticides or otherwise. Since there is no evidence of data analysis, it seems we are to take his word that there is nothing of concern. What does “no strong sources of pollution” mean? What does “otherwise” entail. That is not a scientific way to describe a risk. He should have discussed the various

parameters in terms of the Manitoba Water Quality Guidelines and Objectives. Also, the implications of the level for each parameter should be outlined.

- Page 22, para 5. The consultant states that “the abandoned land fill does not, at present, create any detrimental effects...”. The consultant seems to be backtracking by suggesting there is no threat “at present”. It would seem that he feels that there could be some issues with the landfill in the ‘future’.
- Page 23. That is RM business.
- Page 25. The area is largely undiscovered because until last year it amounted to only a few potholes. Temporary high water has created this temporary wetland.
- Page 27, para 1 & 2. Again Salt Lake is ignored regarding the time of release. The release should only occur, first if Salt Lake is at a prescribed ideal level, if proper outlet control structures are in place and then the condition of the upper Oak River system would be considered.
- Page 27, para 4. Again the only concern of the consultant is the condition of the Oak River system. The condition of Salt Lake is not mentioned.
- Page 27, para 5 & 6. What is the point of this? Will the RM stop the flow if something changes? Not defined.
- Page 28. Not very profound conclusions of what was to be an environmental impact assessment. It essentially includes a few shots taken at some landowners, makes the assumption that the water will again get to Salt Lake in 2012 (no real basis for this if the 2010 drain is properly filled in), suggests that HWY 16 and the CPR roadbed will be threatened (no information to suggest they have been in the past).Salt
- A final point - After providing almost 20 pages of raw data, no scientific analysis was conducted.