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Presentation to the Manitoba Clean Environment Commission
of large scale hog production in the province of Manitoba.

Good evening members of the commission. My name is Roger Desilets. I reside in the Rural Municipality of Park, approximately 6 miles NE of the town of Oakburn. My wife Cathy and I, along with our four children, operate a small farm where we specialize in the production of honey from unique floral sources, as well as pure beeswax candles and a line of natural skin care products. We have lived in the area since 1983.

Our interest in the issue of hog production has come about due mainly to our involvement in opposing two unsuccessful attempts to establish Intensive Livestock Operations in the R. M. of Strathclair. The proposed site was roughly one and one half miles south-east of our residence, with spread fields being proposed for less than one half mile away. Wolfe Creek provides much of the drainage, directing water south and east into the R. M. of Shoal Lake via the Oak River. Many of the proposed spread fields straddled Wolfe Creek

Topo maps 1 and 2

The issue as we see it, is **WATER**. Sustained water drawdown by an ILO as well as the very real possibility of surface water and groundwater contamination concerns us greatly as we live in a hilly, pothole filled area on the south escarpment of the Riding Mountain, well known for its hunting, fishing and recreation, as well as farming. I do not claim to be an authority on hog production but am able to apply common sense to the situation, unclouded by the prospect of economic gain.

Aquifer maps 1 and 2

The purpose of this presentation is firstly to relate our experiences with proponents of the hog industry, and the shortcomings in the process of approving the siting and construction of ILO's and earthen manure storage facilities.

TRC report page 5

-Summary of soil survey and agricultural capability.
Note : Contains classes 2 – 6 soils with topographical and water concerns

TRC report page 6 and page 7

-Recommendations for nutrient application

TRC report Page 8

-Guidelines for initial soil sampling
-Surface water issues

TRC report page 9

- Wolfe Creek contributes to Shoal Lake phosphorous levels
- Phosphorous application recommendations

Note: Recharge / Discharge areas for Odanah Shale Aquifer

- Shallow sand and gravel zones
- Static water levels six to 20 m
- flowing well

TRC report page 11

- Recap of recommendations

In this instance, the Technical Review Committee appears to have done a thorough assessment of the proposal, and had raised a number of flags regarding the need for a more indepth soil testing to determine the suitability of the land to receive liquid manure. **Every recommendation was ignored by the council of the R. M. of Strathclair, and on the second attempt, the application for a conditional use permit was approved by them.** All presenters at the conditional use hearing were discounted as heretics .

The losers would have included residents of the R. M. of Park immediately to the north, and especially residents of the R. M. of Shoal Lake which would have received all the drainage from this proposed operation, despite having very little say in its' approval. This type of unilateral decision by a municipality , regardless of the effect on neighbours and downstream recipients is obviously unjust.

Fortunately for all, including the local farmer who had invited this Ontario corporation to establish itself in our midst, the parent company , Premium Pork Inc. declared bankruptcy before the barn could be built. On a positive note, almost the entire council of the R. M. of Strathclair was replaced in the last election.

Unfortunately, this all happened only after local community members had spent \$13,000.00 in legal fees and thousands of hours battling their own representatives as well as the unwelcome intrusion by an undesirable industry.

I have represented our local organization, the Wolfe Creek Conservation Group, at numerous meetings , pitching the proposal of a Water Protection Zone . We have suggested using the #45 Hwy. as the southern most boundary, as this line is also currently recognized by both the Manitoba Department of Conservation in establishing hunting zones as well as by the Department of Agriculture in its' TB testing program.

But the real issue is much larger than that. We are being told by scientist the possibility of a water shortage looms on the horizon as global warming progresses. We are being told by the Province of Manitoba that responsible use of our water resources is something we, as individual citizens, should start thinking about right now. And yet , our provincial government , in obvious contradiction, continues to encourage the expansion of Intensive Livestock Operations, each of which is known to use approx. 5 million gallons of water

annually to rinse pig shit from their barns. **How many barns of this type do we already have in Manitoba? Will we be able to continue wasting our DRINKING WATER In this way indefinitely.** I believe we honestly know the answer to this question is **NO.** It's time the proponents of this wasteful method of water usage stop thinking of the water under their feet as their own. And it is time the movers and shakers of the hog industry listen the citizens and their representatives, not the other way around. It is also time to stop defending the status quo , as the world changes around us.

Certainly, there are other important issues that come to mind when contemplating the expansion of the hog industry in Manitoba.

-Rural depopulation is not something to be applauded. Economy of scale , as preached by proponents of ever larger farming corporations, has greatly contributed to this dilemma. The 2 or 3 employees needed to operate a barn with 2500 sows contribute far less than a family of 4 needed to operate a farm in conjunction with a 150 sow farrow to finish operation. Many examples of this still exist in Manitoba, but they are finding it increasingly difficult to function with the BIG Guys controlling the industry. The straw based method does not pose the same problems as a liquid manure system.

-Coal fired boilers as are used in many existing ILO's should be discouraged in favour of methane recapture. Both the burning of coal and the escape of methane, a valuable source of energy, are contributing to greenhouse gas emissions. Two problems could be solved at once.

-The introduction of antibiotic residues and various pathogens into our surface waters ,thereby upsetting the ecological balance, has yet to be explored in depth. We have the science to do it.

I could go on , but you,ve probably heard it already , as you travel around this beautiful province. Our governments should not encourage a method of food production that will be obviously unsustainable in the future. Just as we are witnessing the closing of schools and hospitals in the rural areas, so will we see the demise of Intensive Hog Operations as a thing of the past as our water becomes scarce.

Let's use our common sense now. Our children will thank us for applying foresight to this issue.

I thank you for your time and patience.

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Western Swine Inc.
 NE ¼ 29-18-22W
 R.M. of Strathclair

Date: _____
 Received by: _____
 (Commission Page 5)

SUMMARY OF SOIL SURVEY, AGRICULTURAL CAPABILITY, AND CROPPING POTENTIAL

Legal Description	Soil Association	Soil Texture	Agricultural Capability Class/ Slopes (%)	Cropping Potential
NE 20-18-22W	Newdale	Clay loam	2T & 6W /2-5%	See below
SW 28-18-22W	Erickson Newdale	Clay loam Clay loam	Class 2T & 6W /2-5%	See below
S½ 29-18-22W	Newdale	Clay loam	Class 2T & 6W /2-5%	See below
N½ 29-18-22W	Newdale Erickson	Clay loam Clay loam	Class 2T & 6W /2-5%	See below
NE 30-18-22W	Newdale	Clay loam	Class 2T, 3T, 5W & 6W /2-9%	See below
SE 31-18-22W	Newdale	Clay loam	Class 2T, 3T, 5W & 6W /2-9%	See below
NW 31-18-22W	Newdale	Clay loam	Class 2T, 3T & 6W /5-9%	See below
S½ 17-18-22W	Newdale	Clay loam	Class 2T, 3T, 5W & 6W /5-9%	See below
NW 25-18-22W	Erickson	Clay loam	Class 2T, 5T & 6W /5-15%	See below
SE 35-18-22W	Erickson	Clay loam	Class 2T, 4T, 5W, & 6W /9-15%	See below
SE 30-18-22W	Newdale	Clay loam	Class 2T, 3T, 5W & 6W /2-9%	See below
SW 31-18-22W	Newdale	Clay loam	Class 2T, 3T, & 6W /5-9%	See below

Source: Soils and Terrain, Rural Municipality of Strathclair, Information Bulletin 98-8, 1998;
 Soil Capability for Agriculture - Canada Land Inventory, Riding Mountain-62K, ARDA, 1966;
 Report of Reconnaissance Soil Survey of Rosburn and Virden Map Sheet Area, 1956;

* CLI subclass T (e.g. 2T) denotes soils where topography is a limitation for agricultural use; either steepness or the pattern of slopes. CLI subclass W (e.g. 6W) denotes soils with excess water other than from flooding limits use for agriculture. The excess water may be due to poor drainage, a high water table, seepage or runoff from surrounding areas.

Two predominant soil types exist in Township 18, Range 22W. The Newdale soil association can be found in the southwestern portion of the township, while the Erickson clay loams can be found in the northeastern portion of the township.

The Newdale clay loam soils are developed on medium-textured, moderately calcareous boulder till of mixed shale, limestone and granitic rock origin. Stones are present throughout the Newdale soils, but constitute a problem to cultivation only in areas of rough topography and in areas bordering stream channels. The topography of the Newdale till plain is irregular and varies from nearly level to moderately undulating. Soil drainage is variable. Newdale soils have good water-retention capacity, high organic matter content, and very good tilth and workability. Soil erosion is a concern in

these undulating topographical conditions. The use of forage crops, conservation tillage and windbreaks to reduce wind erosion are recommended to minimize soil losses.

The Erickson clay loam soils consist of medium textured soils developed on boulder till parent material of similar origin and composition to that of the Newdale and Waitville association. The topography of the Erickson soils is irregular, moderately sloping but the slopes are generally sharper and the undulations are therefore more accentuated. The surface drainage of the Erickson soils is generally good. However, as a result of the moderately undulating topography, undrained depressions and shallow lakes are common. Glacial stones are present throughout the Erickson soils; however surface stoniness is not a problem to cultivation, except where it has been accentuated by erosion of the finer materials from knoll positions. The Erickson soils that occur in the undrained depressional areas are predominantly peaty meadow. They consist of 3 to 12 inches of fen peat underlain by a shallow mucky "A" horizon which is generally clay in texture. These soils were not differentiated when the area was mapped.

The better drained Erickson soils are nearly equal in fertility to the corresponding members of the Newdale soil association. The moisture retention capacity is equal to that of the Newdale soils and the precipitation-effectivity is higher in this area due to a somewhat cooler climate. The rougher topography accompanied by steeper slopes and accelerated runoff renders these soils highly susceptible to severe water erosion when unprotected by vegetative growth. Appropriate beneficial management practices are recommended to minimize soil movement on these soils.

Soils were sampled and submitted for analysis by Enviro-Test Laboratories on November 7-8, 2002 by Strathclair Co-op Agro.

Based on the Canada Land Inventory system, agricultural capability on spread acres range from Class 2T through Class 6W. CLI Classes 1, 2 and 3 except 3m and 3mw have no restrictions for annual cropping practices as long as crop nutrient recommendations are followed. The total annual nitrogen application on Class 3m, 3mw and all Class 4 lands should be based upon soil test results for residual nitrate-nitrogen in the top 60 cm (2') and a realistic crop yield. Fall applications on these lands should be restricted to only perennial forage crops. It is recommended that Class 5 lands should be sown to perennial grasses and only spring applications made at lower manure application rates. Class 6 lands should not receive nutrient applications, manure or otherwise, regardless of crop grown. *

Caution should be exercised to ensure that runoff is minimized. This is important to prevent contaminated runoff from entering potholes or watercourses such as Wolfe Creek with spread acres located on sections 30 and 31-18-22W. Wolfe Creek is located approximately one mile west of the proposed site.

The spread acres on SE 35-18-22W as well as Class 4, 5 and 6 lands should be re-examined by a pedologist (or equivalent) to ensure compatibility to receive manure. The Reconnaissance Soil Survey of Rosburn and Virden Map Sheet Areas (1956) and Soils and Terrain – RM of Strathclair (1998) indicate that some of the land on N½ 35-18-22W and 36-18-22W may be shallow organic fen peat. The extent of these areas is *

uncertain while using reconnaissance information. The delineation of these areas can only be determined through a more thorough site investigation.

The more productive soils from the spread acres identified can be found on the NE 1/4 section 20, SW 1/4 section 28 and in 29-18-22WPM. More productive soils are able to have higher nutrient application rates, whether manure or otherwise, than lesser productive soils. As mentioned earlier, SE 35-18-22W should be re-examined to ensure suitability to receive manure as this area may be of higher potential risk of environmental impact than other identified spread acres. *

SUMMARY OF SOIL RESIDUAL NITROGEN, 2003 CROPPING PLANS & FERTILITY REQUIREMENTS

Legal Description	Acres Available (provided by Proponent)	Soil Test Nitrogen (Nitrate-N) (lb/ac)	2003 Cropping Plans (bu/ac)	Additional N Fertility Required for Crop Growth (lb/ac)
NE 20-18-22W	95	47	Wheat, CWRS (45)	85-95
SW 28-18-22W	113	73	Wheat, CWRS (45)	45-55
S½ 29-18-22W	280	78	Oats (100)	45-55
N½ 29-18-22W	230	94	Wheat, CWRS (45)	60-70
NE 30-18-22W	100	96	Wheat, CWRS (45)	50-60
SE 31-18-22W	100	47	Wheat, CWRS (45)	80-90
NW 31-18-22W	93	75	Canola	60-70
S½ 17-18-22W	180	48	Wheat, CWRS (45)	85-95
NW 25-18-22W	120	37	Canola (35)	90-100
SE 35-18-22W	140	63	Barley, Malt (75)	45-55
SE 30-18-22W	57	106	Wheat, CWRS (45)	55-65
SW 31-18-22W	75	122	Wheat, CWRS (45)	50-60
Total	1583			

Soluble salts (electrical conductivity) were determined to range from 0.4 mS/cm on S½ 17-18-22W (0-24") and NW¼ 25-18-22W (6-24") to 5.5 mS/cm on NE¼ 20-18-22W (6-24"). SW¼ 31-18-22W indicated slight salinity at 6-24" (2.7 mS/cm) and SE¼ 31-18-22W indicated moderate salinity at 6-24" (4.4 mS/cm). Electrical conductivities under 2 mS/cm have no salinity concerns. Electrical conductivities above 2 mS/cm are rated as slight salinity and over 4 mS/cm are rated as moderate salinity. Moderate salinity levels restrict the yield of many crops. Electrical conductivity should continue to be monitored over time and application rates modified so to not impair annual crop production.

Phosphate (P₂O₅) concentrations (0-6") ranged from 9 lb/ac (S½ 17-18-22W) to 49 lb/ac (SW¼ 28-18-22W). Phosphate concentrations in excess of 40 lb/ac using the Olsen method are considered to be high. Phosphate concentrations should continue to be monitored over time. If the amount of phosphate exceeds the soil test recommendation by 250% or more, calculate an application rate based on phosphate instead of nitrogen.

Soil pH levels ranged from 7.7 on N½ 29-18-22W, NW¼ 25-18-22W and SE¼ 35-18-22W to 8.4 on S½ 17-18-22W. These values indicate that the soils are predominantly alkaline in nature, which is to be expected.

The *Guidelines* also recommend that initial deep monitoring be conducted to a depth of 12 feet with one sample per 15 acres. The purpose is to determine the baseline nutrient status of the soil prior to manure being applied, if either manure has been applied in the past or fertilizer history is not known. The procedure for initial deep monitoring, annual monitoring and five-year monitoring is outlined in Appendix F on pages 101 and 105 of the *Guidelines*. Sampling to a 24" (60 cm) depth is required for the filing of a manure management plan, however periodic sampling to 48" (1.2 m) is recommended. *

The proposed new operation is equivalent to 655 animal units and therefore, the operation must submit annual manure management plans to Manitoba Conservation at least 60 days prior to the land application of manure as required by the *Livestock Manure and Mortalities Management Regulation MR 42/98*. In addition, the operation will be prohibited from winter manure application between the dates of November 10th of one year and April 15th of the following year.

The proposed method of manure storage is indicated as an earthen manure storage facility. The construction of a manure storage facility is regulated according to *MR 42/98*. The proponent must submit an Application for Permit to Construct a Manure Storage Facility and a design by a professional engineer to Manitoba Conservation. This design must meet siting and construction requirements outlined in *MR 42/98*. Preliminary geotechnical information from onsite test-hole drilling submitted with the proposal indicates the subsoil consist mainly of a clay till material to the exploration depth of 9.1 metres (30 ft.). The soil analysis of samples obtained from these test-holes submitted by the proponent indicates the subsoils are capable of meeting requirements outlined in *MR 42/98*. However, more extensive hydrogeological, soil, and other environmental data may be required by Manitoba Conservation in order to assess the proponent's application for a permit to construct a manure storage facility.

The type of dead animal disposal is indicated on the proposal as composting. According to *MR 42/98*, composting is an acceptable method of disposal. The compost facility must be a designed and managed system. The composting site must be located at least 100 metres (328 feet) from any surface watercourse, sinkhole, spring or well. The composting facility must be constructed in such a manner that it does not cause pollution of surface water, groundwater or soil. In addition, all mortalities when added to the composting facility must be immediately covered with a carbon source-bulking agent such as sawdust or straw.

Surface Water Issues

According to the Manitoba Basin and Watershed Boundaries map, the operation and land identified for manure spreading occur in the Birdtail Creek/Oak River Watershed of the Assiniboine River Basin. Provincial drainage maps indicate Wolfe Creek, which is classed as a second order drain, runs through land parcels SE31-18-22W, NE30-18-22W, and SE30-18-22W. Provincial drainage maps and 1:50,000 topographic maps show the remaining land parcels (NW31-18-22W, SW31-18-22W, N½ 29-18-22W, S½ 29-18-22W, S½ 17-18-22W, NE20-18-22W, SW28-18-22W, NW25-18-22W, and SE35-18-22W) contain numerous small water bodies (potholes or sloughs). Aerial photos indicate that surface waters in these potholes appear to be generally isolated, but some may potentially connect to other drainage routes with adequate precipitation events.

Utilization of buffer zones and proper nutrient management is very important in this area.

The reduced acreage on the Manure Management Plan accounted for the setbacks from property lines and water bodies. Buffer strips should be established and maintained along watercourses and water bodies (including on-site drainage channels, municipal drains and roadside ditches). The minimum recommended setbacks outlined in the most recent *Farm Practices Guidelines for Hog Producers in Manitoba* should be used. The proposal notes injection of manure would be done, which means a minimum recommended buffer strip along watercourses of 5 m. (16 ft.) for land with less than 4% slope. Where land slope increases and the degree of slope is unclear, the next most stringent buffer zone guideline should be used as a precaution to prevent excessive nutrient runoff to these major watercourses.

Wolfe Creek is a tributary creek that eventually drains into Shoal Lake (West) and the Assiniboine River. Beck (1988) showed Shoal Lake (West) has excessive phosphorus concentrations with runoff from the drainage basin accounting for 77 % of the external load to the lake. Available water quality data from Wolfe Creek (1998) shows it to have fairly high phosphorus values (0.244 - 1.02 mg/L). As well, long-term trend analyses of water quality in the Assiniboine River watershed has shown nutrient values have increased over the last 25 years (Long-term Trends in Total Nitrogen and Total Phosphorus Concentrations in Manitoba Streams, Jones and Armstrong 2001).

Although phosphorus is not currently regulated, potential soil build-up of this nutrient should be considered in new and expanding operations, especially in areas that already are shown to have elevated soil phosphorous levels.

Manitoba has embarked upon a Nutrient Management Strategy to address excessive nutrient contributions and surface water quality issues. It is recommended that operations (especially new operations) account for enough land-base to also handle appropriate agronomic phosphorus needs and prevent excessive accumulations that will be available for runoff.

Geological and Hydrogeological Conditions

The local geology consists of a relatively thick deposit of glacial till and clay overburden overlying shale bedrock. The overburden thickness is expected to range from approximately 30 to greater than 50 metres deep. The lower portion of the glacial till, beneath the 15 to 30 metre depth, may contain gravel/sand lenses. Shallower sand/gravel zones are reported in the area as thin lenses confined beneath glacial till at the five to six metre depths.

The principle aquifer in the area is formed by shale bedrock. The deep confined sand/gravel layers also provides a source of water. Well yields are variable but can be reasonably high, however the water quality may be somewhat brackish (salty) and with moderately high sulphate concentrations. Static water levels in the area range from approximately six to 20 metres below ground surface. One flowing well is reported at a lower elevation south of the site on the NW 18-18-22W.

6. Moderate salinity levels restrict the yield of many crops. Electrical conductivity should continue to be monitored over time and application rates modified so to not impair annual crop production.
7. The proponent must abide by the Livestock Manure and Mortalities Management Regulation MR 42/98.
8. A permit from Manitoba Conservation is required for the construction of the earthen manure storage facility.