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July 21, 2020  
File: 111440368

**Attention: Ms. Shannon Kohler**  
Director, Environmental Approvals Branch  
Manitoba Conservation and Climate  
1007 Century Street  
Winnipeg, MB R3H 0W4

Dear Ms. Kohler,

**Reference: NOA Request – Licence 2870 RRR R3 Innovations Inc./Town of Neepawa IWWTF, Neepawa, MB**

In accordance with Section 14(1) of *The Environment Act*, HyLife Foods LP and the Town of Neepawa, by way of this letter and supporting information, provides notice to the Director of a proposed alteration to the R3 Innovations Inc./Town of Neepawa Industrial Wastewater Treatment Facility in Neepawa, Manitoba.

R3 Innovations Inc. and the Town of Neepawa are proposing to increase treatment capacity by 390 m<sup>3</sup>/day (25%) at the R3 Innovations Inc. IWWTF to allow for refurbishment of the existing treatment equipment. The proposed alterations involve adding new infrastructure (i.e., additional equipment) to the R3 IWWTF to allow various existing equipment and processes to be taken off-line, refurbished, and brought back into service without disrupting operations at the HyLife Foods pork processing plant. The additional capacity will also accommodate the wastewater flows from the pork processing plant, treat the temporarily stored wastewater from the cells at the former Springhill Farms/Town of Neepawa IWWTF (east of the R3 IWWTF), and provide for future process flexibility at the pork processing plant. R3 Innovations expects to continue producing high quality effluent that is well below license limits while treating the higher effluent volume; no change in the licensed effluent quality is proposed for the R3 IWWTF.

The licensed processing capacity of the HyLife Foods pork processing facility is not proposed to increase at this time.

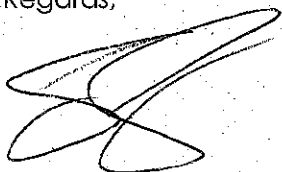


Platinum  
member

On the basis of the studies undertaken, and information available to date as presented in the attached report, the adverse environmental effects of proposed alterations are expected to be not significant. Accordingly, a \$500 application fee will follow from HyLife Foods LP in support of the two hard copies and one electronic copy of the submission.

Should you require any additional information or clarifications please do not hesitate to contact Mr. Sheldon Stott, P.Ag., Senior Director of Corporate Sustainability, HyLife Foods LP, or Mr. Stephen Biswanger, P.Eng., Stantec Consulting Ltd.

Regards,



Sheldon Stott, P.Ag. Senior Director of Corporate Sustainability

Attachment: One NOA Form and Supporting Information  
Two hard copies and one electronic copy of NOA

c. Stephen Biswanger, Stantec



**R3 Innovations Inc. IWWT  
Refurbishment Notice of  
Alteration**

FINAL

June 25, 2020

Prepared for:

HyLife Foods Ltd./R3 Innovations Inc.

Prepared by:

Stantec Consulting Ltd.  
500-311 Portage Avenue  
Winnipeg, MB R3B 2B9

111440368



### R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

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Prepared by Bill Krawchuk  
(signature)  
**Bill Krawchuk, M.N.R.M., MCIP, RPP**

Reviewed by AS  
(signature)  
**Stephen Biswanger, P.Eng.**

Reviewed by Carmen  
(signature)  
**Carmen Anseeuw, M. Env.**





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## Executive Summary

R3 Innovations Inc. and the Town of Neepawa operate the dedicated Industrial Wastewater Treatment Facility (R3 IWWTF) that exclusively serves the HyLife Foods pork processing plant. The R3 IWWTF is located in the southern part of SW35-14-15W in the Town of Neepawa on property that is owned by R3 Innovations Inc. The R3 IWWTF site is zoned “MH – Industrial Heavy” under the Town of Neepawa Zoning By-law No. 3184-18 and has been in operation at this location since construction in 2009. *Environment Act* Licence 2870 RRR, originally issued December 18, 2014, is the current licence for the R3 IWWTF.

As the processing rate at the HyLife pork processing plant has increased towards its licence limits and various minor processing steps have undergone modifications to address market demands and sanitation standards, process wastewater generation rates have, at times, been higher than originally predicted. This has increased the average daily wastewater production and the influent to the R3 IWWTF.

R3 Innovations Inc. and the Town of Neepawa are proposing to increase treatment capacity by 390 m<sup>3</sup>/day (25%) at the R3 IWWTF to allow for refurbishment of the existing treatment equipment. The proposed alterations involve adding new infrastructure (i.e., additional equipment) to the R3 IWWTF to allow various existing equipment and processes to be taken off-line, refurbished, and brought back into service without disrupting operations at the HyLife Foods pork processing plant. The additional capacity will also accommodate the wastewater flows from the pork processing plant, treat the temporarily stored wastewater from the cells at the former Town of Neepawa IWWTF (east of the R3 IWWTF), and provide for future process flexibility at the pork processing plant.

The licensed processing capacity of the pork processing facility is not proposed to increase at this time. Proposed alterations at the R3 IWWTF include the following:

- Addition of a new Primary Treatment Building Annex including installation of a new primary Dissolved Air Flotation (DAF) unit, ancillary equipment, and relocation of the existing primary centrifuge and two secondary centrifuges (or a second new secondary centrifuge) from the existing pumping/screening building, and a new bulk Ferric Chloride storage tank.
- Addition of a new aeration basin equal in size to the existing basins.
- Addition of a new MBR Treatment Building Annex that will house a new membrane train and an additional ultraviolet (UV) disinfection system and an expansion to the welfare area within the existing treatment building.

As the processing rate at the pork processing plant has continued to increase towards its licensed processing limit of 8,000 hogs/day (Licence No. 1102 RRR), daily effluent flows have also increased and are exceeding 1,570 m<sup>3</sup>/day. The licensed hydraulic limit (1,570 m<sup>3</sup>/day) is an annual daily average. A 25% increase to 1,960 m<sup>3</sup>/day as an annual average is requested. R3 Innovations expects to continue



## R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

producing effluent quality that is well below licence limits while treating a higher effluent volume; therefore, no change in the licensed effluent quality is proposed for the R3 IWWTF.

As required under *The Environment Act* (Manitoba), an application for Notice of Alteration (NOA) to the existing R3 IWWTF is submitted with supporting information to Manitoba Conservation and Climate (MCC), formerly Manitoba Sustainable Development (MSD) for consideration. This NOA application has been prepared by Stantec Consulting Ltd. (Stantec) on behalf of R3 Innovations Inc./Town of Neepawa in general accordance with MSD's Information Bulletin, "*Alterations to Developments with Environment Act Licences*" and in accordance with Section 14(1) of *The Environment Act* (MSD 2016). This report documents the relevant portions of the existing R3 IWWTF operations, the proposed alterations, and the potential environmental effects and proposed mitigation measures associated with the alterations.

Potential environmental effects of the Project are limited in the construction phase and are considered fairly typical activities (i.e., related to addition of new larger equipment within new buildings, construction of a new aeration tank, construction noise, etc.). The proposed alteration will facilitate continued operation of the IWWTF while meeting the effluent quality conditions of the existing licence and ensuring continued high quality treatment of wastewater from the HyLife Foods pork processing plant and the temporarily stored wastewater at the former IWWTF. Residual operational effects are considered negligible to low.

On the basis of the studies undertaken, and information available to date as presented in this report, the adverse environmental effects of proposed alterations are expected to be not significant.



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Introduction  
June 25, 2020

## 1.0 INTRODUCTION

### 1.1 PROJECT OVERVIEW

R3 Innovations Inc./Town of Neepawa (the proponent) operates an Industrial Wastewater Treatment Facility (R3 IWWTF) along Provincial Trunk Highway (PTH) 16 in the Town of Neepawa in southwestern Manitoba (Figure 1-1a). The IWWTF has been in operation since 2009 and some of the components will soon require maintenance and refurbishment that could temporarily affect the R3 IWWTF treatment capacity and, in turn, limit the production of the HyLife Foods facility. The proposed alteration (the Project) includes the installation of additional equipment at the IWWTF, prior to refurbishment, to preserve treatment capacity while the maintenance work is completed and avoid disruptions to the pork processing plant operations. Once the refurbishment is completed, the additional equipment will provide a 25% (390 m<sup>3</sup>/day) increase in treatment capacity that will accommodate treatment of the higher process flows experienced at the pork processing plant, the temporarily stored wastewater stored in the former IWWTF cells, and allow for future process flexibility at the pork processing plant. The R3 IWWTF is governed under *Environment Act* Licence No. 2870 RRR (Appendix B).

Section 14(1) of *The Environment Act* requires a proponent to notify the Director (for Class 1 and 2 developments) if the proponent intends to alter a licensed development so that it no longer conforms to licence conditions or has the potential to change the environmental effects (Manitoba Sustainable Development [MSD] 2016). The key consideration for assessing a Notice of Alteration (NOA) is the significance of the environmental effects and human health effects as a result of the alteration and whether there is sufficient detail to allow the Director to determine whether the effects of the alteration are significant, insignificant, or nonexistent (MSD 2016).

This NOA request has been prepared by Stantec Consulting Ltd. (Stantec) on behalf of the proponent and is submitted to Manitoba Conservation and Climate (MCC [formerly MSD]) in support of a request for Notice of Alteration to the existing licence. The existing treatment facility is considered a Class 2 Development under the Classes of Development Regulation (MR 164/88). Changes at the pork processing plant would be subject to a separate NOA; none are proposed at this time.

This report documents the relevant portions of the currently licensed R3 IWWTF facility, the proposed alterations, and the potential environmental effects and planned mitigation measures associated with construction and operation of the altered facility.



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### 1.2 THE PROPONENT

For the purposes of development licensing, the proponent is R3 Innovations Inc./Town of Neepawa (hereafter "R3 Innovations").

For further information regarding the R3 Innovations IWWTF please contact the following:

Mr. Sheldon Stott  
Senior Director of Corporate Sustainability  
HyLife Foods  
PO Box 100  
La Broquerie, MB R0A 0W0

Ms. Colleen Sychyshyn, CAO  
Town of Neepawa  
Box 339, 275 Hamilton Street  
Neepawa, MB R0J 1H0

This Notice of Alteration was prepared by Stantec Consulting Ltd. The local contact is:

Mr. Stephen Biswanger, P.Eng.  
Senior Project Manager, Environmental Engineer  
Stantec Consulting Ltd.  
500-311 Portage Avenue  
Winnipeg, MB R3B 2B9  
Telephone: (204) 924-7061  
Email: [stephen.biswanger@stantec.com](mailto:stephen.biswanger@stantec.com)

### 1.3 LAND OWNERSHIP AND PROPERTY RIGHTS

The existing R3 IWWTF is located in the Town of Neepawa on property owned by R3 Innovations Inc. The legal description for the subject property is described as Parcels A and B, Plan 48468 (NLTO) (the Site). Current Certificates of Title for the property are for R3 Innovations Inc., as noted in CT# 2421295 and CT# 2421294 (Appendix C). The existing R3 IWWTF currently occupies approximately 2.0 ha on the site (land and buildings).

### 1.4 EXISTING CONDITIONS

The existing environmental conditions in the Project area (including the Whitemud River) have been described in previous HyLife NOA submissions, specifically within the 2013 NOA and 2016 NOA. Readers are referred to these NOAs (AECOM 2013; Stantec 2016) for details if required.



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### 1.4.1 Land Use

The R3 IWWTF has been in operation since 2009 on part of SW35-14-15W and is a permitted conditional use under the Town of Neepawa Zoning By-Law No. 3184-18. The land uses adjacent to the R3 IWWTF site include a mix of commercial, industrial, agricultural restricted, and open space. The proposed R3 IWWTF alteration area is already developed as part of the treatment facility compound and is considered previously disturbed.

The Project site is accessible via PTH 16 and Municipal Road 86W, from the west side of the plant property in addition to the HyLife primary truck access, via the road along the east side of the pork processing plant property. There is no direct rail service at the Project site. An electric transformer provides power to the site via overhead Manitoba Hydro utility lines located adjacent to the west and south boundaries of the Project site. Potable water is provided from the Town of Neepawa water treatment plant (groundwater source) and natural gas is provided by Manitoba Hydro. The R3 IWWTF discharges treated effluent to the Whitemud River via a dedicated outfall that discharges to an existing low-lying wetland adjacent to the Whitemud River, northwest of the plant. The R3 IWWTF is currently licensed to discharge an annual average of 1,570 m<sup>3</sup>/day of treated effluent (Licence No. 2870 RRR).

### 1.4.2 Greenhouse Gas Emissions

R3 Innovation's greenhouse gas (GHG) emissions are principally derived from industrial processes and fuel consumption for on-site vehicle usage and natural gas usage related to commercial process heat and building heat. Manitoba's GHG emissions are sourced primarily from two sectors: fossil fuel burning (61%) – principally transportation, stationary combustion, and fugitive sources; and agriculture (31%) – mostly methane from livestock and nitrous oxide from soils. The overall trend in Manitoba GHG emissions has been upward since 1990 (Climate Change Connection 2019). According to Canada's National Inventory Report 1990-2017, Manitoba emitted a total of 21,700,000 tonnes of carbon dioxide equivalent (CO<sub>2</sub> e) in 2017, up 3.3% from 21,000,000 tonnes in 2016 (Environment and Climate Change Canada 2019). Emissions in Manitoba have increased since 2005, but to a lesser extent than other provinces (1.5 megatonnes [Mt] or 7.7%).

### 1.4.3 Surface Water

Surface water quality in the Whitemud River in the RAA is generally a product of base flow from Lake Irwin (partially regulating Boggy Creek flows) and Stony Creek just upstream of the Town of Neepawa, as well as point source inputs to the river from the Town of Neepawa municipal lagoon system and the wetland that receives the R3 IWWTF effluent.

There are two long-term (1973 – 2009) water quality monitoring stations on the Whitemud River for which surface water quality data has been collected and reviewed by the province. The closest monitoring station to the Project site is on Boggy Creek (Whitemud River) at Neepawa. The other monitoring station is located further downstream at PTH 16 at Westbourne, Manitoba. Water quality in the Whitemud River has been characterized as being typically of 'Good' quality for the majority of years based on the Water



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Quality Index<sup>1</sup>. Exceptions were noted in 1998 and 2005 where the water quality was rated as 'Fair' (Manitoba Water Stewardship 2010). Total phosphorus and nitrogen data collected over the 1973 to 2009 time period indicated a steady increase in concentrations for both variables for the Whitemud River. Dissolved oxygen levels have typically been above (better than) the Manitoba objective over the monitoring period. There has been typically adequate dissolved oxygen in the watershed to support aquatic life (Manitoba Water Stewardship 2010). Fecal coliform densities have typically been below (better than) the irrigation and recreational objectives for the Whitemud River. The Whitemud River at PTH 16 at Westbourne, Manitoba has historically had higher fecal coliform concentrations than Boggy Creek at Neepawa (Manitoba Water Stewardship 2010). Drinking water parameters monitored at the two stations were consistently well below (better than) the objectives, except for total dissolved solids (TDS). TDS concentrations are a secondary drinking water objective and primarily considered an aesthetic concern related to hard water (Manitoba Water Stewardship 2010).

In July 2018, the Town of Neepawa was granted a new Environment Act Licence (No. 3270) approving a phased upgrade to the lagoon system. The first phase includes upgrading the lagoon to an intermittently discharged aerated system, including UV disinfection and phosphorus treatment. Phase I licensed the facility to treat up to 3,450 m<sup>3</sup>/day for storage, with eventual discharge to the Whitemud River between May 16 and October 31 of each year. Lagoon cell 3 discharges approximately 200 m upstream of the R3 IWWTF wetland discharge. As of 2019, Phase I was under construction and not yet functional. Phase II is planned to include further upgrades including continuous discharge of up to 5,000 m<sup>3</sup>/day of treated effluent to the Whitemud River via a downstream relocation of the outfall (approximately 800 m downstream of the current cell 3 discharge), and additional ammonia treatment via a Moving Bed Biofilm Reactor system. The schedule for Phase II implementation of the Lagoon upgrade is dependent upon funding availability to the Town of Neepawa.

In 2019, HyLife Foods commissioned Stantec to undertake a surface water monitoring program (July and September) along a 75 km stretch of the Whitemud River from Neepawa to near Gladstone, Manitoba including six river locations and two effluent discharge points (the Town of Neepawa lagoon and the R3 IWWTF). The six river locations were chosen to be representative of conditions in the river, including one station located upstream of the R3 IWWTF outfall and the Town of Neepawa municipal lagoon cell 3 discharge, with the remaining stations selected on the basis of spatial representation and accessibility downstream. The purpose of the monitoring program was to obtain data on water quality in the river under present discharge conditions. The data provides context for water quality implications of the recently licensed upgrade at the Town of Neepawa municipal wastewater treatment facility (under construction at the time) and potential future alterations at the R3 IWWTF and the HyLife pork processing plant.

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<sup>1</sup> The Canadian Council of Ministers of the Environment (CCME) have developed a Water Quality Index to summarize and report on water quality in a consistent manner. The Water Quality Index consists of 25 variables that are compared with the Manitoba Water Quality Standards, Objectives and Guidelines (Manitoba Conservation 2002).





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The 2019 monitoring program in the Whitemud River included analysis of water quality parameters commonly used to characterize municipal and industrial wastewater discharges. Concentrations of several parameters including Biochemical Oxygen Demand (BOD), *E. coli*, dissolved oxygen (DO), nutrients (nitrogen and phosphorus), and ammonia (NH<sub>4</sub>) were measured at Sites 1-6 as summarized in Table 1-1.





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**Table 1-1 Average Concentration of Select Water Quality Parameters in the Whitemud River (July and September 2019)**

Parameter (mg/L)	MBWQSOG *	Site Location											
		1 (Upstream)		2		3		4		5		6	
Approximate Distance from R3 IWWTF and Neepawa Lagoon Cell 3 Discharge area (km)		0.2-0.6 (upstream)		4.8		17		38		58		82	
		July	Sept.	July	Sept.	July	Sept.	July	Sept.	July	Sept.	July	Sept.
Nitrate as N	13 mg/L	0.037	0.094	0.250	0.047	0.217	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite as N	0.06 mg/L	0.016	<0.01	0.081	<0.01	0.027	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P (total)	n/a	0.149	0.150	0.220	0.148	0.258	0.129	0.217	0.132	0.183	0.113	0.184	0.083
N (total)	n/a	1.037	1.510	1.480	1.317	1.673	1.007	1.390	0.950	0.925	0.925	1.085	0.73
NH <sub>4</sub>	4.36 mg/L <sup>a</sup>	0.026	0.023	0.0397	0.0137	0.058	0.024	0.021	0.039	0.016	0.020	0.016	0.017
BOD	n/a	2.367	2.533	2.700	2.533	2.600	<2.0	4.700	<2.0	5.500	2.500	3.050	<2.0
TSS	5 mg/L change from background	19.100	9.367	19.733	8.167	41.433	7.700	20.400	7.100	19.900	10.950	26.250	6.65
Min observed overnight DO	6.0 mg/L <sup>b</sup>	4.44	4	n/a	3.39	2.1	n/a	1.84	3.84	n/a	n/a	n/a	n/a
<i>E. coli</i> (N/100)	200 /100 mL <sup>c</sup>	119	118	35	113	121	354	52	156	55	299	82	95
Fecal coliforms (N/100)	200 /100 mL <sup>c</sup>	43	119	33	103	81	256	83	189	65	119	50	74

\* Manitoba Water Quality Standards, Objectives and Guidelines Tier 2 and 3 guidelines for the protection of aquatic life (MBWS 2011)  
<sup>a</sup>Chronic toxicity guideline for early life stages, temperature 10°C and pH of 7.5  
<sup>b</sup>For early life stages, temperature >5°C  
<sup>c</sup>Guidelines for primary recreation





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Dissolved oxygen (DO) concentrations at all sites and depths measured at approximately mid-day ranged from 7.51 to 13.27 mg/L in July and from 6.7 to 12.14 mg/L in September. When measured overnight, dissolved oxygen showed a minimum concentration of 1.84 mg/L at Site 3 in July and 3.39 mg/L at Site 2 in September.

*E. coli* concentrations varied across all sites; however, relatively elevated levels were recorded in both sampling events at Site 3. In July, *E. coli* ranged from a minimum concentration of 30 N/100 ML (Site 2) to a maximum concentration of 150 N/100 mL (Site 3). In September, *E. coli* concentrations were relatively elevated compared to July ranging from 93 N/100 mL (Site 2 and 6) to 548 N/100 mL (Site 3). BOD varied across all sites, ranging from <2.0 mg/L to 5.5 mg/L. BOD appeared to be relatively elevated at Sites 4 and 5 in the July sampling event.

In July, elevated concentrations of nutrients were generally observed at Site 3. Across all sites, total nitrogen concentrations ranged from 0.87 mg/L (Site 5) to 1.76 mg/L (Site 3) and total phosphorus concentrations ranged from 0.312 mg/L (Site 1) to 0.28 mg/L (Site 3). For ammonia-N, the lowest concentrations were observed at the downstream end of the Whitemud River (Sites 5 and 6) with values ranging from 0.012 mg/L – 0.02 mg/L and the most elevated concentrations observed at Site 3 (0.055 mg/L – 0.063 mg/L). TSS concentrations were highest at Site 3 (38.3 mg/L – 44.4 mg/L), approximately double the background (Site 1) range of 17.7 mg/L to 20.5 mg/L.

In September, nutrients generally decreased from upstream to downstream. Total nitrogen concentrations ranged from 0.73 mg/L (Site 6) to 1.52 mg/L (Site 1) and total phosphorus concentrations ranged from 0.08 mg/L (Site 6) to 0.154 (Site 1). Total ammonia-N varied across all sites with the most elevated concentration observed at Site 4 with a value of 0.056 mg/L. TSS also varied across sites with the highest concentrations observed at Site 5 with values ranging from 10.1 mg/L to 11.6 mg/L, approximately 4 x lower concentrations than those recorded in the July sampling event.

The results of the analyses conducted on effluent from the R3 IWWTF and the Town of Neepawa municipal lagoon are summarized in Table 1-2. Monitoring conducted during July and September indicated the R3 IWWTF effluent was within licence limits (Environment Act Licence No. 2870 RRR) for all listed parameters (i.e., CBOD, TSS, *E. coli*, fecal coliforms, total nitrogen and total phosphorus). During the July 2019 monitoring event, effluent from the Town of Neepawa lagoon contained BOD concentrations that were within the Town's licence limits (former lagoon Clean Environment Commission Order No. 762VO), although total phosphorus concentrations exceeded the licence limit (<1.0 mg/L) with a concentration of 1.74 mg/L. The lagoon was not discharging during the September monitoring event.



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**Table 1-2 Water Quality Results of Effluents Discharging to the Whitemud River During the 2019 Open Water Season**

Parameter	Town of Neepawa Lagoon			R3 Innovations IWWTF		
	Clean Environment Commission Order No. 762VO Limits	Measured Concentration		Environment Act Licence No. 2870 RRR Limits	Measured Concentration	
		July	Sept		July	Sept
BOD (mg/L)	30	2.9	n/a	25	<2.0	<2.0
P (total) (mg/L)	1 *	1.74	n/a	1	0.0366	0.022
N (total) (mg/L)	n/a	18.5	n/a	15	8.28	6.32
TSS (mg/L)	n/a	7.3	n/a	25	<2.0	<2.0
Fecal coliforms (N/100mL)	n/a	9	n/a	200/100 mL	2	<1
<i>E. coli</i> (N/100 mL)	n/a	2	n/a	200/100 mL	5	<1

\*From regulatory correspondence subsequent to Clean Environment Commission Order No. 762VO

## 1.5 PREVIOUS ALTERATIONS

Since 2008, after acquiring the former Springhill Farms processing plant, HyLife Foods and R3 Innovations have progressively made modifications to the IWWTF. The relevant alterations that have occurred at the IWWTF between 2008 and 2019 are summarized in Table 1-3 below.

**Table 1-3 R3 Innovations IWWTF Licence NOAs 2008-2019**

Date	Notice of Alterations	NOA Approval
2008	Original licensed discharge capacity approved at 1,520 m <sup>3</sup> /day	February 2009
2013	Increase in processing capacity at the HyLife pork processing plant to 37,500 hogs/week –additional wastewater treatment requirements at the existing R3 Innovations IWWTF for changes in wastewater flow and loading. The licensed discharge to the Whitemud River remained at 1,520 m <sup>3</sup> /day.	December 2014
2017	Temporary transfer of truck wastewater from R3 Innovations Inc. facility to Town of Neepawa wastewater treatment lagoon for period of 5-6 weeks. The licensed discharge to the Whitemud River was unchanged.	March 2017
2018	Addition of a third sludge dewatering centrifuge and change of the supplemental carbon source from sugar to Micro-C. Change to the effluent flow measuring location at the R3 IWWTF. The licensed discharge to the Whitemud River remained at 1,520 m <sup>3</sup> /day.	April 2018
2019	Upgrade the existing waste activated sludge pump and two return activated sludge pumps and optimization of existing process equipment to meet effluent quality limits. An increase to the annual average discharge rate from 1,520 m <sup>3</sup> /day to 1,570 m <sup>3</sup> /day to	May 2019



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**Table 1-3 R3 Innovations IWWTF Licence NOAs 2008-2019**

Date	Notice of Alterations	NOA Approval
	accommodate an increase in production at the hog processing plant was approved.	
2019	Removal of sludge solids from the cells of the existing industrial wastewater treatment lagoon facility located adjacent to R3. The licensed discharge remained at 1,570 m <sup>3</sup> /day.	September 2019

## 1.6 SCOPE OF THE ASSESSMENT

### 1.6.1 Spatial and Temporal Boundaries

The existing IWWTF (the Project Site) is located along PTH 16 in the Town of Neepawa in southwestern Manitoba. For the purposes of this environmental assessment, the Project site, Local Assessment Area, and Regional Assessment Area are generally consistent with boundaries as defined in the 2016 NOA. The temporal boundaries for the assessment are defined as Construction phase, Operation phase, and Decommissioning phase. Spatial and temporal boundaries are summarized in Table 1-4.

**Table 1-4 Spatial and Temporal Boundaries**

Spatial Boundaries	Temporal Boundaries
Project Site (PS) – the physical footprint of the existing IWWTF compound (approx. 2.0 ha) within the subject property, part of SW35-14-15W (see Figure 1-1b).	Construction phase – a period of 16 months in 2020/2021 over which construction is planned to occur.
Local Assessment Area (LAA) – area up to a three km radius from the Project site (area over which direct effects of the Project are expected to occur; see Figure 1-1b).	Operation phase – the period over which the facility will be in operation, at least 50 years.
Regional Assessment Area (RAA) – area up to a ten km radius from the Project site (area over which direct effects that act on the PS are compared to determine significance of residual effects) (see Figure 1-1c). For the purposes of operational surface water quality, the RAA is considered to include the Whitemud River from Neepawa to Gladstone.	Decommissioning phase – there are currently no plans for the R3 IWWTF to be decommissioned. Should decommissioning occur at some point in the future, it would be anticipated to consist of the removal of all R3 IWWTF equipment from the site. Decommissioning would be conducted according to licence conditions and regulatory requirements at the time.

### 1.6.2 Assessment Approach

This assessment was completed to meet the requirements of a request for NOA and includes assessing project-specific environmental effects. The assessment focuses on valued components (VCs), which are environmental components of certain value or interest to regulators and other parties and are identified based on the potentially affected biophysical and socio-economic elements. Project-related effects on these VCs are assessed sequentially in the assessment. Residual effects are characterized using



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specific, predetermined criteria (i.e., direction, magnitude, geographical extent, duration, frequency, reversibility, and ecological/socio-economic context).

### 1.6.2.1 Selection of Project Interactions and Valued Components

Biophysical and socio-economic VCs that could be affected through interactions of the environment and the Project are identified to scope the assessment. The rationale for selecting each VC is explained and potential general interactions between the Project and VCs are identified in Table 1-5.

**Table 1-5 Designation of Valued Components**

Valued Component	Potential Project Interaction	Rationale for Exclusion or Inclusion and Project Potential Effect
Air quality/ <b>Greenhouse gas emissions</b>	✓	<p>Minor air emissions are anticipated from construction activities related to on-site vehicle and equipment use. Operational air emissions will be limited to truck usage on-site related to delivery of treatment chemicals and sludge removal, as well as general building heating. Both construction and operational emissions are expected to result in a negligible net change overall in the context of existing site emissions and operational traffic at the site.</p> <p><b>Construction and operation activities can contribute to GHG emissions from on-site equipment and truck usage, and combustion sourced building heating. There will be an increase to natural gas and electricity use as a result of additional equipment and buildings.</b></p>
Soils/terrain	x	<p>Expansion of the building footprint on the PS will result in limited disturbance of soils that have been previously disturbed during past developments on the PS. Accordingly, interaction with soils/terrain is considered negligible.</p>
<b>Surface water/</b> groundwater	✓	<p>The proposed alterations/additions will be located on the existing developed property.</p> <p>During construction, stormwater will continue to be managed by surface ditching. The potential for surface runoff and erosion at the PS to affect water quality of the Whitemud River (approx. 930 m away) is considered very low and mitigable with implementation of industry-accepted practices such as silt fences and erosion control measures to manage surface drainage flow.</p> <p>Groundwater is not expected to be used or affected by the construction of the Project. Dewatering of excavations is not likely required.</p> <p>Operationally, the proposed alterations are mitigation measures to continue wastewater treatment and generate high quality effluent. <b>A 25% (390 m<sup>3</sup>/day) increase from 1,570 m<sup>3</sup>/day to 1,960 m<sup>3</sup>/day in the licensed daily effluent discharge (annual average) to the Whitemud River is proposed to allow for the treatment of additional wastewater. No change in licence conditions for effluent quality are proposed.</b></p>





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**Table 1-5 Designation of Valued Components**

Valued Component	Potential Project Interaction	Rationale for Exclusion or Inclusion and Project Potential Effect
Vegetation	x	No native vegetation is present at the PS and the proposed construction of the additional proposed works will occur in a previously disturbed area of the PS, adjacent to the current IWWTF facility. The size and location of the new buildings and tank will not affect vegetation.
Wildlife and wildlife habitat	x	No substantive wildlife or natural wildlife habitat is present on the PS.
Property and land use	x	Site activities occur within an existing industrial area in an area that has supported the current land use for many years. The PS is zoned for the existing/proposed land use. No negative interaction is anticipated.
<b>Infrastructure and services</b>	✓	The proposed alteration will generate a negligible increase in traffic in the LAA due to the addition of construction-related vehicles. There will be no need for changes in the provision of municipal infrastructure and services (i.e., external roads, sewer, water) to the site. <b>The IWWTF itself is a utility to which alterations will be made to accommodate continued treatment of wastewater from the pork processing plant as well as temporarily stored wastewater at the former IWWTF prior to discharge to the Whitemud River.</b>
Employment and economy	x	Benefits related to employment and tax generation in the LAA from construction and operation of the R3 IWWTF will continue. No adverse effects related to employment and economy in the LAA are anticipated.
Heritage resources	x	The PS is located within an existing industrial area that is already disturbed; there are no heritage concerns on the PS.
Aesthetics and noise	x	The PS is located within an existing industrial area; the proposed alteration remains consistent with current building types and there will be no substantial change to LAA visual aesthetics. Noise generation will continue to be typical of historic use in the area and no noise complaints have been received by HyLife in several years of operation including during previous construction and facility/plant expansions. The Project will not substantially affect aesthetics or noise in the LAA.
Health and safety	x	Contractors engaged in the construction phase of the Project will be subject to site specific health and safety plans and worker protection standards and procedures under <i>The Workplace Safety and Health Act</i> (Manitoba). Existing worker health and safety programs will be maintained as part of the operations at the PS. The Project is not anticipated to change the risks for worker/public Health and Safety.

Following the identification of VCs, an analytical framework is used to evaluate and characterize the potential Project effects on those VCs identified as having a potential Project interaction (identified in bold



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in Table 1-5), based on standardized criteria to facilitate quantitative (where possible) and qualitative assessment of residual environmental effects.

### 1.6.2.2 Residual Effects Description Criteria

Terms used to characterize the residual environmental effects are consistent with those summarized in previous HyLife Foods/R3 NOA application documents and are summarized in Table 1-6 below.

**Table 1-6 Characterization of Residual Environmental Effects**

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The long-term trend of the residual effect	<b>Positive</b> — an improvement in the VC compared with existing conditions and trends <b>Adverse</b> — a decline in the VC compared with existing conditions and trends <b>Neutral</b> — no change in the VC from existing conditions and trends
Magnitude	The amount of change in the VC relative to existing conditions	<b>Negligible</b> — no measurable change <b>Low</b> — a change that falls within the level of natural variability <b>Moderate</b> — a measurable change which is unlikely to affect the VC <b>High</b> — a measurable change which is likely to affect the VC
Geographic Extent	The geographic area in which an environmental effect occurs	<b>PS</b> — residual effects are restricted to the Project site <b>LAA</b> — residual effects extend into the LAA (up to a 3-km radius of Project site) <b>RAA</b> — residual effects extend to other adjacent areas to the property up to a 10-km radius
Frequency	Identifies when the residual effect occurs and how often during the Project or in a specific phase	<b>Single event</b> — residual effect occurs once throughout the life of the Project <b>Multiple irregular event</b> — residual effect occurs sporadically and intermittently (no set schedule) throughout <b>Multiple regular event</b> — residual effect occurs repeatedly and regularly throughout <b>Continuous</b> — residual effect occurs continuously throughout the life of the Project
Duration	The period of time required until the VC returns to its existing condition, or the effect can no longer be measured or otherwise perceived	<b>Short-term</b> — residual effect restricted to the duration of construction (assumed to be 16 months) <b>Medium-term</b> — residual effect extends up to 10 years <b>Long-term</b> — residual effect extends for longer than 10 years
Reversibility	Pertains to whether the VC can return to its existing condition after the project activity ceases	<b>Reversible</b> — the effect is likely to be reversed after activity completion and decommissioning <b>Irreversible</b> — the effect is unlikely to be reversed even after decommissioning



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**Table 1-6 Characterization of Residual Environmental Effects**

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Ecological and Socio-economic Context	Existing condition and trends in the area where environmental effects occur	<b>Undisturbed</b> — area is relatively undisturbed or not adversely affected by human activity <b>Disturbed</b> — area has been substantially previously disturbed by human development or human development is still present

### 1.7 PUBLIC ENGAGEMENT

The existing R3 IWWTF is located on one privately-owned parcel of land within an area that is appropriately zoned for heavy industrial land use. The treatment facility has been operated at this location by R3 Innovations since 2009. No formal public engagement is planned beyond the placement of the NOA on the Public Registry for public review and comment if required by MCC.

### 1.8 FUNDING

HyLife Foods/R3 Innovations will provide funding for all undertakings related to the Project.





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## 2.0 PROJECT DESCRIPTION

### 2.1 EXISTING LICENSED DEVELOPMENT

The R3 IWWTF has been in operation since 2009, occupying approximately 2.0 ha west of the pork processing plant site. The subject property is zoned “MH – Industrial Heavy” under the Town of Neepawa Zoning By-law No. 3184-18. A site plan showing the R3 IWWTF is provided as Figure 1-2 illustrating the existing and presently planned layout of the alteration at the Project site. The existing R3 IWWTF consists of a screening/pumping building, a treatment building, two aeration tanks, one anoxic tank, two post-anoxic tanks, a flow attenuation tank, and a cooling tower. The annual average daily effluent volume generated by the R3 IWWTF is presently licensed at 1,570 m<sup>3</sup>/day. Additional information on the existing treatment process can be found in previous HyLife/R3 Innovations NOA submissions (Stantec 2019a, b; 2018).

The R3 IWWTF continually treats the HyLife pork processing plant wastewater, consistently discharging effluent treated to a higher (better) quality than licence limits. This has been facilitated, on occasion of process upsets or other maintenance works at the R3 IWWTF, by diverting wastewater to one of the existing outdoor former IWWTF cells north of the pork processing plant for temporary storage prior to transfer back to the R3 IWWTF for treatment and discharge (in general accordance with Clause 33 of the R3 IWWTF Licence No. 2870 RRR).

As the processing rate at the HyLife pork processing plant has increased towards its licence limits and various minor processing steps have undergone modifications to address market demands and sanitation standards, process wastewater generation rates have, at times, been higher than originally predicted. This has increased the average daily wastewater production (i.e., raw influent to the R3 IWWTF) to approximately 1,583 m<sup>3</sup>/day (March 2020). The increased wastewater production has increased the R3 IWWTF effluent discharge to the Whitemud River over the year to 1,580 m<sup>3</sup>/day (annual daily average). The effluent quality, however, continues to be excellent with average effluent parameter concentrations (2019) as follows:

- cBOD<sub>5</sub>: <2.0 mg/L
- TSS: 0.57 mg/L
- Fecal Coliforms and *E. coli*: <10/100 mL
- Total nitrogen: 7.45 mg/L
- Total phosphorus: 0.102 mg/L
- Total ammonia: 0.235 mg/L



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### 2.2 PROPOSED ALTERATION

The proposed alteration (the Project) will provide additional capacity to maintain reliable treatment while continuing to meet the quality limits in the existing R3 IWWTF licence. The Project will allow continued full operation of the HyLife pork processing plant.

The Project includes the construction of a new primary treatment annex building, a new aeration basin and an addition to the membrane treatment building within the existing R3 IWWTF property (see Figure 1-2). A new primary DAF unit will be installed in the new primary treatment annex building along with a new sludge storage tank, and the relocated primary and two smaller sludge dewatering centrifuges from the pumping/screening building (or the primary centrifuge and an additional new centrifuge). A new membrane treatment train, aeration system blowers, and an additional UV disinfection system will occupy the treatment building addition. The new aeration basin will be approximately equal in size to each of the two existing basins (The Stover Group 2020).

Although a 390 m<sup>3</sup>/day increase in treated effluent discharged to the Whitemud River (to 1,960 m<sup>3</sup>/day as an annual daily average) is proposed, no changes in the licensed R3 IWWTF effluent quality limits are requested and effluent quality is expected to be consistent with current levels. The increased hydraulic discharge capacity will address process fluctuations and resulting higher wastewater flows from the pork processing plant and the need to treat temporarily stored wastewater from the former IWWTF cells. The increased treatment capacity will also preserve future process flexibility at the pork processing plant. The details of the proposed changes (see Figures 1-3a, 1-3b) are discussed in the following subsections.

#### 2.2.1 New Primary Treatment Annex Building

A new, separate, Primary Treatment Annex building (approximately 35 m x 16 m [560 sq. m.]) will be constructed north of the existing screening/pumping building (see Figure 1-2) and contain a new larger primary stage DAF unit (approximately 50% more surface area than the existing primary DAF). The existing primary DAF will remain in the existing screening/pumping building and be repurposed to provide backup to the new primary DAF while the existing second stage DAF in the pumping/screening building will be decommissioned in-place. Ferric chloride will continue to be dosed ahead of the DAF units via a new ferric chloride storage tank in the new building to feed the new primary DAF and the existing ferric chloride tank for the former primary (now second stage) DAF. The DAF effluent will continue to be conveyed to the existing attenuation tank. DAF sludge will be pumped to centrifuges for dewatering and disposal (see Figure 1-3a).

To address current limitations of IWWTF operations relative to sludge processing capacity, the existing sludge dewatering centrifuges and dewatered sludge cake handling process will be relocated from the Screening/Pumping Building into a larger space in the new Primary Treatment Building Annex (see Figure 1-3a). The larger centrifuge will continue to function as the duty centrifuge with the two relocated smaller centrifuges providing capacity for maintenance and additional capacity as required. As an alternative to relocating the two smaller centrifuges, an additional new centrifuge (the same size as the relocated primary centrifuge) may be added. The two existing 15 m<sup>3</sup> roll-off bins will be replaced by a new



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larger sludge storage tank (approximately 300 m<sup>3</sup>) in the building, along with two trailer bays located on the west side of the new building for storing the dewatered cake solids prior to being trucked off-site.

In summary, the new Primary Treatment Annex building will house the following facilities:

- New primary DAF unit
- New polymer feed pumps
- New 12,000-gallon (45,425 litre) bulk Ferric Chloride storage tank
- New Ferric Chloride feed pumps
- Relocating the existing duty and two smaller backup centrifuges (or installing a new second centrifuge) from the screening/ pumping building.
- New sludge storage tank

### 2.2.2 Secondary Treatment New Aeration Basin

A third aeration basin (equal in size to the two existing basins (i.e., 1,215 m<sup>3</sup> [320,000 gallons]) is proposed to provide spare capacity for maintenance of the existing aeration basin and equipment in the secondary treatment system and increased capacity of the system once maintenance has been completed. Figure 1-2 shows the planned location of the new aeration basin. The new aeration tank is planned to have the following specifications:

- Diameter – 14.3 m
- Side water depth – 6.4 m
- Volume – 1,215 m<sup>3</sup>
- Blowers – 3 x 1,900 m<sup>3</sup>/hour
- Membrane disc diffusers – 570 9-inch diffusers

### 2.2.3 New Membrane Treatment Building Annex

A new addition (approximately 15 m x 22 m [330 sq. m]) will be constructed on the west side of the existing Treatment Building (see Figure 1-2) housing a new membrane treatment train with three cassettes and a UV disinfection system. The membrane system will consist of a hollowfiber membrane unit complete with a back-pulse tank, membrane aeration, recirculation pumps, membrane cleaning systems, and other ancillary equipment (see Figure 1-3b). The flow through the additional membrane train will be up to 13.5 litres/second. When in operation, the new membrane treatment train will allow for one of the existing trains to be taken offline for maintenance.



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The additional UV disinfection system in the Membrane Treatment Building Annex will similarly provide continued disinfection of the membrane-treated effluent during maintenance and cleaning. The new UV disinfection system will have a flow capacity of up to 35 litres/second (3,024 m<sup>3</sup>/day).

The addition to the building will also allow for the expansion of welfare space (approximately 75 m<sup>2</sup>) within the existing treatment building to accommodate a washroom, additional locker space, and a lunch area for the current R3 Innovations staff and two additional wastewater operators.

### 2.2.4 Construction Inputs and Outputs

During the construction phase of the proposed alterations, materials required may include concrete, steel, rebar, field-survey tape, paint spray cans, drywall, lumber, flooring, fuel and other materials. Raw materials such as gravel, water, and fill will also be required for site works. Most of these materials will be brought to the site from other areas. There may be temporary storage of construction materials in lay-down areas on the site. At peak construction, it is estimated that approximately 50 construction staff will be involved in the Project. Equipment utilized on-site will be typical for construction, including cranes, loaders, skid-steers, etc.

Outputs during construction can include surface runoff and fugitive dust and vehicle emissions from construction equipment. Other outputs generated from construction work related to spent packaging materials, solvents, used oils, surplus building materials, etc. will be regularly transported off the site and disposed of or recycled at approved sites according to applicable regulations.

### 2.2.5 Operation Inputs and Outputs

#### 2.2.5.1 Water Use and Wastewater Production

The Project will result in a marginal increase in reclaimed utility water usage (cleaning the additional building annexes and equipment) and related wastewater generation at the R3 IWWTF. The change in water use (i.e., cleaning) is conservatively estimated to increase by approximately 50 m<sup>3</sup>/day, still within the capacity of the existing water supply of the R3 IWWTF.

The 25% increase in treatment capacity (to 1,960 m<sup>3</sup>/day as an annual average) will accommodate the previously mentioned higher process wastewater flows generated at the pork processing plant, the temporarily stored wastewater at the former IWWTF, as well as the forecasted increase in utility water use (i.e., 50 m<sup>3</sup>/day) at the R3 IWWTF. The generated effluent quality is not expected to change substantially and will continue to meet licence limits.

#### 2.2.5.2 Chemical Usage

As no new treatment processes, and no change in capacity or effluent quality are proposed, chemical usage is not expected to change in terms of chemical type or quantity used.

A new 12,000 gallon (45,425 litre) Ferric Chloride bulk storage tank will be housed within the new Primary Treatment Building Annex to provide additional on-site storage. Ferric Chloride usage is expected to





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remain unchanged from current use, although shipments may decrease in number due to the increase on-site storage provided.

The previously approved addition of a 21,000 L external bulk storage tank for Micro-C (Stantec 2018) has yet to be implemented but is expected to provide sufficient on-site storage of the supplemental carbon source for the operation.

All other chemical usage (such as sodium hypochlorite for membrane cleaning, sanitation, and polymer flocculant for sludge dewatering) is expected to remain unchanged as no increase in production or waste loads is proposed. These chemicals will continue be stored appropriately at the facility.

### **2.2.5.3 Fuel, Electrical and Gas Utilities**

As there will be an increase in the number and size of buildings as part of the proposed alteration electricity, fuel and natural gas demand is expected to negligibly increase at the R3 IWWTF. It is estimated that natural gas usage will increase at a rate of 44% based on the increased building footprint. The operation of the new DAF, membranes, and UV unit will slightly increase electrical demand at the R3 IWWTF. However, the increase is anticipated to be negligible in the context of the existing R3 IWWTF load as the required equipment power will be accommodated by the existing power feed and transformer which has sufficient capacity.

### **2.2.5.4 Waste Management**

Typical construction waste will be generated from the alteration at the R3 IWWTF and will require proper handling and disposal at approved disposal sites (landfills). Those materials that can be practically re-used or recycled will be separated for diversion from the waste stream.

The facility currently produces one full 15 cubic metre roll-off bin per day (plus a portion of another bin), or approximately 12 tonnes per day, of sludge at 30% cake solids. The volume of sludge generated and handled is not expected to change with equipment alterations although the sludge will now be stored in a new 300 m<sup>3</sup> sludge storage tank in the new Primary Treatment Building Annex. Sludge generated during operation of the R3 IWWTF will continue to be collected by Waste Connections Canada for disposal at a licensed landfill. The volumes of domestic waste and recyclables generated during operations are not anticipated to substantively change with the proposed IWWTF alterations.

### **2.2.5.5 Workforce**

The number of workers at the HyLife Foods plant and R3 IWWTF currently totals approximately 1,450 staff. The size of the construction workforce for the proposed alterations is expected to be approximately 50 workers at construction peak. The projected R3 IWWTF operation is anticipated to result in the potential addition of two wastewater operators.



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### **2.2.5.6 Traffic Volumes**

Traffic related to the operation of the R3 IWWTF and pork processing plant is estimated to remain the same at approximately 950 to 1,000 vehicles/day (staff and operations) for licensed full production of 40,000 hogs/week as summarized in the 2019 NOA.

There will be a negligible and temporary short-term increase in traffic related to the construction phase for the proposed alterations. The increased on-site storage capacity in the form of larger storage tanks for sludge and ferric chloride is expected to negligibly decrease the number of trucks travelling to/from the IWWTF during operations.

### **2.2.5.7 Health and Safety**

R3 Innovations health and safety plans will be maintained and updated as necessary for the new process equipment additions and can be made available for review upon request.

## **2.3 PROJECT SCHEDULE**

Construction is expected to start in September 2020 with completion by December 2021, pending regulatory approvals.



## 3.0 ENVIRONMENTAL EFFECTS AND MITIGATION

This section outlines the assessment of environmental effects for those VCs identified in Table 1-5 as having potential project interactions. Components included in this assessment are greenhouse gas emissions, surface water, and infrastructure and services.

### 3.1 ASSESSMENT OF ENVIRONMENTAL EFFECTS

#### 3.1.1 Greenhouse Gas Emissions

Currently, greenhouse gas emissions (GHGs) at the R3 IWWTF are primarily generated by natural gas combustion for building heat and electricity usage for process equipment. These types of emissions will continue to be generated as part of the Project.

Vehicle and equipment movement (i.e., excavating, transportation of materials) at the PS will be necessary as part of Project construction and will generate GHGs such as carbon dioxide and nitrous oxides. Greenhouse gas emissions generated during working hours will be adverse, negligible in magnitude, long-term in duration and continuous for the period of construction.

The use of natural gas to heat buildings produces CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NO<sub>x</sub>, CO emissions, volatile organic compounds (VOCs), trace sulphur dioxide (SO<sub>2</sub>) and particulate matter (PM). Operational natural gas usage at the R3 IWWTF was estimated to be 33,467 m<sup>3</sup> per year in the 2013 NOA. It is estimated that the current proposed alterations would result in a 44% increase in facility natural gas usage to 48,192 m<sup>3</sup> over a 12-month period. The resulting operational GHG emissions at the IWWTF are similarly estimated to increase to 91 tonnes (0.09 kt) annually, up from 66 tonnes (0.06 kt) of CO<sub>2</sub>e noted in the 2013 NOA for the facility.

Environment and Climate Change Canada's mandatory reporting threshold for GHG emissions on an annual basis is 10,000 tonnes (or 10 kt) of CO<sub>2</sub> e. The IWWTF's overall generation rate is less than the reporting threshold and the change in GHG emissions (less than 0.03 kt/year) is negligible in relation to this reporting threshold. As such, the facility and its alteration are not considered a major contributor to greenhouse gas emissions.

#### Summary

The proposed alterations at the IWWTF are expected to have a negligible contribution to operational GHG emissions in the RAA. However, emissions are long-term in duration, continuous, and irreversible upon Project decommissioning.

#### 3.1.2 Surface Water

Surface water quality in the Whitemud River in the RAA is generally a product of base flow from Lake Irwin (partially regulating Boggy Creek flows) and Stony Creek just upstream of the Town of Neepawa, as



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well as point source inputs to the river from the R3 IWWTF and the Town of Neepawa municipal lagoon system.

Base flow from Lake Irwin is variable but is assumed to discharge a minimum of 0.2 m<sup>3</sup>/s (17,280 m<sup>3</sup>/day) to the Whitemud River. Average monthly flows in the Whitemud River at Neepawa during spring freshet typically peak in April near 5.9 m<sup>3</sup>/s (509,760 m<sup>3</sup>/day), dropping to 0.56 m<sup>3</sup>/s (48,384 m<sup>3</sup>/day) by June and then near 0.2 m<sup>3</sup>/s for the remainder of the year (AECOM 2013). The results from the 2019 monitoring program show that, in general, concentrations of parameters in the Whitemud River were observed below (better than) Manitoba Water Quality Guidelines at all river sites with the exception of dissolved oxygen, which was observed to diurnally drop below 6.0 mg/L overnight at monitored sites. At Site 3, several parameters such as TSS, *E. coli*, total P, and ammonia-N were observed at elevated average concentrations relative to background (Site 1). This site (Site 3) was located approximately 17 km downstream of the area where the wetland receiving the R3 IWWTF effluent discharges to the Whitemud River and was also observed to be directly subject to cattle activity, which may have influenced the results.

The R3 IWWTF is licensed to treat and discharge up to 1,570 m<sup>3</sup>/day (annual average) and an increase to 1,960 m<sup>3</sup>/day is proposed. The effluent is discharged continuously to a low-lying wet area prior to entering the Whitemud River slightly downstream of the current Town of Neepawa lagoon cell 3 outfall location. The current R3 IWWTF Licence (No. 2870 RRR) includes the following effluent quality limits:

- 5-day CBOD: 25 mg/L
- Total suspended solids: 25 mg/L
- Fecal coliform and *Escherichia coli*: 200/100 mL (monthly geometric mean)
- Total nitrogen: 15 mg/L (30 day rolling average)
- Total ammonia 1.32 to 15 mg/L (pH dependent)
- Total phosphorus: 1 mg/L (30 day rolling average)

In 2019, R3 IWWTF average effluent concentrations were well below the licence limits:

- Total nitrogen: 7.45 mg/L
- Total phosphorus: 0.102 mg/L
- Total ammonia: 0.234 mg/L

The Town of Neepawa municipal lagoon intermittently discharges (usually twice per year between May 16 and October 31) between 1,200 and 2,700 m<sup>3</sup>/day of effluent (as an annual average) (Associated Engineering 2018) to the Whitemud River. The recently approved upgrade to the Town of Neepawa Lagoon will result in an eventual discharge of up to 5,000 m<sup>3</sup>/day of continuously discharged treated municipal effluent. Up to January 1, 2016, the Town of Neepawa did not have a phosphorus



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concentration limit in its lagoon licence; a 1 mg/L total phosphorus limit was added to CEC order No. 762 VO. The total phosphorus limit of 1 mg/L (30 day rolling average) has been carried forth in the new Environment Act Licence No. 3270 along with the following terms:

- 5-day CBOD: 25 mg/L
- Total suspended solids: 25 mg/L
- Escherichia coli: 200/100 mL (monthly geometric mean)
- Unionized ammonia: 1.25 mg N/L @ 15°C
- Total ammonia (August limit): 11 kg N/day

During the July 2019 monitoring event, effluent from the Town of Neepawa lagoon contained BOD concentrations that were within the Town's licence limits (No. 762VO) and total phosphorus concentrations of 1.74 mg/L, slightly in excess of the licence limit.

The alteration proposed for the R3 IWWTF will increase the volume of wastewater treated (by up to 390 m<sup>3</sup>/day) while keeping effluent concentrations below R3 licence limits and generally consistent with current effluent concentrations of cBOD, TSS, *E. coli*, fecal coliforms, total nitrogen, and total phosphorus.

While the R3 IWWTF effluent parameter loadings will increase in proportion to the 25% increase in flow (an increase in the effluent total phosphorus loading of 14.5 kg/yr to 72.9 kg/yr at 2019 current average effluent concentrations), the relative contribution of the increased effluent from the R3 IWWTF will remain substantially smaller than the existing effluent loadings introduced by the Town of Neepawa's wastewater plant (estimated to be 438 to 985.5 kg/yr). As a result, the requested hydraulic increase could conservatively result in a negligible-low adverse effect on water quality in the Whitemud River.

While the effect of additional phosphorus loadings on the river are understood to be cumulative, the effluent treatment at the R3 IWWTF since 2009 has been better than required by licence and has consistently mitigated the environmental effects of the HyLife pork processing plant wastewater discharge to the Whitemud River. Further, the incremental load proposed for the R3 IWWTF total phosphorus effluent (14.5 kg/yr) represents only 1% of the proposed increase in loading proposed upon full buildout of the approved Neepawa lagoon upgrade (1,387 kg/yr).

The proposed alterations at the R3 IWWTF will allow for continued high quality treatment of wastewater at the R3 IWWTF prior to discharge to the Whitemud River without disruption to operations at the HyLife pork processing plant. The required equipment alterations will preserve the ability of R3 Innovations to meet effluent quality licence requirements while enabling treatment of additional wastewater from the pork processing plant and the former IWWTF cells. The increase in effluent flow is expected to result in negligible to low water quality effects that are short to medium term in duration, continuous, and reversible upon Project decommissioning.



## R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

Environmental Effects and Mitigation  
June 25, 2020

### Summary

The effect of the proposed alterations at the R3 IWWTF on surface water are expected to be of negligible to low magnitude, short- to medium-term in duration, continuous, and reversible upon decommissioning. Effluent quality will be consistent with current treatment and licence limits will continue to be met.

### 3.1.3 Infrastructure and Services

During the 16-month construction phase, there will be a small increase in the number of vehicles travelling to and from the Project site (an estimated addition of up to 50 construction-related vehicles per day may travel to/from the site). Vehicular access to the construction area will be limited to existing access points to reduce potential conflicts with local traffic from turning vehicles. During operation, traffic to and from the IWWTF will likely be the same as at present as the number of chemical and sludge shipments will only negligibly change. The potential adverse effects of the increase in vehicle traffic along PTH 16 over existing levels (i.e., 3,260 veh/day maximum AADT (MI and University of Manitoba 2018), are anticipated to be low (construction) to negligible (operation), irregular, and short-term in duration.

The existing electrical service consisting of a primary power feed and transformer has sufficient capacity to supply the additional power demands of the Project. Other existing utility services on-site, including natural gas and potable water from the Town of Neepawa, are sufficient for the Project. The IWWTF itself is a utility to which alterations will be made; however, the Project maintains the existing level of service and no change to its capacity or production is proposed.

### Summary

The potential adverse residual effects on infrastructure and services related to traffic are expected to be low for construction and negligible for operation, limited to the LAA, short-term in duration, irregular (construction) to regular (operation) in frequency, and reversible upon Project decommissioning. Adverse effects on utility usage (increase in natural gas usage) are expected to be negligible, and limited to the PS, short-term, continuous, and reversible.

### 3.1.4 Summary of Mitigation Measures

Proposed mitigation measures incorporated as part of this NOA include those standard practices and procedures identified under the previous 2019 NOAs (Stantec 2019a, b) as well as other general mitigation measures that are typically applied in the course of project construction and operation. Mitigation of operational surface water quality effects is achieved by implementation of the proposed alteration to the R3 IWWTF as stated above.

Mitigation measures to be employed to prevent or mitigate adverse effects identified in the sections above include the following:

- Dust generation from exposed or disturbed areas will be kept to a minimum; additional dust suppression will be undertaken at the construction site as required (i.e., spraying material stockpiles and work areas with water or other non-toxic measures).



### R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

Environmental Effects and Mitigation

June 25, 2020

- Excavated topsoil will be stockpiled separately on the plant site for future use in leveling activities.
- Material stockpiles will be placed in areas identified and approved by HyLife Foods; stockpile heights will be limited.
- Disturbed areas will be kept to a minimum and site restoration will occur as soon as practically possible where necessary.
- Construction access will be limited to existing access points only; appropriate construction signage and flagpersons will be utilized for the construction site as required.
- Construction activities will be limited during heavy precipitation/runoff events.
- Surface water drainage patterns will be maintained on-site.
- Silt fences and other erosion protection measures will be installed as necessary during construction for stormwater to prevent erosion and sediments from being transported off-site past site boundary ditching to surface water.
- Exhaust emissions from construction equipment will be minimized through the proper maintenance of vehicles and equipment and restricting vehicle idling.
- Construction waste and loose debris will be gathered and properly disposed of at a regional licensed landfill; recycling of construction waste will be encouraged to the extent possible.
- Construction activity will be limited to working hours in accordance with local municipal by-law provisions.
- Solid waste generated on-site, including generated sludge, will be stored in secure bins or storage tanks and removed on a regular basis to licensed landfills.
- Proper procedures for storage and handling of hazardous materials (i.e., fuels, chemicals) in designated areas will be adhered to.
- An emergency response spill kit will be maintained and emergency response measures for spill clean-up and remediation will be implemented if necessary.
- Contractors engaged in construction activities at the Project site will adhere to federal and provincial Health and Safety legislation.
- Contractors will adhere to a Project-specific safety plan developed as appropriate.
- Project site employees will be kept aware of safety requirements and on-site construction works to ensure worker safety.



### R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

Environmental Effects and Mitigation  
June 25, 2020

- The exterior of aboveground tanks will be regularly inspected and maintained to prevent leaks and failures as part of ongoing operations.
- New piping and storage tanks will be tested prior to operation to detect and repair potential leaks.

## 3.2 SUMMARY OF RESIDUAL EFFECTS CHARACTERIZATION

A summary of residual adverse environmental effects related to greenhouse gas emissions, surface water, and infrastructure and services is provided in Table 3-1

**Table 3-1 Summary of Residual Environmental Effects**

Project Effects	Residual Environmental Effects Characterization							
	Project Phase	Direction	Magnitude	Geographical Extent	Duration	Frequency	Reversibility	Ecological and Socio-economic Context
Greenhouse Gas Emissions	C/O	A	N	RAA	L	C	IR	D
Surface Water	C/O	A	N/L	LAA	S/M	C	R	D
Infrastructure and Services								
Traffic levels	C/O	A	L/N	LAA	S	MI	R	D
Utility usage	O	A	N	PS	S	C	R	D
<b>KEY</b>	<b>Geographical Extent</b>					<b>Reversibility</b>		
<b>Project Activity</b>	PS Project Site					R Reversible		
C Construction	LAA Local Assessment Area					IR Irreversible		
O Operation	RAA Regional Assessment Area					<b>Ecological/Socio-Economic Context:</b>		
<b>Direction</b>	<b>Duration</b>					U Undisturbed		
P Positive	S Short-term					D Disturbed		
A Adverse	M Medium-term					N/A Not applicable		
N Neutral	L Long-term							
<b>Magnitude</b>	<b>Frequency</b>							
N Negligible	S Single event							
L Low	MI Multiple irregular event							
M Moderate	MR Multiple regular event							
H High	C Continuous							

## 3.3 ACCIDENTS AND MALFUNCTIONS

The effects of accidents and malfunctions for the Project are primarily related to the potential for mechanical equipment failure, fuel or other chemical spills, and transportation accidents as noted in the previous 2019 NOA. During construction and operation, there exists the potential for fires at the Project site involving mechanical equipment and fuels, potential for environmental effects due to fuel and chemical spills and/or leaks from equipment, and transportation accidents that can result in the release of vehicle fluids to the environment (i.e., diesel, gasoline, oils, etc.) and the materials the vehicles were





### R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

Environmental Effects and Mitigation

June 25, 2020

transporting (i.e., dewatered sludge, biosolids, process chemicals). Accidents and malfunctions can potentially result in harm to on-site personnel, damage to equipment, the release of contaminants and/or hazardous materials from equipment/vehicles and storage tanks due to leaks or improper storage and handling and degradation of the environment and human health and safety.

Potential effects resulting from spills occurring in the construction and operations phases are anticipated to be irregular and short-term in duration. The potential for an increase in vehicle traffic along PTH 16 over existing levels that could lead to transportation accidents is anticipated to be negligible. Operational traffic at the facility operating at slow speeds and the utilization of qualified transport companies reduces the potential for on-site transportation accidents and risks. Measures to prevent adverse effects associated with fire/explosion, spills and transportation accidents are as follows:

- Flammable waste and materials will be removed on a regular basis and disposed of at an appropriate licensed disposal facility.
- Appropriate fire extinguishers are available on-site during operations and are maintained to manufacturer's standards.
- Potentially hazardous materials and chemicals are stored and handled at dedicated areas and labelled in accordance with applicable regulatory requirements.
- Hazardous materials are transported in accordance with the *Dangerous Goods Handling and Transportation Act* and used according to product-use instructions.
- Dewatered sludge will be transported off-site in suitable containers to prevent loss of the materials.
- Refueling of construction vehicles and equipment will adhere to proper procedures and will use designated refueling areas or will be refueled off-site.
- Emergency spill kits will be maintained on-site and staff will be trained to properly deploy spill kit materials and cleanup spills.
- Inspections of hydraulic and fuel systems on equipment and machinery will be undertaken on a regular basis. Leaks detected will be repaired immediately by trained personnel.
- Inspection of any new underground piping connections will be undertaken prior to such pipe connections becoming operational.
- Above-ground tanks will be regularly inspected and maintained to prevent leaks and failures.
- Existing traffic control measures (i.e., speed limits, signage) will be adhered to.
- HyLife Foods continues to maintain policies related to emergency preparedness, workplace hazardous materials information system (WHMIS) and spill response procedures.



## **R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION**

Environmental Effects and Mitigation

June 25, 2020

During operations at the IWWTF, regular visual inspection of the aboveground storage tanks on the property are undertaken for signs of leakage or any other potential signs of wear. The new ferric chloride storage tank, the Micro-C bulk storage tank and the new aeration tank will be included in this program and appropriately protected from collisions to reduce the potential for spills and damage to the tanks. Ferric chloride is considered a toxic, corrosive product that is harmful to humans and aquatic organisms according to the Material Safety Data Sheet (MSDS). Micro-C is considered a biodegradable product in water that does not bioaccumulate according to the MSDS (Appendix D).

### **Summary**

To avoid accidents and malfunctions, the Project will be operated in accordance with regulatory requirements. The implementation of, and adherence to, measures outlined above to mitigate potential effects related to accidents and malfunctions will serve to reduce the likelihood of these events occurring.



## **4.0 SUMMARY CONCLUSIONS**

Stantec has prepared this environmental assessment report on behalf of R3 Innovations Inc. in support of the NOA application for the proposed treatment facility alterations. The NOA application is filed in accordance with Section 14(1) of *The Environment Act* which requires a proponent to notify the Director (for Class 1 and 2 developments) if the proponent intends to alter a licensed development (MSD 2016).

Potential interactions of the Project and the environment were evaluated with likely interactions examined to assess residual effects. Those interactions deemed to potentially generate adverse effects were described and evaluated with the assumption of typical mitigation measures representative of best practices and previous construction methods employed at the site.

On the basis of the desktop studies undertaken and information available to date as presented in this report, adverse effects to the biophysical and socio-economic environment are expected to be not significant. It is anticipated that the proposed alterations at the treatment facility, building in additional treatment capacity at the R3 IWWTF to facilitate continued operation of the HyLife pork processing plant during upcoming maintenance and refurbishment, and to treat additional wastewater flow, including previously stored wastewater at the former IWWTF, will be considered as a minor alteration to the licensed development.





## R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

References  
June 25, 2020

### 5.0 REFERENCES

#### 5.1 LITERATURE CITED

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## **R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION**

### References

June 25, 2020

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Stantec Consulting Ltd. 2019b. R3 Innovations Inc. IWWTF 7500-8000 Notice of Alteration. Final Report. Prepared for HyLife Foods Ltd. Neepawa, MB.

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**R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION**

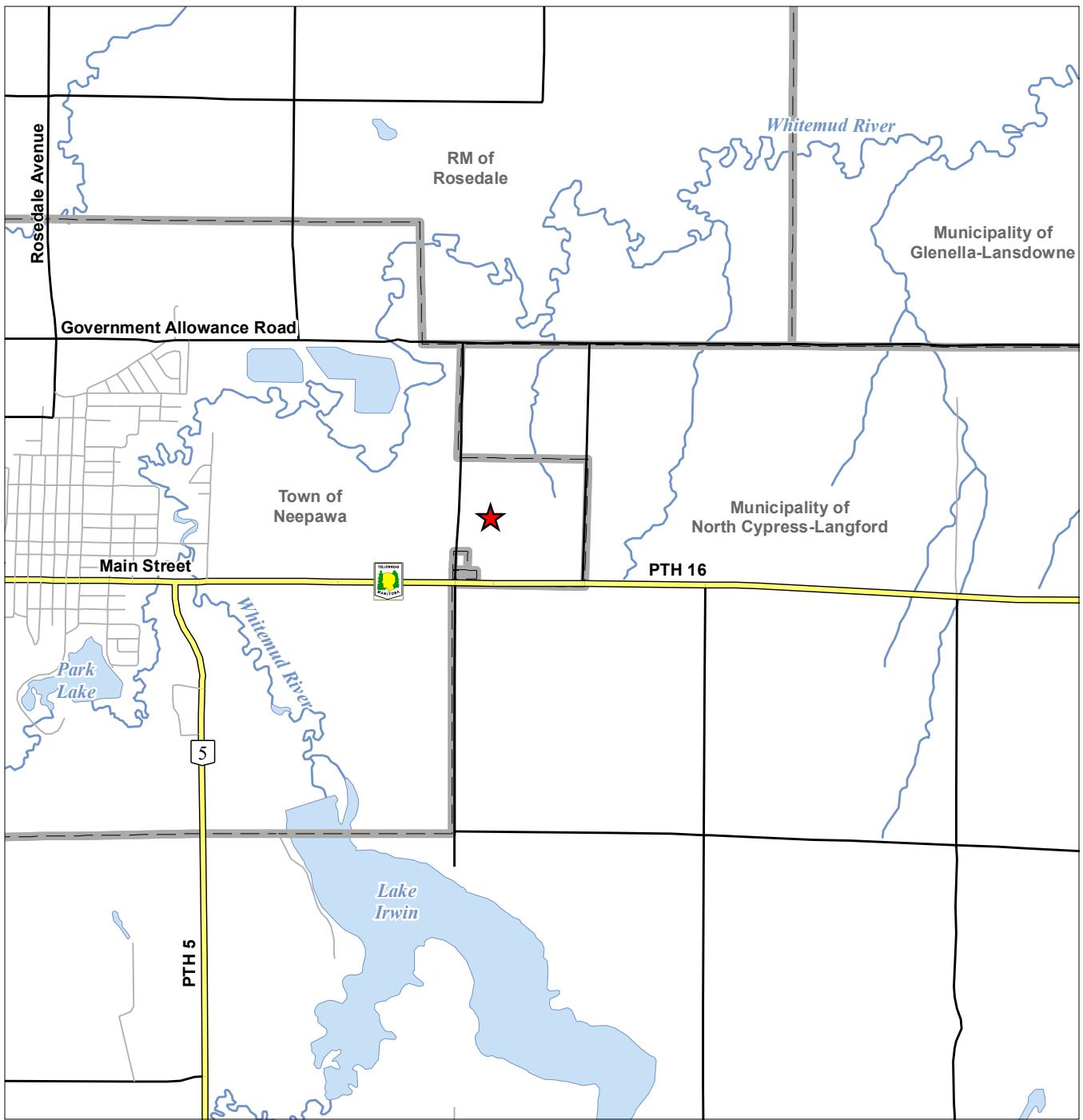
Appendix A Figures  
June 25, 2020

**Appendix A FIGURES**

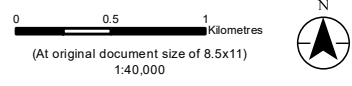








- Legend**
- Site Location
  - Major Road
  - Minor Road
  - Local Road
  - Watercourse
  - Waterbody
  - Rural Municipality



*Project Location*  
Town of Neepawa,  
Manitoba

*Prepared by* ACampigotto on 2020-04-16  
*Reviewed by* BKrawchuk on 2020-04-16

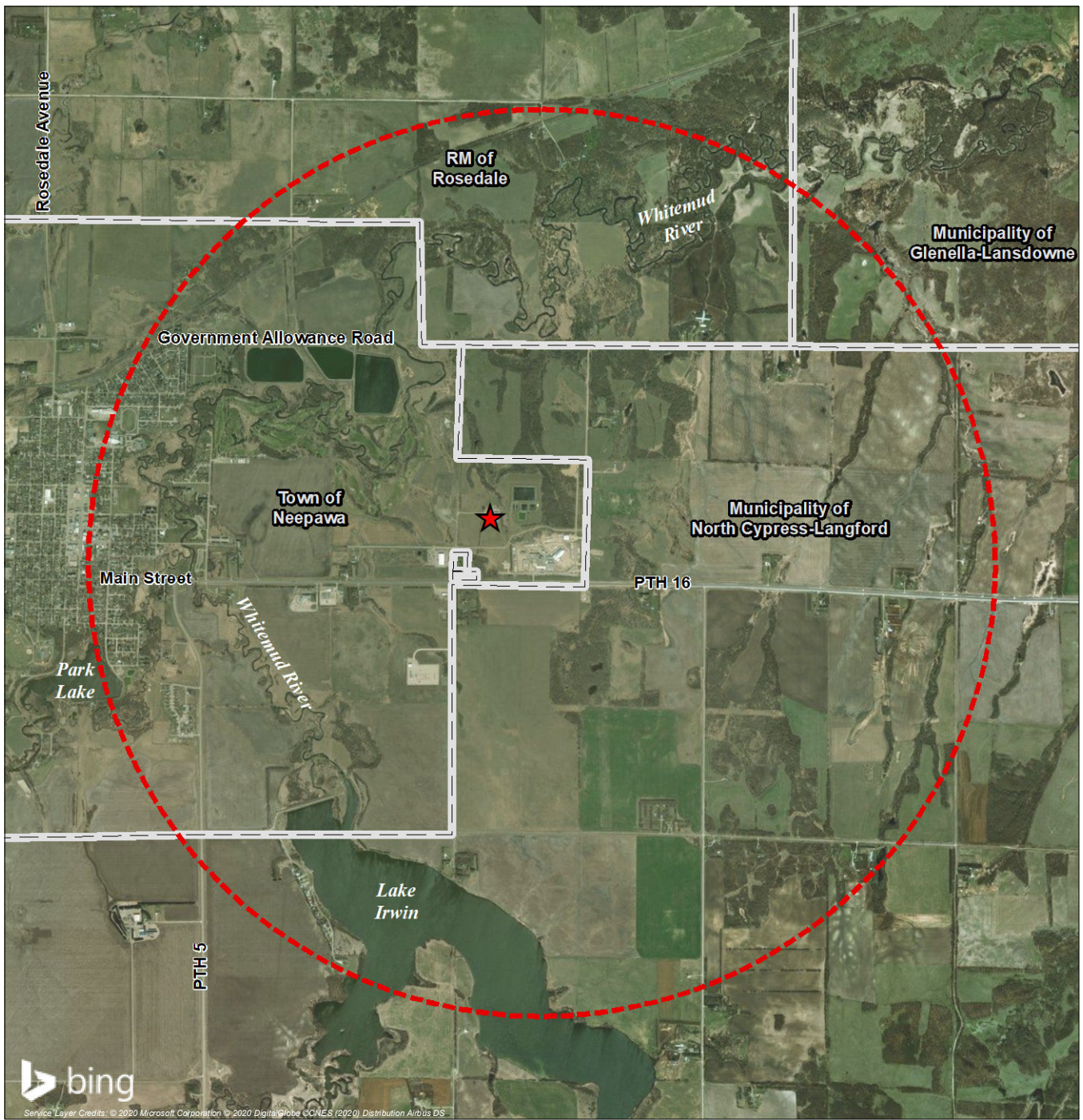
*Client/Project*  
R3 Innovations Inc.  
IWWT  
Notice of Alteration

111440368




*Figure No.*  
**1-1a**

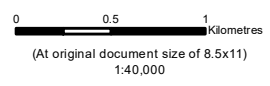
*Title*  
**Location Plan**

**Notes**  
1. Coordinate System: NAD 1983 UTM Zone 14N  
2. Base Data Sources: Government of Manitoba



**Legend**

-  Site Location
-  Local Assessment Area (3 km Radius)
-  Rural Municipality

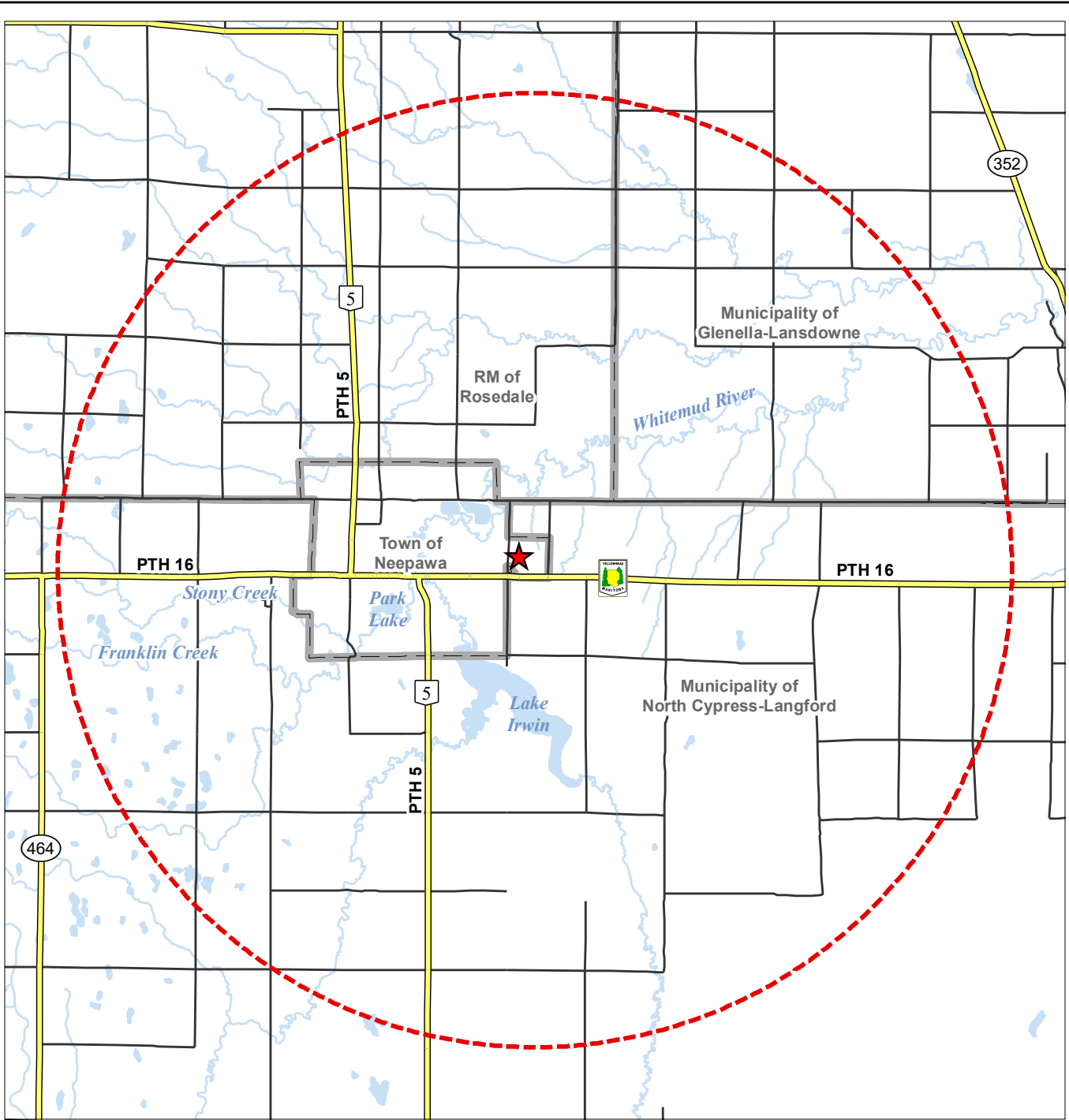


*Project Location* Town of Neepawa, Manitoba  
 Prepared by A.Campigotto on 2020-04-16  
 Reviewed by B.Krawchuk on 2020-04-16








*Client/Project* R3 Innovations Inc.  
 IWWTF  
 Notice of Alteration  
 111440368

*Figure No.*  
**1-1b**  
*Title*  
**Local Assessment Area  
 (3 km Radius)**

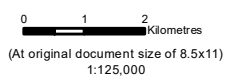
- Notes**
1. Coordinate System: NAD 1983 UTM Zone 14N
  2. Base Data Sources: Government of Manitoba
  3. Orthoimagery: Microsoft screen shot reprinted with permission from Microsoft Corporation



**Legend**

-  Site Location
-  Major Road
-  Minor Road
-  Watercourse
-  Waterbody
-  Regional Assessment Area (10 km Radius)
-  Rural Municipality

**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 14N  
 2. Base Data Sources: Government of Manitoba



*Project Location*  
 Town of Neepawa,  
 Manitoba

*Prepared by* ACampigotto on 2020-04-16  
*Reviewed by* BKrawchuk on 2020-04-16

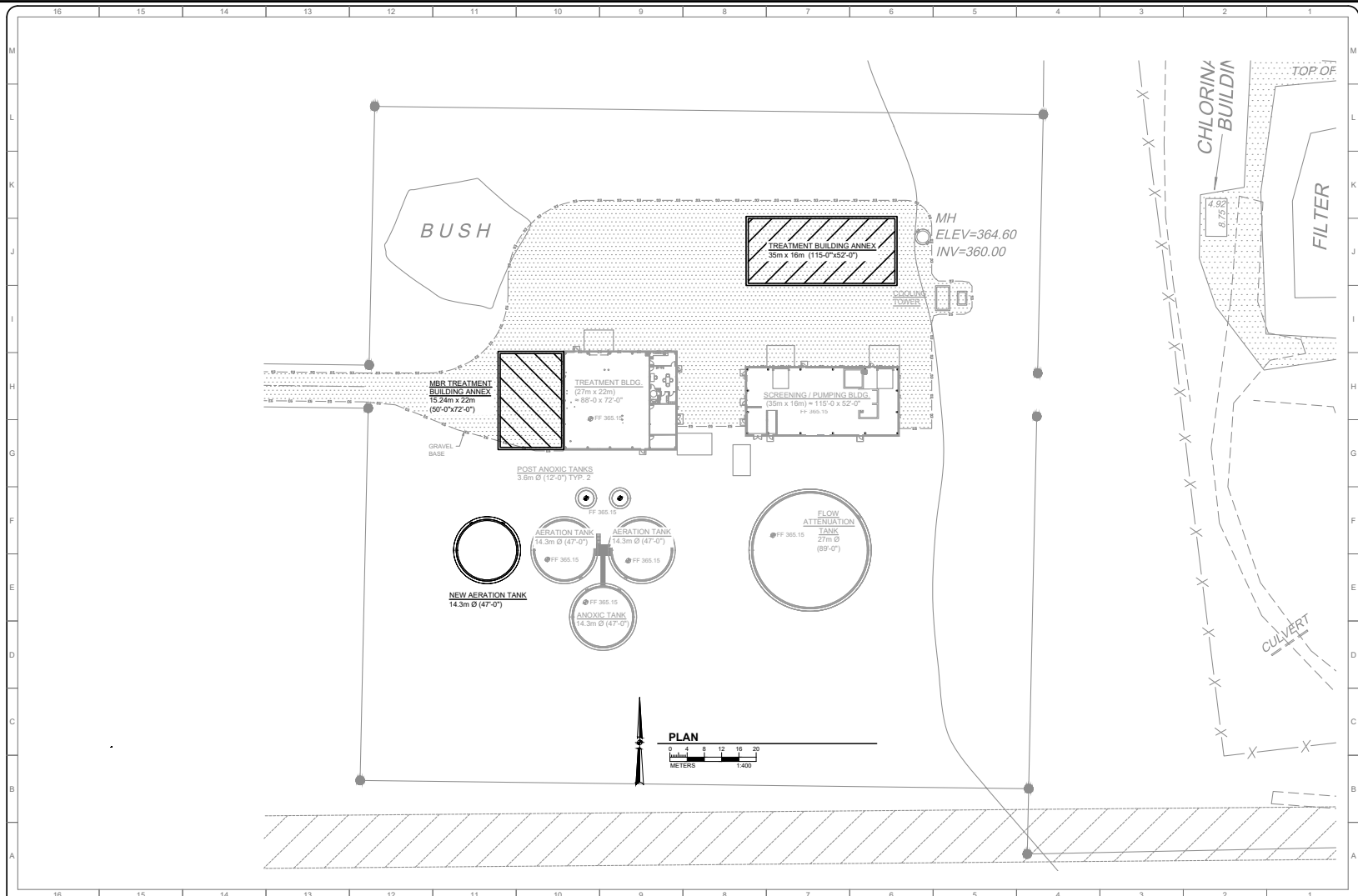
*Client/Project*  
 R3 Innovations Inc.  
 IWWT  
 Notice of Alteration

111440368

*Figure No.*  
**1-1c**

*Title*  
**Regional Assessment Area  
 (10 km Radius)**





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PROJECT DATE: June 2017	DESIGNED: RDP																																				
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	APPROVED:																																				
	DRAWING No. C1.0																																				
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PRELIMINARY - NOT FOR CONSTRUCTION

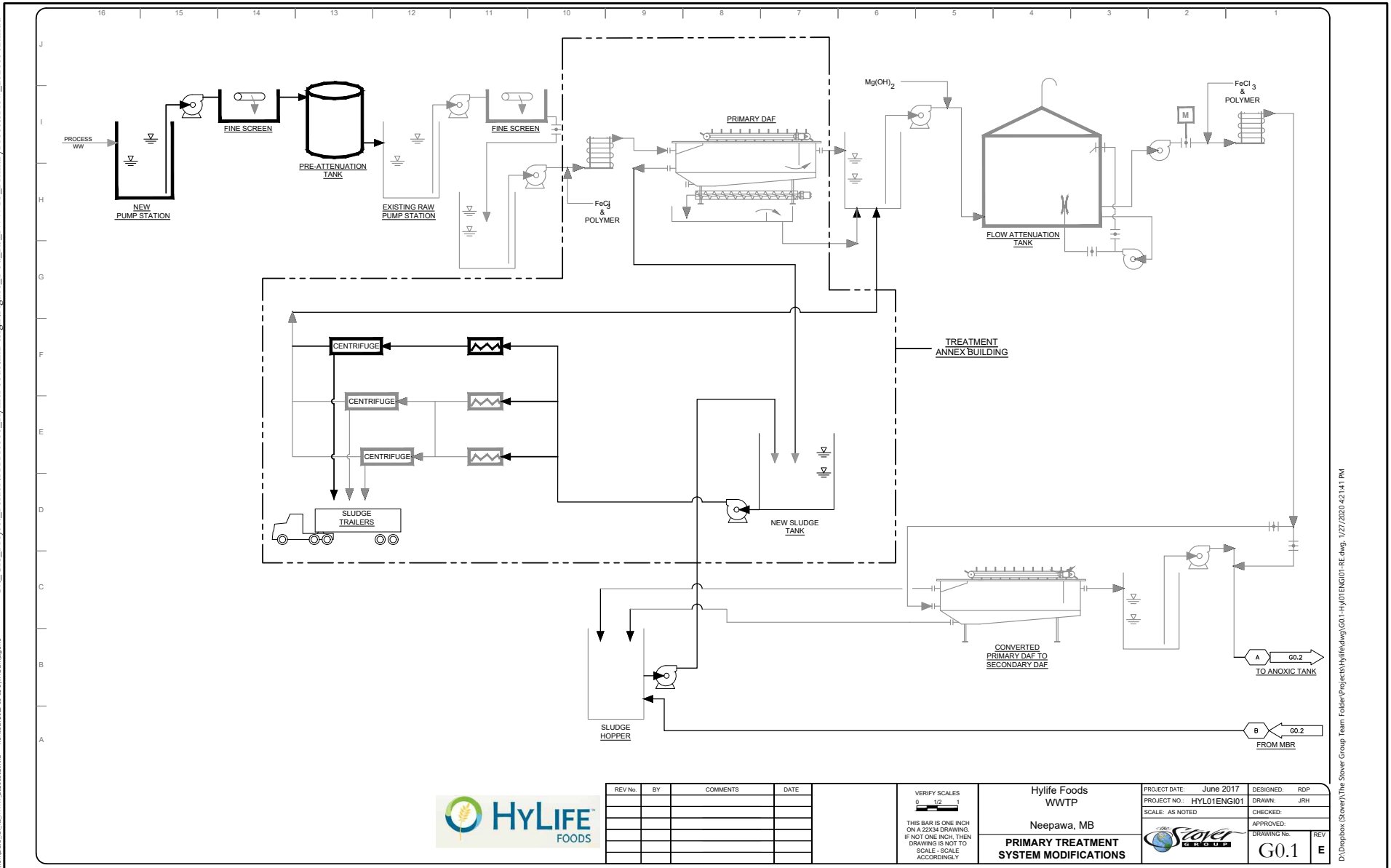
Source: The Stover Group; Existing WWTP Location Plan; Drawing C1.0, REV C, June 2017.

Project Location: 111440368  
Town of Neepawa, Manitoba  
Prepared by AC on 2020-03-02  
Technical Review by BK on 2020-03-02

Client/Project: R3 Innovations Inc. IWWTF  
Notice of Alteration  
Figure No. 1-2



Title: R3 IWWTF Site Plan



REV NO.	BY	COMMENTS	DATE

VERIFY SCALES  
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 THIS BAR IS ONE INCH  
 ON A 30X60 DRAWING.  
 IF NOT ONE INCH, THEN  
 DRAWING IS NOT TO  
 SCALE - SCALE  
 ACCORDINGLY

HyLife Foods  
 WWTP  
 Neepawa, MB  
**PRIMARY TREATMENT  
 SYSTEM MODIFICATIONS**

PROJECT DATE: June 2017	DESIGNED: RDP
PROJECT NO.: HYL01ENGI01	DRAWN: JRM
SCALE: AS NOTED	CHECKED:
	APPROVED:
	DRAWING NO. G0.1
	REV E

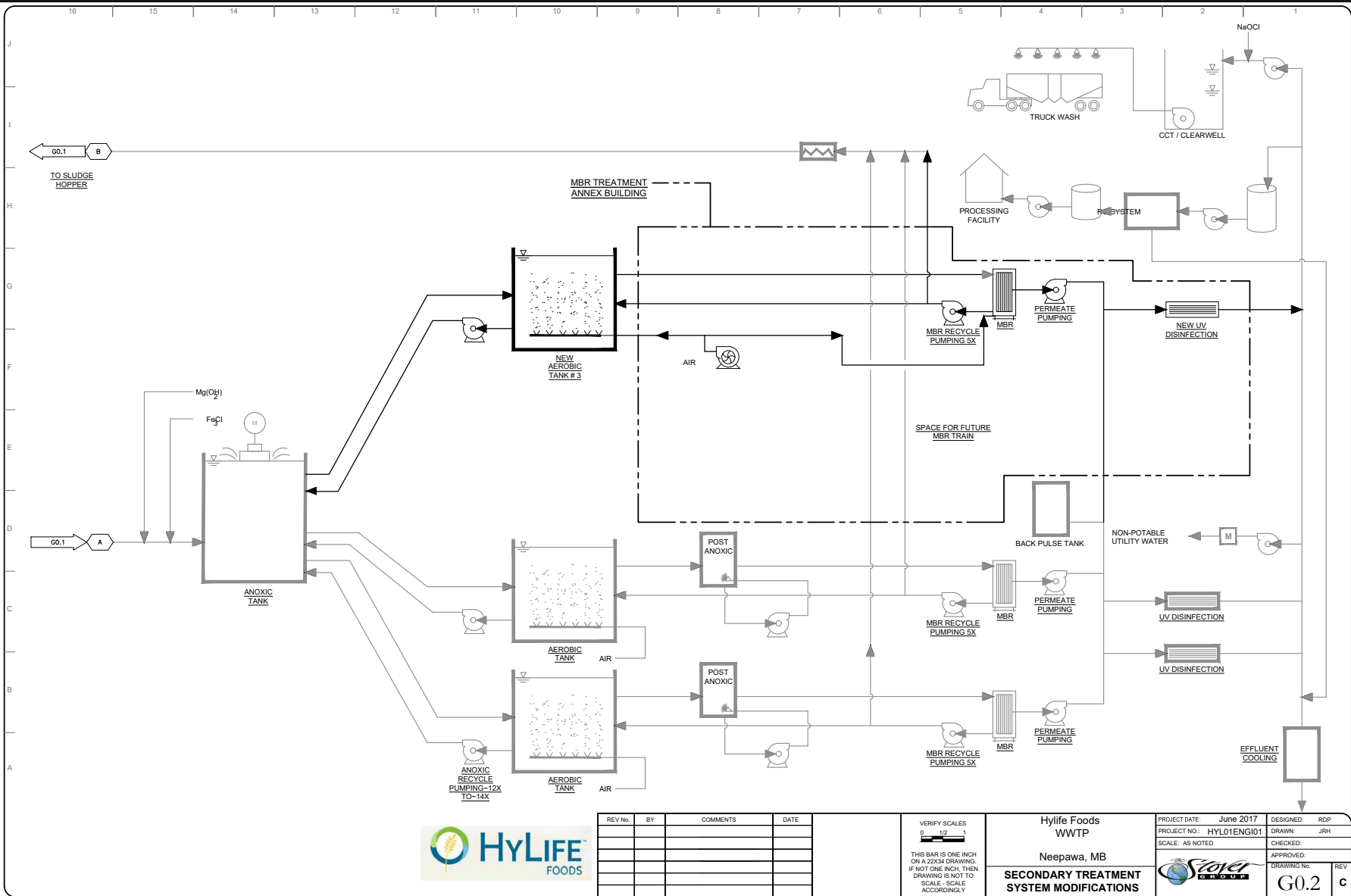
PRELIMINARY - NOT FOR CONSTRUCTION

Source: The Stover Group; Primary Treatment System Modifications;  
 Drawing G0.1, REV E, June 2017.

Project Location 111440368  
 Town of Neepawa,  
 Manitoba Prepared by AC on 2020-03-02  
 Technical Review by BK on 2020-03-02

Client/Project  
 R3 Innovations Inc.  
 IWWTF  
 Notice of Alteration  
 Figure No.  
**1-3a**  
 Title  
**R3 IWWTF Primary  
 Process Flow**





REV NO.	BY	COMMENTS	DATE

VERIFY SCALES  
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Hylife Foods  
 WWTP  
 Neepawa, MB  
**SECONDARY TREATMENT SYSTEM MODIFICATIONS**

PROJECT DATE: June 2017	DESIGNED: RDP
PROJECT NO.: HYL01ENGI01	DRAWN: JRM
SCALE: AS NOTED	CHECKED:
APPROVED:	DRAWING NO. G0.2
REV C	

PRELIMINARY - NOT FOR CONSTRUCTION

Source: The Stover Group; Secondary Treatment System Modifications; Drawing G0.2, REV C, June 2017.

Project Location: 111440368  
 Town of Neepawa, Manitoba  
 Prepared by AC on 2020-03-02  
 Technical Review by BK on 2020-03-02

Client/Project: R3 Innovations Inc. IWWTF  
 Notice of Alteration  
 Figure No. 1-3b



Title: R3 IWWTF Secondary Process Flow





# R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION

Appendix B Licence  
June 25, 2020

## Appendix B LICENCE







## Sustainable Development

Environmental Stewardship Division  
Environmental Approvals Branch  
1007 Century Street, Winnipeg, Manitoba R3H 0W4  
T 204 945-8321 F 204-945-5229  
www.gov.mb.ca/sd

**File: 2755.20**

July 12, 2019

Sheldon Stott  
R3 Innovations Inc.  
Box 100  
La Broquerie, MB R0A 0W0

Dear Mr. Stott:

**Re: R3 Innovations Inc./Town of Neepawa IWWTF –Environment Act Licence No. 2870 RRR**

Please find enclosed Environment Act Licence No. 2870 RRR issued to R3 Innovations Inc. and the Town of Neepawa for the operation of the Development being a wastewater collection system and 1570 m<sup>3</sup>/day hydraulic capacity industrial wastewater treatment facility (IWWTF) located at SW 35-14-15WPM in the Town of Neepawa.

Environment Act Licence No. 2870 RR has been rescinded; the revised licence amends Clause 25 to reflect the annual average of the hydraulic loading.

If you have any questions, please contact Jennifer Winsor, P.Eng. at 204-945-7012.

Yours sincerely,

*“original signed by”*

Cordella Friesen  
Director  
The Environment Act

- c. Scott Davies, A/Director, Environmental Compliance and Enforcement  
Yvonne Hawryliuk – Environmental Compliance and Enforcement

# LICENCE

Licence No./Licence n°	<u>2870 RRR</u>
Issue Date/Date de délivrance	<u>December 18, 2014</u>
Revised / Révisé	<u>May 31, 2019</u> <u>July 12, 2019</u>

In accordance with The Environment Act (C.C.S.M. c. E125)/  
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Sections 11(1) /Conformément au Paragraphes 11(1)

**THIS LICENCE IS ISSUED TO:/CETTE LICENCE EST DONNÉE À:**

**R3 INNOVATIONS INC.**  
**AND**  
**THE TOWN OF NEEPAWA;**  
**“the Licencees”**

for the operation of the Development, being a wastewater collection system and 1570 m<sup>3</sup>/day hydraulic capacity industrial wastewater treatment facility (IWWTF) located at SW 35-14-15WPM in the Town of Neepawa with discharge of treated effluent to the effluent outfall pipeline with final discharge to the Whitemud River in accordance with the Proposal dated June 12, 2013 and subsequent information provided on November 25, 2013 and a May 3, 2019 notice of alteration and subject to the following specifications, limits, terms and conditions:

## **DEFINITIONS**

In this Licence,

“**accredited laboratory**” means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation and Water Stewardship to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

“**acute lethality**” means a toxic effect resulting in death produced in an organism by a substance or mixture of substances within a short exposure period (usually 96 hours or less);

“**affected area**” means a geographical area, excluding the property of the Development;

“**approved**” means approved by the Director or assigned Environment Officer in writing;

“**biosolids**” means accumulated organic solids, resulting from wastewater treatment processes. that have received adequate treatment to permit the material to be recycled;

“**calibrate**” means to determine, check, or rectify the graduation of any instrument giving quantitative measurement;

“**composite sample**” means a quantity of undiluted effluent composed of a minimum of 24 sequential series of discrete equal volumes of effluent collected at a rate proportionate to the flow rate of the effluent over a period of 24 consecutive hours;

“**day**” or “**daily**” means any period of 24 consecutive hours;

“**Director**” means an employee so designated pursuant to The Environment Act;

“**effluent**” means treated wastewater flowing or pumped out of the wastewater treatment facility;

“**Environmental Management System (EMS)**” means the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy;

“**Environment Officer**” means an employee so appointed pursuant to The Environment Act;

“**Escherichia coli (*E.coli*)**” means the species of bacteria in the fecal coliform group found in large numbers in the gastrointestinal tract and feces of warm-blooded animals and man, whose presence is considered indicative of fresh fecal contamination, and is used as an indicator organism for the presence of less easily detected pathogenic bacteria;

“**fecal coliform**” means aerobic and facultative, Gram-negative, nonspore-forming, rod-shaped bacteria capable of growth at 44.5° C, and associated with fecal matter of warm blooded animals;

“**final discharge point**” means the effluent monitoring location past the UV disinfection facility of the wastewater treatment plant, or the actual end-of-pipe outfall location for the effluent following the wastewater treatment plant at or near the banks of the Whitemud River, unless otherwise re-designated in writing by the Director;

“**five-day biochemical oxygen demand (BOD<sub>5</sub>)**” means that part of the oxygen demand usually associated with biochemical oxidation of organic matter within five days at a temperature of 20°C;

**“five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>)”** means that part of the oxygen demand usually associated with biochemical oxidation of carbonaceous organic matter within five days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

**“flow proportional composite sample”** means a combination of not less than ten individual samples of equal volumes of wastewater taken at equal increments of wastewater flow over a specified period of time;

**“grab sample”** means a quantity of wastewater taken at a given place and time;

**“hog processing facility”** means the HyLife Foods LP hog processing facility operating under Environment Act Licence No. 1102 RRR or subsequent revised licence and all the supporting facilities located on that same property;

**“Industrial Services Agreement”** means a signed and legally binding agreement, arrived at between the Licencees and HyLife Foods LP which outlines clear limits respecting the maximum daily and maximum weekly flow rates, as well as maximum daily and maximum weekly loading limits on such physical, chemical and biological parameters as may be requested by the Licencees or HyLife Foods LP;

**“influent”** means all the untreated hog processing wastewater and sanitary sewage from the hog processing facility and the associated truck wash facility, being directed into the wet well prior to the fine screening stage;

**“IWWTF”** means the industrial wastewater treatment facility which includes the wastewater collection system, the wastewater treatment plant and the wastewater treatment lagoons;

**“kg/d”** means kilograms per day;

**“mg/L”** means milligrams per litre;

**“MPN index”** means the most probable number of coliform organisms in a given volume of wastewater or effluent which, in accordance with statistical theory, would yield the observed test result with the greatest frequency;

**“noise nuisance”** means an unwanted sound, in an affected area, which is annoying, troublesome, or disagreeable to a person:

- a) residing in an affected area;
- b) working in an affected area; or
- c) present at a location in an affected area which is normally open to members of the public;

if the unwanted sound

- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses a), b) or c), who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b) or c) and the Director is of the opinion that if the unwanted sound had occurred in a more densely

populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

**“odour nuisance”** means a continuous or repeated odour, smell or aroma, in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant or disagreeable to a person:

- a) residing in an affected area;
- b) working in an affected area; or
- c) present at a location in an affected area which is normally open to members of the public;

if the odour, smell or aroma

- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses a), b) or c) who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b) or c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

**“Operator”** means a person certified to operate the IWWTF and employed by the Licencees to manage the functional day-to-day operation of the IWWTF within the constraints of this Licence;

**“pollutant”** means a pollutant as defined in The Environment Act;

**“process wastewater”** means all wastewater from the hog processing facility, including sanitary sewage and wastewater from the associated truck wash facility;

**“record drawings”** means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

**“sludge”** means accumulated solid material containing large amounts of entrained water, which has separated from wastewater during processing;

**“Standard Methods for the Examination of Water and Wastewater”** means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation;

**“thirty-day rolling average”** means the arithmetic average of any daily reported data and the preceding 29 consecutive days of reported data;

**“undiluted”** means free of extraneous sources of water which could feasibly be prevented from mixing with effluent streams prior to their discharge at their designated final discharge point(s), and not having water added for the purposes of meeting any effluent quality limits specified in this Licence;

**“UV disinfection”** means a disinfection process for treating wastewater using ultraviolet radiation;

"**UV germicidal dose**" means the unit of intensity of ultra violet light that is required to kill bacteria and viruses present in the wastewater effluent;

"**wastewater**" means the spent or used water of a community or industry which contains dissolved and suspended matter;

"**wastewater collection system**" means the sewer and pumping system used for the collection and conveyance of domestic, commercial and industrial wastewater;

"**wastewater treatment lagoon**" means the component of this development which consists of an impoundment into which wastewater is discharged for treatment and storage;

"**wastewater treatment plant**" means the central facility of wastewater treatment facilities which contains all treatment processes exclusive of the collection system;

"**week**" or "**weekly**" means any period of 7 consecutive days; and

"**WHMIS**" means Workplace Hazardous Materials Information System.

### **GENERAL TERMS AND CONDITIONS**

This Section of the Licence contains requirements intended to provide guidance to the Licencees in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

#### **Retain Copy of Licence**

1. The Licencee shall at all times maintain a copy of this licence at the Development or at the premises from which the Development's operations are managed.

#### **Future Sampling**

2. In addition to any of the limits, terms and conditions specified in this Licence, the Licencees shall, upon the request of the Director:
  - a) sample, monitor, analyze and/or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
  - b) determine the environmental impact associated with the release of any pollutant(s) from the Development;
  - c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
  - d) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used,



bioassay data, flow rate measurements and such other information as may from time to time be requested.

3. The Licencees shall, unless otherwise specified in this Licence:
  - a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in the most current edition of Standard Methods for the Examination of Water and Wastewater or in accordance with equivalent preservation and analytical methodologies approved by the Director;
  - b) carry out all sampling of, and preservation and analyses on, soil and air samples in accordance with methodologies approved by the Director;
  - c) have all analytical determinations undertaken by an accredited laboratory; and
  - d) report the results to the Director within 60 days of the samples being taken.
4. The Licencees shall actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for the Whitemud River and/or associated waterways and watersheds.

### **Reporting Format**

5. The Licencees shall submit all information required to be provided to the Director or Environment Officer under this Licence, in writing, in such form (including number of copies) and of such content as may be required by the Director or Environment Officer, and each submission shall be clearly labeled with the Licence Number and Client File Number associated with this Licence.

### **Equipment Breakdown**

6. The Licencees shall, in the case of physical or mechanical equipment breakdown or process upset where such breakdown or process upset results or may result in the release of a pollutant in an amount or concentration, or at a level or rate of release, that causes or may cause a significant adverse effect, immediately report the event by calling 204-944-4888 (toll-free 1-855-944-4888). The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.
7. The Licencees shall, following the reporting of an event pursuant to Clause 6,
  - a) identify the repairs required to the mechanical equipment;
  - b) undertake all repairs to minimize unauthorized discharges of a pollutant;
  - c) complete the repairs in accordance with any written instructions of the Director; and
  - d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.

### **Safety and Security**

8. The Licencees shall continually maintain an up-to-date inventory of any process and cleaning chemicals used and/or stored on-site that would be captured by any applicable federal/provincial WHMIS regulations and protocols, and make this information and applicable MSDS sheets available to an Environment Officer upon request.

9. The Licencees shall prepare, within 90 days of the date of issuance of this Licence, and maintain an emergency response contingency plan in accordance with the Canadian Centre for Occupational Health and Safety “Emergency Response Planning Guide” or other emergency planning guidelines acceptable to the Director.
10. The Licencees shall implement a high standard of equipment maintenance and good housekeeping and operational practices with respect to the Development, at all times.
11. The Licencees shall implement and continually maintain in current status, an Environmental Management System (EMS) for the Development which is acceptable to the Director.
12. The Licencees shall:
  - a) install or utilize existing security fencing, acceptable to the Director, to enclose the wastewater treatment plants or components thereof, that are not enclosed in a building with a security system acceptable to the Director; and
  - b) maintain the security system in a manner acceptable to the Director.

### **Certification**

13. The Licencees shall obtain and maintain classification of the Development pursuant to Manitoba Regulation 77/2003 respecting Water and Wastewater Facility Operators or any future amendment thereof and maintain compliance with all requirements of the regulation including, but not limited to, the preparation and maintenance of a Table of Organization, Emergency Response Plan and Standard Operating Procedures.
14. The Licencees shall carry out the operation of the Development with individuals properly certified to do so pursuant to Manitoba Regulation 77/2003 respecting Water and Wastewater Facility Operators or any future amendment thereof.

### **Industrial Services Agreement**

15. The Licencees shall:
  - a) prepare and execute a current comprehensive and enforceable Industrial Services Agreement, which is acceptable to the Director, for the purposes of defining maximum daily and maximum weekly influent limits respecting volume and pollutant loading rates which would protect the operational integrity of the IWWTF in terms of the design capability and/or in consideration of the actual performance of the IWWTF relative to the effluent quality limits as specified in this Licence, or any revision thereof;
  - b) provide the Director with a copy of the Industrial Services Agreement upon being signed by all parties; and
  - c) provide the Director with a copy of any future revised Industrial Services Agreement.

## **SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS**

### **Respecting Construction**

16. The Licencees shall notify the assigned Environment Officer not less than two weeks prior to beginning construction at the Development. The notification shall include the intended starting date of construction and the name of the contractor and contact person responsible for the construction.
17. The Licencees shall obtain all necessary federal, provincial and/or municipal licences, authorizations, permits and/or approvals for construction of relevant components of the Development prior to commencement of construction.
18. The Licencees shall dispose of non-reusable construction debris from the Development at a waste disposal ground operating under the authority of a permit issued pursuant to Manitoba Regulation 150/91 respecting Waste Disposal Grounds, or any future amendment thereof, or a Licence issued pursuant to The Environment Act.
19. The Licencees shall locate fuel storage and equipment servicing areas established for the construction and operation of the Development a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products or any future amendment thereof.
20. The Licencees shall, during construction of the Development, operate, maintain and store all materials and equipment in a manner that prevents any deleterious substances (fuel, oil, grease, hydraulic fluids, coolant, paint, uncured concrete and concrete wash water, etc.) from entering the discharge route and associated watercourses, and have an emergency spill kit for in-water use available on site during construction.
21. The Licencees shall not permit any pollutants to be directed into, or transported by, any surface drainage route leading off the property of the Development.
22. The Licencees shall pressure test the integrity of the connections of any new underground piping of the Development, which is intended to transport wastewater under pressure, before such pipe connections are backfilled with earth and make repairs as required.
23. The Licencees shall:
  - a) clearly mark all those existing groundwater monitoring wells located on the property of the Development which have the potential to be disturbed by any construction activity involving the expansion and modification of the Development; and
  - b) decommission any existing groundwater monitoring well(s) which are planned to be terminated or relocated (in the course of the construction activities) in a manner consistent with any applicable guidelines or requirements administered by the Manitoba Conservation and Water Stewardship.

**Respecting Operation of the Development**

24. The Licencees shall not accept wastewater, liquid sludge or manure into the IWWTF from any source other than the HyLife Foods hog processing facility and truck wash facility, except for seed as may be required by the IWWTF upon the start-up of the IWWTF modifications or to recover from a treatment process upset.
25. The Licencees shall operate and maintain the IWWTF in such a manner that, when measured immediately following the flow attenuation tank:
  - a) the hydraulic loading does not exceed 1,570 cubic metres over any 24-hour period based on an annual average; and
  - b) the organic loading does not exceed 6,023 kilograms of five-day biochemical oxygen demand over any 24-hour period.
26. The Licencees shall:
  - a) stage the ramp-up of the operation of the IWWTF in accordance with the written instructions of the Operator of the IWWTF;
  - b) limit the wastewater being directed into the IWWTF to only that wastewater which is generated at the HyLife Foods hog processing plant and truck wash facility while operating at a hog processing rate not exceeding 40,000 hogs per week averaged over any 12 month period; and
  - c) continually monitor and manage the quality and quantity of the raw wastewater streams from the HyLife Foods hog processing facility and truck wash facility relative to the design limitations of the IWWTF and consistent with maintaining ongoing compliance with the limits, terms and conditions set out in this Licence.
27. The Operator of the IWWTF shall:
  - a) provide written instructions to HyLife Foods, when necessary, with respect to managing the quality and quantity of any wastewater streams being directed from the hog processing facility and the truck wash facility to the IWWTF, clearly indicating the necessity for the instruction(s) and any critical timing associated with executing the instruction(s); and
  - b) copy the Director on any written authorizations or instruction provided to HyLife Foods concerning the commissioning of the altered IWWTF and the ongoing management of the quality and quantity of any influent wastewater streams being directed into the wet well at the front of the IWWTF.
28. The Licencees shall install and maintain adequate instrumentation to provide constant monitoring of the UV process to ensure compliance with the disinfection requirements. Such instrumentation shall include but not be limited to the following:
  - a) a UV sensor to monitor lamp intensity;
  - b) an appropriate alarm;
  - c) a lamp monitoring system to identify the location of individual lamp failures;
  - d) an hour meter which cannot be reset to display actual hours of UV lamp operation; and
  - e) protective circuits for overcurrent and ground current leakage detection.
29. The Licencees shall utilize UV lamps that have a rated output of at least 254 nanometres (nm) capable of delivering a UV germicidal dose in excess of 30,000 microwatt seconds/sq cm.

30. The Licencees shall operate and maintain the UV units to give a germicidal dose of 80% or more of the design germicidal dose, at the end of the lamp life.
31. The Licencee shall submit, to the Director for approval within 90 days of issuance of this Licence, an operational plan for the existing wastewater treatment lagoon, including plans to seal and/or decommission the discharge outlet from the facility.
32. The Licencees shall maintain a 1.0 metre freeboard at the existing wastewater treatment lagoon cells at all times.
33. The Licencees shall:
  - a) transfer wastewater to the existing wastewater treatment lagoon at the Development, only under exceptional circumstances, for temporary wastewater storage purposes only;
  - b) transfer the stored wastewater from the existing wastewater treatment lagoon to the wastewater treatment plant for treatment and discharge only through the final discharge point; and
  - c) notify the Environment Officer on each occasion when the transfer of wastewater to the existing wastewater treatment lagoon occurs and keep a record of each transfer.

#### **Respecting Effluent Releases from the Development**

34. The Licencees shall release effluent from the Development only through the final discharge point which leads to the Whitemud River.
35. The Licencees shall not release any effluent from the Development if the quality of the effluent is such that:
  - a) the organic content in the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand, is in excess of 25 mg/L, as determined from any composite sample of the effluent;
  - b) the total suspended solids content in the effluent, is in excess of 25 mg/L, as determined from any composite sample of the effluent;
  - c) the fecal coliform content in the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a minimum of 3 consecutive days per week;
  - d) the E. coli content in the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a minimum of 3 consecutive days per week;
  - e) the concentration of total nitrogen in the effluent on any day is in excess of 15.0 milligrams per litre, as determined by the 30-day rolling average;
  - f) the concentration of total phosphorus in the effluent on any day is in excess of 1.0 milligrams per litre, as determined by the 30-day rolling average; or
  - g) the total ammonia is in excess of the concentration specified in Schedule 1 of this Licence, as determined by the pH of the effluent.
36. The Licencees shall not, on any day, release a quality of effluent from the Development which:
  - a) causes, or contributes to, the mixing zone for the effluent in the Whitemud River being acutely lethal to aquatic life passing through the mixing zone; or

- b) which can be demonstrated to be acutely lethal to fish within the mixing zone for the effluent in the Whitemud River using a 96-hour static acute lethality test which results in mortality to more than 50 percent of the test fish exposed to 100 percent strength effluent, with the test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS/1/RM/13 Second Edition – December 2000", or any future amendment thereof, or by another toxicity testing method approved by the Director.

37. The Licencees shall not direct wastewater to the Town of Neepawa municipal wastewater treatment lagoon.

### **Respecting Groundwater Protection**

38. The Licencees shall:

- a) develop and submit to the Director, for approval, a Groundwater Monitoring Program to encompass all groundwater zones that could potentially be impacted at the site of the Development by losses of untreated or partially treated wastewater or any spilled liquid chemicals or petroleum fuel; and
- b) submit an annual report to the Director each year on the findings of the approved Groundwater Monitoring Program.

39. The Licencees shall, upon learning that the approved Groundwater Monitoring Program has identified evidence of probable or certain groundwater contamination;

- a) file an action plan with the Director, as soon as possible, to identify and isolate the source(s) of the groundwater contamination; and
- b) implement remediation measures, to the satisfaction of the Director, and to the extent necessary to restore the impacted groundwater.

40. The Licencees shall, upon the suspicion or detection of any leaking or ruptured wastewater collection pipe or forcemain, immediately undertake an investigation, and upon confirmation of a leak or rupture, terminate or otherwise re-route all inputs to the pipe or forcemain until the necessary repair has been completed.

### **Respecting Air Emissions**

41. The Licencees shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.

42. The Licencees shall not cause or permit a noise nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.

43. The Licencees shall prepare and maintain and make available to an Environment Officer upon request:
- a) an updated greenhouse gas inventory respecting the Development, by addressing carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride emissions; and
  - b) a greenhouse gas management plan for the Development, including reduction strategies and targets.

### **Respecting Solid Wastes**

44. The Licencees shall not undertake any on-site burning of solid waste.
45. The Licencees shall reduce the production and dissemination of wastes by initiating and maintaining waste reduction and waste recycling programs.
46. The Licencees shall not deposit solid waste into the environment except into a waste disposal ground operating under the authority of an Environment Act Licence or a permit issued pursuant to Manitoba Regulation 150/91 or any future amendment thereof, where the operator of that facility has agreed to accept the solid waste.

### **Respecting the Management of Sludge and Biosolids**

47. The Licencees shall transport all of the dewatered sludge and biosolids from the development:
- a) to an approved facility operating under a valid Environment Act Licence or permit; and
  - b) in containers in such a manner to prevent the loss of sludge and biosolids or entrained fluids to the satisfaction of an Environment Officer.
48. The Licencees shall return all centrate resulting from the dewatering of the sludge and biosolids by centrifuges to the flow attenuation tank for treatment.

### **Respecting the Effluent Monitoring Station**

49. The Licencees shall:
- a) construct and make available for use by an Environment Officer, at locations acceptable to the Director, secured and heated monitoring stations with direct access to:
    - i) the IWWTF wastewater influent pipelines; and
    - ii) the IWWTF wastewater effluent pipeline; and
  - b) make the monitoring stations accessible to an Environment Officer at all times;
  - c) install and maintain a continuous flow measuring devices, equipped with an interface compatible with departmentally owned ISCO sampler, at the monitoring stations or at a location acceptable to the Director which is capable of measuring the volume of effluent with an accuracy of  $\pm 2$  percent;
  - d) have the flow measuring device re-calibrated every two years or on the request of an Environment Officer;
  - e) submit to the Director a certificate of calibration, signed by a person qualified to calibrate the flow measuring device, for each flow measuring device within two weeks of the completion of

each calibration, identifying the plus or minus percent error associated with each calibrated flow measuring device; and

- f) equip the monitoring stations with a flow-proportional sampling device equipped to function with the flow measuring device and have the sampling device available on request for use by an Environment Officer.

### **Respecting Monitoring, Record Keeping and Reporting of Effluent Releases**

50. The Licencees shall:

- a) continuously measure and record the daily and total monthly volume (cubic metres) of effluent released from the final discharge point of the Development to an accuracy within  $\pm 2$  percent;
- b) once every week, on a full production day, collect a composite sample of the effluent at the final discharge point of the Development, and analyze it for:
  - i) pH;
  - ii) temperature (field);
  - iii) suspended solids (mg/L);
  - iv) five-day carbonaceous biochemical oxygen demand (mg/L); and
  - v) ammonia nitrogen (expressed as mg/L of N); and
- c) once each day collect a composite sample of the effluent from the Development and analyze it for:
  - i) total nitrogen (as N); and
  - ii) total phosphorus (as P);
- d) once each day at equal time intervals for a minimum of three (3) consecutive days per week, collect a grab sample of the effluent from the final discharge point of the Development and analyze it for:
  - i) fecal coliform (expressed as MPN per 100 millilitres of sample); and
  - ii) E. coli (expressed as MPN per 100 millilitres of sample); anddetermine and record the monthly geometric mean for each of the fecal coliform and the E. coli counts based on all the data collected during each month for each coliform type;
- e) determine and record the loadings of:
  - i) ammonia nitrogen (as kg/d of N);
  - ii) total nitrogen (as kg/d of N); and
  - iii) total phosphorus (as kg/d of P);released to the Whitemud River on each sampling date; and
- f) once every six months, collect a grab sample of the effluent at the final discharge point and have the sample analyzed by means of appropriate analytical methodologies to identify and quantify the presence of:
  - i) Cryptosporidium;
  - ii) Giardia;
  - iii) heavy metals;
  - iv) organochlorines;
  - v) active pharmaceutical ingredients (particularly suspected endocrine disrupting compounds) which may be associated with pork processing operations; and
  - vi) such other parameter(s) as may be requested by the Director; until or unless otherwise specified by the Director.



51. The Licencees shall:
- a) take two flow proportional composite samples of effluent from the wastewater treatment plant over a 24 hour period every three months each year with a minimum separation time of 90 days between samples;
  - b) have one bioassay sample of the effluent analyzed at 100 percent concentration for acute lethality in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition – December 2000", or any future amendment thereof; and
  - c) report the results to the Director within 30 days of the end of the month during which the samples were taken.
52. The Licencees shall submit monthly reports on applicable analytical values and information determined and recorded pursuant to Clauses 50 and 51 of this Licence, to the Director, in writing and in an electronic format acceptable to the Director, no later than 30 days after the end of the month during which the information was collected or compiled.
53. The Licencees shall during each year maintain the following records and retain them for a minimum period of five calendar years:
- a) wastewater sample dates;
  - b) original copies of laboratory analytical results of the sampled wastewater;
  - c) a summary of laboratory analytical results;
  - d) monthly effluent discharge volumes;
  - e) maintenance and repairs; and
  - f) a summary of any sanitary sewer overflows / combined sewer overflows.
54. The Licencees shall submit an annual report to the Environment Officer by February 28 of the following year including all records required by Clause 33 and Clause 53 of this Licence.

### **Record Drawings**

55. The Licencees shall:
- a) prepare updated "record drawings" for the Development and shall label the drawings "Record Drawings"; and
  - b) provide to the Director, within six months from the date of this Environment Act Licence, two electronic copies of the "record drawings".

### **REVIEW OR REVOCATION**

- A. This Licence replaces Environment Act Licence No. 2870 RR which is hereby rescinded.
- B. If, in the opinion of the Director, the Licencees have failed or are failing to comply with any of the specifications, limits, terms or conditions set out herein, the Director may, temporarily or permanently, revoke this Licence.

- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.

*“original signed by”*

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**Cordella Friesen**  
**Director**  
**The Environment Act**

**File: 2755.20**

**Schedule 1 to Environment Act Licence No. 2870 RR**

**Maximum Total Ammonia - Acute Toxicity Limits pursuant to Clause 35 (g)**

Effluent pH	Total Ammonia (mg/L)
6.50	48.83
6.60	46.84
6.70	44.57
6.80	42.00
6.90	39.16
7.00	36.09
7.10	32.86
7.20	29.54
7.30	26.21
7.40	22.97
7.50	19.89
7.60	17.03
7.70	14.44
7.80	12.14
7.90	10.13
8.00	8.41
8.10	6.95
8.20	5.73
8.30	4.71
8.40	3.88
8.50	3.20
8.60	2.65
8.70	2.20
8.80	1.84
8.90	1.56
9.00	1.32



**R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION**

Appendix C Certificates of Title  
June 25, 2020

**Appendix C CERTIFICATES OF TITLE**





## STATUS OF TITLE

Title Number **2421295/5**  
Title Status **Accepted**  
Client File **general**

**The Property Registry**  
A Service Provider for the Province of Manitoba



### 1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

R3 INNOVATIONS INC.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:

PARCEL "A" PLAN 48468 NLTO  
IN SW 1/4 35-14-15 WPM

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

### 2. ACTIVE INSTRUMENTS

Instrument Type: **Caveat**  
Registration Number: **30550/5**  
Instrument Status: **Accepted**

Registration Date: 1952-08-01  
From/By: CROWN TRUST COMPANY  
To:

Amount:  
Notes: No notes  
Description: No description

---

Instrument Type: **Caveat**  
Registration Number: **86-1191/5**  
Instrument Status: **Accepted**

Registration Date: 1986-03-21  
From/By: THE TOWN OF NEEPAWA  
To:

Amount:  
Notes: No notes  
Description: No description

Instrument Type: **Caveat**  
Registration Number: **86-2833/5**  
Instrument Status: **Accepted**

Registration Date: 1986-06-24  
From/By: THE RM OF LANGFORD  
To:

Amount:  
Notes: No notes  
Description: No description

---

Instrument Type: **Caveat**  
Registration Number: **86-5122/5**  
Instrument Status: **Accepted**

Registration Date: 1986-11-14  
From/By: MANITOBA HYDRO-ELECTRIC BOARD  
To:

Amount:  
Notes: No notes  
Description: No description

**3. ADDRESSES FOR SERVICE**

R3 INNOVATIONS INC.  
BOX 10000, 623 MAIN ST. EAST  
NEEPAWA MB  
R0J 1H0

**4. TITLE NOTES**

No title notes

**5. LAND TITLES DISTRICT**

Neepawa

**6. DUPLICATE TITLE INFORMATION**

Duplicate not produced

**7. FROM TITLE NUMBERS**

2357476/5      All

**8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS**

No real property application or grant information



**9. ORIGINATING INSTRUMENTS**

Instrument Type: **Transfer Of Land**  
Registration Number: **1076408/5**

Registration Date: 2009-12-17  
From/By: SPRINGHILL FARMS INC.  
To: R3 INNOVATIONS INC.  
Consideration: \$1.00

**10. LAND INDEX**

Lot A Plan 48468  
IN SW 35-14-15W

**CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE  
SYSTEM OF TITLE NUMBER 2421295/5**



## STATUS OF TITLE

Title Number **2421294/5**  
Title Status **Accepted**  
Client File **general**

## The Property Registry

A Service Provider for the Province of Manitoba



### 1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

R3 INNOVATIONS INC.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:

PARCEL "B" PLAN 48468 NLTO  
IN SW 1/4 35-14-15 WPM

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

### 2. ACTIVE INSTRUMENTS

Instrument Type: **Caveat**  
Registration Number: **30550/5**  
Instrument Status: **Accepted**

Registration Date: 1952-08-01  
From/By: CROWN TRUST COMPANY  
To:

Amount:  
Notes: No notes  
Description: No description

Instrument Type: **Caveat**  
Registration Number: **86-1191/5**  
Instrument Status: **Accepted**

Registration Date: 1986-03-21  
From/By: THE TOWN OF NEEPAWA  
To:

Amount:  
Notes: No notes  
Description: No description

Instrument Type: **Caveat**  
Registration Number: **86-2833/5**  
Instrument Status: **Accepted**

Registration Date: 1986-06-24  
From/By: THE RM OF LANGFORD  
To:

Amount:  
Notes: No notes  
Description: No description

Instrument Type: **Caveat**  
Registration Number: **86-5122/5**  
Instrument Status: **Accepted**

Registration Date: 1986-11-14  
From/By: MANITOBA HYDRO-ELECTRIC BOARD  
To:

Amount:  
Notes: No notes  
Description: No description

**3. ADDRESSES FOR SERVICE**

R3 INNOVATIONS INC.  
BOX 10000, 623 MAIN ST. EAST  
NEEPAWA MB  
R0J 1H0

**4. TITLE NOTES**

No title notes

**5. LAND TITLES DISTRICT**

Neepawa

**6. DUPLICATE TITLE INFORMATION**

Duplicate not produced

**7. FROM TITLE NUMBERS**

2357477/5      All

**8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS**

No real property application or grant information

**9. ORIGINATING INSTRUMENTS**

Instrument Type: **Transfer Of Land**  
Registration Number: **1076409/5**

Registration Date: 2009-12-17  
From/By: SPRINGHILL FARMS INC.  
To: R3 INNOVATIONS INC.  
Consideration: \$1.00

**10. LAND INDEX**

Lot B Plan 48468  
IN SW 35-14-15W

**CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE  
SYSTEM OF TITLE NUMBER 2421294/5**



**R3 INNOVATIONS INC. IWWTF REFURBISHMENT NOTICE OF ALTERATION**

Appendix D Material Safety Data Sheets  
June 25, 2020

**Appendix D MATERIAL SAFETY DATA SHEETS**









Customer Service 800-864-1742  
FAX 888-273-6226

## Material Safety Data Sheet (MSDS) Ferric Chloride Solution

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** Ferric Chloride Solution      **Chemical Family:** Inorganic Iron Salts  
**Product Use:** Water Treatment Chemical      **CAS #:** 7705-08-0  
**Product Formula:** FeCl<sub>3</sub>

**Manufacturer's Name:** Pencco, Inc.  
**Manufacturer's Address:** P.O. Box 600, San Felipe, TX 77473  
**Emergency Phone Number:** PENCCO (979) 885-005  
CHEMTREC (800) 424-9300 – 24 hours a day

**Revision Date:** February 4 2014

### SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS #	Weight Percentage	ACGIH TLV	OSHA PEL	STEL
Water	7732-18-5	58 – 72%	N/A	N/A	N/A
Ferric Chloride	7705-08-0	28 – 42%	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	N/A
Ferrous Chloride	7758-94-3	<0.5%	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	N/A
Hydrochloric Acid	7647-01-0	<0.5%	5 ppm	5 ppm	N/A

**Section 313 Supplier Notification:** The hydrochloric acid mentioned above is subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). This notification must be included in all MSDS's that are copied and distributed for this material.

### SECTION 3 – HAZARD IDENTIFICATION

**Appearance and Odor:** Reddish-brown liquid with a slightly acidic odor.

**Emergency Overview:** A corrosive chemical. Harmful or fatal if swallowed. Harmful if inhaled. Eye or skin contact may cause irritation. Contact with liquid or vapor form of this chemical may cause severe injury or death. Avoid overexposure.

**Fire and Explosion Hazards:** Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas.

**Carcinogenicity:** None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

#### **Summary of Acute Health Hazards**

**Ingestion** – Toxic by ingestion. May cause irritation to the mouth and stomach. Higher doses may lead to abnormal liver function with nausea or vomiting, stomach pain, diarrhea, fast and weak pulse, lethargy, pallor, shock, hypertension, dilated pupils, fever, coma and even death.



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Individuals with pre-existing liver diseases may have increased susceptibility to the toxicity of exposure.

**Inhalation** – May cause irritation of the upper respiratory tract, resulting in difficulty breathing.

**Skin Contact** – Irritation and possibly burns.

**Eye Contact** – Irritation and possibly burns.

## SECTION 4 – FIRST AID MEASURES

**Eye Contact First Aid:** Immediately flush eyes for 15 minutes with large amounts of water while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Obtain medical attention IMMEDIATELY after flushing.

**Skin Contact First Aid:** Flush skin with water. Remove contaminated clothing; wash before reuse. If irritation is still present, seek medical attention IMMEDIATELY.

**Inhalation First Aid:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention IMMEDIATELY.

**Ingestion First Aid:** DO NOT INDUCE VOMITING. Give 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious individual. Obtain medical attention IMMEDIATELY.

## SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point:** Not applicable.

**Upper/Lower Explosion Limits in Air:** Not applicable.

**Auto Ignition Temperature:** Not applicable.

**Extinguishing Media:** Will not burn; use materials appropriate for surrounding fire.

**Fire and Explosion Hazards:** Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas.

**Fire Fighting Instructions:** Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face-piece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers and tanks cool.

**Hazardous Product of Decomposition or Combustion:** Hydrogen chloride, hydrogen, phosgene.

	NFPA Rating	HMIS Rating	4 = Extreme / Severe
Health	2	2	3 = High / Serious
Reactivity	0	0	2 = Moderate
Flammability	0	0	1 = Slight



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## SECTION 6 – ACCIDENTAL RELEASE MEASURES

Review safety precautions before proceeding with cleanup. Use appropriate personal protection equipment. Do not touch spilled material. Neutralize spill with lime (calcium hydroxide), limestone (calcium carbonate), or soda ash (sodium carbonate). Restrict access to area until completion of clean up.

**Caution:** limestone and soda ash will evolve CO<sub>2</sub>; ventilation should be provided in enclosed areas. Dike area around spill to prevent spreading, and use absorbent material to pick up spill.

**CERCLA Reportable Discharge (RQ):** 1000 lbs. (454 kg), Based on anhydrous ferric chloride. Divide by solution concentration to obtain solution weight.

**Disposal:** Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Dispose of waste in accordance with applicable federal, state, and local laws.

**RCRA:** Test waste material for corrosivity, DOO<sub>2</sub>, prior to disposal.

**Steps To Be Taken In Case Material Is Released Or Spilled:** Notify the appropriate environmental authorities. Note that spills may need to be reported to the National Response Center ((800) 424-8802)

## SECTION 7 – HANDLING AND STORAGE

**Handling:** Store and handle in corrosion-proof materials (and area). Use FRP or PVC pipes. Be cautious of substance residue in empty containers. Act according to precautions and warnings set forth.

**Storage:** Store in a tightly closed container. Do not store in metal containers. Fiberglass, plastic, or rubber-lined tanks may be used for storage. Protect from damage and keep separated from incompatible substances.

## SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Respiratory Protection:** Adequate general ventilation should be provided to keep vapor and mists below exposure limits. The exposure limits for some components are listed in Section 2. Wear a NIOSH/OSHA approved respirator with a dust/mist cartridge if there is potential of exposure to mists in excess of applicable limits, in any situation where product vapor or mists may be present, such as in confined spaces.

**Eye Protection:** Wear splash resistant goggles and/or safety glasses with side shields. Wear a full face shield if possibility of material splashing or spraying exists. Maintain eye wash fountain. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.



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**Skin Protection:** Where there is possibility of skin contact, use the following as appropriate, to avoid skin contact: gloves impervious to material, apron, boots, hood, pants, and jacket. Maintain a safety shower with quick opening valves. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

<b>Boiling Point:</b>	<b>106°C (223°F)</b>	<b>pH:</b>	<b>&lt; 2.0</b>
<b>Melting Point:</b>	<b>N/A</b>	<b>Solubility in Water:</b>	<b>Complete</b>
<b>Specific Gravity:</b>	<b>1.2 – 1.6</b>	<b>Vapor Pressure:</b>	<b>40 mm Hg @ 20°C</b>
<b>% Volatile:</b>	<b>60 – 75 (Water)</b>	<b>Evaporation Rate:</b>	<b>N/A</b>
<b>Vapor Density (Air = 1):</b>	<b>N/A</b>	<b>Molecular Weight:</b>	<b>162.2</b>
<b>Appearance:</b>	<b>Red/Brown Colored Liquid</b>	<b>Odor:</b>	<b>Slightly acrid</b>

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable at normal conditions

**Polymerization:** Will not occur.

**Decomposition:** Decomposes upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride. Contact with metals may evolve flammable hydrogen gas.

**Incompatibility:** Rapidly corrodes most metals (titanium is one exception); may generate flammable, potentially explosive hydrogen gas. Avoid contact with nylon, aluminum/aluminum alloys, carbon steel, stainless steel, and copper / copper alloys. Metals, bases, halocarbons, acids, and combustible materials can be considered incompatible.

## SECTION 11 – TOXOLOGICAL INFORMATION

**Chronic Effects:** Repeated dosage may cause hemosiderosis, including possible damage to liver and pancreas.

**Toxicological Data:** Anhydrous Ferric Chloride Solid Oral LD<sub>50</sub> (rat) = 450 mg/kg

**Carcinogenicity:** None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

**Reproductive Effects:** TDLo Rat 1 day (intratesticular) 12976  $\mu\text{g}/\text{kg}$ ; TDLo Rat 1 day (intravaginal) 29 mg/kg pre pregnancy continuous.

**Target Organs:** No data available.

## SECTION 12 – ECOLOGICAL INFORMATION

**Ecotoxicological Information:** TLm Daphnia 15 ppm/96 hr fresh water/ conditions of bioassay not specified.

**Persistence and Degradation:** No data available



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## **SECTION 13 – DISPOSAL CONSIDERATIONS**

Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Product containers should be thoroughly emptied before disposal. Dispose of waste in accordance with applicable federal, state, and local laws.

## **SECTION 14 – TRANSPORTATION INFORMATION**

**DOT Shipping Name:** Ferric Chloride Solution

**Hazard Class:** 8 – Corrosive Material

**UN Number:** UN 2582

**Packing Group:** III

**Reportable Quantity:** 1000 lbs (454 kg)

**Shipping Containers:** Rubber-lined steel tank cars/trucks; polyethylene drums, bottles

**Storage Conditions:** Keep containers closed

## **SECTION 15 – REGULATORY INFORMATION**

**OSHA:** Hazardous Corrosive Liquid – 29 CFR 1920.1200

OSHA Process Safety (29 CFR 1910.119): No

**CERCLA:** Hazardous Substance – Reportable Quantity (RQ) = 1000 lbs (454 kg)

**SARA Regulations:** 313 and 40 CFR 372: No

**SARA Hazard Categories, SARA Sections 311/312 (40 CFR 370.21):**

Acute: Yes; Chronic: No; Fire: No; Reactive: No; Sudden Release: No

**Clean Water Act:** Designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act; ferric chloride is also regulated by the Clean Water Act Amendments of 1977 and 1978. This chemical is subject to regulations regarding its discharge.

**TSCA Inventory Status:** Yes

**California Proposition 65:** No

**Right-To-Know Lists:** Massachusetts, California, Pennsylvania, New Jersey. This substance does not contain nor is manufactured with ozone-depleting substances.



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## **SECTION 16 – OTHER INFORMATION**

**IMPORTANT! Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure.**

Pencco provides the information contained in each material safety data sheet ("MSDS"), technical data sheet ("TDS"), product information brochure and/or information contained herein (including data and statements) in good faith and makes no representations as to its comprehensiveness or accuracy as of the date of publication. The MSDSs, TDSs, and product information brochures are referred to collectively as the "Data Sheets". It is the responsibility of the user to obtain and use the most recent version of the Data Sheets. Each Data Sheet relates only to the specific product designated therein and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information are beyond the control of Pencco, Pencco expressly disclaims any and all liability as to any consequential damages or results obtained or arising from any use of the products or the information contained in the Data Sheets. **NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE DATA SHEETS OR THE RELATED PRODUCTS.**

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# MicroC 2000™



## 1. PRODUCT AND SUPPLIER INFORMATION

**Product Name:** MicroC 2000™      **Publication Date:** January 9, 2012

**Product Code:** NA      **Replaces:** September 8, 2011

Supplier Information:  
 Environmental Operating Solutions, Inc      Phone: 508-743-8440  
 160 MacArthur Blvd., Unit 6      Fax: 508-743-8443  
 Bourne, MA 02532      Website: www.eosenvironmental.com

**EMERGENCY TELEPHONE NUMBER: CHEMTREC 800-424-9300**

## 2. COMPOSITION AND INFORMATION ON INGREDIENTS

**THIS PRODUCT CONTAINS:**

GLYCERIN, WATER AND OTHER NON-HAZARDOUS TRADE SECRET COMPOUNDS

Chemical Name	CAS #	% by Weight
Glycerin	56-81-5	>25%

## 3. HAZARDS IDENTIFICATION

**CAUTION!      EMERGENCY OVERVIEW      CAUTION!**  
**MAY CAUSE IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT**

OSHA Hazard Classification: PEL established for glycerin mist  
 Principle Routes of Entry: Inhalation, skin contact, eye contact

**Hazard Summary**

	NFPA	HMIS
Health Hazard	1	1
Flammability	1	1
Reactivity	0	0
Specific Hazard	None	None

**Acute Toxicity**

Eyes      May cause slight irritation  
 Skin      May cause slight irritation  
 Inhalation      High mist concentrations may cause irritation of respiratory tract  
 Ingestion      May be harmful if swallowed in large quantities

**Chronic Health Effects:**      No known chronic health effects

# Material Safety Data Sheet

## 4. FIRST AID

<b>Eye Contact</b>	Immediately flush eyes thoroughly with plenty of water for 15 minutes and consult a physician if irritation develops
<b>Skin Contact</b>	Remove contaminated clothing and wash affected area with water. Consult physician if irritation develops
<b>Inhalation</b>	Remove individual to fresh air. Seek medical attention if breathing problems persist
<b>Ingestion</b>	Do not induce vomiting. Rinse mouth and drink water to dilute. Seek medical attention.
<b>Note to physician</b>	Treat patient symptomatically

## 5. FIRE FIGHTING MEASURES

<b>Flammability Summary (OSHA and NFPA)</b>	Non-flammable Material
<b>Flash Point:</b>	None to Boil (Test Method ASTM D93)
<b>Autoignition Temperature</b>	No data
<b>Fire/Explosion Hazards</b>	Not sensitive to static discharge. Keep containers away from sources of ignition
<b>Extinguishing Media</b>	Use equipment appropriate to the main source of the fire. Water spray, foam, dry chemical or CO2
<b>Fire Fighting Instructions</b>	In the event of fire, wear full protective clothing and self contained breathing apparatus

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Protection for Spills</b>	Use personal protective equipment. Ventilate area of leak or spill.
<b>Spill Information</b>	Contain spill. Absorb spill with dry absorbent.
<b>Environmental Precautions</b>	Dispose of contaminated materials in accordance with applicable national, state, and local regulations.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Wear personal protective equipment. Avoid breathing mist.
<b>Storage</b>	Keep containers closed when not in use. Minimize evaporative losses. Avoid storage in temperature extremes.
<b>Shelf Life Limitations</b>	Consult manufacturer prior to using if product is older than six months
<b>Incompatible Materials for Storage</b>	None known

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Engineering Controls</b>	Properly vented environment, showers, eye wash station
<b>Respiratory</b>	Not required under foreseeable conditions of use. If TLV is exceeded use NIOSH approved respiratory protection. ACGIH TWA 10 mg/m <sup>3</sup> . OSHA PEL (total dust) 15 mg/m <sup>3</sup>
<b>Protective Clothing</b>	Protective gloves, body covering, good hygiene practices
<b>Eye Protection</b>	Chemical safety glasses or goggles



# Material Safety Data Sheet

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid	<b>Volatiles, % by vol</b>	0% (EPA 8260 B)
<b>Color</b>	Light brown	<b>Boiling Point</b>	Not determined
<b>Odor</b>	Musty – Sweet Odor	<b>Freezing Point</b>	Below Zero Fahrenheit
<b>pH</b>	4.75-6.75	<b>Flash Point</b>	None to Boil (ASTM D93)
<b>Solubility in Water</b>	Miscible in water	<b>Vapor Pressure</b>	Not determined
<b>Bulk Density</b>	10.17 lbs/gal	<b>Viscosity</b>	45 cPs @ 20°C
<b>Specific gravity</b>	1.22@ 20°C		

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	Stable under normal storage conditions
<b>Incompatible materials</b>	None known
<b>Incompatible chemicals</b>	Strong oxidants, strong acids
<b>Hazardous polymerization</b>	Does not occur
<b>Decomposition Products</b>	Oxides of carbon
<b>Conditions to Avoid</b>	Exposure to air for prolonged periods, heat, flames, ignition sources

## 11. TOXICOLOGICAL INFORMATION

<b>Routes of Entry</b>	Inhalation, skin, ingestion
<b>Carcinogenicity</b>	NTP: No OSHA: No IARC: No
<b>Toxicity to Animals</b>	LD50 Oral Rat: 12,600 mg/kg (Pure glycerin)
<b>Mutagenicity</b>	None

## 12. ECOLOGICAL INFORMATION

<b>Environmental Fate</b>	Product is biodegradable in soil and water. Product does not bioaccumulate.
<b>Environmental Toxicity</b>	TBD

## 13. DISPOSAL CONSIDERATIONS

Do not dump into sewers, the ground or any body of water. This material as supplied, is not a hazardous waste according to Federal Regulations (CFR 261). Dispose of in accordance with local, state and federal regulations.

## 14. TRANSPORTATION INFORMATION

<b>US Domestic DOT</b>	Not Regulated
<b>Reportable Quantity per 49CFR172.101</b>	Not Regulated

# Material Safety Data Sheet

## 15. REGULATORY INFORMATION

### United States

#### Toxic Substances Control Act

The components of this product are listed on the TSCA Inventory of Existing Chemical Substances

#### SARA Section 313

This product may contain trace amounts of a chemical that is subject to reporting requirements of SARA

Methanol CAS # 67-56-1 % Weight 0-0.06% SARA 313 Threshold 1%

#### SARA Section 311/312 Hazard Categories

Acute - YES (glycerin mist)

Chronic - NO

Physical - None

Pressure Hazard - NO

Fire Hazard - NO

#### Section 302 (EHS) TPQ

Not applicable

#### Section 304 (EHS) TPQ

Not applicable

### CERCLA

This product may contain trace amounts of a chemical that is subject to reporting requirements of CERCLA

Methanol RQ # 5,000. Product contains 0.0-0.06% methanol by weight

#### State Right to Know Regulations

**Chemical Name: Glycerin**

Massachusetts, Pennsylvania, Rhode Island, Minnesota

## 16. ADDITIONAL INFORMATION

MSDS REVISION STATUS: Revision January 9, 2012 | Replaces September 8, 2011

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. WE BELIEVE THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF ITS PUBLICATION DATE, BUT MAKE NO WARRANTY THAT IT IS. IF THIS MSDS IS MORE THAN THREE YEARS OLD YOU SHOULD CONTACT THE SUPPLIER TO MAKE CERTAIN THAT THE INFORMATION IS CURRENT.