Addendum to August 2011 Environmental and Hydrological Report for the Salt Lakes

RM of Strathclair

Bob Sheedy

March 2012

Contents

Errata

Changes from August 2011 Report

HAE is Height Above Ellipsoid which is a more accurate method introduced since the advent of centimeter accurate GPS. It measures any elevation point on the earth relative to the center of the earth's mass and known satellite orbits. Formerly elevations were determined by measuring the supposed height above Mean Sea Level MSL. Elevations in the 2011 report were in MSL because the elevations set by two know benchmarks were in MSL. The trend now is to move everything to the more accurate method which is accurate to within 2cm, whereas former methods via spirit level and triangulation means were based on an arbitrary ellipsoid.

An example is the Geodetic Survey bolt in the 1918 CPR bridge at the north end of Center Salt Lake which is 569.819 MSL. The exact same elevation in HAE is 546.410 M. or a difference of 23.409m.

All sites measured in this addendum report are in HAE.

Elevations concerning South Salt Lake are based on the elevation of the center of the road intersection located a few meters north of the South Salt Lake outlet culverts, which is 535.317m (within .4 meters accuracy).

All other levels were established with a theodolite - plus or minus the elevation from that point.

Flood Abatement Planning

South Salt Lake

Riley's Marsh

Oak River

During the spring of 2011 South Salt Lake experienced extreme water levels from snow melt from an snowpack with anomalously high moisture content. The scenario was common to those found throughout Manitoba and all three prairie provinces. Much of the ensuring flooding came from the eastern side of the lake through a series of burst beaver dams and through improved drainage work on adjacent farm areas. Further flows passed through the ravine roughly paralleling the west side of Road 128W from as far north as Road 94N. Water passing around the town of Strathclair from areas far to the east of the village are currently directed to intersect that flow and end in South Salt Lake at SE22-16-22. While several locals claimed that flooding arose from increased spring activity, that would be a smaller input since pressure in the aquifer maximized in late June. Such springs would play a part nonetheless throughout all seasons but not at the level claimed in earlier parts of May. Overland flooding aftereffects were photographed, documented and submitted in the August report.

By May 12th, 2011 South Lake had already flooded and damage was occurring via shoreline erosion and physical damage to cottages located on the southernmost extremity.

The greater flooding was yet to come and arrived after June 19th 2011 when Baker's road (Road 94N) overflowed and a channel was opened in the Winstone field (NW22-16-22).

The overflow across Baker's Road and the Winstone field allowed passage of a massive flow through a deep ravine on the Reg and Susan Moffat property and then into South Salt Lake. The water level in South Lake reached 534.877m above the ellipsoid and overflowed Road129W.

Frequent observation did not reveal any downstream overland flooding other than high water levels in Riley's Marsh (an ongoing problem confronting RMs, Strathclair and Blanshard). A study was documented in photographs and video shot throughout spring and summer periods, to gain information for future planning and control with emphasis on the peak period beginning June 20-30th, 2011. The study regarded the entry and exit points of Riley's Marsh, South Salt Lake and the flows down as far as what is locally known as Chappel Seeds, where the reach joins another flow from Shoal Lake.

Considerable controversy has been aroused over the culvert system that drains South Salt Lake, particularly since an application has been forwarded to Manitoba departments of Conservation - Water Stewardship and Environment for a license to construct a controlled drainage system from Center Salt Lake to connect with South Salt Lake. The present culvert configuration involves a 90 cm ribbed plastic unit that is set at 0.98% slope (less than one degree) with the bottom rib on the lake bottom on the east end and less than 20cm above the discharge pool at the west end. A study of the elevation levels around the lake revealed the arrangement to be still less than satisfactory at the end of 2011.

An appropriate culvert at this location is key to any flood plan regarding South Salt Lake and further upstream and downstream to involve Center and North Salt Lakes and the Oak River system.

Considerations for Design of a Flood Control Program for South Salt Lake and Environs

Numerous factors are involved:

- Shoreline erosion
- The Physical Elevation Limitation for entry point of a culvert system to the discharge end
- Silt Entry and Expulsion
- Beach and Cottage Protection and elevations
- Controlled and uncontrolled Inlets
- Preservation of the environmentally sensitive nesting/feeding area immediately adjacent to the discharge of the culvert systems
- Maintenance of lake level for a reasonable reserve in the case of significant precipitation events
- Setting a maximum point where the discharge through the culvert system is at its maximum capacity.
- Cessation of flows in late autumn to prevent ice buildup and damming immediately downstream of the culvert system which could prevent pre-ice out drainage in S. Salt Lake.
- Optimum culvert system design controlled by the various physical elevations involved.
- Prevention or mitigation of overland flooding downstream in the Oak River system
- Design and controlled release program to accommodate flows from Center Salt Lake if trench work is approved and licensed.

Shoreline erosion on South Lake will always exist to some degree. It is a large lake and waves of considerable amplitude can generate during significant weather events, particularly when accompanied by heavy precipitation (Nov. 2010). Over the years a band of soil was exposed and established a well sorted band along the shoreline by the same activity. If a surface can be maintained at that level or below, a great deal of shoreline erosion, particularly that by undercutting and caving, could be mitigated.

Cottage Damage and Protection

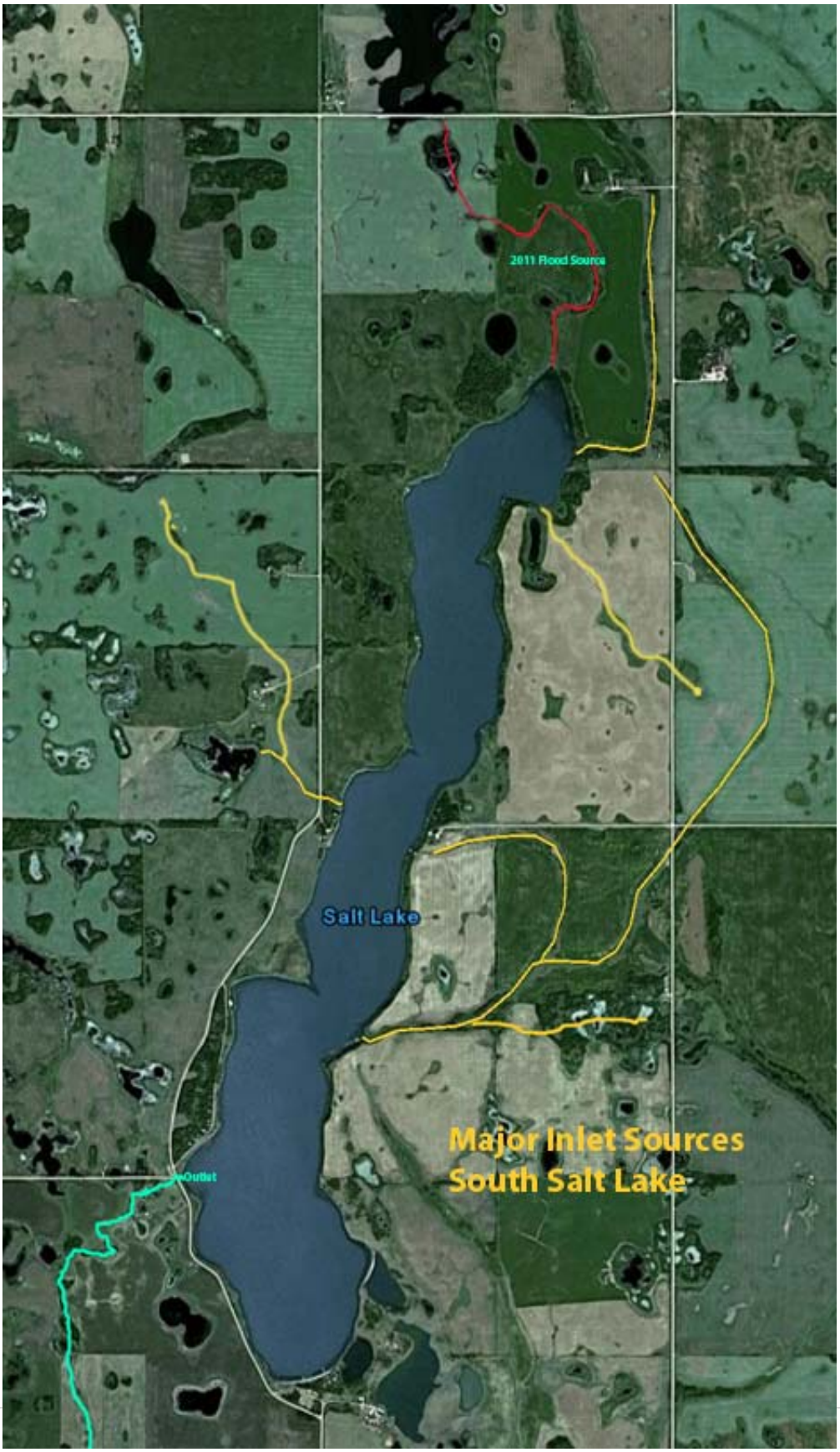
By June 21st, 2011, flooding of South Salt Lake was well underway, but worse was to follow. On or about June 19th, Road 94 N. had been exceeded and an uncontrolled flow had begun into South Salt Lake. Water levels would eventually reach 534.877 m HAE. Several first row cottages would sustain water damage and second-tier cottages were also threatened or nearly so. It would appear that cottages nearer to the lake would benefit by being raised, as some were during their construction, but more importantly an increase in the flows **out of the lake** would benefit such infrastructure. Also, by controlling or delaying inflows from Center Lake (such as submitted in the August 2011 application for penstock and trench to control said flows) would be of great benefit to cottagers located at the south end of the South Lake. Once a reservoir in North and Center Salt Lake is established, spring runoff and or significant rain events could be released in a controlled manner during most appropriate periods.

Reconfiguration of the culvert systems on South Salt Lake

A better configuration in the culvert installation would discharge greater volumes, also in a controlled manner, into Riley's marsh and the Oak River system. The drawdown on South Salt Lake should commence even before ice out, as soon as mild weather prevents ice damming below the discharge at the culverts. Planning would consider the building some capacity in the southern Salt Lake to manage heavier snow melt flows once they peak. Even a decimeter of additional capacity can produce a significant reserve in South Salt Lake because of its dimensions and thus yield some flexibility to handle anomalies in spring runoff and other precipitation events.

The surface area of South Salt Lake is 2,276,685. sq. meters. A decrease in surface level of only .10 meters gives an extra 227,668.5 cu. m. capacity, which is considerable "safety net" and allows time to manipulate water control devices both upstream and downstream for optimum effect.

South Salt Lake - South Beach


2011 Flood Source
Salt Lake
Outlet
Major Inlet Sources
South Salt Lake

A - 534.467 Meters HAE

B - 534.877 Meters HAE

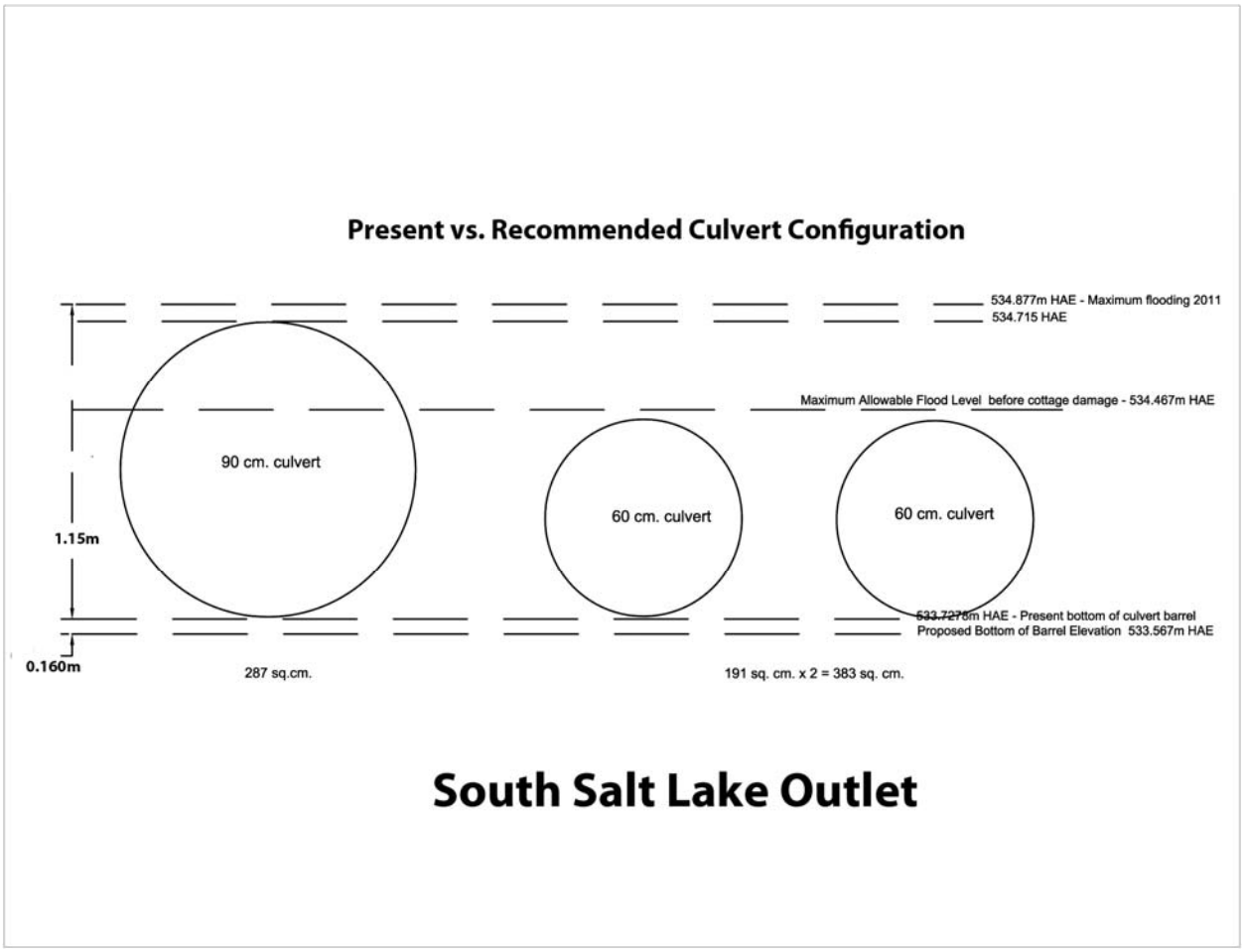
C - 534.467 Meters HAE

Outlet Design

As mentioned previously, culvert configuration and design would be the key to providing best possible flood abatement for South Salt Lake. A few questionable configurations have been tried over the last period of time, but admittedly the flooding of 2011 was a never-before-seen event on South Salt Lake and **any system** would be taxed to the very limit without flood control instituted upstream.

Nonetheless, a study conducted in late 2011 revealed several factors that could be exploited or improved to allow further abatements during subsequent events.

Consider the following CAD graphic.



The 90 cm. culvert on the left depicts the unit presently installed at the South Salt Lake outlet. The two units on the right represent the recommended replacements, 2 units with a barrel size of 60 cm.

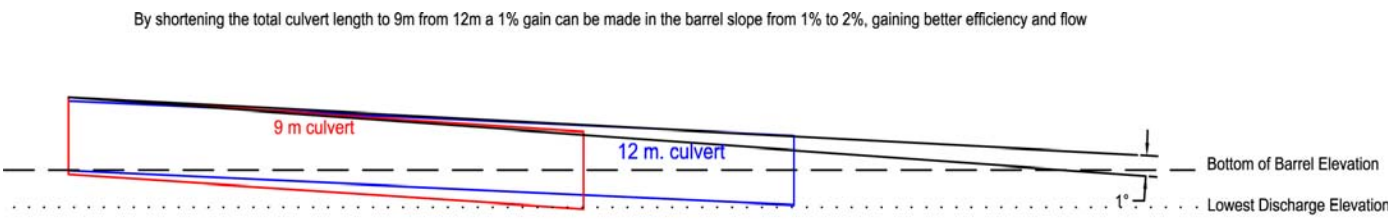
The 90 cm. culvert would attain full draw just under the peak flooding level of 2011 in South Salt Lake. The two 60 cm. units would have reached full draw at a much lower level, while providing a significantly higher volume of outflow because of their combined hydraulic efficiency. The concern would have shifted downstream to Riley's Marsh and beyond to ascertain whether such capacity existed in the Oak River watercourse without overland flooding. Research showed that it did, in 2011, although any future planning must take all of these factors and levels under consideration during each scenario. It is therefore recommended that one of the culverts be fitted with a regulating, guillotine-sliding style valve to allow more precise regulation to meet the varying conditions downstream and in South Salt Lake as well.

Culvert layouts and hydraulic characteristics are quite complex and require some complex formulas to predict accurately how they will perform under any set of variables.

The present 90 cm ribbed, high-impact plastic culvert at South Salt Lake has an outer diameter of 1.08 m and a barrel at 91.44m. It is set at a slope from inlet to outlet of just under one percent. If it had been in place in the spring of 2011 it would have had an area exposure of .6575 sq. meters at full draw. At an average flow of 2 meters/sec it would theoretically pass roughly 33 cu. meters per minute and at 2/3 of its inlet area about 26 cu. m/minute. Even at full draw several of the cottages at the south end of the lake would have been inundated and shoreline damage extensive.

Upon checking our enclosed graphic utilizing two 60cm (24 inch) ribbed, double walled hi-impact plastic culverts would be more efficient and would achieve full draw at the maximum flood control limit of 534.467m HAE. At a similar slope, the two 60 m culverts combined would pass a theoretical 34 cu. m/minute at full draw while set at a level 30 cm lower than the present 90cm unit and within the maximum allowable flood level of 534.467m HAE. Of course, in real world applications, many other mitigating factors reduce the outflow at the discharged and these calculations serve only the purpose of demonstrating the contrast in installations for this report.

In practice, at the south lake outlet, the plan is to lower the inlet end by a further .160m and the discharge by the same amount. Also, the present configuration is a total length of 12.19meters. By reducing the length by cutting 3 meters off one of the culvert segments and modifying the total roadway to 9.14 meters total width, a better slope can be attained to gain the ideal target of a 2% slope which gives a higher water velocity through the barrel. By armoring the scour zone at the discharge end, erosion can be controlled and the hydraulic jump that builds from present scouring could be mitigated or even eliminated.



South Salt Lake Outlet - Culvert Modifications

No change in the width of the actual travelled portion of the roadway would be affected.

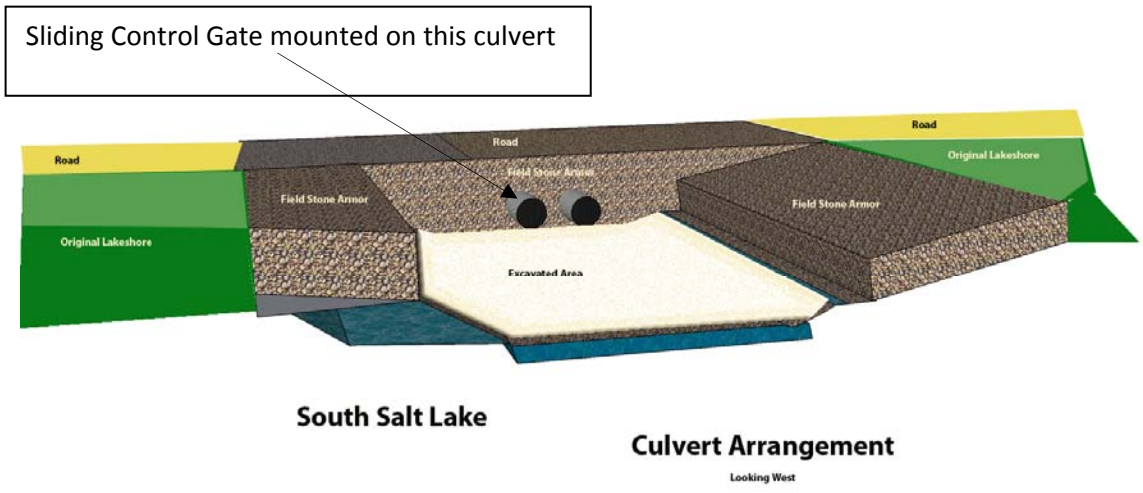
The following 2 graphics reveal the excessive length of former culvert arrangements.

South Salt Lake - East Inlet Side - replaced metal 12m culvert (40 ft.) - now plastic 12m

South Salt Lake - West Discharge Side - replaced 12m culvert (40 ft.) - now plastic 12m

An overview of the Inlet and Discharge of the recommended South Salt Lake Culvert Configuration

Inlet



Discharge

Critical Habitat

A factor to be considered during planning is the effect culvert configurations, future water levels and subsequent drainage will have on the area immediately downstream from the culverts. In spring when water levels are higher this zone becomes an important resting and feeding spot for a variety of migrating and local shorebirds, ducks and other waders. The outwash from the culvert discharge includes hoards of gammarus scuds, snails, water boatmen, chironomids and other insects or crustaceans or basic nutrients for such forage such as protozoa.

During the period in June 2011 when the road immediately south of the culvert was overflowed the rivulets cut into the clay matrix would dam with the bodies of living or dead gammarus scuds of anomalous sizes. In early spring, migratory avian life gathers to feed in the broadened outwash.

The value of this minor ecosystem must be weighted against the landowner's suggestion that a discrete deepened trench be dug downstream to lower elevations to prevent the spread of the outflow . This can be partially accommodated without altering the minor ecosystem. The recommendation is that the

hydraulic jump from the culvert be reduced slightly by .20 to .35m and the scour pond at the base of the discharge be armored on the bottom and flanks as shown in the graphics.

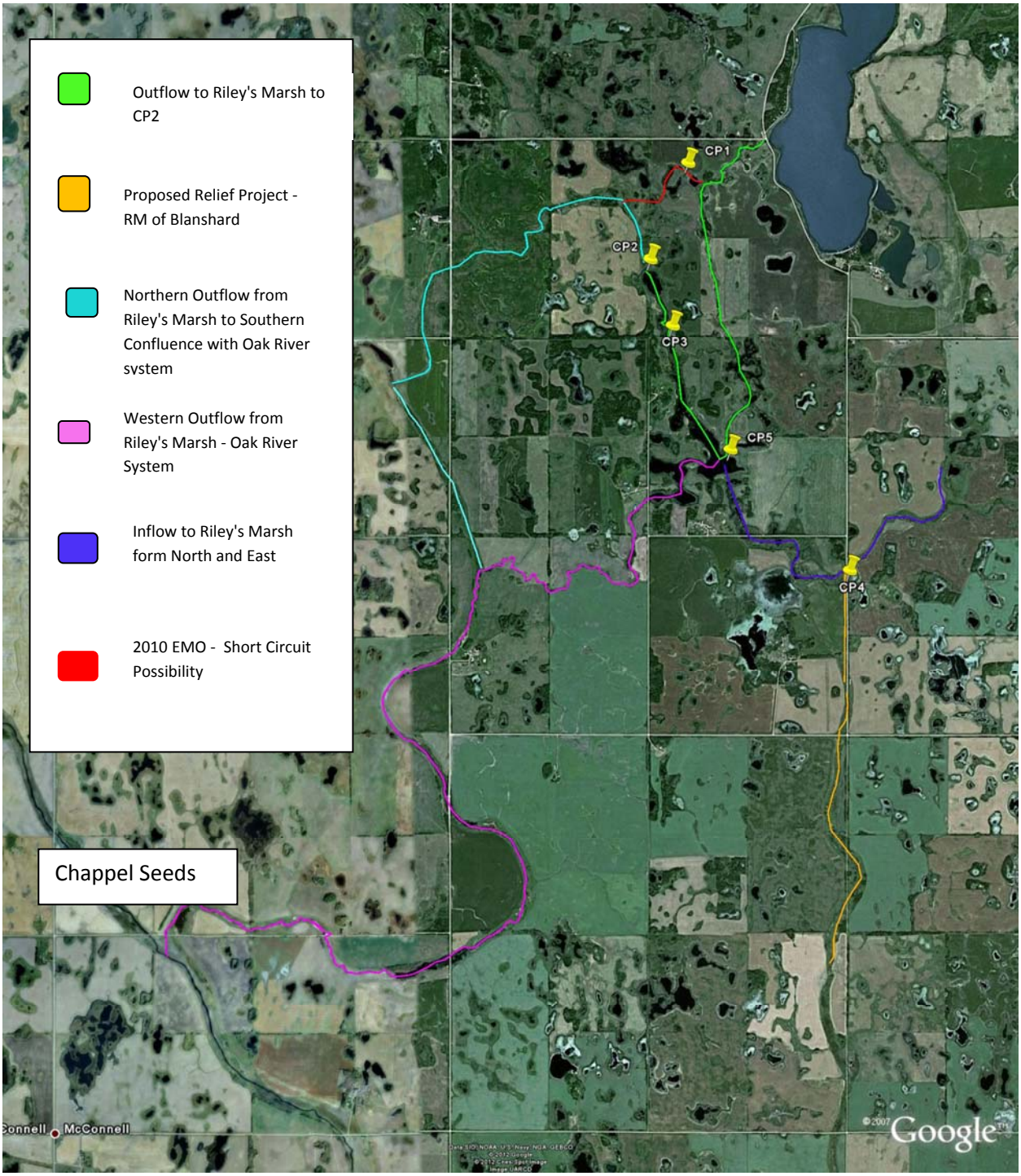
Annual flooding will always prevent this from becoming agricultural land and the sodium, calcium and other compounds formed from the elements in the salt lake system are not conducive to healthy cereal crops or even pasturage.

Locals have expressed their enjoyment of the herons and other avian life that remain until the water dries up in summer. The two intersecting roadways make it a viewing paradise for birders.

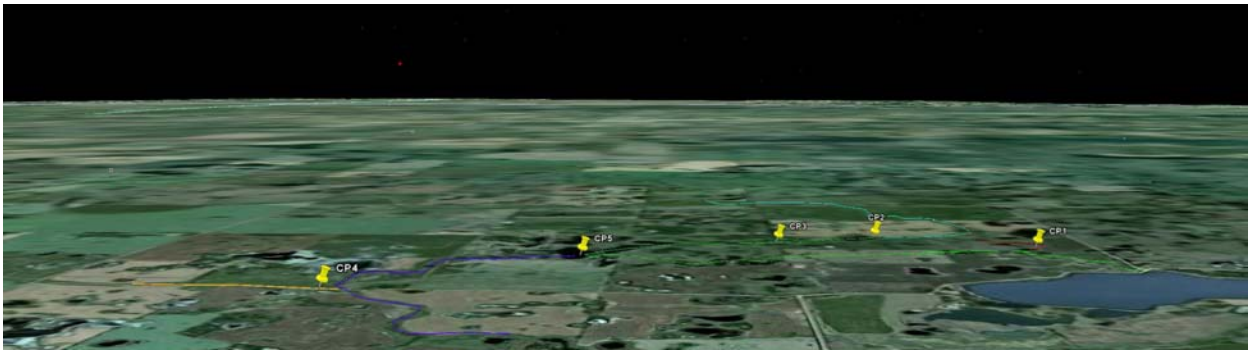
Critical Areas - Flood Planning Issues

Whenever an alteration is made higher in the watershed there are downstream effects. Consequently there are a number of locations and factors that should be addressed when considering a flood abatement plan for South Salt Lake.

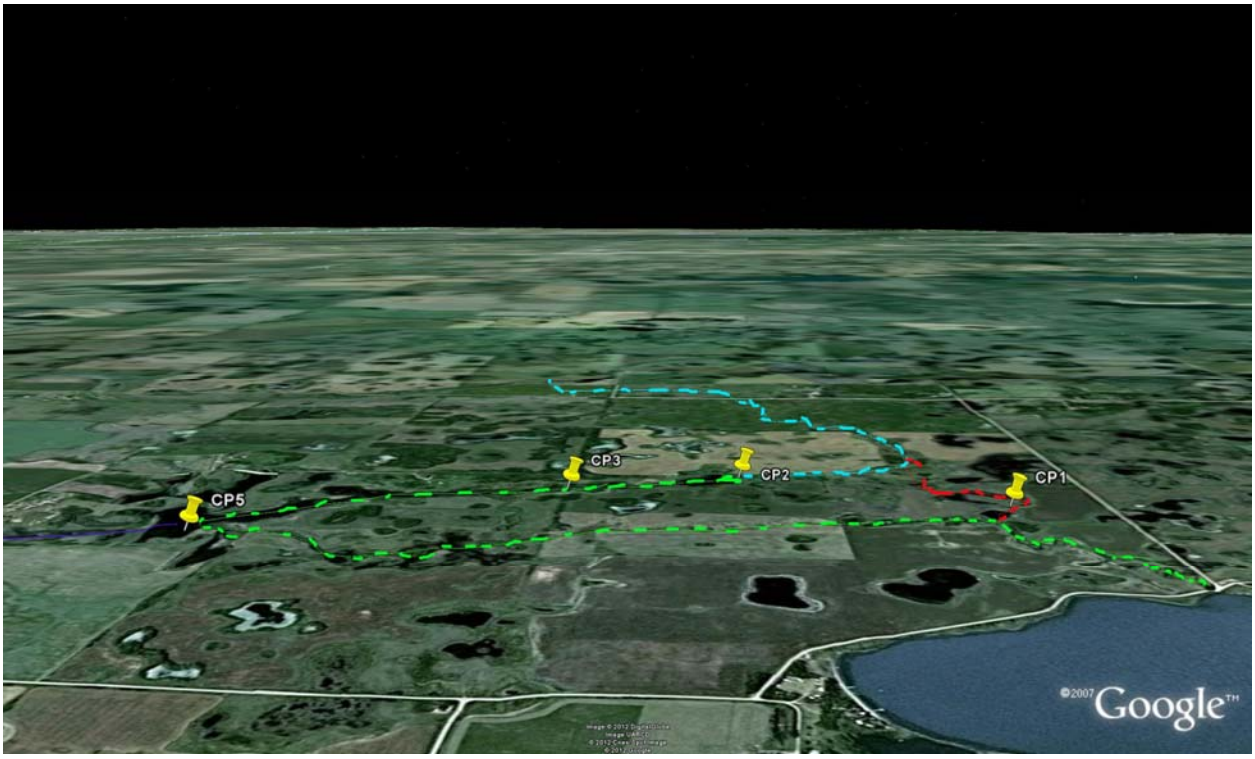
- Possible downstream, overland flooding points
    - locations
    - Prevention
- Effects on Riley's Marsh
    - Salinity Increase
    - Improvements and Mitigation
- Effect on areas downstream from Riley's Marsh
    - Water supply for the City of Brandon - Phosphate Concerns
    - Increase in spring run-off flows at a time when capacity doesn’t exist.
    - Salinity Increases (See compilation of YSI Meter readouts)


Outflow to Riley's Marsh to CP2
Proposed Relief Project - RM of Blanshard
Northern Outflow from Riley's Marsh to Southern Confluence with Oak River system
Western Outflow from Riley's Marsh - Oak River System
Inflow to Riley's Marsh form North and East
2010 EMO - Short Circuit Possibility
Chappel Seeds
CP1
CP2
CP3
CP4
CP5
McConnell
Google

The following graphic(s) depict areas of immediate interest - Looking west from South Salt Lake



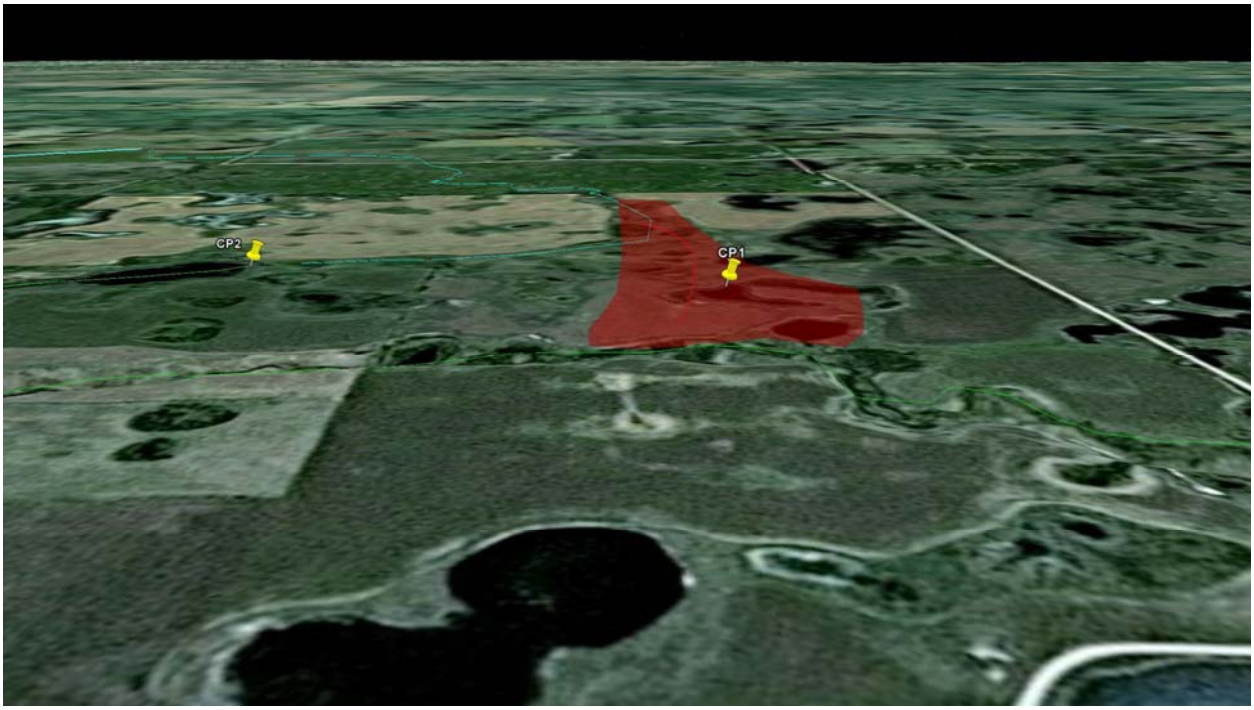
Possible downstream, overland flooding points



Areas CP1-4 and CP5 are areas immediately affected by excessive increase in water volumes from S. Salt Lake and higher in elevation.

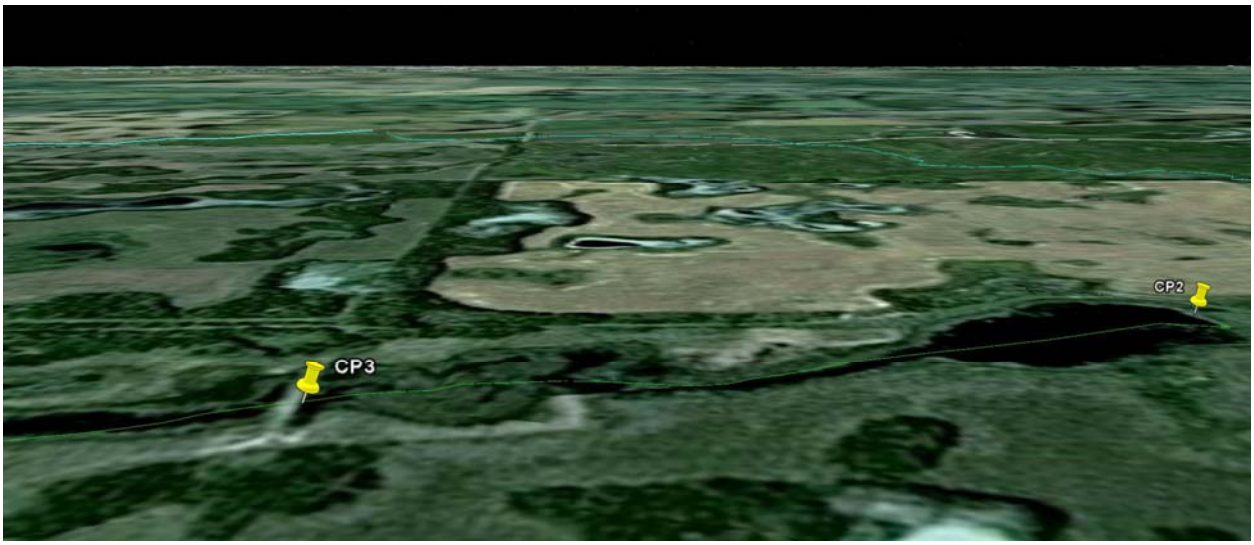
CP1

CP1 - is critical point #1. During the EMO release of 2010 roadway 94N and 129 were deliberately breached to relieve pressure in Center Salt Lake as it rose near to the point of overflowing Road 94N. The water level was dropped approximately 41cm in Center and North Salt Lakes but the flow volume and rate was said to be considerable by locals who witnessed it. One of the spots where overland flooding began was at Critical Point #1, which is an area of low elevation that allowed water to short circuit from the normal flow southerly to Riley's Marsh. Instead of making the circuitous route south and then north from CP5 to CP4 the water flow was impeded from the north and backed up over a very broad area where overland flooding occurred into pasture and crop areas. During a public meeting and afterwards, several of the landowners involved expressed their desire that this never be allowed to reoccur.



A monitoring program **must** be instituted for CP1 during any period of increased flow through the culvert configuration at South Salt Lake outlet. Studies in 2011 carried out during the peak flooding revealed that the water had came near to reforming the breach but did not. By fitting one of the two culverts at S. Salt lake with an adjustable gate then flow can be regulated and the "short circuit" prevented. To some, the route may be advantageous for rapid draining, but in practice the longer route

allows more time for drainage downstream to complete and thereby gain capacity in the Oak River system.



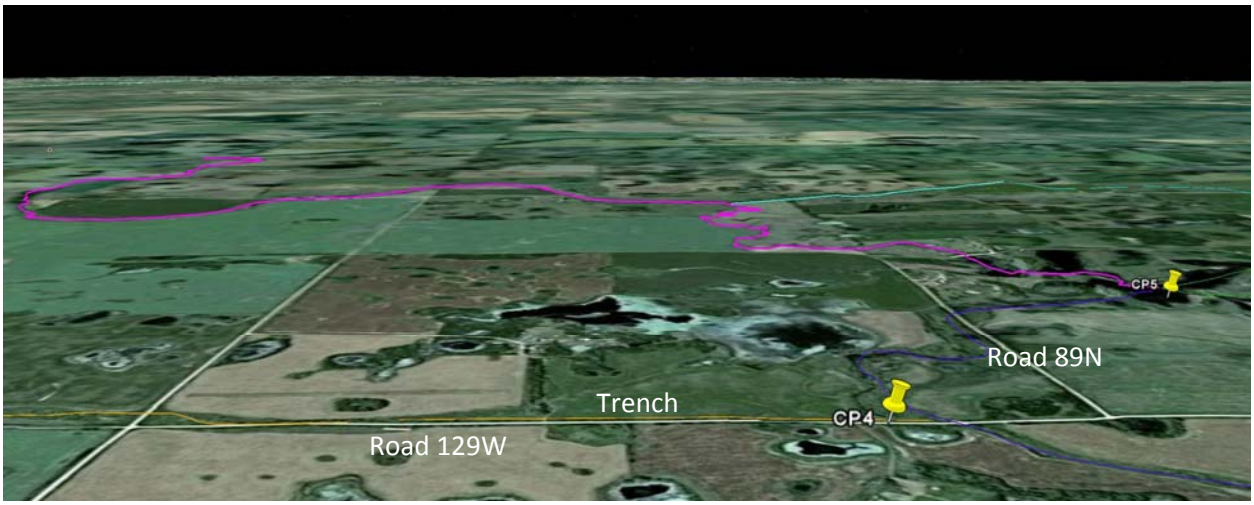
CP2

An application has been approved in principal by Water Stewardship for up to two 90cm culverts be placed in the northern outflow of Riley's marsh at Critical Point #2. At the moment the water simply washes over a unused roadway when it's elevation is exceeded. Proponents of Water Stewardship felt that it would be better to have a culvert system installed in a proper manner. During periods of high water the marsh would benefit from an increased volume since the culverts on roadway 130 West are usually submerged during spring runoff and during other periods of increased flow.

CP3

CP 3 is a raised overland crossing that allows transport to agricultural areas east of Riley's Marsh. It has a 90cm culvert through it's lowest elevation that allows water to flow north to CP2 and into the outflow toward the west and south to another branch of the Oak River system. If two 90cm culverts were approved for the extreme north end of the marsh then a second 90cm culvert would be required to move the same amount of water northward to the outlet.

CP4



CP4

CP is a critical point in a manmade berm spanning the side of Road 129W (NE28-15-22), immediately south of the Oak River reach that crosses the road. If a trench were excavated alongside the road to a point 700 meters south it would allow whatever water that could pass through a 90cm culvert to "bleed off" from waters entering Riley's Marsh from the west. That would allow more spring-time and rain event capacity through Riley's Marsh for flows from South Salt Lake and the ultimate drainage through that portion of the Oak River system. The diverted water would converge in the same ultimate reach as presently but at NW16-14-22, having bypassed the choke point at the marsh. This is the historical route for the system, having been diverted at some time in the past to facilitate the harvesting of hay in the now flooded, low-lying area immediately west of CP4. The original stream bottom can be seen even in this photo. The trench would eliminate disturbance of the hay meadow, pasture land flanking road 129W.

A study and plan was submitted to the RM of Blanshard in 2011 for this project. It's status at the time of preparation of this report is unknown.

CP5

CP5 is the point where all inflows from the north, east and south meet prior to flowing to either of the two outlets, the Riley marsh culverts on Road 129W or to the North end at CP2. Other than being the main body of the marsh it has no further significance.

Strathclair Effluent Lagoon Issues

Strathclair Effluent Lagoon Issues

Strathclair Sewage Lagoons

The operation, location and licensing of sewage lagoons located west of the village of Strathclair have come under focus since higher water in North and Center Salt Lake has allowed flows into South Salt Lake for the past three years. The license for the lagoons was formerly limited to a flow into North Salt Lake whenever fecal coliforms counts were lower than 100 per 100 millileters.

The lagoon system was designed for a population of 400 and for the operation of a school with 170 students and 26 teachers. The consumption design took into consideration at 225 lpcpd (liters per capita per day) and the school at 70 lpcpd. Allowance was also made for trucked sewage of 230 liters per capital per year.

The **License target limitations** were as follows:

BOD5 - <30mg/l

Total Suspended Solids - <30mg/l

Fecal Coliforms - <200 per 100ml

Total Coliforms - 1500 per ml

Ammonia - In accordance with Manitoba Quality Standards, Objectives and Guidelines

In operation a typical release was **43 Fecal Coliforms per litre** in 2011

Improvements were made with the activation of the third cell in 2011.

Further mitigation occurs over the 2540 meters the effluent traverses prior to entry in North Salt Lake. At present no known coliforms count has been recorded at the exit point immediately prior to entering North Salt Lake. A seen in the graphics and photos to follow the count is likely considerably lower than the outflow from the lagoon, due to adsorption by vegetation.

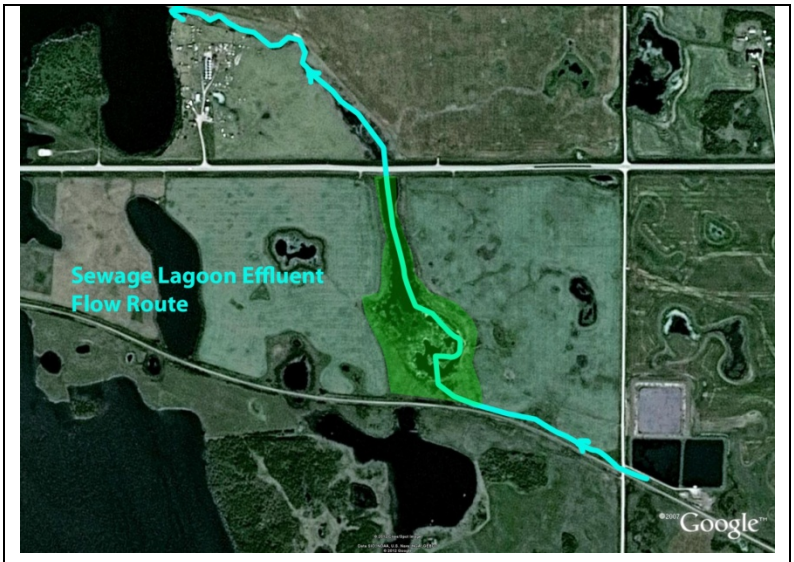
Water flowing from North Salt Lake has entered Center Lake for the past lustrum and nearly exceeded Roadway 94N, located at the south end of the lake, in 2009 and 2010. A 12 day EMO release occurred in 2010 which lowered the water level by 41 cm. The water flowed southward into South Salt Lake in 2009 and again in 2010. In 2011 Roadway 94N was exceeded and an uncontrolled flow continued through the 1st week in July and into August. The water was still flowing in a washed out trench at freeze up in the late autumn of 2011.

The flow will continue to wash out attempts to fill in the trench formed since the flow cannot be stopped after water reaches 545.398m HAE. (See the final article in this report - "**A Caution**").

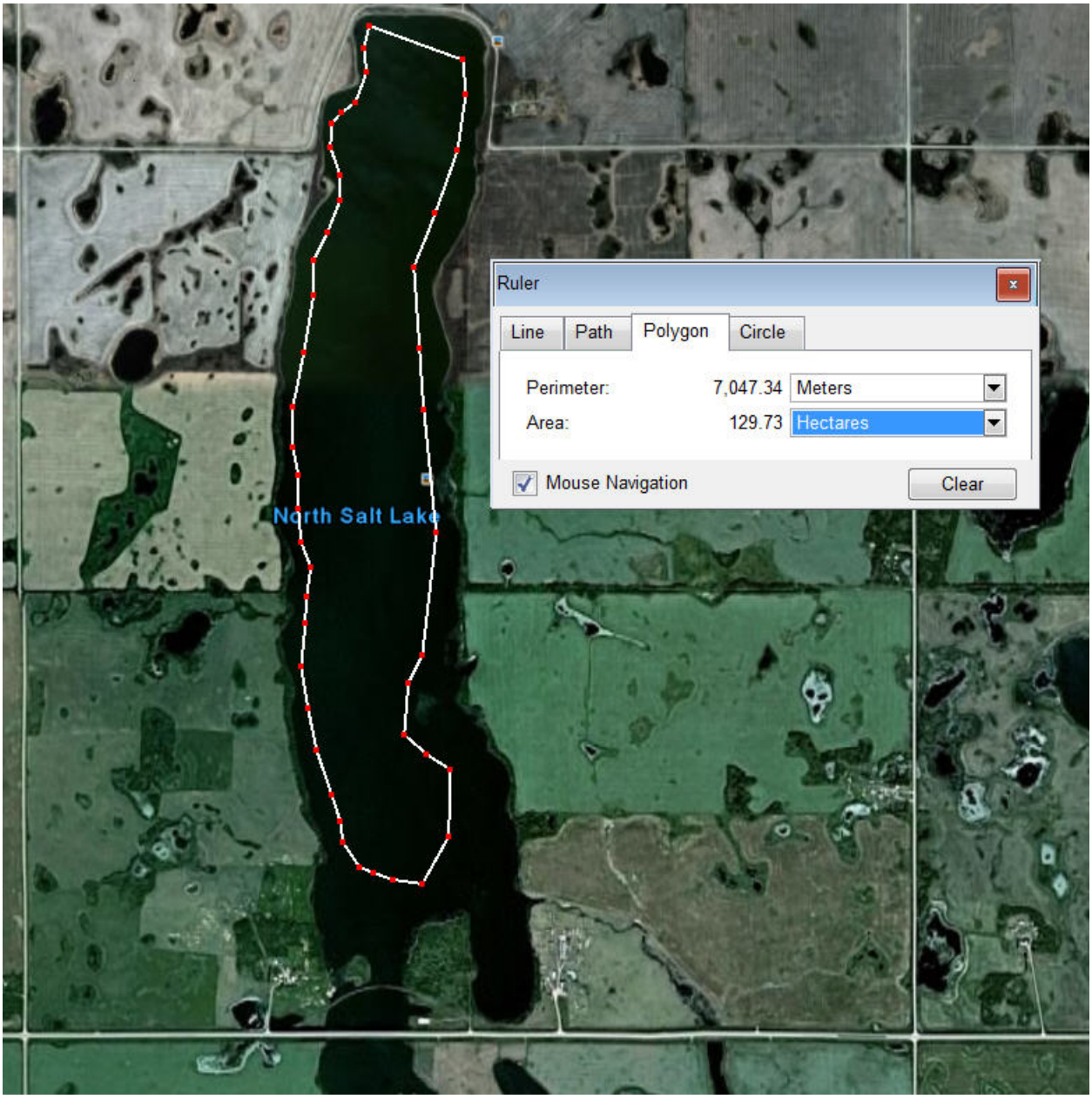
Concerns have been expressed by cottage owners and interested parties downstream from that point regarding the influx of coliforms and other pollutants from the sewage lagoon, decommissioned dump, livestock encroachments, turbidity, salinity and a host of other issues, valid or imagined.

Any change in the licensing of the lagoon is high on the opposition list.

To begin, it is not as though the effluent is released directly via a discrete trench into North Lake. It first flows along the CPR tracks before flowing through multiple channels to into a wetland comprised mainly of hardy sedge grasses where it is entrapped until sufficient volume can pass it under highway 16 and into North Salt Lake. The total route is in excess of 2.5 kilometers and through marshland throughout the entire route. Since the spring release is in mid-June the grasses are active and do much absorption of any nutrients, coliforms or any other absorbable forms. During a autumn release the grasses are mature but still have the ability to retain the flows for further decomposition and absorption prior to exiting at North Salt Lake.



The sewage lagoon effluent flows through a long route through a variety of wetlands and associated vegetation. All coliforms counts would become further degraded prior to reaching the exit point 2.5 kilometers away.



Calculating the working area of the final controlled elevation planning for North Salt Lake requires complex software not readily available to the average reader. For North Lake it involves a volume of approximately 2.1 million cubic meters and the rest of the water in the lake would be basically undisturbed. For the purposes of this report. A "quick and dirty" comparison can be generated by anyone who has access to Google Earth. Above is an outline encompassing only those portions of the lake known to have a greater depth exceeding 3 meters, irrespective of whether any water is ever drained from North Lake through Centre Lake and South Lake to the Oak River system. That portion of the basin alone has a surface area of 130 hectares. The two release cells in the Strathclair lagoons have a

total surface area of 4.27 hectares. Consultations with the operator reveal that the average depth drained that the time of a release would entail two meters of the total depth. The resulting dilution in the North lake, when considering ONLY the portion shown, would be 42 to 1. However the lake holds a greater volume. In dry years, after a release is made through the intended project from Center to South Salt Lake, little if any water would enter Center Lake and none into S. Salt Lake. However, if Center Lake were to reach it's autumn 2010 level of 567.510 MSL (the level in the August report was in MSL, not HAE as stated - an oversight which makes no difference in final working measurements) up to a little over a million cubic meters of water could flow from North Lake to Center Lake and through South lake to the Oak River system. At that point Center Lake and South Lake would both be added to the dilution factor and the ratio would be in excess of 100 to 1 by volume. Exact figures are impossible to compute because of weather conditions, precipitation, residual water after spring run-off, etc. but it would be reasonable to assume that coliform counts would be negligible even in year when no water left North Lake.

Other unknown factors

All three Salt Lakes are well known haunts for migrating geese in both spring and fall migrations but the trend for longer stays definitely figures into the autumn period when geese will remain in the area for up to five weeks (2010 & 2011). The birds feed in nearby fields but rest on the surface of all 3 lakes.

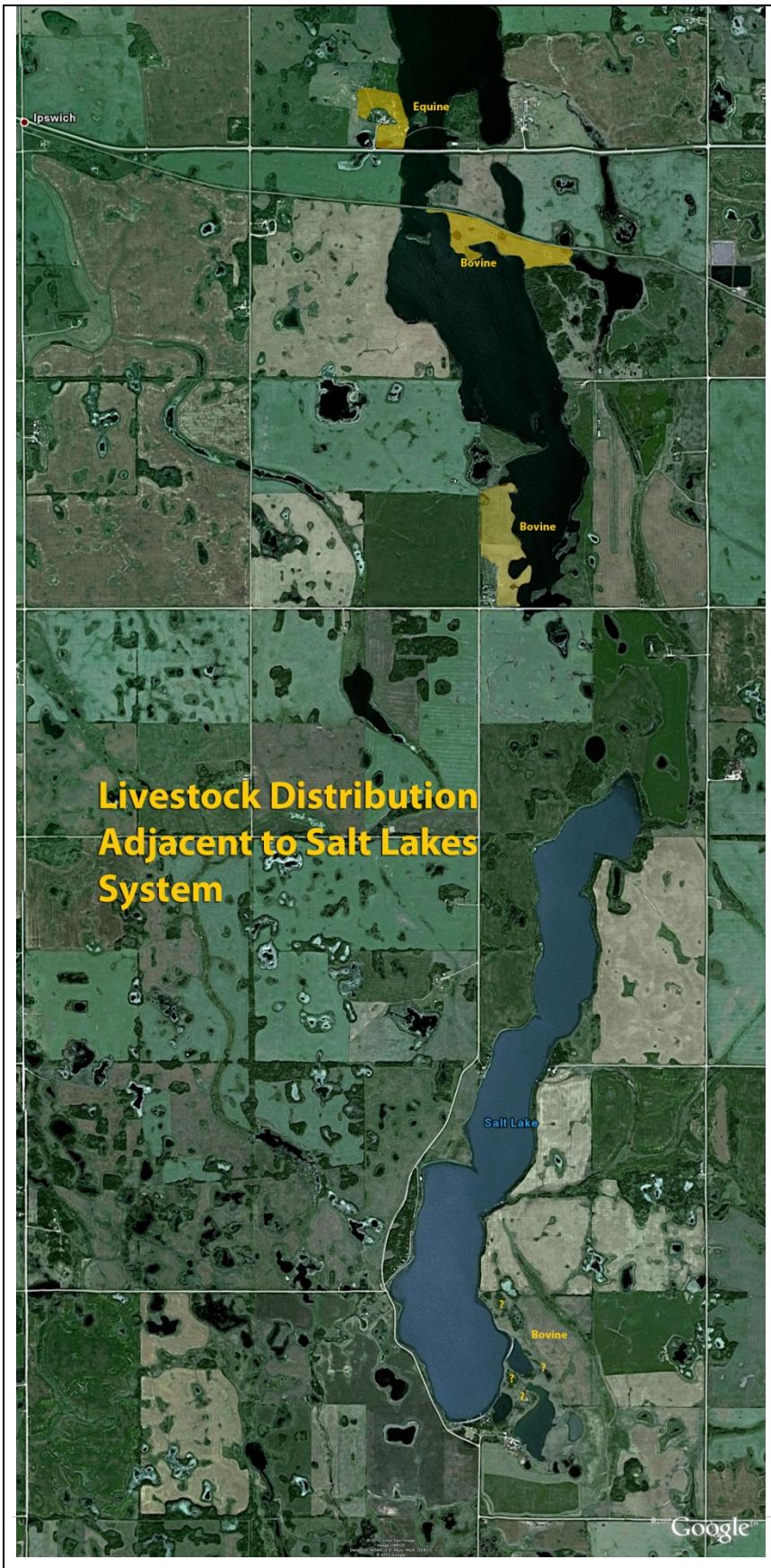
How much feces they drop and the corresponding coliform feces count is unknown but must be factored when trying to evaluate counts in any part of the lakes. Flocks in excess of 500 birds are common and some gatherings near the south end of North Lake can have more than a thousand birds at a time. When doing sonar surveys in 2010 it was necessary to interrupt traverses when the birds flushed from the intended zone to be covered. The air was simply befouled by the smell of their droppings since it is a characteristic for them to excrete upon takeoff, making entry into the area to be covered by sonar impossible for up to a half hour.

In the later part of autumn for the past two years the favorite spot for resting has been the southernmost portion of the South Salt Lake basin, immediately out from the beach. Evaluating accurate fecal coliform counts from such volume of feces against the effects of a release from the Strathclair Sewage Lagoon would be difficult.

Livestock:

Livestock plays a part in the introduction of coliforms into the three salt lakes but is probably not a huge factor, since agriculture in the immediately surrounding watershed is mainly utilized by cereal crops. The accompanying graphic delineates some pasturelands that abut directly against the shores so animals have direct access for drinking purposes. Either Equine of Bovine excrement was noted in all areas

checked, either on the shore or directly into the water. Urine was undoubtedly involved as well but other than direct observation in only one case was there any evidence, other than cows like to lift their tails when taking a drink. The southernmost area long the SW shore of South Salt Lake was not investigated thoroughly but cattle were noticed having direct access to the area some distance east of the beach. The effect and coliforms counts on all three lakes from livestock, like the geese, are known to be present but presently unknown in effect.


Ipswich
Equine
Bovine
Bovine
Livestock Distribution
Adjacent to Salt Lakes
System
Salt Lake
Bovine
Google

Individual Septic Systems:

This report does not include any possible infiltrations from cottage usages on South Salt Lake. Since very few of the cottages have septic systems, little is known regarding disposal of human waste and grey water. Also there is no report known regarding number of days cottagers are present to estimate any given volumes of waste. Soil samples would have to be taken to determine if any seepage has reached the lakeshore and none were taken for this report.

The campground at the south beach has a 100% pump-out structure and a washroom/building has been recently added for purposes to meet the needs of cottagers at the extreme end of south lake.

Other than stating that human feces carries the most dangerous forms of coliforms, nothing else is known or was apprised for this report. We assume that the environmental department for Manitoba Conservation is aware has a handle on it.

Water Quality Issues

Water Quality Issues in this report were derived from:

- Chemical analysis in ALS and Maxxam Laboratories
- Electronic Analysis with a YSI556 Meter
- Direct Biological Observation

Water Quality Issues

Of Note:

Of all issues encountered when investigating and reporting on The three Salt Lakes near Strathclair, Manitoba, water quality, particularly by the movement of water from North and Center Salt Lakes though South Salt Lake, were paramount. There appears to be a split between their elected representatives at the Rural Municipal level and that of some rate payers who own property, cottages or involvement as some other level. Several suggested openly that since the RM was paying for the Environmental Assessment that any disinterested third party would be partial to those desiring to transfer water. Sufficient to say that I, Robert Sheedy, author of this report can be hired. I cannot be bought. Period.

Upon my hiring in August 2011 the RM personnel were advised as such and at no point have asked for any reduction or alteration of any finding nor have they interfered in any manner on any matter.

When both factions were invited during a public meeting to present their science to back their anecdotal "evidence", only the RM has anything concrete to offer in the form of 3 water samples, one from each lake and processed by the ALS Laboratory.

The Results:

The RM samples were not included in the original work of August 2011 since the chain of custody was "unacceptable" to those opposed to any drainage plan. At the request of Mr. Bruce Webb, Manitoba Environment, they are included and compared against the new Manitoba Water Quality values with any contamination duly reported at the end of this report.

The analysis of three samples taken by RM personnel in 2009 and processed by the ALS laboratory are now included in this updated report and by the nature of the results demonstrate that no tampering was done in any manner. They are valid.

A further three samples were taken in 2010 and processed at the government approved Maxxum Lab, who performed the standard Manitoba test.

The location of the samples taken by RM personnel and by Robert Sheedy are shown on the attached map.

The results are included in the attached forms and compared to the required values for those stated in ***Water Quality Standards, Objectives and Guidelines Regulation under The Water Protection Act for the Province of Manitoba.***

The stated values are for:

- *Surface or Ground water - Drinking*
- *Surface Water: Freshwater Aquatic Life -(if stated)*
- *Surface or Ground Water Irrigation - (if stated)*
- *Surface or Ground Water: Livestock - 9if stated)*
- *Where applicable Surface Water: Recreation is reported when values are published.*

The Manitoba guidelines do not always set values for every reported element and in many cases only the Canadian Guidelines for drinking water were available. Since the human element is not involved and no one will use salt water for irrigation practices the deciding factor became whether the water would be fit for livestock watering.

In no cases is the water in any of the three lakes considered fit for direct human drinking water consumption because of the large numbers of waterfowl that frequent the water bodies and other organics, turbidity, etc. In almost all cases, however, the samples pass the requirements for livestock and or irrigation usages. In some samples, the values for aluminum, arsenic, manganese and other metals are typical and preclude the direct use of drinking the water for human consumption.

On the other hand these are ***"salt lakes"*** which appear to have interaction with underlying rock strata and considerable evaporation concentration, so elements such as sodium, calcium, aluminum and naturally occurring elements can be expected to exceed what might be considered as "tap water". Such elements are shown in Red in the left column of the breakdown on each of the 7 test samples in any of the maximum allowable are exceeded.

pH and turbidity would also be expected to be high as in all samples.

South and Center Salt Lake have highest sulphate readings. Both lakes have been used for decades when watering livestock with no reported ill effects but it is worthy to note that neither are within the latest published guidelines for sulphates. North Salt Lake sulphate readings are within the parameters set for livestock by the Manitoba guidelines.

It is worth noting that not all elements were tested, particularly in the Maxxum Lab tests of 2010, and those that were not are left blank.

Both the 2009 and 2010 samples for Center Salt Lake were taken in the immediate proximity to the abandoned landfill site just east of the Strathclair airport.

Water Quality Standards, Objectives and Guidelines Regulation under The Water Protection Act for the Province of Manitoba list several other elements and chemicals, shown in the list that have never been examined in any sample to date.

The results for each individual element or compound is gauged and recorded as blank, green red or yellow.

Green means the item passed even for drinking water.

Red means it failed in at least one category. if it is still fit for livestock watering purposes, according to the Manitoba Guidelines it will be commented upon. Some items are not recorded for livestock purposes in any guides including the Canadian Guides that only handle drinking water. In that case the allowance is either made or noted otherwise.

Yellow means about the same, meaning it almost qualified as drinking water.

Blank means that nothing is known in any formal guide.

An examination can see that only **sulphates** present a problem being near or over limit in two cases.

Since no farmer would use salt water for irrigation and the water is safe for recreational use then it is up to the individual farmer to decide whether to allow his or her cattle to drink directly from the lake.

Although there have been no problems reported by those who allow their livestock access to any of the lakes in question, for best health, livestock should be watered off the shores of the lake at some suitable source.

What Lives in the Water

Chemical analysis is the standard and accepted way to evaluate water quality. Critical compounds and elements can be delineated if all known are analyzed.

There are other means available as well.

We can examine what lives in the water and gauge water quality by species and their abundance.

- An example would be when collecting the water samples in 2010. Extreme difficulty was had to get samples that didn't contain the species, Daphnia (water fleas). They are sensitive to pesticides and they were found swarming near the abandoned dump. The biological method immediately precluded the presence and infiltration of most known pesticides from the abandoned landfill.
- When doing the sonar studies for the lakes to get volumes and configurations, large schools of minnows were encountered and visibly viewed again in rivulets running into Center and North Salt Lakes. Fathead minnows are especially sensitive to pesticides and five-spine stickle backs less so. Both are present in all three lakes and in large numbers.
- Double-crested cormorants were photographed "fishing" on South Salt Lake. They will predate minnows but prefer larger piscatorial specimens.
- All three lakes are home to vast numbers of gammarus scuds, amphipods better known as "fresh-water shrimp". When water was flowing across Baker's Road (94N) and Road 129W (at the culvert on South Salt Lake) the species dammed the flow in places with their numbers.
- One northern pike and one yellow perch were seen in the trench that washed out in the Winstone field at NW22-16-22.
- Surprising numbers of 40 or more gathered at the culvert outwash scour at South Salt Lake, attracting numerous herons
- The chironomid hatches on all three lakes were very heavy with South Salt Lake hosting the most notable. Some long-time residents interviewed were puzzled by the sudden presence and increase. The heavy flows of fresh water through all three lakes are simply creating better conditions for such basic life-forms.
- Loons are fish eaters but are present on all three lakes. Larger fish must be present to attract them
- Anomalous populations Backswimmers and Water Boatmen were observed in all three lakes and are a result of the increase in more basic life-forms and changes in water quality.

While increased flows of fresh water have been introduced over the past three wet seasons and 2011 in particular, little damage has occurred to the wildlife, whether aquatic or avian. Such observations are in keeping with the results from the chemical samples.

There can be no doubt that a salinity increase will be found downstream, especially in Riley's marsh and into reaches further downstream, but it has not discouraged fish from making the trip upstream into the increased current. Such introductions and reactions are typical for increased flows in and through all prairie water bodies, stillwater or flowing.

From a visible biological point of view the waters in all three lakes were known to be relatively free of pollutants as early as September 2011.

A Caution:

The Strathclair lakes involved in this report are 3 in number plus Jeramas Marsh that is the termination point for the flows from Nip Creek, which drains a large area South and East of the North Salt Lake. During historic periods, Jeramas Marsh contained most of the spring melt and whatever overflowed was contained in North Salt Lake. Center Salt Lake consisted of a series of salty ponds which only connected for short periods during significant weather events or increased snow melt flows. Generally, the water in Center Lake evaporated due to its shallow nature, which explains the higher sulphate and other salts in the chemical analysis. According to interviews with locals, in drier periods, a north wind would blow salt through the air and across Road 94 to the point where driving visibility was impeded.

Since 2005, when a significant rain event flooded the village of Strathclair, water has been diverted to North Salt Lake and into Center Lake. Each year in the wet cycle allowed the water to rise until in 2009 when an EMO release was made to lower the levels in both northern lakes. Another EMO in 2010 lowered the water level again by 41 cm, through a trench into a ravine on the Moffat property and then into and through South Salt Lake. The trench WAS closed by Ken Lamb Construction as per order and the author of this report walked it several times in 2010. There appears to be some controversy regarding the filling operation, since the trench "reappeared" in 2012.

However, the real problem revolves around the erroneous belief that filling ***any*** trench will stop the water flowing southward to South Salt Lake. There is a critical point in the Winstone field (NW22-16-22) which will allow flow to commence whether a trench is available or not. If a trench is unavailable, the flow will cut its own channel, just as in did in May 2012. Raising the level of that critical point by filling the trench area to a higher elevation simply delays the inevitable.

Any and all attempts to stop the flow through the field are doomed because water seeks its own level, a simple hydrological fact. Water levels in north and Center Salt Lake are **NOT** controlled by Baker's Road (Road 94N). The ultimate level is controlled by the level of **Jeramas Marsh,** the highest entry point from Nip Creek. The empirical point is that the elevation of Jeramas marsh is nearly two-thirds of a meter higher than the critical point in the field.

Attempting to contain the water at the critical point would require raising the water level over Highway 16 by roughly 1/3 of a meter. Rail traffic across the CPR bridge would be seriously threatened if allowed at all. Even then Nip Creek would ultimately continue to flood the ensuing basin until it reaches some unknown elevation.

It is time for all parties involved to face the real issue. The water in center lake ***must*** be allowed to flow southward through South Salt Lake and into the Oak River system.

There are only two choices available.

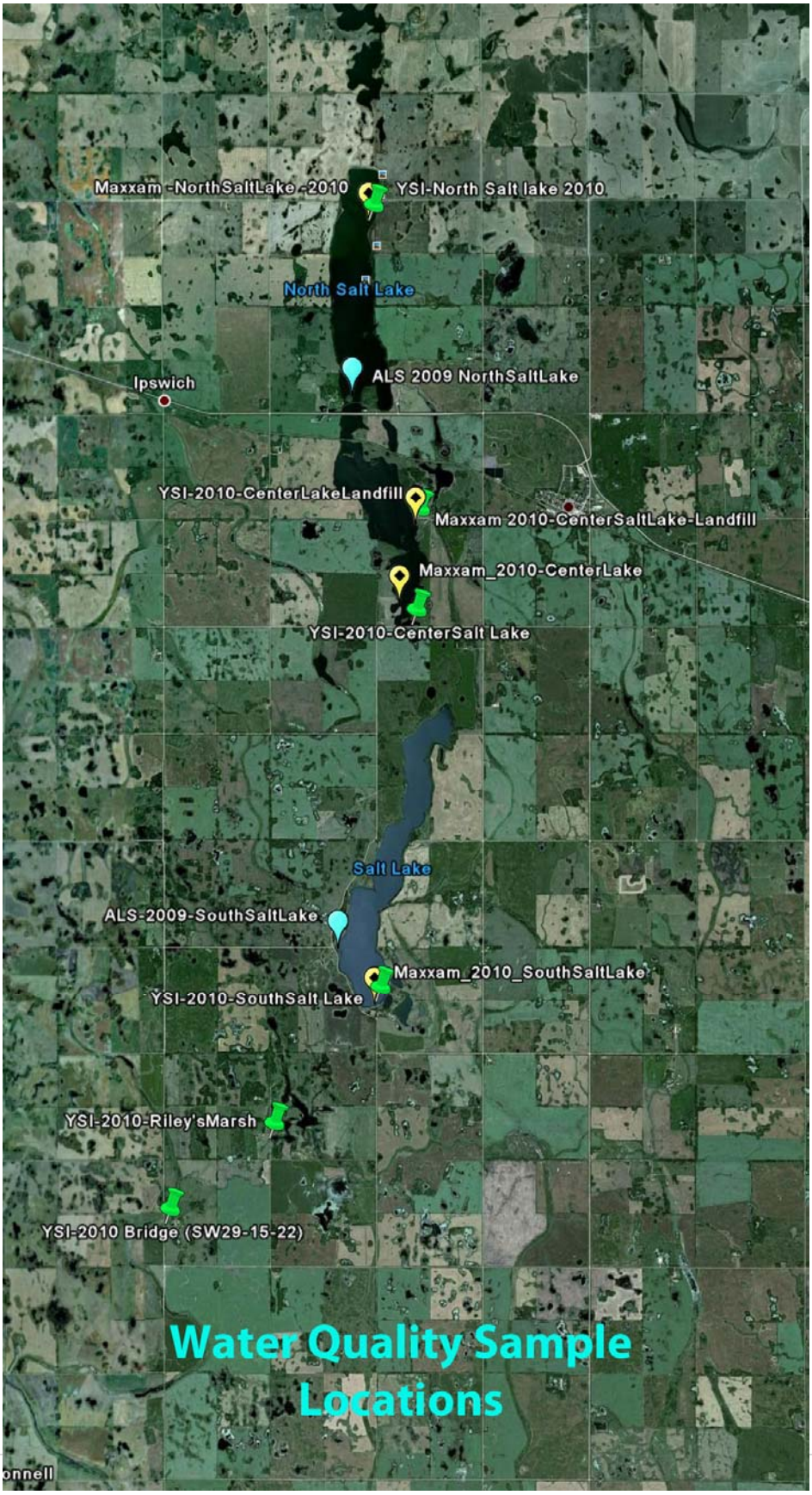
1. Uncontrolled flows such as occurred in 2012

2. Excavate a proper trench with the proper water control devices and erosion controls as outlined in the August 2011 section of this report and then begin to use the two northern salt lakes as a regulated reservoir to contain future flows until they can be released without overland flooding or related shoreline and structural damages. During periods of anomalous precipitation, the reservoir scenario could be further improved as well, by diverting some of the current flows into north and center lakes into other reaches of the Oak River system, if a comprehensive watershed/drainage/flood control management were implemented.

In any case the water will flow

Water Quality Analysis Results

1. Location of Sample Sites
2. Chemical Analysis
3. Electronic Analysis with a YSI 556 Meter


Maxxam -NorthSaltLake -2010
YSI-North Salt lake 2010
North Salt Lake
ALS 2009 NorthSaltLake
Ipswich
YSI-2010-CenterLakeLandfill
Maxxam 2010-CenterSaltLake-Landfill
Maxxam_2010-CenterLake
YSI-2010-CenterSalt Lake
Salt Lake
ALS-2009-SouthSaltLake
Maxxam_2010_SouthSaltLake
YSI-2010-SouthSalt Lake
YSI-2010-Riley'sMarsh
YSI-2010 Bridge (SW29-15-22)
Water Quality Sample Locations

Sample Identification: **NORTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS073**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Acenaphthene [See Polycyclic aromatic hydrocarbons]								
Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
Acridine [See Polycyclic aromatic hydrocarbons]								
Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
Aldrin + Dieldrin		0.7 µg/L						
Alkalinity								
Alkalinity, Total (as CaCO3)	114 mg/L	Typical Salt Lake Values						Livestock Safe
Bicarbonate (HCO3)	136 mg/L	Typical Salt Lake Values						Livestock Safe
Carbonate (CO3)	1.44 mg/L	Typical Salt Lake Values						Livestock Safe
Hydroxide (OH)	<0.40 mg/L	Typical Salt Lake Values						Livestock Safe
Alachlor								
Aluminum	**0.0783 mg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		
Ammonia	0.0580 mg/L							Passes Tier 2 - Equation 8
Aniline				2.2 µg/L				
Anthracene [See Polycyclic aromatic hydrocarbons]								
Antimony	**<0.00020 mg/L**	6 µg/L						Livestock Safe
Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
Arsenic	**0.00244 mg/L**	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
Atrazine and metabolites	**<0.10 µg/L**	5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		Livestock Safe
Azinphos-methyl		20 µg/L						
Barium	**0.0193 mg/L**	1000 µg/L						Livestock Safe
Bendiocarb		40 µg/L						
Benomyl	<0.10 µg/L							Livestock Safe
Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
Benzene		5 µg/L		370 µg/L				
Beryllium	<0.00020 mg/L							Livestock Safe
Biochemical Oxygen Demand	5.0 mg/L							Livestock Safe

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Bismuth	<0.00020 mg/L							Livestock Safe
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
Boron	**0.143 mg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term exposure	500-6000 µg/L (crop dependent)	5000 µg/L		Livestock Safe
Bromacil	**<0.10 µg/L**			5 µg/L	0.2 µg/L	1100 µg/L		Livestock Safe
Bromate		10 µg/L						
Bromoxynil	**<0.020 µg/L**	5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
Cadmium	**0.000014 mg/L**	5 µg/L			5.1 µg/L	80 µg/L		
Calcium	26.3 mg/L					1,000,000 µg/L		Livestock Safe
Captan				1.3 µg/L		13 µg/L		
Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
Carbofuran	**<0.20 µg/L**	90 µg/L		1.8 µg/L		45 µg/L		
Carbon	44.5 mg/L							Livestock Safe
Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
Carboxin	<0.20 µg/L							Livestock Safe
Cesium-137 (137Cs)	**<0.00010 mg/L**	10 Bq/L						
Chloramines [See Reactive Chlorine]								
Chlordane	<0.010 µg/L							Livestock Safe
Chloride	**40.5 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				Livestock Safe
Chlorinated benzenes								
Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				

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Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
1,3-Dichlorobenzene				150 µg/L				
1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
1,2,3-Trichlorobenzene				8.0 µg/L				
1,2,4-Trichlorobenzene				24 µg/L				
1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
Pentachlorobenzene				6.0 µg/L				
Hexachlorobenzene						0.52 µg/L		
Chlorinated ethanes								
1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
1,1,1-Trichloroethane [see DDT]								
Chlorinated ethenes								
Monochloroethane (Vinyl Chloride)		2 µg/L						
1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
Chlorinated methanes [See Halogenated methanes]								
Chlorinated phenols								
Monochlorophenol				7 µg/L				
Dichlorophenol				0.2 µg/L				
2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
Trichlorophenol				18 µg/L				
2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
Tetrachlorophenol				1 µg/L				
2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
Pentachlorophenol (PCP)	**0.027 µg/L**	60 µg/L	≤30 µg/L	0.5 µg/L				
Chlorine, Reactive [See Reactive Chlorine]								
Chloroform [See Halogenated methanes; Trichloromethane]								
4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
Chlorophyll-a & Pheophytin-a								
Chlorophyll-a	40.5 µg/L							Livestock Safe

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Phaeophytin a	11.2 µg/L							Livestock Safe
ODb/ODa	1.5 ABS Ratio							Livestock Safe
Chlorothalonil	**<0.060 µg/L**			0.18 µg/L	5.8 µg/L	170 µg/L		
Chlorpyrifos		90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term exposure		24 µg/L		
Chromium	**<0.0010 mg/L**	50 µg/L			4.9 µg/L	50 µg/L		
Chromium (III)								
Chromium (VI)	**<0.010 mg/L**				8 µg/L	50 µg/L		Livestock Safe
Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Cobalt	**0.00060 mg/L**				50 µg/L	1000 µg/L		
Coliforms, Fecal								
Coliforms, Total		0 per 100 mL		1000 per 100 mL				
Colour			≤15 TCU					
Copper	**<0.0010 mg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
Cyanide		200 µg/L						
2,4-D (See 2,4-Dichlorophenoxyacetic acid)								
DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
DDT, Total (sum of DDE, DDD, DDT)								
Deltamethrin	**<0.040 µg/L**			0.0004 µg/L		2.5 µg/L		Livestock Safe
Diazinon	**<0.030 µg/L**	20 µg/L						

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Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Dibromochloromethane [See Halogenated methanes]								
Di-*n* -butyl phthalate [See Phthalate esters]								
Dicamba	**<0.0060 µg/L**	120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
Dichlorobenzene [See Chlorinated benzenes]								
Dichlorobromomethane [See Halogenated methanes]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
Dichloroethane [See Chlorinated ethanes]								
Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
Dichloromethane [See Halogenated methanes]								
Dichlorophenol [See Chlorinated phenols]								
2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
Diclofop-methyl	**<0.10 µg/L**	9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
Didecyl dimethyl ammonium chloride [See DDAC]								
Dieldrin								
Dieldrin + Aldrin [See Aldrin + Dieldrin]								
Di(2-ethylhexyl) phthalate [See Phthalate esters]								
Diisopropanolamine				1,600 µg/L	2000 µg/L			
Dimethoate	**<0.10 µg/L**	20 µg/L		6.2 µg/L		3 µg/L		
Di-n-butyl phthalate [See Phthalate esters]								
Dinoseb	**<0.050 µg/L**	10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		

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Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								
Diphenyl dichloro ethylene [See DDE]								
Diquat		70 µg/L						
Dissolved oxygen [See Oxygen, Dissolved]								
Dissolved solids [See Total dissolved solids]	1260 mg/L							Livestock Safe
Diuron	**<0.018 µg/L**	150 µg/L						
Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
Endrin								
Eptam	<0.20 µg/L							Livestock Safe
Ethalfluralin	<0.020 µg/L							Livestock Safe
Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
Ethylene glycol [See Glycols]								
Fecal coliforms [See Coliforms, fecal]								
Fenoxaprop	<0.10 µg/L							Livestock Safe
Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
Inorganic fluorides				0.12 µg/L				
Glycols								
Ethylene glycol				192,000 µg/L				
Propylene glycol				500,000 µg/L				
Glyphosate	**<0.20 µg/L**	280 µg/L		65 µg/L		280 µg/L		
Halogenated methanes								
Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
Trichloromethane [Chloroform]				1.8 µg/L				

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Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		
Tribromomethane (Bromoform)						100 µg/L		
Dichlorobromomethane						100 µg/L		
Dibromochloromethane						100 µg/L		
Trihalomethanes-total (THMs)		100 µg/L						
HCBD [See Hexachlorobutadiene]								
Heptachlor (Heptachlor epoxide)								
Hexachlorobenzene [See Chlorinated benzenes]								
Hexachlorobutadiene [HCBD]				1.3 µg/L				
Hexachlorocyclohexane [See Lindane]								
Hypochlorous acid [See Reactive chlorine species]								
Imazamethabenz	0.113 µg/L							Livestock Safe
Imidacloprid				0.23 µg/L				
Iodine-131 (^{131}I)		6 Bq/L						
3-Iodo-2-propynyl butyl carbamate [See IPBC]								
IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
Iron	**0.114 mg/L**		≤300 µg/L	300 µg/L	5000 µg/L			
Lead	**0.000211 mg/L**	10 µg/L			200 µg/L	100 µg/L		
Lead-210 (^{210}Pb)		0.2 Bq/L						
Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
Linuron				7.0 µg/L	0.071 µg/L			
Lithium	0.156 mg/L				2500 µg/L			Livestock Safe
Malathion	**<0.10 µg/L**	190 µg/L						
Magnesium	61.3 mg/L							Livestock Safe
Manganese	**0.0607 mg/L**		≤50 µg/L		200 µg/L			Livestock Safe
MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]	**<0.025 µg/L**			2.6 µg/L	0.025 µg/L	25 µg/L		
Mecoprop	<0.050 µg/L							

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Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**	
Mercury		1 µg/L				3 µg/L			
Inorganic Mercury				0.026 µg/L					
Methoprene				0.09 µg/L					
Methylmercury				0.004 µg/L					
Methoxychlor	**<0.010 µg/L**	900 µg/L							
Methylene chloride [See Halogenated methanes, Dichloromethane]									
2-Methyl-4-chloro phenoxy acetic acid [See MCPA]	0.025 µg/L							Livestock Safe	
Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L					
2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]									
Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L			
Metribuzin	**<0.20 µg/L**	80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L			
Metsulfuron-methyl	<0.10 µg/L							Livestock Safe	
Microcystin LR		1.5 µg/L							
Molybdenum	**0.00107 mg/L**			73 µg/L	10-50 µg/L	500 µg/L			
Monochloramine [See Reactive chlorine species]									
Monochlorobenzene [See Chlorinated benzenes]									
Monochlorophenol [See Chlorinated phenols]									
Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]									
Nickel	**<0.0020 mg/L**				200 µg/L	1000 µg/L			
Nitrate (as N)		10,000 µg/L		13,000 µg/L					
Nitrate + Nitrite	0.203 mg/L					100,000 µg/L		Livestock Safe	
Nitrilotriacetic acid [NTA]		400 µg/L							
Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L			
Nitrite + Nitrate [See Nitrate + Nitrite]									
Nonylphenol and its ethoxylates				1.0 µg/L					
NTA [See Nitrilotriacetic acid]									
Organotins									

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Tributyltin				0.008 µg/L		250 µg/L		
Tricyclohexyltin						250 µg/L		
Triphenyltin				0.022 µg/L		820 µg/L		
Ortho Phosphorus Soluble As P	0.408 mg/L							Livestock Safe
Oxygen, Dissolved								
PAHs [See Polycyclic aromatic hydrocarbons]								
Paraquat (as dichloride)		10 µg/L						
Parathion		50 µg/L						
PCBs [See Polychlorinated biphenyls (PCBs)]								
PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
PCP [See Chlorinated phenols, Pentachlorophenol]								
Pentachlorobenzene [See Chlorinated benzenes]								
Pentachlorophenol [See Chlorinated phenols (PCP)]	0.027 µg/L							Livestock Safe
Permithrin				0.004 µg/L				
pH	**8.33 PH Units**		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Phenols				4 µg/L		2 µg/L		
Phenoxy herbicides				4 µg/L		100 µg/L		
Phorate		2 µg/L						
Phosphorus	0.662 mg/L							Livestock Safe
Inorganic Phosphorus	0.591 mg/L							Livestock Safe
Total Dissolved Phosphorus	0.469 mg/L							Livestock Safe
Phthalate esters								
Di-*n*-butyl phthalate				19 µg/L				
Di(2-ethylhexyl) phthalate				16 µg/L				
Di-*n*-octyl phthalate								
Picloram	**<0.20 µg/L**			29 µg/L		190 µg/L		
Polychlorinated biphenyls [PCBs]								
Aroclor 1254								

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Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								
Polycyclic aromatic hydrocarbons [PAHs]								
Acenaphthene				5.8 µg/L				
Acenaphthylene								
Acridine				4.4 µg/L				
Anthracene				0.012 µg/L				
Benz*(a)* anthracene				0.018 µg/L				
Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
Chrysene								
Dibenz*(a,h)* anthracene								
Fluoranthene				0.04 µg/L				
Fluorene				3.0 µg/L				
2-Methylnaphthalene								
Naphthalene				1.1 µg/L				
Phenanthrene				0.4 µg/L				
Pyrene				0.025 µg/L				
Quinoline				3.4 µg/L				
Potassium	20.3 mg/L							Livestock Safe
Propanil	<0.20 µg/L							Livestock Safe
Propoxur	<0.20 µg/L							Livestock Safe
Propylene glycol [See Glycols]								
Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quizalofop	<0.80 µg/L							Livestock Safe
Radium-226		0.5 Bq/L						
Reactive chlorine species								
Chloramines, total		3000 µg/L						
Rubidium	0.00255 mg/L							Livestock Safe
Selenium	**<0.0010 mg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
Sethoxydim	<0.80 µg/L							Livestock Safe

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Silver				0.1 µg/L				
Simazine	**<0.10 µg/L**			10 µg/L	0.5 µg/L	10 µg/L		
Sodium			≤200,000 µg/L					
Streambed substrate [See Total particulate matter]								
Strontium-90 (^{90}Sr)	**0.146 mg/L**	5 Bq/L						Livestock Safe (See Introductory notes)
Styrene				72 µg/L				
Sulfolane				50,000 µg/L	500 µg/L			
Sulphate	**770 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Livestock Safe
Sulphide (as H_2S)			≤50 µg/L					
Suspended particulates [See Total particulate matter]								
Suspended sediments [See Total particulate matter]								
TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
Tellurium	<0.00020 mg/L							Livestock Safe
Temperature			≤15°C					
Terbufos	**<0.10 µg/L**	1 µg/L						
Tetrachlorobenzene [See Chlorinated benzenes]								
Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
Tetrachloromethane [See Halogenated methanes]								
Tetrachlorophenol [See Chlorinated phenols]								
Thallium	**<0.00010 mg/L**			0.8 µg/L				
Thifensulfuron-methyl	0.20 µg/L							Livestock Safe
Thorium	0.00010 mg/L							Livestock Safe
Tin	0.00173 mg/L							Livestock Safe
Titanium	0.00241 mg/L							Livestock Safe
Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
Total dissolved solids	**1260 mg/L**		≤500,000 µg/L			3,000,000 µg/L		Livestock Safe

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Total particulate matter								
Suspended sediments	<5.0 mg/L							
Turbidity	**7.50 NTU**	0.3/1.0/0.1 NTU[(e)]						Livestock Safe
Toxaphene								
Tralkoxydim	<0.10 µg/L							Livestock Safe
Triallate	**<0.10 µg/L**			0.24 µg/L		230 µg/L		
Tribenuron-methyl	<0.010 µg/L							Livestock Safe
Tribromomethane [See Halogenated methanes]								
Tributyltin [See Organotins]								
Trichlorobenzene [See Chlorinated benzenes]								
Trichloroethane [See Chlorinated ethanes]								
Trichloroethene [See Chlorinated ethenes]								
Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Trichloromethane [See Halogenated methanes]								
Trichlorophenol [See Chlorinated phenols]								
Tricyclohexyltin [See Organotins]								
Triclopyr	<0.050 µg/L							Livestock Safe
Trifluralin	**<0.030 µg/L**			0.20 µg/L		45 µg/L		
Trihalomethanes [See Halogenated methanes]								
Triphenyltin [See Organotins]								
Tritium (^3H)		7000 Bq/L						
Tungsten	<0.00020 mg/L							Livestock Safe
Turbidity [See Total particulate matter]								
Uranium	**0.00150 mg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		
Vanadium	0.00169 mg/L				100 µg/L	100 µg/L		Livestock Safe

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	Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
	Xylene			≤300 µg/L					
	Zinc	**0.0057 mg/L**		≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		
	Zirconium	<0.00040 mg/L							Livestock Safe

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	Acenaphthene [See Polycyclic aromatic hydrocarbons]								
	Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
	Acridine [See Polycyclic aromatic hydrocarbons]								
	Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
	Aldrin + Dieldrin		0.7 µg/L						
	Alkalinity								
	Alkalinity, Total (as CaCO3)	157 mg/L							Livestock Safe
	Bicarbonate (HCO3)	173 mg/L							Livestock Safe
	Carbonate (CO3)	9.03 mg/L							Livestock Safe
	Hydroxide (OH)	<0.40 mg/L							Livestock Safe
	Alachlor	<0.10 µg/L							Livestock Safe
	Aluminum	**0.0657 mg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		
	Ammonia	0.0240 mg/L							Passes Tier 2 - Equation 8
	Aniline				2.2 µg/L				
	Anthracene [See Polycyclic aromatic hydrocarbons]								
	Antimony	**<0.00020 mg/L**	6 µg/L						
	Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
	Arsenic	**<0.00393 mg/L**	10 µg/L			100 µg/L	25 µg/L		
	Atrazine and metabolites	**<0.10 µg/L**	5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
	Azinphos-methyl		20 µg/L						
	Barium	**0.0176 mg/L**	1000 µg/L						
	Bendiocarb		40 µg/L						
	Benomyl	<0.10 µg/L							Livestock Safe
	Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
	Benzene		5 µg/L		370 µg/L				
	Beryllium	<0.00020 mg/L							
	Biochemical Oxygen Demand	4.3 mg/L							

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	Bismuth	<0.00020 mg/L							
	2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
	2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
	Boron	**0.211 mg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
	Bromacil	**<0.10 µg/L**			5 µg/L	0.2 µg/L	1100 µg/L		
	Bromate		10 µg/L						
	Bromoxynil	**<0.020 µg/L**	5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
	Cadmium	**0.000018 mg/L**	5 µg/L			5.1 µg/L	80 µg/L		
	Calcium	**38.5 mg/L**					1,000,000 µg/L		Livestock Safe
	Captan				1.3 µg/L		13 µg/L		
	Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
	Carbofuran	**<0.20 µg/L**	90 µg/L		1.8 µg/L		45 µg/L		
	Carbon	19.9 mg/L							
	Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
	Carboxin	<0.20 µg/L							
	Cesium-137 (137Cs)	**<0.00010 mg/L**	10 Bq/L						Livestock Safe
	Chloramines [See Reactive Chlorine]								
	Chlordane	<0.010 µg/L							
	Chloride	**52.8 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				
	Chlorinated benzenes								
	Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
	1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				
	1,3-Dichlorobenzene				150 µg/L				

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	1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
	1,2,3-Trichlorobenzene				8.0 µg/L				
	1,2,4-Trichlorobenzene				24 µg/L				
	1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
	Pentachlorobenzene				6.0 µg/L				
	Hexachlorobenzene						0.52 µg/L		
	Chlorinated ethanes								
	1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
	1,1,1-Trichloroethane [see DDT]								
	Chlorinated ethenes								
	Monochloroethane (Vinyl Chloride)		2 µg/L						
	1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
	1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
	1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
	Chlorinated methanes [See Halogenated methanes]								
	Chlorinated phenols								
	Monochlorophenol				7 µg/L				
	Dichlorophenol				0.2 µg/L				
	2,4-Dichlorophenol	**<0.050 µg/L**	900 µg/L	≤0.3 µg/L					
	Trichlorophenol				18 µg/L				
	2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
	Tetrachlorophenol				1 µg/L				
	2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
	Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
	Chlorine, Reactive [See Reactive Chlorine]								
	Chloroform [See Halogenated methanes; Trichloromethane]								
	4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
	Chlorophyll-a & Pheophytin-a								
	Chlorophyll-a	29.8 µg/L							
	Phaeophytin a	10.3 µg/L							

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	ODb/ODa	1.5 ABS Ratio							
	Chlorothalonil	**<0.060 µg/L**			0.18 µg/L	5.8 µg/L	170 µg/L		
	Chlorpyrifos	**<0.020 µg/L**	90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term		24 µg/L		
	Chromium	**<0.0010 mg/L**	50 µg/L			4.9 µg/L	50 µg/L		
	Chromium (III)								
	Chromium (VI)	**<0.010 mg/L**				8 µg/L	50 µg/L		Livestock Safe
	Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Cobalt	**0.00068 mg/L**				50 µg/L	1000 µg/L		
	Coliforms, Fecal								
	Coliforms, Total		0 per 100 mL		1000 per 100 mL				
	Colour			≤15 TCU					
	Copper	**<0.0010 mg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
	Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
	Cyanide		200 µg/L						
	2,4-D (See 2,4-Dichlorophenoxyacetic acid)	<0.050 µg/L							
	DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
	DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
	DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
	DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
	DDT, Total (sum of DDE, DDD, DDT)								
	Deltamethrin	**<0.050 µg/L**			0.0004 µg/L		2.5 µg/L		Livestock Safe
	Diazinon	**<0.030 µg/L**	20 µg/L						
	Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								

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	Dibromochloromethane [See Halogenated methanes]								
	Di-*n* -butyl phthalate [See Phthalate esters]								
	Dicamba	**<0.0060 µg/L**	120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
	Dichlorobenzene [See Chlorinated benzenes]								
	Dichlorobromomethane [See Halogenated methanes]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
	Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
	Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
	Dichloroethane [See Chlorinated ethanes]								
	Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
	Dichloromethane [See Halogenated methanes]								
	Dichlorophenol [See Chlorinated phenols]								
	2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
	Diclofop-methyl	**<0.10 µg/L**	9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
	Didecyl dimethyl ammonium chloride [See DDAC]								
	Dieldrin								
	Dieldrin + Aldrin [See Aldrin + Dieldrin]								
	Di(2-ethylhexyl) phthalate [See Phthalate esters]								
	Diisopropanolamine				1,600 µg/L	2000 µg/L			
	Dimethoate	**<0.10 µg/L**	20 µg/L		6.2 µg/L		3 µg/L		
	Di-n-butyl phthalate [See Phthalate esters]								
	Dinoseb	**<0.050 µg/L**	10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		
	Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								

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	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Diphenyl dichloro ethylene [See DDE]								
	Diquat		70 µg/L						
	Dissolved oxygen [See Oxygen, Dissolved]								
	Dissolved solids [See Total dissolved solids]								
	Diuron	**<0.018 µg/L**	150 µg/L						
	Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
	Endrin								
	Eptam	<0.20 µg/L							
	Ethalfluralin	<0.020 µg/L							
	Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
	Ethylene glycol [See Glycols]								
	Fecal coliforms [See Coliforms, fecal]								
	Fenoxaprop	<0.10 µg/L							
	Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
	Inorganic fluorides				0.12 µg/L				
	Glycols								
	Ethylene glycol				192,000 µg/L				
	Propylene glycol				500,000 µg/L				
	Glyphosate	**0.31 µg/L**	280 µg/L		65 µg/L		280 µg/L		
	Halogenated methanes								
	Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
	Trichloromethane [Chloroform]				1.8 µg/L				
	Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		

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	Tribromomethane (Bromoform)						100 µg/L		
	Dichlorobromomethane						100 µg/L		
	Dibromochloromethane						100 µg/L		
	Trihalomethanes-total (THMs)		100 µg/L						
	HCBD [See Hexachlorobutadiene]								
	Heptachlor (Heptachlor epoxide)								
	Hexachlorobenzene [See Chlorinated benzenes]								
	Hexachlorobutadiene [HCBD]				1.3 µg/L				
	Hexachlorocyclohexane [See Lindane]								
	Hypochlorous acid [See Reactive chlorine species]								
	Imazamethabenz	0.051 µg/L							
	Imidacloprid				0.23 µg/L				
	Iodine-131 (^{131}I)		6 Bq/L						
	3-Iodo-2-propynyl butyl carbamate [See IPBC]								
	IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
	Iron	**0.103 mg/L**		≤300 µg/L	300 µg/L	5000 µg/L			
	Lead	**0.000164 mg/L**	10 µg/L			200 µg/L	100 µg/L		
	Lead-210 (^{210}Pb)		0.2 Bq/L						
	Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
	Linuron				7.0 µg/L	0.071 µg/L			
	Lithium	0.273 mg/L				2500 µg/L			
	Malathion	**<0.10 µg/L**	190 µg/L						
	Magnesium	111 mg/L							
	Manganese	**0.0875 mg/L**		≤50 µg/L		200 µg/L			Livestock Safe
	MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]	**<0.025 µg/L**			2.6 µg/L	0.025 µg/L	25 µg/L		
	Mecoprop	<0.050 µg/L							
	Mercury		1 µg/L				3 µg/L		
	Inorganic Mercury				0.026 µg/L				

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	Methoprene				0.09 µg/L				
	Methylmercury				0.004 µg/L				
	Methoxychlor	**<0.010 µg/L**	900 µg/L						
	Methylene chloride [See Halogenated methanes, Dichloromethane]								
	2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
	Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
	2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
	Metribuzin	**<0.20 µg/L**	80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
	Metsulfuron-methyl	<0.010 µg/L							
	Microcystin LR		1.5 µg/L						
	Molybdenum	**0.00079 mg/L**			73 µg/L	10-50 µg/L	500 µg/L		
	Monochloramine [See Reactive chlorine species]								
	Monochlorobenzene [See Chlorinated benzenes]								
	Monochlorophenol [See Chlorinated phenols]								
	Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Nickel	**0.0021 mg/L**				200 µg/L	1000 µg/L		
	Nitrate (as N)		10,000 µg/L		13,000 µg/L				
	Nitrate + Nitrite	**0.316 mg/L**					100,000 µg/L		
	Nitrilotriacetic acid [NTA]		400 µg/L						
	Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
	Nitrite + Nitrate [See Nitrate + Nitrite]								
	Nonylphenol and its ethoxylates				1.0 µg/L				
	NTA [See Nitrilotriacetic acid]								
	Organotins								
	Tributyltin				0.008 µg/L		250 µg/L		
	Tricyclohexyltin						250 µg/L		
	Triphenyltin				0.022 µg/L		820 µg/L		

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	Ortho Phosphorus Soluble As P	0.450 mg/L							
	Oxygen, Dissolved								
	PAHs [See Polycyclic aromatic hydrocarbons]								
	Paraquat (as dichloride)		10 µg/L						
	Parathion		50 µg/L						
	PCBs [See Polychlorinated biphenyls (PCBs)]								
	PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
	PCP [See Chlorinated phenols, Pentachlorophenol]								
	Pentachlorobenzene [See Chlorinated benzenes]								
	Pentachlorophenol [See Chlorinated phenols (PCP)]	<0.020 µg/L							
	Permithrin				0.004 µg/L				
	pH	**8.63 pH Units**		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
	Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Phenols				4 µg/L		2 µg/L		
	Phenoxy herbicides				4 µg/L		100 µg/L		
	Phorate		2 µg/L						
	Phosphorus	0.635 mg/L							
	Inorganic Phosphorus	0.581 mg/L							
	Total Dissolved Phosphorus	0.510 mg/L							
	Phthalate esters								
	Di-*n* -butyl phthalate				19 µg/L				
	Di(2-ethylhexyl) phthalate				16 µg/L				
	Di-*n* -octyl phthalate								
	Picloram	**<0.20 µg/L**			29 µg/L		190 µg/L		
	Polychlorinated biphenyls [PCBs]								
	Aroclor 1254								
	Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								

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	Polycyclic aromatic hydrocarbons [PAHs]								
	Acenaphthene				5.8 µg/L				
	Acenaphthylene								
	Acridine				4.4 µg/L				
	Anthracene				0.012 µg/L				
	Benz*(a)* anthracene				0.018 µg/L				
	Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
	Chrysene								
	Dibenz*(a,h)* anthracene								
	Fluoranthene				0.04 µg/L				
	Fluorene				3.0 µg/L				
	2-Methylnaphthalene								
	Naphthalene				1.1 µg/L				
	Phenanthrene				0.4 µg/L				
	Pyrene				0.025 µg/L				
	Quinoline				3.4 µg/L				
	Potassium	25.2 mg/L							Livestock Safe
	Propanil	<0.20 µg/L							Livestock Safe
	Propoxur	<0.20 µg/L							Livestock Safe
	Propylene glycol [See Glycols]								
	Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quizalofop	<0.80 µg/L							Livestock Safe
	Radium-226		0.5 Bq/L						
	Reactive chlorine species								
	Chloramines, total		3000 µg/L						
	Rubidium	0.00217 mg/L							
	Selenium	**0.0024 mg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
	Sethoxydim	<0.80 µg/L							
	Silver	**<0.00010 mg/L**			0.1 µg/L				
	Simazine	**<0.10 µg/L**			10 µg/L	0.5 µg/L	10 µg/L		

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	Sodium	**436 mg/L**		≤200,000 µg/L					Livestock Safe
	Streambed substrate [See Total particulate matter]								
	Strontium-90 (^{90}Sr)	**0.269 mg/L**	5 Bq/L						Livestock Safe - See introductory notes
	Styrene				72 µg/L				
	Sulfolane				50,000 µg/L	500 µg/L			
	Sulphate	**1290 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Exceeds Guidelines for Livestock but Cattle do not appear to be affected.
	Sulphide (as H_2S)			≤50 µg/L					
	Suspended particulates [See Total particulate matter]								
	Suspended sediments [See Total particulate matter]								
	TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
	Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
	Tellurium	<0.00020 mg/L							
	Temperature			≤15°C					
	Terbufos	**0.10 µg/L**	1 µg/L						
	Tetrachlorobenzene [See Chlorinated benzenes]								
	Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
	Tetrachloromethane [See Halogenated methanes]								
	Tetrachlorophenol [See Chlorinated phenols]								
	Thallium	**<0.00010 mg/L**			0.8 µg/L				
	Thifensulfuron-methyl	<0.20 µg/L							
	Thorium	<0.00010 mg/L							
	Tin	0.00167 mg/L							
	Titanium	0.00222 mg/L							
	Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
	Total dissolved solids	**2220 mg/L**		≤500,000 µg/L			3,000,000 µg/L		Livestock Safe
	Total particulate matter								
	Suspended sediments	5.0 mg/L							
	Turbidity		0.3/1.0/0.1 NTU[(e)]						

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	Toxaphene								
	Tralkoxydim	<0.10 µg/L							Livestock Safe
	Triallate	**<0.10 µg/L**			0.24 µg/L		230 µg/L		Livestock Safe
	Tribenuron-methyl	<0.010 µg/L							
	Tribromomethane [See Halogenated methanes]								
	Tributyltin [See Organotins]								
	Trichlorobenzene [See Chlorinated benzenes]								
	Trichloroethane [See Chlorinated ethanes]								
	Trichloroethene [See Chlorinated ethenes]								
	Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
	Trichloromethane [See Halogenated methanes]								
	Trichlorophenol [See Chlorinated phenols]								
	Tricyclohexyltin [See Organotins]								
	Triclopyr								
	Trifluralin	**<0.030 µg/L**			0.20 µg/L		45 µg/L		
	Trihalomethanes [See Halogenated methanes]								
	Triphenyltin [See Organotins]								
	Tritium (^3H)		7000 Bq/L						
	Tungsten	<0.00020 mg/L							
	Turbidity [See Total particulate matter]	4.40 NTU							
	Uranium	**0.00177 mg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		
	Vanadium	**0.00230 mg/L**				100 µg/L	100 µg/L		
	Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
	Xylene			≤300 µg/L					

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	Zinc	**0.0088 mg/L**		≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		
	Zirconium	<0.00040 mg/L							

Sample Identification: **SOUTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS075**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

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Acenaphthene [See Polycyclic aromatic hydrocarbons]								
Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
Acridine [See Polycyclic aromatic hydrocarbons]								
Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
Aldrin + Dieldrin		0.7 µg/L						
Alkalinity								
Alkalinity, Total (as CaCO3)	177 mg/L							Livestock Safe
Bicarbonate (HCO3)	203 mg/L							Livestock Safe
Carbonate (CO3)	6.35 mg/L							Livestock Safe
Hydroxide (OH)	<0.40 mg/L							Livestock Safe
Alachlor	<0.10 µg/L							Livestock Safe
Aluminum	**0.0722 mg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		
Ammonia	0.059							Passes Tier 2 - Equation 8
Aniline				2.2 µg/L				
Anthracene [See Polycyclic aromatic hydrocarbons]								
Antimony	**<0.00020 mg/L**	6 µg/L						
Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
Arsenic	0.00320 mg/L	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
Atrazine and metabolites	**<0.10 µg/L**	5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
Azinphos-methyl		20 µg/L						
Barium	**0.0148 mg/L**	1000 µg/L						
Bendiocarb		40 µg/L						
Benomyl	<0.10 µg/L							
Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
Benzene		5 µg/L		370 µg/L				
Beryllium	<0.00020 mg/L							
Biochemical Oxygen Demand	3.6 mg/L							

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Bismuth	<0.00020 mg/L							
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
Boron	**0.391 mg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
Bromacil	**<0.0 µg/L**			5 µg/L	0.2 µg/L	1100 µg/L		
Bromate		10 µg/L						
Bromoxynil	**<0.20 µg/L**	5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
Cadmium	**0.000010 mg/L**	5 µg/L			5.1 µg/L	80 µg/L		
Calcium	**21.4 mg/L**					1,000,000 µg/L		
Captan				1.3 µg/L		13 µg/L		
Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
Carbofuran	**<0.20 µg/L**	90 µg/L		1.8 µg/L		45 µg/L		
Carbon	50.4 mg/L							
Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
Carboxin	<0.20 µg/L							
Cesium-137 (137Cs)	**0.00013 mg/L**	10 Bq/L						Livestock Safe
Chloramines [See Reactive Chlorine]								
Chlordane	<0.010 µg/L							
Chloride			≤250,000 µg/L	100,000-900,000 µg/L				
Chlorinated benzenes								
Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				
1,3-Dichlorobenzene				150 µg/L				

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1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
1,2,3-Trichlorobenzene				8.0 µg/L				
1,2,4-Trichlorobenzene				24 µg/L				
1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
Pentachlorobenzene				6.0 µg/L				
Hexachlorobenzene						0.52 µg/L		
Chlorinated ethanes								
1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
1,1,1-Trichloroethane [see DDT]								
Chlorinated ethenes								
Monochloroethane (Vinyl Chloride)		2 µg/L						
1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
Chlorinated methanes [See Halogenated methanes]								
Chlorinated phenols								
Monochlorophenol				7 µg/L				
Dichlorophenol				0.2 µg/L				
2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
Trichlorophenol				18 µg/L				
2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
Tetrachlorophenol				1 µg/L				
2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
Chlorine, Reactive [See Reactive Chlorine]								
Chloroform [See Halogenated methanes; Trichloromethane]								
4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
Chlorophyll-a & Pheophytin-a								
Chlorophyll-a	18.7 µg/L							Livestock Safe
Phaeophytin a	14.2 µg/L							Livestock Safe

Sample Identification: **SOUTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS075**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
ODb/ODa	1.4 ABS Ratio							Livestock Safe
Chlorothalonil	**<0.060 µg/L**			0.18 µg/L	5.8 µg/L	170 µg/L		
Chlorpyrifos	**<0.020 µg/L**	90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term		24 µg/L		
Chromium	**<0.00010 mg/L**	50 µg/L			4.9 µg/L	50 µg/L		
Chromium (III)								
Chromium (VI)	**<0.010 mg/L**				8 µg/L	50 µg/L		Livestock Safe
Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Cobalt	**0.00064 mg/L**				50 µg/L	1000 µg/L		
Coliforms, Fecal								
Coliforms, Total		0 per 100 mL		1000 per 100 mL				
Colour			≤15 TCU					
Copper	**<0.0010 mg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
Cyanide		200 µg/L						
2,4-D (See 2,4-Dichlorophenoxyacetic acid)	0.053 µg/L							
DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
DDT, Total (sum of DDE, DDD, DDT)								
Deltamethrin	**<0.040 µg/L**			0.0004 µg/L		2.5 µg/L		
Diazinon	**<0.030 µg/L**	20 µg/L						
Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								

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Dibromochloromethane [See Halogenated methanes]								
Di-*n* -butyl phthalate [See Phthalate esters]								
Dicamba	**<0.0060 µg/L**	120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
Dichlorobenzene [See Chlorinated benzenes]								
Dichlorobromomethane [See Halogenated methanes]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
Dichloroethane [See Chlorinated ethanes]								
Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
Dichloromethane [See Halogenated methanes]								
Dichlorophenol [See Chlorinated phenols]								
2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
Diclofop-methyl	**<0.10 µg/L**	9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
Didecyl dimethyl ammonium chloride [See DDAC]								
Dieldrin								
Dieldrin + Aldrin [See Aldrin + Dieldrin]								
Di(2-ethylhexyl) phthalate [See Phthalate esters]								
Diisopropanolamine				1,600 µg/L	2000 µg/L			
Dimethoate	**<0.10 µg/L**	20 µg/L		6.2 µg/L		3 µg/L		
Di-n-butyl phthalate [See Phthalate esters]								
Dinoseb	**<0.050 µg/L**	10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		
Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								

Sample Identification: **SOUTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS075**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Diphenyl dichloro ethylene [See DDE]								
Diquat		70 µg/L						
Dissolved oxygen [See Oxygen, Dissolved]								
Dissolved solids [See Total dissolved solids]								
Diuron	**<0.018 µg/L**	150 µg/L						
Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
Endrin								
Eptam	<0.20 µg/L							Livestock Safe
Ethalfluralin	<0.020 µg/L							Livestock Safe
Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
Ethylene glycol [See Glycols]								
Fecal coliforms [See Coliforms, fecal]								
Fenoxaprop	<0.10 µg/L							Livestock Safe
Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
Inorganic fluorides				0.12 µg/L				
Glycols								
Ethylene glycol				192,000 µg/L				
Propylene glycol				500,000 µg/L				
Glyphosate	**2.05 µg/L**	280 µg/L		65 µg/L		280 µg/L		
Halogenated methanes								
Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
Trichloromethane [Chloroform]				1.8 µg/L				
Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		

Sample Identification: **SOUTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS075**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

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Tribromomethane (Bromoform)						100 µg/L		
Dichlorobromomethane						100 µg/L		
Dibromochloromethane						100 µg/L		
Trihalomethanes-total (THMs)		100 µg/L						
HCBD [See Hexachlorobutadiene]								
Heptachlor (Heptachlor epoxide)								
Hexachlorobenzene [See Chlorinated benzenes]								
Hexachlorobutadiene [HCBD]				1.3 µg/L				
Hexachlorocyclohexane [See Lindane]								
Hypochlorous acid [See Reactive chlorine species]								
Imazamethabenz	0.107 µg/L							Livestock Safe
Imidacloprid				0.23 µg/L				
Iodine-131 (^{131}I)		6 Bq/L						
3-Iodo-2-propynyl butyl carbamate [See IPBC]								
IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
Iron	0.116 mg/L		≤300 µg/L	300 µg/L	5000 µg/L			Livestock Safe
Lead	**0.000313 mg/L**	10 µg/L			200 µg/L	100 µg/L		
Lead-210 (^{210}Pb)		0.2 Bq/L						
Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
Linuron				7.0 µg/L	0.071 µg/L			
Lithium	0.176 mg/L				2500 µg/L			
Malathion	**<0.10 µg/L**	190 µg/L						
Magnesium	47.2 mg/L							
Manganese	**0.0761 mg/L**		≤50 µg/L		200 µg/L			Livestock Safe
MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]	**<0.25 µg/L**			2.6 µg/L	0.025 µg/L	25 µg/L		
Mecoprop	<0.050 µg/L							
Mercury		1 µg/L				3 µg/L		
Inorganic Mercury				0.026 µg/L				

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Methoprene				0.09 µg/L				
Methylmercury				0.004 µg/L				
Methoxychlor	**<0.010 µg/L**	900 µg/L						
Methylene chloride [See Halogenated methanes, Dichloromethane]								
2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
Metribuzin	**<0.20 µg/L**	80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
Metsulfuron-methyl	<0.010 µg/L							
Microcystin LR		1.5 µg/L						
Molybdenum	**0.00097 mg/L**			73 µg/L	10-50 µg/L	500 µg/L		
Monochloramine [See Reactive chlorine species]								
Monochlorobenzene [See Chlorinated benzenes]								
Monochlorophenol [See Chlorinated phenols]								
Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Nickel	**<0.0020 mg/L**				200 µg/L	1000 µg/L		
Nitrate (as N)		10,000 µg/L		13,000 µg/L				
Nitrate + Nitrite	**0.632 mg/L**					100,000 µg/L		
Nitrilotriacetic acid [NTA]		400 µg/L						
Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
Nitrite + Nitrate [See Nitrate + Nitrite]								
Nonylphenol and its ethoxylates				1.0 µg/L				
NTA [See Nitrilotriacetic acid]								
Organotins								
Tributyltin				0.008 µg/L		250 µg/L		
Tricyclohexyltin						250 µg/L		

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Triphenyltin				0.022 µg/L		820 µg/L		
Ortho Phosphorus Soluble As P	0.168 mg/L							Livestock Safe
Oxygen, Dissolved								
PAHs [See Polycyclic aromatic hydrocarbons]								
Paraquat (as dichloride)		10 µg/L						
Parathion		50 µg/L						
PCBs [See Polychlorinated biphenyls (PCBs)]								
PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
PCP [See Chlorinated phenols, Pentachlorophenol]								
Pentachlorobenzene [See Chlorinated benzenes]								
Pentachlorophenol [See Chlorinated phenols (PCP)]	<0.020 µg/L							
Permithrin				0.004 µg/L				
pH	**8.54 pH Units**		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Phenols				4 µg/L		2 µg/L		
Phenoxy herbicides				4 µg/L		100 µg/L		
Phorate		2 µg/L						
Phosphorus	0.286 mg/L							Livestock Safe
Inorganic Phosphorus	0.294 mg/L							Livestock Safe
Total Dissolved Phosphorus	0.212 mg/L							Livestock Safe
Phthalate esters								
Di-*n*-butyl phthalate				19 µg/L				
Di(2-ethylhexyl) phthalate				16 µg/L				
Di-*n*-octyl phthalate								
Picloram	**<0.20 µg/L**			29 µg/L		190 µg/L		
Polychlorinated biphenyls [PCBs]								
Aroclor 1254								
Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								

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Polycyclic aromatic hydrocarbons [PAHs]								
Acenaphthene				5.8 µg/L				
Acenaphthylene								
Acridine				4.4 µg/L				
Anthracene				0.012 µg/L				
Benz*(a)* anthracene				0.018 µg/L				
Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
Chrysene								
Dibenz*(a,h)* anthracene								
Fluoranthene				0.04 µg/L				
Fluorene				3.0 µg/L				
2-Methylnaphthalene								
Naphthalene				1.1 µg/L				
Phenanthrene				0.4 µg/L				
Pyrene				0.025 µg/L				
Quinoline				3.4 µg/L				
Potassium	21.0 mg/L							Livestock Safe
Propanil	<0.20 µg/L							Livestock Safe
Propoxur	<0.20 µg/L							Livestock Safe
Propylene glycol [See Glycols]								
Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quizalofop	<0.80 µg/L							Livestock Safe
Radium-226		0.5 Bq/L						
Reactive chlorine species								
Chloramines, total		3000 µg/L						
Rubidium	0.00328 mg/L							Livestock Safe
Selenium	**<0.0010 mg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
Sethoxydim	<0.80 µg/L							Livestock Safe
Silver	<0.00010 mg/L			0.1 µg/L				Livestock Safe
Simazine	<0.10 µg/L			10 µg/L	0.5 µg/L	10 µg/L		Livestock Safe

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Sodium	**207 mg/L**		≤200,000 µg/L					Livestock Safe
Streambed substrate [See Total particulate matter]								
Strontium-90 (^{90}Sr)	**0.0925 mg/L**	5 Bq/L						Livestock Safe
Styrene				72 µg/L				
Sulfolane				50,000 µg/L	500 µg/L			
Sulphate	**609 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Livestock Safe
Sulphide (as H_2S)			≤50 µg/L					
Suspended particulates [See Total particulate matter]								
Suspended sediments [See Total particulate matter]								
TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
Tellurium	<0.00020 mg/L							Livestock Safe
Temperature			≤15ºC					
Terbufos	**<0.10 µg/L**	1 µg/L						Livestock Safe
Tetrachlorobenzene [See Chlorinated benzenes]								
Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
Tetrachloromethane [See Halogenated methanes]								
Tetrachlorophenol [See Chlorinated phenols]								
Thallium	**<0.00010 mg/L**			0.8 µg/L				
Thifensulfuron-methyl	<0.20 µg/L							
Thorium	<0.00010 mg/L							
Tin	0.00201 mg/L							
Titanium	0.00317 mg/L							
Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
Total dissolved solids	**1090 mg/L**		≤500,000 µg/L			3,000,000 µg/L		Livestock Safe
Total particulate matter								
Suspended sediments	6.0 mg/L							Livestock Safe
Turbidity		0.3/1.0/0.1 NTU[(e)]						Livestock Safe

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Toxaphene								
Tralkoxydim	<0.10 µg/L							Livestock Safe
Triallate	**<0.10 µg/L**			0.24 µg/L		230 µg/L		
Tribenuron-methyl	<0.010 µg/L							Livestock Safe
Tribromomethane [See Halogenated methanes]								
Tributyltin [See Organotins]								
Trichlorobenzene [See Chlorinated benzenes]								
Trichloroethane [See Chlorinated ethanes]								
Trichloroethene [See Chlorinated ethenes]								
Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Trichloromethane [See Halogenated methanes]								
Trichlorophenol [See Chlorinated phenols]								
Tricyclohexyltin [See Organotins]								
Triclopyr	<0.050 µg/L							Livestock Safe
Trifluralin	**<0.030 µg/L**			0.20 µg/L		45 µg/L		
Trihalomethanes [See Halogenated methanes]								
Triphenyltin [See Organotins]								
Tritium (^3H)		7000 Bq/L						
Tungsten	<0.00020 mg/L							Livestock Safe
Turbidity [See Total particulate matter]	2.40 NTU							Livestock Safe
Uranium	**0.00099 mg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		Livestock Safe
Vanadium	**0.00158 mg/L**				100 µg/L	100 µg/L		
Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
Xylene			≤300 µg/L					
Zinc	**<0.0050 mg/L**		≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		

Sample Identification: **SOUTH SALT LAKE**	Report Date: 01-JUN-09	EMS WQ Station Number: **MB05MGS075**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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Zirconium	<0.00040 mg/L							Livestock Safe

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

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Acenaphthene [See Polycyclic aromatic hydrocarbons]								
Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
Acridine [See Polycyclic aromatic hydrocarbons]								
Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
Aldrin + Dieldrin		0.7 µg/L						
Alkalinity								
Alkalinity, Total (as CaCO3)	500 mg/L							Livestock Safe
Bicarbonate (HCO3)	520 mg/L							Livestock Safe
Carbonate (CO3)	48 mg/L							Livestock Safe
Hydroxide (OH)								
Alachlor								
Aluminum	**138 µg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		Livestock Safe
Ammonia	0.053 mg/L							Passes Tier 2 - Equation 8
Aniline				2.2 µg/L				
Anthracene [See Polycyclic aromatic hydrocarbons]								
Antimony		6 µg/L						
Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
Arsenic	**10.2 µg/L**	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
Atrazine and metabolites		5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
Azinphos-methyl		20 µg/L						
Barium	**31 µg/L**	1000 µg/L						
Bendiocarb		40 µg/L						
Benomyl								
Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
Benzene		5 µg/L		370 µg/L				
Beryllium								
Biochemical Oxygen Demand	7 mg/L							Livestock Safe

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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Bismuth								
2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
Boron	**1440 µg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
Bromacil				5 µg/L	0.2 µg/L	1100 µg/L		
Bromate		10 µg/L						
Bromoxynil		5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
Cadmium		5 µg/L			5.1 µg/L	80 µg/L		
Calcium	116 mg/L					1,000,000 µg/L		Livestock Safe
Captan				1.3 µg/L		13 µg/L		
Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
Carbofuran		90 µg/L		1.8 µg/L		45 µg/L		
Carbon	49 mg/L							Livestock Safe
Carbon (Inorganic)	15.1 mg/L							Livestock Safe
Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
Carboxin								
Cesium-137 (137Cs)		10 Bq/L						
Chloramines [See Reactive Chlorine]								
Chlordane								
Chloride	**220 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				
Chlorinated benzenes								
Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
1,3-Dichlorobenzene				150 µg/L				
1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
1,2,3-Trichlorobenzene				8.0 µg/L				
1,2,4-Trichlorobenzene				24 µg/L				
1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
Pentachlorobenzene				6.0 µg/L				
Hexachlorobenzene						0.52 µg/L		
Chlorinated ethanes								
1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
1,1,1-Trichloroethane [see DDT]								
Chlorinated ethenes								
Monochloroethane (Vinyl Chloride)		2 µg/L						
1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
Chlorinated methanes [See Halogenated methanes]								
Chlorinated phenols								
Monochlorophenol				7 µg/L				
Dichlorophenol				0.2 µg/L				
2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
Trichlorophenol				18 µg/L				
2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
Tetrachlorophenol				1 µg/L				
2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
Chlorine, Reactive [See Reactive Chlorine]								
Chloroform [See Halogenated methanes; Trichloromethane]								
4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
Chlorophyll-a & Pheophytin-a								
Chlorophyll-a	69 µg/L							Livestock Safe

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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Phaeophytin a								
ODb/ODa								
Chlorothalonil				0.18 µg/L	5.8 µg/L	170 µg/L		
Chlorpyrifos		90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term		24 µg/L		
Chromium		50 µg/L			4.9 µg/L	50 µg/L		
Chromium (III)								
Chromium (VI)	0.001 mg/L				8 µg/L	50 µg/L		Livestock Safe
Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Cobalt					50 µg/L	1000 µg/L		
Coliforms, Fecal								
Coliforms, Total		0 per 100 mL		1000 per 100 mL				
Colour			≤15 TCU					
Copper	**1 µg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
Cyanide		200 µg/L						
2,4-D (See 2,4-Dichlorophenoxyacetic acid)								
DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
DDT, Total (sum of DDE, DDD, DDT)								
Deltamethrin				0.0004 µg/L		2.5 µg/L		
Diazinon		20 µg/L						
Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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Dibromochloromethane [See Halogenated methanes]								
Di-*n*-butyl phthalate [See Phthalate esters]								
Dicamba		120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
Dichlorobenzene [See Chlorinated benzenes]								
Dichlorobromomethane [See Halogenated methanes]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
Dichloroethane [See Chlorinated ethanes]								
Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
Dichloromethane [See Halogenated methanes]								
Dichlorophenol [See Chlorinated phenols]								
2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
Diclofop-methyl		9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
Didecyl dimethyl ammonium chloride [See DDAC]								
Dieldrin								
Dieldrin + Aldrin [See Aldrin + Dieldrin]								
Di(2-ethylhexyl) phthalate [See Phthalate esters]								
Diisopropanolamine				1,600 µg/L	2000 µg/L			
Dimethoate		20 µg/L		6.2 µg/L		3 µg/L		
Di-n-butyl phthalate [See Phthalate esters]								
Dinoseb		10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		
Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
Diphenyl dichloro ethylene [See DDE]								
Diquat		70 µg/L						
Dissolved oxygen [See Oxygen, Dissolved]								
Dissolved solids [See Total dissolved solids]								
Diuron		150 µg/L						
Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
Endrin								
Eptam								
Ethalfluralin								
Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
Ethylene glycol [See Glycols]								
Fecal coliforms [See Coliforms, fecal]								
Fenoxaprop								
Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
Inorganic fluorides				0.12 µg/L				
Glycols								
Ethylene glycol				192,000 µg/L				
Propylene glycol				500,000 µg/L				
Glyphosate		280 µg/L		65 µg/L		280 µg/L		
Halogenated methanes								
Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
Trichloromethane [Chloroform]				1.8 µg/L				
Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		
Tribromomethane (Bromoform)						100 µg/L		

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Dichlorobromomethane						100 µg/L		
Dibromochloromethane						100 µg/L		
Trihalomethanes-total (THMs)		100 µg/L						
HCBD [See Hexachlorobutadiene]								
Heptachlor (Heptachlor epoxide)								
Hexachlorobenzene [See Chlorinated benzenes]								
Hexachlorobutadiene [HCBD]				1.3 µg/L				
Hexachlorocyclohexane [See Lindane]								
Hypochlorous acid [See Reactive chlorine species]								
Imazamethabenz								
Imidacloprid				0.23 µg/L				
Iodine-131 (^{131}I)		6 Bq/L						
3-Iodo-2-propynyl butyl carbamate [See IPBC]								
IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
Iron	202 µg/L		≤300 µg/L	300 µg/L	5000 µg/L			Livestock Safe
Lead	**0.3 µg/L**	10 µg/L			200 µg/L	100 µg/L		
Lead-210 (^{210}Pb)		0.2 Bq/L						
Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
Linuron				7.0 µg/L	0.071 µg/L			
Lithium	1390 µg/L				2500 µg/L			Livestock Safe
Malathion		190 µg/L						
Magnesium	442 mg/L							Livestock Safe
Manganese	38 µg/L		≤50 µg/L		200 µg/L			Livestock Safe
MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]				2.6 µg/L	0.025 µg/L	25 µg/L		
Mecoprop								
Mercury		1 µg/L				3 µg/L		
Inorganic Mercury				0.026 µg/L				
Methoprene				0.09 µg/L				
Methylmercury				0.004 µg/L				

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Methoxychlor		900 µg/L						
Methylene chloride [See Halogenated methanes, Dichloromethane]								
2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
Metribuzin		80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
Metsulfuron-methyl								
Microcystin LR		1.5 µg/L						
Molybdenum	2 µg/L			73 µg/L	10-50 µg/L	500 µg/L		Livestock Safe
Monochloramine [See Reactive chlorine species]								
Monochlorobenzene [See Chlorinated benzenes]								
Monochlorophenol [See Chlorinated phenols]								
Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Nickel	2 µg/l				200 µg/L	1000 µg/L		Livestock Safe
Nitrate (as N)		10,000 µg/L		13,000 µg/L				
Nitrate + Nitrite						100,000 µg/L		
Nitrilotriacetic acid [NTA]		400 µg/L						
Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
Nitrite + Nitrate [See Nitrate + Nitrite]	0.02 mg/L							Livestock Safe
Nitrogen	2.9 mg/L							Livestock Safe
Nonylphenol and its ethoxylates				1.0 µg/L				
NTA [See Nitrilotriacetic acid]								
Organotins								
Tributyltin				0.008 µg/L		250 µg/L		
Tricyclohexyltin						250 µg/L		
Triphenyltin				0.022 µg/L		820 µg/L		
Ortho Phosphorus Soluble As P	0.70 mg/L							Livestock Safe

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Oxygen, Dissolved								
PAHs [See Polycyclic aromatic hydrocarbons]								
Paraquat (as dichloride)		10 µg/L						
Parathion		50 µg/L						
PCBs [See Polychlorinated biphenyls (PCBs)]								
PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
PCP [See Chlorinated phenols, Pentachlorophenol]								
Pentachlorobenzene [See Chlorinated benzenes]								
Pentachlorophenol [See Chlorinated phenols (PCP)]								
Permithrin				0.004 µg/L				
pH	8.7 pH Units		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Phenols				4 µg/L		2 µg/L		
Phenoxy herbicides				4 µg/L		100 µg/L		
Phorate		2 µg/L						
Phosphate (Particulate)	0.08 mg/L							Livestock Safe
Phosphate (Dissolved)	0.81 mg/L							Livestock Safe
Phosphorus	0.90 mg/L							Livestock Safe
Inorganic Phosphorus								
Total Dissolved Phosphorus								
Phthalate esters								
Di-*n*-butyl phthalate				19 µg/L				
Di(2-ethylhexyl) phthalate				16 µg/L				
Di-*n*-octyl phthalate								
Picloram				29 µg/L		190 µg/L		
Polychlorinated biphenyls [PCBs]								
Aroclor 1254								
Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								

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Polycyclic aromatic hydrocarbons [PAHs]								
Acenaphthene				5.8 µg/L				
Acenaphthylene								
Acridine				4.4 µg/L				
Anthracene				0.012 µg/L				
Benz*(a)* anthracene				0.018 µg/L				
Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
Chrysene								
Dibenz*(a,h)* anthracene								
Fluoranthene				0.04 µg/L				
Fluorene				3.0 µg/L				
2-Methylnaphthalene								
Naphthalene				1.1 µg/L				
Phenanthrene				0.4 µg/L				
Pyrene				0.025 µg/L				
Quinoline				3.4 µg/L				
Potassium	103 mg/L							Livestock Safe
Propanil								
Propoxur								
Propylene glycol [See Glycols]								
Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quizalofop								
Radium-226		0.5 Bq/L						
Reactive chlorine species								
Chloramines, total		3000 µg/L						
Rubidium								
Selenium	**0.2 µg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
Sethoxydim								
Silicon	850 µg/L							Livestock Safe
Silver				0.1 µg/L				
Simazine				10 µg/L	0.5 µg/L	10 µg/L		

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Sodium	**1840 mg/L**		≤200,000 µg/L					Livestock Safe
Streambed substrate [See Total particulate matter]								
Strontium-90 (^{90}Sr)	**769 µg/L**	5 Bq/L						Livestock Safe (See intorductory Notes)
Styrene				72 µg/L				
Sulfolane				50,000 µg/L	500 µg/L			
Sulphate	**4600 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Exceeds Livestock Guidelines but livestock does not appear to be affected
Sulphide (as H_2S)			≤50 µg/L					
Sulphur	1830 mg/L							Livestock Safe
Suspended particulates [See Total particulate matter]								
Suspended sediments [See Total particulate matter]								
TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
Tellurium								
Temperature			≤15°C					
Terbufos		1 µg/L						
Tetrachlorobenzene [See Chlorinated benzenes]								
Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
Tetrachloromethane [See Halogenated methanes]								
Tetrachlorophenol [See Chlorinated phenols]								
Thallium				0.8 µg/L				
Thifensulfuron-methyl								
Thorium								
Tin								
Titanium								
Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
Total dissolved solids	**5800 mg/L**		≤500,000 µg/L			3,000,000 µg/L		
Total particulate matter								
Suspended sediments	27 mg/L							Livestock Safe
Turbidity	**6.2 NTU**	0.3/1.0/0.1 NTU[e]						Livestock Safe

Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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Toxaphene								
Tralkoxydim								
Triallate				0.24 µg/L		230 µg/L		
Tribenuron-methyl								
Tribromomethane [See Halogenated methanes]								
Tributyltin [See Organotins]								
Trichlorobenzene [See Chlorinated benzenes]								
Trichloroethane [See Chlorinated ethanes]								
Trichloroethene [See Chlorinated ethenes]								
Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Trichloromethane [See Halogenated methanes]								
Trichlorophenol [See Chlorinated phenols]								
Tricyclohexyltin [See Organotins]								
Triclopyr								
Trifluralin				0.20 µg/L		45 µg/L		
Trihalomethanes [See Halogenated methanes]								
Triphenyltin [See Organotins]								
Tritium (^{3}H)		7000 Bq/L						
Tungsten								
Turbidity [See Total particulate matter]								
Uranium	**5.1 µg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		
Vanadium					100 µg/L	100 µg/L		
Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
Xylene			≤300 µg/L					
Zinc			≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		

	Sample Identification: **#4 OF 4 NORTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 8**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Zirconium								

	Sample Identification: **#1 OF 4 CENTER LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 5**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	C.Lake2010
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Acenaphthene [See Polycyclic aromatic hydrocarbons]								
	Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
	Acridine [See Polycyclic aromatic hydrocarbons]								
	Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
	Aldrin + Dieldrin		0.7 µg/L						
	Alkalinity								
	Alkalinity, Total (as CaCO3)	610 mg/L							Livestock Safe
	Bicarbonate (HCO3)	600 mg/L							Livestock Safe
	Carbonate (CO3)	74 mg/L							Livestock Safe
	Hydroxide (OH)								
	Alachlor								
	Aluminum	**691 µg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		Livestock Safe
	Ammonia	0.082 mg/L							Passes Tier 2 - Equation 8
	Aniline				2.2 µg/L				
	Anthracene [See Polycyclic aromatic hydrocarbons]								
	Antimony		6 µg/L						
	Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
	Arsenic	**13 µg/L**	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
	Atrazine and metabolites		5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
	Azinphos-methyl		20 µg/L						
	Barium	**42 µg/L**	1000 µg/L						
	Bendiocarb		40 µg/L						
	Benomyl								
	Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
	Benzene		5 µg/L		370 µg/L				
	Beryllium								
	Biochemical Oxygen Demand	13 mg/L							Livestock Safe

	Sample Identification: **#1 OF 4 CENTER LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 5**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	C.Lake2010
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Bismuth								
	2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
	2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
	Boron	**1580 µg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
	Bromacil				5 µg/L	0.2 µg/L	1100 µg/L		
	Bromate		10 µg/L						
	Bromoxynil		5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
	Cadmium		5 µg/L			5.1 µg/L	80 µg/L		
	Calcium	**157 mg/L**					1,000,000 µg/L		
	Captan				1.3 µg/L		13 µg/L		
	Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
	Carbofuran		90 µg/L		1.8 µg/L		45 µg/L		
	Carbon	50 mg/L							Livestock Safe
	Carbon (Inorganic)	12.4 mg/L							Livestock Safe
	Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
	Carboxin								
	Cesium-137 (137Cs)		10 Bq/L						
	Chloramines [See Reactive Chlorine]								
	Chlordane								
	Chloride	**240 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				
	Chlorinated benzenes								
	Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
	1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				

	Sample Identification: **#1 OF 4 CENTER LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 5**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	C.Lake2010
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	1,3-Dichlorobenzene				150 µg/L				
	1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
	1,2,3-Trichlorobenzene				8.0 µg/L				
	1,2,4-Trichlorobenzene				24 µg/L				
	1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
	Pentachlorobenzene				6.0 µg/L				
	Hexachlorobenzene						0.52 µg/L		
	Chlorinated ethanes								
	1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
	1,1,1-Trichloroethane [see DDT]								
	Chlorinated ethenes								
	Monochloroethane (Vinyl Chloride)		2 µg/L						
	1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
	1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
	1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
	Chlorinated methanes [See Halogenated methanes]								
	Chlorinated phenols								
	Monochlorophenol				7 µg/L				
	Dichlorophenol				0.2 µg/L				
	2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
	Trichlorophenol				18 µg/L				
	2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
	Tetrachlorophenol				1 µg/L				
	2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
	Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
	Chlorine, Reactive [See Reactive Chlorine]								
	Chloroform [See Halogenated methanes; Trichloromethane]								
	4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
	Chlorophyll-a & Pheophytin-a								
	Chlorophyll-a	80.1 µg/L							Livestock Safe

	Sample Identification: **#1 OF 4 CENTER LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 5**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	C.Lake2010
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Phaeophytin a								
	ODb/ODa								
	Chlorothalonil				0.18 µg/L	5.8 µg/L	170 µg/L		
	Chlorpyrifos		90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term		24 µg/L		
	Chromium		50 µg/L			4.9 µg/L	50 µg/L		
	Chromium (III)								
	Chromium (VI)	**0.003 mg/L**				8 µg/L	50 µg/L		
	Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Cobalt					50 µg/L	1000 µg/L		
	Coliforms, Fecal								
	Coliforms, Total		0 per 100 mL		1000 per 100 mL				
	Colour			≤15 TCU					
	Copper	**2.6 µg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
	Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
	Cyanide		200 µg/L						
	2,4-D (See 2,4-Dichlorophenoxyacetic acid)								
	DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
	DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
	DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
	DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
	DDT, Total (sum of DDE, DDD, DDT)								
	Deltamethrin				0.0004 µg/L		2.5 µg/L		
	Diazinon		20 µg/L						
	Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								

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	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Dibromochloromethane [See Halogenated methanes]								
	Di-*n*-butyl phthalate [See Phthalate esters]								
	Dicamba		120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
	Dichlorobenzene [See Chlorinated benzenes]								
	Dichlorobromomethane [See Halogenated methanes]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
	Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
	Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
	Dichloroethane [See Chlorinated ethanes]								
	Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
	Dichloromethane [See Halogenated methanes]								
	Dichlorophenol [See Chlorinated phenols]								
	2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
	Diclofop-methyl		9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
	Didecyl dimethyl ammonium chloride [See DDAC]								
	Dieldrin								
	Dieldrin + Aldrin [See Aldrin + Dieldrin]								
	Di(2-ethylhexyl) phthalate [See Phthalate esters]								
	Diisopropanolamine				1,600 µg/L	2000 µg/L			
	Dimethoate		20 µg/L		6.2 µg/L		3 µg/L		
	Di-n-butyl phthalate [See Phthalate esters]								
	Dinoseb		10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		
	Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								

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	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Diphenyl dichloro ethylene [See DDE]								
	Diquat		70 µg/L						
	Dissolved oxygen [See Oxygen, Dissolved]								
	Dissolved solids [See Total dissolved solids]								
	Diuron		150 µg/L						
	Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
	Endrin								
	Eptam								
	Ethalfluralin								
	Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
	Ethylene glycol [See Glycols]								
	Fecal coliforms [See Coliforms, fecal]								
	Fenoxaprop								
	Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
	Inorganic fluorides				0.12 µg/L				
	Glycols								
	Ethylene glycol				192,000 µg/L				
	Propylene glycol				500,000 µg/L				
	Glyphosate		280 µg/L		65 µg/L		280 µg/L		
	Halogenated methanes								
	Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
	Trichloromethane [Chloroform]				1.8 µg/L				
	Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		
	Tribromomethane (Bromoform)						100 µg/L		

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	Dichlorobromomethane						100 µg/L		
	Dibromochloromethane						100 µg/L		
	Trihalomethanes-total (THMs)		100 µg/L						
	HCBD [See Hexachlorobutadiene]								
	Heptachlor (Heptachlor epoxide)								
	Hexachlorobenzene [See Chlorinated benzenes]								
	Hexachlorobutadiene [HCBD]				1.3 µg/L				
	Hexachlorocyclohexane [See Lindane]								
	Hypochlorous acid [See Reactive chlorine species]								
	Imazamethabenz								
	Imidacloprid				0.23 µg/L				
	Iodine-131 (^{131}I)		6 Bq/L						
	3-Iodo-2-propynyl butyl carbamate [See IPBC]								
	IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
	Iron	**944 µg/L**		≤300 µg/L	300 µg/L	5000 µg/L			Livestock Safe
	Lead	**1.1 µg/L**	10 µg/L			200 µg/L	100 µg/L		
	Lead-210 (^{210}Pb)		0.2 Bq/L						
	Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
	Linuron				7.0 µg/L	0.071 µg/L			
	Lithium	**1490 µg/L**				2500 µg/L			
	Malathion		190 µg/L						
	Magnesium	502 mg/L							Livestock Safe
	Manganese	**207 µg/L**		≤50 µg/L		200 µg/L			Livestock Safe
	MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]				2.6 µg/L	0.025 µg/L	25 µg/L		
	Mecoprop								
	Mercury		1 µg/L				3 µg/L		
	Inorganic Mercury				0.026 µg/L				
	Methoprene				0.09 µg/L				
	Methylmercury				0.004 µg/L				

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	Methoxychlor		900 µg/L						
	Methylene chloride [See Halogenated methanes, Dichloromethane]								
	2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
	Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
	2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
	Metribuzin		80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
	Metsulfuron-methyl								
	Microcystin LR		1.5 µg/L						
	Molybdenum	**3 µg/L**			73 µg/L	10-50 µg/L	500 µg/L		
	Monochloramine [See Reactive chlorine species]								
	Monochlorobenzene [See Chlorinated benzenes]								
	Monochlorophenol [See Chlorinated phenols]								
	Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Nickel	**4 µg/L**				200 µg/L	1000 µg/L		
	Nitrate (as N)		10,000 µg/L		13,000 µg/L				
	Nitrate + Nitrite						100,000 µg/L		
	Nitrilotriacetic acid [NTA]		400 µg/L						
	Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
	Nitrite + Nitrate [See Nitrate + Nitrite]	0.04 mg/L							Livestock Safe
	Nitrogen	3.8 mg/L							Livestock Safe
	Nonylphenol and its ethoxylates				1.0 µg/L				
	NTA [See Nitrilotriacetic acid]								
	Organotins								
	Tributyltin				0.008 µg/L		250 µg/L		
	Tricyclohexyltin						250 µg/L		
	Triphenyltin				0.022 µg/L		820 µg/L		
	Ortho Phosphorus Soluble As P								

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	Oxygen, Dissolved								
	PAHs [See Polycyclic aromatic hydrocarbons]								
	Paraquat (as dichloride)		10 µg/L						
	Parathion		50 µg/L						
	PCBs [See Polychlorinated biphenyls (PCBs)]								
	PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
	PCP [See Chlorinated phenols, Pentachlorophenol]								
	Pentachlorobenzene [See Chlorinated benzenes]								
	Pentachlorophenol [See Chlorinated phenols (PCP)]								
	Permithrin				0.004 µg/L				
	pH			6.5-8.5	6.5-9.0			5.0-9.0	
	Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Phenols				4 µg/L		2 µg/L		
	Phenoxy herbicides				4 µg/L		100 µg/L		
	Phorate		2 µg/L						
	Phosphate (Particulate)	0.20 mg/L							Livestock Safe
	Phosphate (Dissolved)	0.82 mg/L							Livestock Safe
	Phosphorus	1.02 mg/L							Livestock Safe
	Inorganic Phosphorus								
	Total Dissolved Phosphorus								
	Phthalate esters								
	Di-*n*-butyl phthalate				19 µg/L				
	Di(2-ethylhexyl) phthalate				16 µg/L				
	Di-*n*-octyl phthalate								
	Picloram				29 µg/L		190 µg/L		
	Polychlorinated biphenyls [PCBs]								
	Aroclor 1254								
	Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								

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	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Polycyclic aromatic hydrocarbons [PAHs]								
	Acenaphthene				5.8 µg/L				
	Acenaphthylene								
	Acridine				4.4 µg/L				
	Anthracene				0.012 µg/L				
	Benz*(a)* anthracene				0.018 µg/L				
	Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
	Chrysene								
	Dibenz*(a,h)* anthracene								
	Fluoranthene				0.04 µg/L				
	Fluorene				3.0 µg/L				
	2-Methylnaphthalene								
	Naphthalene				1.1 µg/L				
	Phenanthrene				0.4 µg/L				
	Pyrene				0.025 µg/L				
	Quinoline				3.4 µg/L				
	Potassium	108 mg/L							Livestock Safe
	Propanil								
	Propoxur								
	Propylene glycol [See Glycols]								
	Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quizalofop								
	Radium-226		0.5 Bq/L						
	Reactive chlorine species								
	Chloramines, total		3000 µg/L						
	Rubidium								
	Selenium	**0.3 µg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
	Sethoxydim								
	Silicon	5130 µg/L							Livestock Safe
	Silver				0.1 µg/L				
	Simazine				10 µg/L	0.5 µg/L	10 µg/L		

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Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Sodium	**2100 mg/L**		≤200,000 µg/L					Livestock Safe
Streambed substrate [See Total particulate matter]								
Strontium-90 (^{90}Sr)	1100 µg/L	5 Bq/L						Livestock Safe (see introductory notes)
Styrene				72 µg/L				
Sulfolane				50,000 µg/L	500 µg/L			
Sulphate	**5200 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Exceeds Guidelines for Livestock but resident cattle do not appear to be affected.
Sulphide (as H_2S)			≤50 µg/L					
Sulphur	2150 mg/L							Livestock Safe
Suspended particulates [See Total particulate matter]								
Suspended sediments [See Total particulate matter]								
TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
Tellurium								
Temperature			≤15ºC					
Terbufos		1 µg/L						
Tetrachlorobenzene [See Chlorinated benzenes]								
Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
Tetrachloromethane [See Halogenated methanes]								
Tetrachlorophenol [See Chlorinated phenols]								
Thallium				0.8 µg/L				
Thifensulfuron-methyl								
Thorium								
Tin								
Titanium	15 µg/L							Livestock Safe
Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
Total dissolved solids	**6900 mg/L**		≤500,000 µg/L			3,000,000 µg/L		Livestock Safe
Total particulate matter								
Suspended sediments	63 mg/L							Livestock Safe
Turbidity		0.3/1.0/0.1 NTU[e]						

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	Toxaphene								
	Tralkoxydim								
	Triallate				0.24 µg/L		230 µg/L		
	Tribenuron-methyl								
	Tribromomethane [See Halogenated methanes]								
	Tributyltin [See Organotins]								
	Trichlorobenzene [See Chlorinated benzenes]								
	Trichloroethane [See Chlorinated ethanes]								
	Trichloroethene [See Chlorinated ethenes]								
	Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
	Trichloromethane [See Halogenated methanes]								
	Trichlorophenol [See Chlorinated phenols]								
	Tricyclohexyltin [See Organotins]								
	Triclopyr								
	Trifluralin				0.20 µg/L		45 µg/L		
	Trihalomethanes [See Halogenated methanes]								
	Triphenyltin [See Organotins]								
	Tritium (^{3}H)		7000 Bq/L						
	Tungsten								
	Turbidity [See Total particulate matter]	25 NTU							Livestock Safe
	Uranium	**6.7 µg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		Livestock Safe
	Vanadium					100 µg/L	100 µg/L		
	Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
	Xylene			≤300 µg/L					
	Zinc			≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		

	Sample Identification: **#1 OF 4 CENTER LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 5**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	C.Lake2010
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Zirconium	1 µg/L							Livestock Safe

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Acenaphthene [See Polycyclic aromatic hydrocarbons]								
	Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
	Acridine [See Polycyclic aromatic hydrocarbons]								
	Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
	Aldrin + Dieldrin		0.7 µg/L						
	Alkalinity								
	Alkalinity, Total (as CaCO3)	610 mg/L							Livestock Safe
	Bicarbonate (HCO3)	600 mg/L							Livestock Safe
	Carbonate (CO3)	72 mg/L							Livestock Safe
	Hydroxide (OH)								
	Alachlor								
	Aluminum	**526 µg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		
	Ammonia	0.078 mg/L							Passes Tier 2 - Equation 8
	Aniline				2.2 µg/L				
	Anthracene [See Polycyclic aromatic hydrocarbons]								
	Antimony		6 µg/L						
	Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
	Arsenic	**12.5 µg/L**	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
	Atrazine and metabolites		5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
	Azinphos-methyl		20 µg/L						
	Barium	**39 µg/L**	1000 µg/L						
	Bendiocarb		40 µg/L						
	Benomyl								
	Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
	Benzene		5 µg/L		370 µg/L				
	Beryllium								
	Biochemical Oxygen Demand	12 mg/L							Livestock Safe

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Bismuth								
	2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
	2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
	Boron	**1530 µg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
	Bromacil				5 µg/L	0.2 µg/L	1100 µg/L		
	Bromate		10 µg/L						
	Bromoxynil		5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
	Cadmium		5 µg/L			5.1 µg/L	80 µg/L		
	Calcium	**157 mg/L**					1,000,000 µg/L		
	Captan				1.3 µg/L		13 µg/L		
	Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
	Carbofuran		90 µg/L		1.8 µg/L		45 µg/L		
	Carbon	53 mg/L							Livestock Safe
	Carbon (Inorganic)	14.5 mg/L							Livestock Safe
	Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
	Carboxin								
	Cesium-137 (137Cs)		10 Bq/L						
	Chloramines [See Reactive Chlorine]								
	Chlordane								
	Chloride	**220 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				
	Chlorinated benzenes								
	Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
	1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	1,3-Dichlorobenzene				150 µg/L				
	1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
	1,2,3-Trichlorobenzene				8.0 µg/L				
	1,2,4-Trichlorobenzene				24 µg/L				
	1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
	Pentachlorobenzene				6.0 µg/L				
	Hexachlorobenzene						0.52 µg/L		
	Chlorinated ethanes								
	1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
	1,1,1-Trichloroethane [see DDT]								
	Chlorinated ethenes								
	Monochloroethane (Vinyl Chloride)		2 µg/L						
	1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
	1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
	1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
	Chlorinated methanes [See Halogenated methanes]								
	Chlorinated phenols								
	Monochlorophenol				7 µg/L				
	Dichlorophenol				0.2 µg/L				
	2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
	Trichlorophenol				18 µg/L				
	2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
	Tetrachlorophenol				1 µg/L				
	2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
	Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
	Chlorine, Reactive [See Reactive Chlorine]								
	Chloroform [See Halogenated methanes; Trichloromethane]								
	4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
	Chlorophyll-a & Pheophytin-a								
	Chlorophyll-a	62.3 µg/L							Livestock Safe

Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Phaeophytin a								
ODb/ODa								
Chlorothalonil				0.18 µg/L	5.8 µg/L	170 µg/L		
Chlorpyrifos		90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term exposure		24 µg/L		
Chromium		50 µg/L			4.9 µg/L	50 µg/L		
Chromium (III)								
Chromium (VI)	0.004 mg/L				8 µg/L	50 µg/L		Livestock Safe
Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Cobalt					50 µg/L	1000 µg/L		
Coliforms, Fecal								
Coliforms, Total		0 per 100 mL		1000 per 100 mL				
Colour			≤15 TCU					
Copper	**2.3 µg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
Cyanide		200 µg/L						
2,4-D (See 2,4-Dichlorophenoxyacetic acid)								
DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
DDT, Total (sum of DDE, DDD, DDT)								
Deltamethrin				0.0004 µg/L		2.5 µg/L		
Diazinon		20 µg/L						

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Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Dibromochloromethane [See Halogenated methanes]								
Di-*n*-butyl phthalate [See Phthalate esters]								
Dicamba		120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
Dichlorobenzene [See Chlorinated benzenes]								
Dichlorobromomethane [See Halogenated methanes]								
1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
Dichloroethane [See Chlorinated ethanes]								
Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
Dichloromethane [See Halogenated methanes]								
Dichlorophenol [See Chlorinated phenols]								
2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
Diclofop-methyl		9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
Didecyl dimethyl ammonium chloride [See DDAC]								
Dieldrin								
Dieldrin + Aldrin [See Aldrin + Dieldrin]								
Di(2-ethylhexyl) phthalate [See Phthalate esters]								
Diisopropanolamine				1,600 µg/L	2000 µg/L			
Dimethoate		20 µg/L		6.2 µg/L		3 µg/L		
Di-n-butyl phthalate [See Phthalate esters]								
Dinoseb		10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		

Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								
Diphenyl dichloro ethylene [See DDE]								
Diquat		70 µg/L						
Dissolved oxygen [See Oxygen, Dissolved]								
Dissolved solids [See Total dissolved solids]								
Diuron		150 µg/L						
Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
Endrin								
Eptam								
Ethalfluralin								
Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
Ethylene glycol [See Glycols]								
Fecal coliforms [See Coliforms, fecal]								
Fenoxaprop								
Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
Inorganic fluorides				0.12 µg/L				
Glycols								
Ethylene glycol				192,000 µg/L				
Propylene glycol				500,000 µg/L				
Glyphosate		280 µg/L		65 µg/L		280 µg/L		
Halogenated methanes								
Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
Trichloromethane [Chloroform]				1.8 µg/L				

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		
	Tribromomethane (Bromoform)						100 µg/L		
	Dichlorobromomethane						100 µg/L		
	Dibromochloromethane						100 µg/L		
	Trihalomethanes-total (THMs)		100 µg/L						
	HCBD [See Hexachlorobutadiene]								
	Heptachlor (Heptachlor epoxide)								
	Hexachlorobenzene [See Chlorinated benzenes]								
	Hexachlorobutadiene [HCBD]				1.3 µg/L				
	Hexachlorocyclohexane [See Lindane]								
	Hypochlorous acid [See Reactive chlorine species]								
	Imazamethabenz								
	Imidacloprid				0.23 µg/L				
	Iodine-131 (^{131}I)		6 Bq/L						
	3-Iodo-2-propynyl butyl carbamate [See IPBC]								
	IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
	Iron	**806µg/L**		≤300 µg/L	300 µg/L	5000 µg/L			Livestock Safe
	Lead	**1.1 µg/L**	10 µg/L			200 µg/L	100 µg/L		
	Lead-210 (^{210}Pb)		0.2 Bq/L						
	Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
	Linuron				7.0 µg/L	0.071 µg/L			
	Lithium	**1470 µg/L**				2500 µg/L			
	Malathion		190 µg/L						
	Magnesium	471 mg/L							Livestock Safe
	Manganese	**180 µg/L**		≤50 µg/L		200 µg/L			Livestock Safe
	MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]				2.6 µg/L	0.025 µg/L	25 µg/L		
	Mecoprop								
	Mercury		1 µg/L				3 µg/L		

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	Inorganic Mercury				0.026 µg/L				
	Methoprene				0.09 µg/L				
	Methylmercury				0.004 µg/L				
	Methoxychlor		900 µg/L						
	Methylene chloride [See Halogenated methanes, Dichloromethane]								
	2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
	Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
	2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
	Metribuzin		80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
	Metsulfuron-methyl								
	Microcystin LR		1.5 µg/L						
	Molybdenum	**2 µg/L**			73 µg/L	10-50 µg/L	500 µg/L		
	Monochloramine [See Reactive chlorine species]								
	Monochlorobenzene [See Chlorinated benzenes]								
	Monochlorophenol [See Chlorinated phenols]								
	Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Nickel	**4 µg/L**				200 µg/L	1000 µg/L		
	Nitrate (as N)		10,000 µg/L		13,000 µg/L				
	Nitrate + Nitrite						100,000 µg/L		
	Nitrilotriacetic acid [NTA]		400 µg/L						
	Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
	Nitrite + Nitrate [See Nitrate + Nitrite]	0.02 mg/L							Livestock Safe
	Nitrogen	3.7 mg/L							Livestock Safe
	Nonylphenol and its ethoxylates				1.0 µg/L				
	NTA [See Nitrilotriacetic acid]								
	Organotins								
	Tributyltin				0.008 µg/L		250 µg/L		

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	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Tricyclohexyltin						250 µg/L		
	Triphenyltin				0.022 µg/L		820 µg/L		
	Ortho Phosphorus Soluble As P								
	Oxygen, Dissolved								
	PAHs [See Polycyclic aromatic hydrocarbons]								
	Paraquat (as dichloride)		10 µg/L						
	Parathion		50 µg/L						
	PCBs [See Polychlorinated biphenyls (PCBs)]								
	PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
	PCP [See Chlorinated phenols, Pentachlorophenol]								
	Pentachlorobenzene [See Chlorinated benzenes]								
	Pentachlorophenol [See Chlorinated phenols (PCP)]								
	Permithrin				0.004 µg/L				
	pH	**8.8 pH Units**		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
	Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Phenols				4 µg/L		2 µg/L		
	Phenoxy herbicides				4 µg/L		100 µg/L		
	Phorate		2 µg/L						
	Phosphate (Particulate)	0.020 mg/L							Livestock Safe
	Phosphate (Dissolved)	0.81 mg/L							Livestock Safe
	Phosphorus	1.02 mg/L							Livestock Safe
	Inorganic Phosphorus								
	Total Dissolved Phosphorus								
	Phthalate esters								
	Di-*n*-butyl phthalate				19 µg/L				
	Di(2-ethylhexyl) phthalate				16 µg/L				
	Di-*n*-octyl phthalate								
	Picloram				29 µg/L		190 µg/L		
	Polychlorinated biphenyls [PCBs]								

Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Aroclor 1254								
Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								
Polycyclic aromatic hydrocarbons [PAHs]								
Acenaphthene				5.8 µg/L				
Acenaphthylene								
Acridine				4.4 µg/L				
Anthracene				0.012 µg/L				
Benz*(a)* anthracene				0.018 µg/L				
Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
Chrysene								
Dibenz*(a,h)* anthracene								
Fluoranthene				0.04 µg/L				
Fluorene				3.0 µg/L				
2-Methylnaphthalene								
Naphthalene				1.1 µg/L				
Phenanthrene				0.4 µg/L				
Pyrene				0.025 µg/L				
Quinoline				3.4 µg/L				
Potassium	102 mg/L							Livestock Safe
Propanil								
Propoxur								
Propylene glycol [See Glycols]								
Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
Quizalofop								
Radium-226		0.5 Bq/L						
Reactive chlorine species								
Chloramines, total		3000 µg/L						
Rubidium								
Selenium	**0.3 µg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Sethoxydim								
	Silicon	4650 µg/L							Livestock Safe
	Silver				0.1 µg/L				
	Simazine				10 µg/L	0.5 µg/L	10 µg/L		
	Sodium	**1990 mg/L**		≤200,000 µg/L					
	Streambed substrate [See Total particulate matter]								
	Strontium-90 (^{90}Sr)	1050 µg/L	5 Bq/L						Livestock Safe
	Styrene				72 µg/L				
	Sulfolane				50,000 µg/L	500 µg/L			
	Sulphate	**5400 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Exceeds Guidelines for Livestock but cattle apparently are not affected. It's a SALT lake.
	Sulphide (as H_2S)			≤50 µg/L					
	Sulphur	2040 mg/L							Livestock Safe
	Suspended particulates [See Total particulate matter]								
	Suspended sediments [See Total particulate matter]								
	TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
	Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
	Tellurium								
	Temperature			≤15°C					
	Terbufos		1 µg/L						
	Tetrachlorobenzene [See Chlorinated benzenes]								
	Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
	Tetrachloromethane [See Halogenated methanes]								
	Tetrachlorophenol [See Chlorinated phenols]								
	Thallium				0.8 µg/L				
	Thifensulfuron-methyl								
	Thorium								
	Tin								
	Titanium	14 µg/L							Livestock Safe
	Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			

Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Total dissolved solids	**7400 mg/L**		≤500,000 µg/L			3,000,000 µg/L		High but Cattle are not apparently affected
Total particulate matter								
Suspended sediments	58 mg/L							Livestock Safe
Turbidity	**23**	0.3/1.0/0.1 NTU[e]						Livestock Safe
Toxaphene								
Tralkoxydim								
Triallate				0.24 µg/L		230 µg/L		
Tribenuron-methyl								
Tribromomethane [See Halogenated methanes]								
Tributyltin [See Organotins]								
Trichlorobenzene [See Chlorinated benzenes]								
Trichloroethane [See Chlorinated ethanes]								
Trichloroethene [See Chlorinated ethenes]								
Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Trichloromethane [See Halogenated methanes]								
Trichlorophenol [See Chlorinated phenols]								
Tricyclohexyltin [See Organotins]								
Triclopyr								
Trifluralin				0.20 µg/L		45 µg/L		
Trihalomethanes [See Halogenated methanes]								
Triphenyltin [See Organotins]								
Tritium (^3H)		7000 Bq/L						
Tungsten								
Turbidity [See Total particulate matter]								
Uranium	**6.5 µg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		
Vanadium					100 µg/L	100 µg/L		

	Sample Identification: **#3 OF 4 CENTER LAKE DUMP**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 6**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
	Xylene			≤300 µg/L					
	Zinc			≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		
	Zirconium	1 µg/L							Livestock Safe

Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Acenaphthene [See Polycyclic aromatic hydrocarbons]								
Acenaphthylene [See Polycyclic aromatic hydrocarbons]								
Acridine [See Polycyclic aromatic hydrocarbons]								
Aldicarb		9 µg/L		1 µg/L	54.9 µg/L	11 µg/L		
Aldrin + Dieldrin		0.7 µg/L						
Alkalinity								
Alkalinity, Total (as CaCO3)	400 mg/L							Livestock Safe
Bicarbonate (HCO3)	410 mg/L							Livestock Safe
Carbonate (CO3)	41 mg/L							Livestock Safe
Hydroxide (OH)								
Alachlor								
Aluminum	**27 µg/L**			5 µg/L if pH < 6.5 or 100 µg/L if pH ≥ 6.5	5000 µg/L	5000 µg/L		Livestock Safe
Ammonia	0.26 mg/L							Passes Tier 2 - Equation 8
Aniline				2.2 µg/L				
Anthracene [See Polycyclic aromatic hydrocarbons]								
Antimony	**0.7µg/L**	6 µg/L						Livestock Safe
Aroclor 1254 [See Polychlorinated biphenyls (PCBs)]								
Arsenic	**13.6 µg/L**	10 µg/L			100 µg/L	25 µg/L		Livestock Safe
Atrazine and metabolites		5 µg/L		1.8 µg/L	10 µg/L	5 µg/L		
Azinphos-methyl		20 µg/L						
Barium	**10 µg/L**	1000 µg/L						
Bendiocarb		40 µg/L						
Benomyl								
Benz*(a)* anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								
Benzo[a]pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]		0.01		0.15				
Benzene		5 µg/L		370 µg/L				
Beryllium								
Biochemical Oxygen Demand	10 mg/L							Livestock Safe

	Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Bismuth	13.6 µg/L							Livestock Safe
	2,2-Bis(p-chlorophenyl)-1,1-dichloroethane [See DDD]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene [See DDE]								
	2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane [See DDT]								
	Boron	**2070 µg/L**	5000 µg/L		29,000 µg/L short term exposure; 1,500 µg//L long term	500-6000 µg/L (crop dependent)	5000 µg/L		
	Bromacil				5 µg/L	0.2 µg/L	1100 µg/L		
	Bromate		10 µg/L						
	Bromoxynil		5 µg/L		5 µg/L	0.33 µg/L	11 µg/L		
	Cadmium	**0.01 µg/L**	5 µg/L			5.1 µg/L	80 µg/L		
	Calcium	**48.9 mg/L**					1,000,000 µg/L		
	Captan				1.3 µg/L		13 µg/L		
	Carbaryl		90 µg/L		3.3 µg/L short term exposure; 0.2 µg/L long term exposure		1100 µg/L		
	Carbofuran		90 µg/L		1.8 µg/L		45 µg/L		
	Carbon	28 mg/L							Livestock Safe
	Carbon (Inorganic)	3.5 mg/L							Livestock Safe
	Carbon tetrachloride [See Halogenated methanes; Tetrachloromethane]								
	Carboxin								
	Cesium-137 (137Cs)		10 Bq/L						
	Chloramines [See Reactive Chlorine]								
	Chlordane								
	Chloride	**110 mg/L**		≤250,000 µg/L	100,000-900,000 µg/L				
	Chlorinated benzenes								
	Monochlorobenzene		80 µg/L	≤30 µg/L	1.3 µg/L				
	1,2-Dichlorobenzene		200 µg/L	≤3 µg/L	0.70 µg/L				

	Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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	1,3-Dichlorobenzene				150 µg/L				
	1,4-Dichlorobenzene		5 µg/L	≤1 µg/L	26 µg/L				
	1,2,3-Trichlorobenzene				8.0 µg/L				
	1,2,4-Trichlorobenzene				24 µg/L				
	1,2,3,4-Tetrachlorobenzene				1.8 µg/L				
	Pentachlorobenzene				6.0 µg/L				
	Hexachlorobenzene						0.52 µg/L		
	Chlorinated ethanes								
	1,2-Dichloroethane		5 µg/L		100 µg/L		5 µg/L		
	1,1,1-Trichloroethane [see DDT]								
	Chlorinated ethenes								
	Monochloroethane (Vinyl Chloride)		2 µg/L						
	1,1-Dichloroethene (Dichloroethylene)		14 µg/L						
	1,1,2-Trichloroethene (Trichloroethylene, TCE)		5 µg/L		21 µg/L		50 µg/L		
	1,1,2,2-Tetrachloroethene (Tetrachloroethylene, PCE)		30 µg/L		110 µg/L				
	Chlorinated methanes [See Halogenated methanes]								
	Chlorinated phenols								
	Monochlorophenol				7 µg/L				
	Dichlorophenol				0.2 µg/L				
	2,4-Dichlorophenol		900 µg/L	≤0.3 µg/L					
	Trichlorophenol				18 µg/L				
	2,4,6-Trichlorophenol		5 µg/L	≤2 µg/L					
	Tetrachlorophenol				1 µg/L				
	2,3,4,6-Tetrachlorophenol		100 µg/L	≤1 µg/L					
	Pentachlorophenol (PCP)		60 µg/L	≤30 µg/L	0.5 µg/L				
	Chlorine, Reactive [See Reactive Chlorine]								
	Chloroform [See Halogenated methanes; Trichloromethane]								
	4-Chloro-2-methyl phenoxy acetic acid [See MCPA]								
	Chlorophyll-a & Pheophytin-a								
	Chlorophyll-a	103 µg/L							Livestock Safe

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	Phaeophytin a								
	ODb/ODa								
	Chlorothalonil				0.18 µg/L	5.8 µg/L	170 µg/L		
	Chlorpyrifos		90 µg/L		0.02 µg/L short term exposure; 0.0002 µg/L long term		24 µg/L		
	Chromium		50 µg/L			4.9 µg/L	50 µg/L		
	Chromium (III)								
	Chromium (VI)	**0.004 mg/L**				8 µg/L	50 µg/L		
	Chrysene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Cobalt					50 µg/L	1000 µg/L		
	Coliforms, Fecal								
	Coliforms, Total		0 per 100 mL		1000 per 100 mL				
	Colour			≤15 TCU					
	Copper	**4.1 µg/L**		≤1000 µg/L		200-1000 µg/L (crop dependent	500-5000 µg/L (species dependent)		
	Cyanazine		10 µg/L		2	0.5 µg/L	10 µg/L		
	Cyanide		200 µg/L						
	2,4-D (See 2,4-Dichlorophenoxyacetic acid)								
	DDAC (Didecyl dimethyl ammonium chloride)				1.5 µg/L				
	DDD [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; Dichloro diphenyl dichloroethane]								
	DDE [1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethene; Diphenyl dichloro ethylene]								
	DDT [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethan; Dichloro diphenyl trichloroethane]								
	DDT, Total (sum of DDE, DDD, DDT)								
	Deltamethrin				0.0004 µg/L		2.5 µg/L		
	Diazinon		20 µg/L						
	Dibenz(a,h)anthracene [See Polycyclic aromatic hydrocarbons (PAHs)]								

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	Dibromochloromethane [See Halogenated methanes]								
	Di-*n* -butyl phthalate [See Phthalate esters]								
	Dicamba		120 µg/L		10 µg/L	0.006 µg/L	122 µg/L		
	Dichlorobenzene [See Chlorinated benzenes]								
	Dichlorobromomethane [See Halogenated methanes]								
	1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethane								
	Dichloro diphenyl dichloroethane [2,2-Bis(p-chlorophenyl)-1,1-dichloroethane; See DDD]								
	Dichloro diphenyl trichloroethane [2,2-Bis(p-chlorophenyl)-1,1,1-trichloroethane; See DDT]								
	Dichloroethane [See Chlorinated ethanes]								
	Dichloroethylene [See Chlorinated ethenes; 1,1-Dichloroethene]								
	Dichloromethane [See Halogenated methanes]								
	Dichlorophenol [See Chlorinated phenols]								
	2,4-Dichlorophenoxyacetic acid [2,4-D]		100 µg/L						
	Diclofop-methyl		9 µg/L		6.1 µg/L	0.18 µg/L	9 µg/L		
	Didecyl dimethyl ammonium chloride [See DDAC]								
	Dieldrin								
	Dieldrin + Aldrin [See Aldrin + Dieldrin]								
	Di(2-ethylhexyl) phthalate [See Phthalate esters]								
	Diisopropanolamine				1,600 µg/L	2000 µg/L			
	Dimethoate		20 µg/L		6.2 µg/L		3 µg/L		
	Di-n-butyl phthalate [See Phthalate esters]								
	Dinoseb		10 µg/L		0.05 µg/L	16 µg/L	150 µg/L		
	Dioxins and furans (2,3,7,8-TCDD) (see also Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs)]								
	Diphenyl dichloro ethylene [See DDE]								

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	Diquat		70 µg/L						
	Dissolved oxygen [See Oxygen, Dissolved]								
	Dissolved solids [See Total dissolved solids]								
	Diuron		150 µg/L						
	Endosulfan				0.06 µg/L short term exposure; 0.003 µg/L long-term exposure				
	Endrin								
	Eptam								
	Ethalfluralin								
	Ethylbenzene			≤2.4 µg/L	90 µg/L		2.4 µg/L		
	Ethylene glycol [See Glycols]								
	Fecal coliforms [See Coliforms, fecal]								
	Fenoxaprop								
	Fluoranthene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluorene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Fluoride		1500 µg/L			1000 µg/L	1000-2000 µg/L		
	Inorganic fluorides				0.12 µg/L				
	Glycols								
	Ethylene glycol				192,000 µg/L				
	Propylene glycol				500,000 µg/L				
	Glyphosate		280 µg/L		65 µg/L		280 µg/L		
	Halogenated methanes								
	Dichloromethane [Methylene chloride]		50 µg/L		98.1 µg/L		50 µg/L		
	Trichloromethane [Chloroform]				1.8 µg/L				
	Tetrachloromethane [Carbon tetrachloride]		5 µg/L		13.3 µg/L		5 µg/L		
	Tribromomethane (Bromoform)						100 µg/L		
	Dichlorobromomethane						100 µg/L		

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	Dibromochloromethane						100 µg/L		
	Trihalomethanes-total (THMs)		100 µg/L						
	HCBD [See Hexachlorobutadiene]								
	Heptachlor (Heptachlor epoxide)								
	Hexachlorobenzene [See Chlorinated benzenes]								
	Hexachlorobutadiene [HCBD]				1.3 µg/L				
	Hexachlorocyclohexane [See Lindane]								
	Hypochlorous acid [See Reactive chlorine species]								
	Imazamethabenz								
	Imidacloprid				0.23 µg/L				
	Iodine-131 (^{131}I)		6 Bq/L						
	3-Iodo-2-propynyl butyl carbamate [See IPBC]								
	IPBC [3-Iodo-2-propynyl butyl carbamate]				1.9 µg/L				
	Iron	**51 µg/L**		≤300 µg/L	300 µg/L	5000 µg/L			
	Lead	**1.6 µg/L**	10 µg/L			200 µg/L	100 µg/L		
	Lead-210 (^{210}Pb)		0.2 Bq/L						
	Lindane [Hexachlorocyclohexane]				0.01 µg/L		4 µg/L		
	Linuron				7.0 µg/L	0.071 µg/L			
	Lithium	**932 µg/L**				2500 µg/L			
	Malathion		190 µg/L						
	Magnesium	230 mg/L							Livestock Safe
	Manganese	**40 µg/L**		≤50 µg/L		200 µg/L			
	MCPA [4-Chloro-2-methyl phenoxy acetic acid; 2-Methyl-4chloro phenoxy acetic acid]				2.6 µg/L	0.025 µg/L	25 µg/L		
	Mecoprop								
	Mercury		1 µg/L				3 µg/L		
	Inorganic Mercury				0.026 µg/L				
	Methoprene				0.09 µg/L				
	Methylmercury				0.004 µg/L				
	Methoxychlor		900 µg/L						

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	Methylene chloride [See Halogenated methanes, Dichloromethane]								
	2-Methyl-4-chloro phenoxy acetic acid [See MCPA]								
	Methyl tertiary-butyl ether (MTBE)			15 µg/L	10,000 µg/L				
	2-Methylnaphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Metolachlor		50 µg/L		7.8 µg/L	28 µg/L	50 µg/L		
	Metribuzin		80 µg/L		1.0 µg/L	0.5 µg/L	80 µg/L		
	Metsulfuron-methyl								
	Microcystin LR		1.5 µg/L						
	Molybdenum	**2 µg/L**			73 µg/L	10-50 µg/L	500 µg/L		
	Monochloramine [See Reactive chlorine species]								
	Monochlorobenzene [See Chlorinated benzenes]								
	Monochlorophenol [See Chlorinated phenols]								
	Naphthalene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Nickel	**1 µg/L**				200 µg/L	1000 µg/L		
	Nitrate (as N)		10,000 µg/L		13,000 µg/L				
	Nitrate + Nitrite						100,000 µg/L		
	Nitrilotriacetic acid [NTA]		400 µg/L						
	Nitrite (as N)		3,200 µg/L		60 µg/L		10,000 µg/L		
	Nitrite + Nitrate [See Nitrate + Nitrite]	0.12 mg/L							Livestock Safe
	Nitrogen	3.0 mg/L							Livestock Safe
	Nonylphenol and its ethoxylates				1.0 µg/L				
	NTA [See Nitrilotriacetic acid]								
	Organotins								
	Tributyltin				0.008 µg/L		250 µg/L		
	Tricyclohexyltin						250 µg/L		
	Triphenyltin				0.022 µg/L		820 µg/L		
	Ortho Phosphorus Soluble As P								
	Oxygen, Dissolved								

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	PAHs [See Polycyclic aromatic hydrocarbons]								
	Paraquat (as dichloride)		10 µg/L						
	Parathion		50 µg/L						
	PCBs [See Polychlorinated biphenyls (PCBs)]								
	PCE [See Chlorinated ethenes, Tetrachloroethylene; 1,1,2,2-Tetrachloroethene]								
	PCP [See Chlorinated phenols, Pentachlorophenol]								
	Pentachlorobenzene [See Chlorinated benzenes]								
	Pentachlorophenol [See Chlorinated phenols (PCP)]								
	Permithrin				0.004 µg/L				
	pH	**8.9 pH units**		6.5-8.5	6.5-9.0			5.0-9.0	Livestock Safe
	Phenanthrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Phenols				4 µg/L		2 µg/L		
	Phenoxy herbicides				4 µg/L		100 µg/L		
	Phorate		2 µg/L						
	Phosphate (Particulate)	0.229 mg/L							Livestock Safe
	Phosphate (Dissolved)								
	Phosphorus								
	Inorganic Phosphorus								
	Total Dissolved Phosphorus	0.279 mg/L							Livestock Safe
	Phthalate esters								
	Di-*n*-butyl phthalate				19 µg/L				
	Di(2-ethylhexyl) phthalate				16 µg/L				
	Di-*n*-octyl phthalate								
	Picloram				29 µg/L		190 µg/L		
	Polychlorinated biphenyls [PCBs]								
	Aroclor 1254								
	Polychlorinated dibenzo-p-dioxins/dibenzo furans (PCDD/Fs) [see also Dioxins and furans]								
	Polycyclic aromatic hydrocarbons [PAHs]								

	Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
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	Acenaphthene				5.8 µg/L				
	Acenaphthylene								
	Acridine				4.4 µg/L				
	Anthracene				0.012 µg/L				
	Benz*(a)* anthracene				0.018 µg/L				
	Benzo*(a)* pyrene Benz*(b)* fluoranthene		0.01 µg/L		0.015 µg/L				
	Chrysene								
	Dibenz*(a,h)* anthracene								
	Fluoranthene				0.04 µg/L				
	Fluorene				3.0 µg/L				
	2-Methylnaphthalene								
	Naphthalene				1.1 µg/L				
	Phenanthrene				0.4 µg/L				
	Pyrene				0.025 µg/L				
	Quinoline				3.4 µg/L				
	Potassium	65.9 mg/L							
	Propanil								
	Propoxur								
	Propylene glycol [See Glycols]								
	Pyrene [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quinoline [See Polycyclic aromatic hydrocarbons (PAHs)]								
	Quizalofop								
	Radium-226		0.5 Bq/L						
	Reactive chlorine species								
	Chloramines, total		3000 µg/L						
	Rubidium								
	Selenium	**0.1 µg/L**	10 µg/L		1.0 µg/L	20-50 µg/L	50 µg/L		
	Sethoxydim								
	Silicon	1940 µg/L							Livestock Safe
	Silver				0.1 µg/L				
	Simazine				10 µg/L	0.5 µg/L	10 µg/L		
	Sodium	**1080 mg/L**		≤200,000 µg/L					

	Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Streambed substrate [See Total particulate matter]								
	Strontium-90 (^{90}Sr)	**24 µg/L**	5 Bq/L						Livestock Safe (See introductory notes)
	Styrene				72 µg/L				
	Sulfolane				50,000 µg/L	500 µg/L			
	Sulphate	**2900 mg/L**		≤500,000 µg/L			1,000,000 µg/L		Exceeds Livestock Guidelines but proven Livestock Safe over the years- Aquatic life thriving
	Sulphide (as H_2S)			≤50 µg/L					
	Sulphur	1010 mg/L							Livestock Safe
	Suspended particulates [See Total particulate matter]								
	Suspended sediments [See Total particulate matter]								
	TCE [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
	Tebuthiuron				1.6 µg/L	0.27 µg/L	130 µg/L		
	Tellurium								
	Temperature			≤15°C					
	Terbufos		1 µg/L						
	Tetrachlorobenzene [See Chlorinated benzenes]								
	Tetrachloroethylene [See Chlorinated ethenes, 1,1,2,2-Tetrachloroethene]								
	Tetrachloromethane [See Halogenated methanes]								
	Tetrachlorophenol [See Chlorinated phenols]								
	Thallium				0.8 µg/L				
	Thifensulfuron-methyl								
	Thorium								
	Tin								
	Titanium								
	Toluene			≤24 µg/L	2.0 µg/L	24 µg/L			
	Total dissolved solids	**3700 mg/L**		≤500,000 µg/L			3,000,000 µg/L		High but livestock and aquatic life apparently are not affected
	Total particulate matter								
	Suspended sediments	3700 mg/L							Livestock Safe
	Turbidity	**11 NTU**	0.3/1.0/0.1 NTU[(e)]						It's a Salt Lake!

Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels

Variable	Sample Test Value	Surface or Ground Water: Drinking (Maximum Acceptable Concentration)	Surface or Ground Water: Drinking (Aesthetic Objectives)	Surface Water: Freshwater Aquatic Life	Surface or Ground Water: Irrigation	Surface or Ground Water: Livestock	Surface Water: Recreation	Comments:
Toxaphene								
Tralkoxydim								
Triallate				0.24 µg/L		230 µg/L		
Tribenuron-methyl								
Tribromomethane [See Halogenated methanes]								
Tributyltin [See Organotins]								
Trichlorobenzene [See Chlorinated benzenes]								
Trichloroethane [See Chlorinated ethanes]								
Trichloroethene [See Chlorinated ethenes]								
Trichloroethylene [See Chlorinated ethenes, 1,1,2-Trichloroethene]								
Trichloromethane [See Halogenated methanes]								
Trichlorophenol [See Chlorinated phenols]								
Tricyclohexyltin [See Organotins]								
Triclopyr								
Trifluralin				0.20 µg/L		45 µg/L		
Trihalomethanes [See Halogenated methanes]								
Triphenyltin [See Organotins]								
Tritium (^3H)		7000 Bq/L						
Tungsten								
Turbidity [See Total particulate matter]	11 NTU							Livestock Safe
Uranium	**2.4 µg/L**	20 µg/L		33 µg/L short term exposure; 15 µg/L long term exposure	10 µg/L	200 µg/L		
Vanadium					100 µg/L	100 µg/L		
Vinyl chloride [See Chlorinated ethenes, Monochloroethene]								
Xylene			≤300 µg/L					
Zinc			≤5000 µg/L		1000-5000 µg/L	50,000 µg/L		

	Sample Identification: **#2 OF 4 SOUTH LAKE**	Sampling Date: 2010/11/08	Maxxam ID **Y 3 2 5 2 7**		**Values are compared to the most sensitive limits and flagged.**		**Green: Value clears all recorded limits**	**Red: Value fails one or more recorded limit**	If a value is left blank it means it is not listed in Manitoba Guides and Objectives - See comments to determine safety levels
	Variable	**Sample Test Value**	**Surface or Ground Water: Drinking** (Maximum Acceptable Concentration)	**Surface or Ground Water: Drinking** (Aesthetic Objectives)	**Surface Water: Freshwater Aquatic Life**	**Surface or Ground Water: Irrigation**	**Surface or Ground Water: Livestock**	**Surface Water: Recreation**	**Comments:**
	Zirconium								

Water Quality Profiles

Name of Water							Time of Sample		Secchi D
Salt Lakes - Oak River Compilation			Notes:				Same Day		Variable
Date		Air Temp	See accompanying Google Map for YSI 556 Meter - Sample Locations.				Wind Dir./Velocity(km)		
10/21/2010		Variable					N	Variable	

Location	Temp (C)	ms/c/cm	ms/cm	Conductivity	TDS	Sal	% Dissolved O2	DO	pH
North Salt Lake	8.24	6.374	4.333	230.77	4.143	3.48	117.6	13.54	8.41
Center Salt Lake	3.9	4.84	2.89	346	3.146	2.57		11.79	8.22
Center Salt Lake - Abandoned Landfill	7.09	7.144	4.701	212.74	4.644	3.93	116.4	13.74	8.36
South Salt Lake	6.42	4.365	2.816	355.12	2.837	2.32	93	11.28	8.43
Oak River- Riley's Culverts	6.49	4.107	2.655	376.71	2.669	2.18	61.7	7.48	8.18
Oak River - Bridge (SW29-15-22)	8.02	4.048	2.735	365.62	2.631	2.15	134	15.65	8.34

Although the pH of the total flow remains constant over distance, even to the bridge over the Oak River, the salinity declines as would be expected. Riley's Marsh shows a marked decrease in dissolved oxygen, suggesting that some ion exchange or organic chemical reactions are occurring in the boggy conditions. Stillwater bogs are noted natural filters. Examination of salt retention on foliage suggests much of the salts remains in the bog.