

**R3 Innovations Inc. IWWTF  
Notice of Alteration**

FINAL REPORT



Prepared for:  
HyLife Foods Ltd. and R3  
Innovations Inc.

Prepared by:  
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500-311 Portage Avenue  
Winnipeg, MB R3B 2B9

111440368

February 20, 2018



# Sign-off Sheet

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Prepared by Bill Krawchuk  
(signature)

**Bill Krawchuk, M.N.R.M., MCIP, RPP**

Reviewed by Stephen Biswanger  
(signature)

**Stephen Biswanger, P.Eng.**





February 5, 2018

Attention: Ms. Tracy Braun, M.Sc.

Director, Environmental Approvals Branch  
Manitoba Sustainable Development  
160-123 Main Street  
Winnipeg, MB R3C 1A5

Dear Ms. Braun,

Reference: NOA Request – Licence 2870R R3 Innovations, Neepawa, Manitoba

In accordance with Section 14(1) of *The Environment Act*, R3 Innovations Inc., by way of this letter and supporting information, provides a request to the director to approve a proposed alteration to the R3 Innovations Industrial Wastewater Treatment Facility (IWWTF) licence for its operations in Neepawa, Manitoba. The proposed works at the R3 Innovations facility are complemented by works proposed (under separate cover) at the related HyLife Foods Pork Processing Plant that, jointly, will address treatment process restrictions and facilitate the ability of both operations to operate at their currently licensed levels.

The modifications proposed at the R3 Innovations IWWTF include additional sludge dewatering capacity, a change to a more operationally efficient supplemental carbon source, and relocation of the effluent flow measurement location at the IWWTF. The works will remain on the existing R3 Innovations property. There is no change proposed to the licensed 1,520 m<sup>3</sup>/day effluent discharge capacity or effluent quality criteria at the IWWTF.

As indicated in the attached report, the proposed alterations at the IWWTF, essentially involving minor treatment process changes, and the associated operational and potential environmental effects are considered to be minor. Accordingly, a \$500 application fee accompanies a completed NOA form, and four hard copies and one electronic copy of the NOA submission request package in accordance with the guidance in the Information Bulletin – Alterations to Developments with Environment Act Licences (<http://www.gov.mb.ca/conservation/eal/pubs/alteration.guidelines.pdf>).

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

Regards,



Denis Vielfaure, COO



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Notice of Alteration Form



Client File No. : 2755.20		Environment Act Licence No. : 2870R	
Legal name of the Licencee: R3 Innovations Inc./Town of Neepawa			
Name of the development: R3 Innovations IWWTF			
Category and Type of development per Classes of Development Regulation: Agriculture <span style="float: right;">Meat processing and slaughter plants</span>			
Licencee Contact Person: Mr. Denis Vielfaure, President			
Mailing address of the Licencee: P.O. Box 100			
City: La Broquerie		Province: Manitoba	Postal Code: R0A 0W0
Phone Number:		Fax:	Email:
Name of proponent contact person for purposes of the environmental assessment (e.g. consultant): Mr. Stephen Biswanger, P.Eng.			
Phone: (204) 924-7061		Mailing address: 500-311 Portage Avenue, Winnipeg, Manitoba	
Fax: (204) 453-9012			
Email address: stephen.biswanger@stantec.com			
Short Description of Alteration (max 90 characters): R3 is seeking to alter the treatment process to address restrictions to the process.			
Alteration fee attached: Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>			
If No, please explain:			
Date: 2018-02-07		Signature: 	
		Printed name: Denis Vielfaure	
<p>A complete Notice of Alteration (NoA) consists of the following components:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Cover letter</li> <li><input checked="" type="checkbox"/> Notice of Alteration Form</li> <li><input checked="" type="checkbox"/> 4 hard copies and 1 electronic copy of the NOA detailed report (see "<a href="#">Information Bulletin - Alteration to Developments with Environment Act Licences</a>")</li> <li><input checked="" type="checkbox"/> \$500 Application fee, if applicable (Cheque, payable to the Minister of Finance)</li> </ul>		<p><b>Submit the complete NOA to:</b></p> <p>Director Environmental Approvals Branch Manitoba Sustainable Development Box 80, Suite 160, 123 Main Street Winnipeg, Manitoba R3C 1A5</p> <p><b>For more information:</b></p> <p>Phone: (204) 945-8321 Fax: (204) 945-5229 <a href="http://www.gov.mb.ca/sd/eal">http://www.gov.mb.ca/sd/eal</a></p>	
<p><b>Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an <a href="#">Environment Act Proposal Form</a> (see "<a href="#">Information Bulletin – Environment Act Proposal Report Guidelines</a>")</b></p>			



## **Executive Summary**

R3 Innovations Inc. and the Town of Neepawa operate the dedicated Industrial Wastewater Treatment Facility (IWWTF) that exclusively serves the HyLife Foods pork processing plant. As required under Manitoba's *The Environment Act*, an application for Notice of Alteration (NOA) to the existing IWWTF is submitted with supporting information to Manitoba Sustainable Development (MSD) for consideration. An NOA request for corresponding alterations at the HyLife pork processing plant is described under separate cover.

The IWWTF is located in the southern part of SW35-14-15W (Project Development Site) in the Town of Neepawa on property that is owned by R3 Innovations Inc. The IWWTF site is zoned "MH – Manufacturing Heavy" under the Town of Neepawa Zoning By-law No. 2650 and has been in operation at this location since construction in 2009. Licence 2870R, dated December 18, 2014, is the current *Environment Act* Licence for the IWWTF.

R3 Innovations Inc./Town of Neepawa are proposing to make changes to the IWWTF process to address treatment process restrictions and achieve the full licensed treatment capacity at the facility (i.e., 1,520 m<sup>3</sup>/day). Modifications are proposed to improve sludge handling, switch to an alternate supplemental carbon source, and shift the flow measurement location at the IWWTF. A parallel NOA submission is presented under separate cover for proposed pre-treatment alterations at the pork processing plant. Proposed alterations at the IWWTF include the following:

- Addition of a third sludge dewatering centrifuge.
- Changing the supplemental carbon source from sugar to Micro-C® for the anoxic tank and adding a feed to the post-anoxic tanks.

Additionally, R3 Innovations is requesting an administrative alteration to Clause 24 to change the location where effluent flow is measured to coincide with the effluent quality monitoring station. No change in the licensed effluent discharge capacity or quality is proposed.

This NOA 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 Development 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 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 routine activities (i.e., related to addition of equipment within an existing building, construction of a bulk storage tank, construction noise, etc.). The proposed alteration will facilitate continued environmental protection through improved treatment to

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accommodate the flows from the HyLife pork processing plant while meeting existing licence conditions. Residual operational effects are considered negligible to minor.

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

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### 1.0 INTRODUCTION

#### 1.1 PROJECT OVERVIEW

R3 Innovations Inc./Town of Neepawa (the proponent) operates an Industrial Wastewater Treatment Facility (IWWTF) along PTH 16 in the Town of Neepawa in southwestern Manitoba. The proponent proposes to make modifications to the IWWTF to address process restrictions that have come to light with increased production from the HyLife pork processing plant, to realize the fully licensed (1,520 m<sup>3</sup>/d) treatment capacity of the IWWTF (Figure 1-1). The proposed licence alterations involve making changes to the IWWTF related to increasing sludge dewatering, increasing the effectiveness of the existing treatment process with an alternate carbon source, and modification of the effluent flow measurement location. The IWWTF is governed under *Environment Act* Licence No. 2870R (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 (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 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).

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

#### 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. Denis Vielfaure, President  
R3 Innovations Inc.  
PO Box 100  
La Broquerie, MB R0A 0W0



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Ms. Colleen Synchrony, 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 IWWTF is located in the Town of Neepawa on property owned by R3 Innovations (Neepawa Land Titles Office 2016). The legal description for the subject property is described as Parcels A and B, Plan 48468 (NLTO). Current Certificates of Title for the property (the Site) are CT# 2421295 and CT# 2421294 for R3 Innovations (Appendix B). The existing IWWTF currently occupies approximately 2.3 ha on the site (land and buildings).

### **1.4 EXISTING CONDITIONS**

The existing environment has been described in previous HyLife NOA submissions, specifically within the 2016 NOA. Readers are referred to that NOA (Stantec 2016) for details if required.

The IWWTF has been in operation since 2009 on part of SW35-14-15W. The land uses adjacent to IWWTF site include a mix of commercial/industrial, rural residential, and open space/recreational. The Project site is subject to the Town of Neepawa Zoning By-Law No. 2650, and is a permitted use under the presently zoned designation of "MH – Industrial Heavy" (Town of Neepawa 1987). The proposed IWWTF alteration area is already developed as part of the treatment facility compound and is considered previously disturbed.

The Project site is accessible via Provincial Trunk Highway 16 and Road 86W, from the west side of the plant property. There is no direct rail service at the Project site. An electric transformer provides power to the site via overhead 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 and natural gas is provided by Manitoba Hydro.

### **1.5 PREVIOUS ALTERATIONS/STUDIES**

Since 2007, after acquiring the former Springhill Farms processing plant, HyLife Foods and R3 Innovations have progressively made modifications to the plant and IWWTF. The alterations that



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have occurred at the plant and IWWTF between 2007 and 2017 are summarized in the HyLife Foods pork processing plant NOA submitted under separate cover.

## **1.6 SCOPE OF THE ASSESSMENT**

### **1.6.1 Spatial and Temporal Boundaries**

The existing Industrial Wastewater Treatment facility (the Project) 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 previous 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 1-1.

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

<b>Spatial Boundaries</b>	<b>Temporal Boundaries</b>
Project Site (PS)– the physical footprint of the existing IWWTF (approx. 1.0 ha) within the subject property, part of SW35-14-15W (see Figure 1-1)	Construction phase – a period of six months in 2018 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)	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)	Decommissioning phase – there are currently no plans for the IWWTF to be decommissioned. Should decommissioning occur at some point in the future, it would be anticipated to consist of the removal of all 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 Notice of Alteration (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 biophysical and socio-economic elements. Project-related effects on these VCs are assessed sequentially in the assessment. Residual effects are characterized using specific, predetermined criteria (e.g., direction, magnitude, geographical extent, duration, frequency, reversibility).

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### 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 1-2.

**Table 1-2 Designation of Valued Components**

Valued Component	Potential Project Interaction	Rationale for Exclusion or Inclusion and Project Potential Effect
Air quality	x	Construction activities can contribute to airshed effects from on-site equipment and truck usage related to new carbon source delivery and sludge disposal. However, incremental air quality effects will be negligible in relation to existing operations and traffic in the LAA during construction and operation.
Greenhouse gas emissions	x	Construction and operation activities can contribute to GHG from on-site equipment and truck usage and combustion sourced building heating. As there will be no substantial change to natural gas, electricity, or diesel fuel use as a result of the project, the effect on GHG emissions at the PS is considered negligible.
Soils/terrain	x	Expansion of the building footprint on the PS will result in limited disturbance of soils that have been previously disturbed during past developments and agricultural usage on the PS. Accordingly, interaction with soils/terrain in the LAA is considered negligible.
Surface water/ground-water	√	<p><b>The proposed alterations/additions will be located on the existing developed property.</b></p> <p><b>During construction, stormwater will continue to be managed by surface ditching. The potential for surface runoff and erosion to affect water quality of the Whitemud River (1 km 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.</b></p> <p><b>Groundwater is not expected to be used or affected by the construction of the project. Dewatering of excavations is not likely to be required.</b></p> <p><b>Operationally, the proposed alterations are mitigation measures to ensure that effluent quantity and quality remain within currently licensed limits to ensure continued health of the Whitemud River in the LAA.</b></p> <p><b>Proposed alterations at the IWWTF will include changing the physical location where effluent flow is measured so that it coincides with the effluent quality monitoring station. No change in licence conditions for effluent quality or quantity are proposed.</b></p>





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**Table 1-2 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 project work is largely contained within the existing structures. The construction of the additional storage tank will occur in a previously disturbed area of the PS, adjacent to the current screening pumping building. The size and location of the new tank will not affect vegetation in the LAA.
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 project site is zoned for the existing/proposed land use. No negative interaction is anticipated.
Infrastructure and services	√	The proposed upgrade will generate a negligible increase in traffic in the LAA due to the addition of construction-related vehicles. <b>The IWWTf itself is a utility to which alterations will be made to accommodate treatment of increased wastewater flow from the processing plant 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 plant 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 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 proposed Project will be subject to site specific health and safety plans and worker protection standards and procedures under the provincial <i>Workplace Safety and Health Act</i> . 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.

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Following the identification of valued components, 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 in Table 1-2), 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 the parallel HyLife Foods NOA application document, submitted under separate cover.

## **1.7 PUBLIC ENGAGEMENT**

The existing 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 MSD.

## **1.8 FUNDING**

HyLife Foods 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 Innovations IWWTF has been in operation since 2009, occupying approximately 2.3 ha of the site zoned "MH – Industrial Heavy" under the Town of Neepawa Zoning By-law No. 2650. A site plan showing the IWWTF is provided as Figure 1-1 illustrating the planned layout of the project site. The existing IWWTF area consists of a screening/pumping building, a treatment building, three aeration tanks, and a flow attenuation tank. Additional information on the existing treatment process can be found in HyLife's/R3 Innovations 2013 NOA submission (AECOM 2013).

### 2.2 PROPOSED ALTERATIONS

The proposed Project alterations include the addition of a sludge dewatering centrifuge, a change to a different supplemental carbon source (Micro-C instead of sugar), and decommissioning of the existing sugar carbon source system (see Figures 1-1 and 1-2). The alterations will serve to address existing process limitations while continuing to meet existing licence limits at the IWWTF.

Additionally, an administrative alteration for Clause 24 of the licence is requested, consisting of the relocation of the effluent flow measurement location from a sampling point located downstream of the existing flow attenuation tank to the effluent quality sampling station located downstream of the UV disinfection system (see Figure 1-2).

Except for the addition of an external storage tank (i.e., bulk Micro-C storage tank), all the alterations will occur within the existing IWWTF buildings. No changes in the licensed IWWTF effluent quality or discharge limits are proposed. The details of the existing treatment process, flows, and resulting waste products for each affected process are discussed in the following sections.

#### 2.2.1.1 Effluent Membrane Bioreactors

The capacity of the existing membrane bioreactor (17.5 litres/second at full maximum) is a limitation to the IWWTF effluent treatment capability that was previously identified, with the proposed addition of a cassette approved via the 2013 NOA submission. The addition of a membrane cassette to the existing membrane bioreactors will now be implemented and will increase MBR throughput to a maximum of 22 litres/second. This will serve to accommodate full treatment capacity, maintenance, and downtime for the other membranes.

#### 2.2.1.2 Sludge Dewatering – Centrifuge

Current sludge generation (approximately 3,500 kg/day) is exceeding the design basis of the two existing centrifuges that are running approximately 20 hours per day with pumps operating



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at about 80% of maximum (over 2.0 L/second). Should one of the units need to be taken off-line, the remaining unit would not have the capacity to dewater the total sludge load and sustain full treatment capacity at the IWWTF. The forecasted sludge generation rate is expected to be approximately 4,000 kg/day (dry weight) under the fully licensed condition (i.e., 4 trucks [8 bins] per week) as outlined in the 2013 NOA.

The proposed alteration includes the installation of a new larger centrifuge and pump (4.4 L/second feed rate) to allow the two existing centrifuges to provide on-line spare capacity. The new centrifuge unit will be located within the existing IWWTF screening and pumping building on a new platform adjacent to the two existing centrifuge platforms.

The sludge generated from R3 IWWTF is expected to increase by 7.5% to 14% over current and will continue to be sent to Waste Connections Canada in Winnipeg for disposal (Stott 2017).

### **2.2.1.3 Primary Treatment – Second Stage DAF**

The 2013 NOA identified the future need for the second stage DAF to be operated on a continual basis to satisfy effluent treatment requirements for the full production at the pork processing plant (7,500 hogs/day over a five-day week - 37,500 hogs/week). Recent operational trials on the second stage DAF have confirmed the need to provide a supplemental carbon source to the anoxic and post-anoxic tanks to facilitate sufficient denitrification of the wastewater under a full production scenario. The IWWTF includes an existing sugar-based supplemental carbon source system. To date, the sugar-based system has not been used as it was not required to meet effluent criteria, however its use on a continual basis will be inefficient and will limit the treatment process.

The proposed alteration includes decommissioning of the existing bagged sugar dosing system, disposal of the existing bulk sugar, and installation of a new Micro-C 2000 chemical dosing system. The Micro-C 2000 is a similarly stable, but more concentrated, and more easily handled carbon source (in larger quantities), than bagged sugar. The proposed new system for the treatment process includes installation of a 20,000 L (approx.) external bulk chemical storage tank, located adjacent to the existing screening/pumping building. The existing chemical feed pumps inside the treatment building will be used to primarily feed the anoxic tank, and a portable tote storage system located in the existing membrane building to supply the post-anoxic tank on an as required basis. The existing bagged sugar handling equipment in the membrane building will be dismantled and removed for disposal or recycling, or reused where practical. The current supply of sugar at the site (approximately 1 m<sup>3</sup>) will be disposed of at a landfill along with typical solid waste generated at the IWWTF.

### **2.2.1.4 IWWTF Effluent Flow Monitoring Location**

Water use and wastewater production at the IWWTF was summarized in the 2013 NOA. During operation and normal maintenance (i.e., sanitation runs), flows are measured at a point after

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the existing flow attenuation tank at the IWWTF. The IWWTF effluent discharge to the Whitemud River has consistently remained below the 1,520 m<sup>3</sup>/day licensed value.

R3 Innovations currently measures hydraulic and organic loading during operation at IWWTF at a point following the flow attenuation tank as outlined in the current licence.

R3 Innovations is proposing to change the location of where effluent flow is measured to coincide with the existing effluent quality monitoring station after the UV disinfection system (see Figure 1-2). This administrative alteration would more directly represent the volume of treated effluent being discharged to the environment.

### 2.2.2 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, flooring, gravel, fill, 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 20 construction staff will be involved in the project works for both the IWWTF and the pork processing plant projects. Equipment utilized on-site will be typical for construction, including a crane that will be used for tank installation.

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 according to applicable regulations.

### 2.2.3 Operation Inputs and Outputs

#### 2.2.3.1 Water Use and Wastewater Production

The alterations at the IWWTF will marginally increase water usage (from cleaning the additional centrifuge and membranes) and wastewater generation. The change in water use (i.e., cleaning) is conservatively estimated to increase in proportion to the increase in process equipment in the existing treatment building. Proportionally, the proposed alterations may result in an increase in water use by up to 100 m<sup>3</sup>/day to 250 m<sup>3</sup>/day (67% increase) over a seven-day week, well within the capacity of the existing water supply and the licensed treatment capacity of the IWWTF.

The character of generated wastewater is not expected to change substantially and will continue to meet licence limits. As noted in the previous NOAs the current licensed hydraulic capacity at the R3 Innovations IWWTF is 1,520 m<sup>3</sup>/day (over a seven-day week). The annual total flow of effluent with the expansion is anticipated to be 1,297 m<sup>3</sup>/day over a seven-day week in comparison.



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

Project Description  
February 20, 2018

### **2.2.3.2 Chemical Usage**

The proposed alterations to the IWWTF will include converting the current sugar dosing system to a Micro-C 2000 chemical dosing system (see MSDS in Appendix C). The expected usage of Micro-C 2000 is approximately 150 litres per day. The Micro-C 2000 will be delivered approximately every three weeks and stored within a separate external 20,000 L bulk storage tank on-site.

All other chemical usage (such as sodium hypochlorite for membrane cleaning, sanitation, and polymer flocculant for sludge dewatering) is expected to increase as described in the approved 2013 NOA. These chemicals will continue to be stored appropriately within the facility.

The new chemical dosing system will be supplied by the proposed external 20,000 L bulk storage tank (for the anoxic tank) and portable tote (for the post-anoxic tank) to replace the existing sugar bag handling system.

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

As there is no change in building footprint proposed as part of the alteration, and the addition to the MBR was previously approved as a result of the 2013 NOA, fuel and natural gas demand is not expected to change at the IWWTF. Similarly, the operation of the sludge centrifuge will slightly increase electricity demand at the IWWTF. However, the increase is anticipated to be negligible in the context of the IWWTF load and will be accommodated within the existing supply limits.

### **2.2.3.4 Waste Management**

Typical construction waste will be generated from the alteration at the 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. Following the switch-over to the Micro-C 2000 carbon source, the remaining sugar (approx. 1 m<sup>3</sup>) will be disposed of at a licensed landfill.

As indicated in the approved 2003 NOA, sludge generated during operation of the IWWTF will continue to be collected by Waste Connections Canada for disposal. The volumes of domestic waste and recyclables generated during operations are not anticipated to substantively change with the proposed IWWTF alterations.

### **2.2.3.5 Workforce**

The number of workers at the plant and IWWTF currently totals approximately 1,250 staff. The size of the construction workforce for the proposed alterations is expected to be approximately 20 workers at construction peak. The projected IWWTF operation staffing is not anticipated to change.



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

Project Description  
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### **2.2.3.6 Traffic Volumes**

Traffic related to the operation of the 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 37,500 hogs/week as summarized in the 2016 NOA.

There will be a negligible and temporary short-term increase in traffic related to the construction phase for the proposed alterations.

The change to the new carbon source will result in one additional truck travelling to/from the IWWTF every three weeks for Micro-C delivery. The increased sludge removal from the IWWTF will equate to an additional 0.25 trucks per week.

### **2.2.3.7 Health and Safety**

R3 Innovations' commitment to the ongoing health and safety of its employees remains in place. R3 Innovations health and safety plans will be updated as necessary and are available for review upon request.

## **2.3 PROJECT SCHEDULE**

The start of the construction phase is expected to be February 2018 with completion by June 2018.





## **3.0 ENVIRONMENTAL EFFECTS AND MITIGATION**

This section outlines the assessment of environmental effects for those components identified in Table 1-1 as having potential project interactions. Components included in this assessment are: surface water; groundwater; and infrastructure and services.

### **3.1 ASSESSMENT OF ENVIRONMENTAL EFFECTS**

#### **3.1.1 Surface Water**

The construction of the proposed project will not affect surface water or drainage at the Project site. The nearest waterbody is the Whitemud River, approximately 1.0 km to the northwest. The only external construction work will be the slab foundation and field erection of the bulk storage tank immediately adjacent to the northwest portion of the existing screening/pumping building. Based on the limited area of disturbance and the separation distance between the construction area and the river, the construction phase is not anticipated to affect surface water quality.

The proposed alteration at the treatment facility will result in an increase in effluent flow to the Whitemud River to approximately 1,297 m<sup>3</sup>/day, remaining below the licensed design flow of 1,520 m<sup>3</sup>/day. The quality of the effluent discharged to the Whitemud River will also continue to meet the existing licence limits. As a result, the effect of the proposed alterations at the IWWTF on surface water quality are expected to be negligible, long term in duration, continuous, and reversible upon decommissioning.

#### **3.1.2 Groundwater**

With the exception of the new Micro-C external aboveground storage tank and related foundation preparations, the proposed construction at the IWWTF is limited to works within the existing buildings. As noted in previous applications, groundwater has been identified as occurring at depths between 1.8 m and 2.4 m below ground at the IWWTF site. No substantial dewatering is anticipated to be required for the alteration. As such, no groundwater effects are expected.

Any leakage of the Micro-C storage tank will be detected on the exterior of the tank during regular visual inspection as part of ongoing operations (as is currently conducted with the other tanks at IWWTF). New pipes will be tested prior to operation to detect and repair potential leaks. With the storage of the Micro-C maintained aboveground and visible, effects on groundwater quality would be limited to accidents and malfunctions (addressed in Section 3.3). Micro-C is a biodegradable product in water and does not bioaccumulate (Environmental Operating Solutions Inc. 2012).

## R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

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### 3.1.3 Infrastructure and Services

During the six-month construction phase, there will be a limited increase in the number of vehicles travelling to and from the Project site (an estimated addition of up to 20 construction-related vehicles per day may travel to/from the site between the alteration work proposed at the IWWTF and at the pork processing facility). Vehicular access to the construction area will be limited to existing access points only to reduce potential conflicts with local traffic from turning vehicles. The potential effects of the increase in vehicle traffic along PTH 16 over existing levels (i.e. 3,260 veh/day maximum AADT. MIT and University of Manitoba 2015) as noted in the 2016 and 2017 NOAs, are anticipated to be negligible, irregular, and short-term in duration.

The existing electrical service is considered sufficient to supply the additional power demands of the proposed project. Other existing utility services on-site, including natural gas and potable water from the Town of Neepawa, are also sufficient for the proposed project.

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

### 3.1.4 Summary of Mitigation Measures

Proposed mitigation measures incorporated as part of this NOA includes those standard practices and procedures identified under the previous 2017 NOA (Stantec 2017) as well as other general mitigation measures that are typically applied in the course of project construction and operation. 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).
- 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.



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

Environmental Effects and Mitigation  
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- 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 normal daylight working hours only in accordance with local municipal by-law provisions.
- 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.
- The exterior of the aboveground bulk storage tank will be regularly inspected and maintained to prevent leaks and failures as part of ongoing operations.
- New piping will be tested prior to operation to detect and repair potential leaks.

### **3.2 SUMMARY OF RESIDUAL EFFECTS CHARACTERIZATION**

A summary of residual environmental effects characterization is found in Table 3-1. Residual effects related to surface water, groundwater, and infrastructure and services are characterized. Positive effects are not addressed, only neutral and adverse effects are characterized.

## R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

Environmental Effects and Mitigation  
February 20, 2018

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

Project Effects	Residual Environmental Effects Characterization						
	Direction	Magnitude	Geographical Extent	Duration	Frequency	Reversibility	Ecological and Socio-economic Context
Surface Water	A	N	LAA	L	C	R	D
<b>Infrastructure and Services</b>							
Traffic levels	A	N	LAA	S/L	MI	R	D
Utility usage	N	N	PS	L	C	R	D
<b>KEY</b>							
<b>Direction</b>				<b>Duration</b>			
P Positive				S Short-term			
A Adverse				M Medium-term			
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			
<b>Geographical Extent</b>				<b>Reversibility</b>			
PS Project Site				R Reversible			
LAA Local Assessment Area				IR Irreversible			
RAA Regional Assessment Area							
				<b>Ecological/Socio-Economic Context:</b>			
				U Undisturbed			
				D Disturbed			
				N/A Not applicable			

### 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 2017 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 transporting. 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



### R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

Environmental Effects and Mitigation  
February 20, 2018

traffic along PTH 16 over existing levels that could lead to transportation accidents is anticipated to be negligible. Operational traffic at the plant site 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.
- 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.
- Above-ground storage 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.

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 Micro-C storage tank will be added to this program and appropriately protected from collisions to reduce the potential for spills and damage to the storage tank. According to the Material Safety Data Sheet (MSDS), Micro-C is considered a biodegradable product in water that does not bioaccumulate.

#### Summary

To prevent accidents and malfunctions, the proposed plant alterations 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 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 proposed 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, the proposed alterations are not expected to create significant adverse effects to the biophysical and socio-economic environment. It is anticipated that the proposed alterations at the treatment facility, essentially involving maximizing treatment capacity and its potential environmental effects, will be considered as a minor alteration to the licensed development.





## R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

References  
February 20, 2018

### 5.0 REFERENCES

#### 5.1 LITERATURE CITED

AECOM. 2013. Notice of Alteration Request – HyLife Foods Pork Processing Facility and R3 Innovations Inc./Town of Neepawa IWWTF, Neepawa, MB. Prepared for HyLife Foods LP. Prepared by AECOM, June 2013. Winnipeg, MB.

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Intergovernmental Affairs. 2006. The Neepawa and Area Planning District Development Plan By-law No. 78. Community Planning Services Branch. Brandon, MB.

Manitoba Sustainable Development (MSD). 2016. Information Bulletin – Alterations to Developments with Environment Act Licences. Available at: [http://www.gov.mb.ca/sd/eal/publs/alteration\\_guidelines2016.pdf](http://www.gov.mb.ca/sd/eal/publs/alteration_guidelines2016.pdf). Accessed September 15, 2017.

Stantec Consulting Ltd. 2016. HyLife Foods LP Processing Facility Notice of Alteration. Final Report. Prepared for HyLife Foods Ltd. Neepawa, MB.

Stantec Consulting Ltd. 2017. HyLife Foods LP Processing Receiving Facility Expansion Notice of Alteration. Final Report. Prepared for HyLife Foods Ltd. Neepawa, MB.

The Town of Neepawa. 1987. Town of Neepawa Zoning By-law No. 2650, Zoning Maps One and Two. Manitoba Municipal Affairs, Municipal Planning. Neepawa, MB.

#### 5.2 PERSONAL COMMUNICATIONS

Stott, Sheldon. Director of Environmental Affairs, HyLife Foods Ltd. Telephone conversation with Stephen Biswanger, Stantec Consulting Ltd., September 7, 2017.

Stott, Sheldon. Director of Environmental Affairs, HyLife Foods Ltd. Email correspondence to Stephen Biswanger and Bill Krawchuk, Stantec Consulting Ltd., October 25, 2017.

Stott, Sheldon. Director of Environmental Affairs, HyLife Foods Ltd. Telephone conversation with Stephen Biswanger, Stantec Consulting Ltd., November 10, 2017.



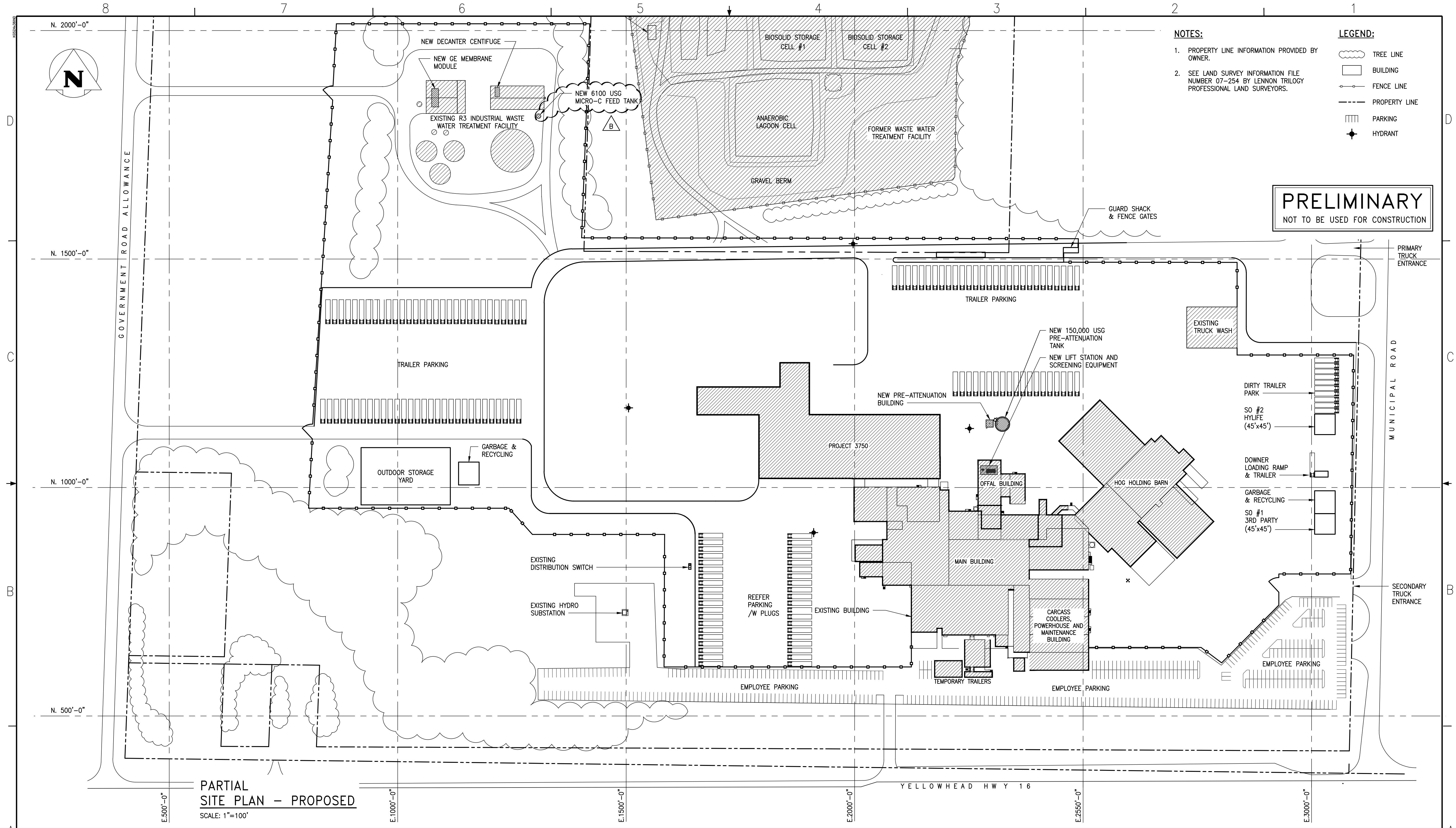
## R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

Appendix A Figures  
February 20, 2018

# Appendix A **Figures**



Filepath: \\A:\MS\17-3007-003\317.B.PLN.001 - Tabir317.B.PLN.001 Plotted By: rperalta 17/12/15 [Fri 4:51pm]  
 24"x36" PLOT SCALE: 1"=100'



**PARTIAL SITE PLAN - PROPOSED**  
SCALE: 1"=100'

- NOTES:**
- PROPERTY LINE INFORMATION PROVIDED BY OWNER.
  - SEE LAND SURVEY INFORMATION FILE NUMBER 07-254 BY LENNON TRILOGY PROFESSIONAL LAND SURVEYORS.
- LEGEND:**
- TREE LINE
  - BUILDING
  - FENCE LINE
  - PROPERTY LINE
  - PARKING
  - HYDRANT

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

NO.	DRAWING NUMBER	REFERENCE DRAWING TITLE	NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
10							
9							
8							
7							
6							
5							
4							
3	R317.C.PLN.0001	SEWER INSTALLATION LAYOUT PLAN	B	17/12/15	RE-ISSUED FOR PERMIT	AJD	
2	R317.M.PLN.0100	DAF ROOM AND PRE-ATTENUATION TANK SITE PLAN					
1	R317.M.PLN.0111.01	R3 PRE-TREATMENT BLDG. DECANTER CENTRIFUGE No.3 PLAN	A	17/11/10	ISSUED FOR PERMIT	AJD	

REVISIONS 1		REVISIONS 2	
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY

CERTIFICATE OF AUTHORIZATION

PERMIT STAMP

AUTHENTICATION FOR CURRENT REVISION

ENGINEER'S SEAL

CLIENT: **HYLIFE™**

**KGS GROUP CONSULTING ENGINEERS**

DESIGN BY: AJD	DATE (YY/MM/DD): 17/11/03
DESIGN CHECK: JFS	DATE: 17/11/07
DWG CHECK: JFS	DATE: 17/11/07

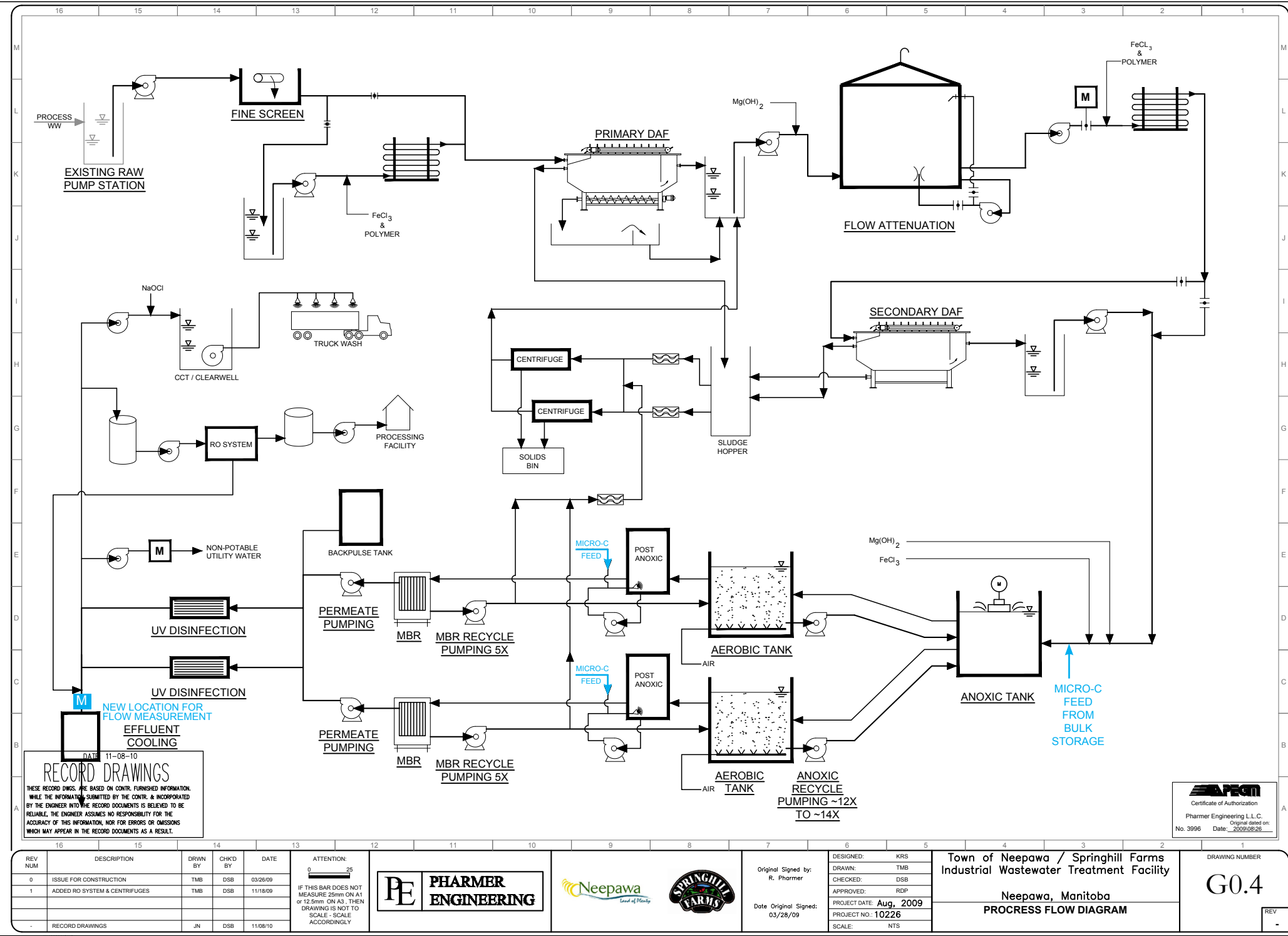
PROJECT: **PROJECT R3 2017 R3 WASTEWATER TREATMENT FACILITY UPGRADE**

TITLE: **BUILDING PARITAL SITE PLAN PROPOSED**

Figure 1-1

PROJECT NO. 17-3007-003    DWG. NO. R317.B.PLN.0001    REV. B

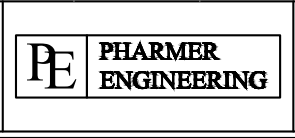




DATE 11-08-10  
**RECORD DRAWINGS**  
 THESE RECORD DWGS. ARE BASED ON CONTR. FURNISHED INFORMATION. WHILE THE INFORMATION SUBMITTED BY THE CONTR. & INCORPORATED BY THE ENGINEER INTO THE RECORD DOCUMENTS IS BELIEVED TO BE RELIABLE, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION, NOR FOR ERRORS OR OMISSIONS WHICH MAY APPEAR IN THE RECORD DOCUMENTS AS A RESULT.

REV NUM	DESCRIPTION	DRWN BY	CHKD BY	DATE
0	ISSUE FOR CONSTRUCTION	TMB	DSS	03/28/09
1	ADDED RO SYSTEM & CENTRIFUGES	TMB	DSS	11/18/09
-	RECORD DRAWINGS	JN	DSS	11/08/10

ATTENTION:  
 IF THIS BAR DOES NOT MEASURE 25mm ON A1 or 12.5mm ON A3, THEN DRAWING IS NOT TO SCALE - SCALE ACCORDINGLY



Original Signed by:  
 R. Pharmer  
 Date Original Signed:  
 03/28/09

DESIGNED: KRS  
 DRAWN: TMB  
 CHECKED: DSS  
 APPROVED: RDP  
 PROJECT DATE: Aug, 2009  
 PROJECT NO.: 10226  
 SCALE: NTS

Town of Neepawa / Springhill Farms  
 Industrial Wastewater Treatment Facility  
 Neepawa, Manitoba  
**PROCESS FLOW DIAGRAM**

DRAWING NUMBER  
**G0.4**

RECORD DRAWINGS

Source: Pharmer Engineering; Process Flow Diagram; Drawing G0.4



Project Location 111440368  
 Town of Neepawa, Manitoba  
 Prepared by AC on 2018-02-01  
 Technical Review by BK on 2018-02-01

Client/Project  
 HYLIFE FOODS LTD.  
 Hylife Foods LP Processing Facility  
 Notice of Alteration

Figure No.  
**1-2**

Title  
**R3 Process Flow Diagram**





## R3 INNOVATIONS INC. IWWTF NOTICE OF ALTERATION

Appendix B Licence and Certificates of Title  
February 20, 2018

### **Appendix B** Licence and Certificates of Title





**Conservation and Water Stewardship**

Environmental Stewardship Division  
Environmental Approvals Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
T 204 945-8321 F 204 945-5229  
www.gov.mb.ca/conservation/eal

**CLIENT FILE NO.: 2755.20**

December 18, 2014

Denis Vielfaure  
R3 Innovations Inc.  
P.O. Box 100  
La Broquerie MB R0A 0W0

Colleen Synchshyn, C.A.O.  
Town of Neepawa  
Box 339  
Neepawa MB R0J 1H0

Dear Mr. Vielfaure and Ms. Synchshyn:

Enclosed is **revised Environment Act Licence No. 2870 R** dated December 18, 2014 issued to **R3 Innovations Inc.** and the **Town of Neepawa** for the operation and expansion of the Development, being a wastewater collection system and 1520 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.

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with. A Notice of Alteration must be filed with the Director for approval prior to any alteration to the Development as licensed.

For further information on the administration and application of the Licence, please feel free to contact Peter Crocker, Environment Officer at 204-726-6565.

Pursuant to Section 27 of *The Environment Act*, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Conservation and Water Stewardship within 30 days of the date of the Licence.

Yours truly,

**“original signed by”**

Tracey Braun, M.Sc.  
Director  
Environment Act

c: Don Labossiere, Director, Environmental Compliance and Enforcement  
Tim Prawdzik, Provincial Manager, Environmental Compliance and Enforcement  
Public Registries

**NOTE:** Confirmation of Receipt of this Licence No. 2870 R (by the Licencee only) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by January 8, 2015.

---

On behalf of the R3 Innovations Inc. and the Town of Neepawa

---

Date

# LICENCE

Licence No./Licence n° 2870 R

Issue Date/Date de délivrance December 18, 2014

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 and expansion of the Development, being a wastewater collection system and 1520 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 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 R 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.

#### **Future Sampling**

1. 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.
  
2. 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.
3. 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**

4. 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**

5. 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.
6. The Licencees shall, following the reporting of an event pursuant to Clause 5,
  - 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**

7. 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.
8. 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.
9. The Licencees shall implement a high standard of equipment maintenance and good housekeeping and operational practices with respect to the Development, at all times.
10. The Licencees shall implement and continually maintain in current status, an Environmental Management System (EMS) for the Development which is acceptable to the Director.

11. 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**

12. 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.

13. 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**

14. 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**

15. 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.

16. 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.

17. 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*.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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**

23. 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.
24. 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 1,520 cubic metres over any 24-hour period; and
  - b) the organic loading does not exceed 6,023 kilograms of five-day biochemical oxygen demand over any 24-hour period.

25. 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 37,500 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.
  
26. 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.
  
27. 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.
  
28. 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.
  
29. 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.
  
30. 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.
  
31. The Licencees shall maintain a 1.0 metre freeboard at the existing wastewater treatment lagoon cells at all times.
  
32. 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**

- 33. The Licencees shall release effluent from the Development only through the final discharge point which leads to the Whitemud River.
- 34. 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.
- 35. 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.
- 36. The Licencees shall not direct wastewater to the Town of Neepawa municipal wastewater treatment lagoon.

### **Respecting Groundwater Protection**

37. 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.
38. 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.
39. 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**

40. 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.
41. 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.
42. 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**

43. The Licencees shall not undertake any on-site burning of solid waste.
44. The Licencees shall reduce the production and dissemination of wastes by initiating and maintaining waste reduction and waste recycling programs.

45. 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**

46. 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.
47. 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**

48. 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**

49. 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); and determine 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.
50. 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.
51. The Licencees shall submit monthly reports on applicable analytical values and information determined and recorded pursuant to Clauses 49 and 50 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.



52. 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.
53. The Licencees shall submit an annual report to the Environment Officer by February 28 of the following year including all records required by Clause 32 and Clause 52 of this Licence.

### **Record Drawings**

54. 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 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*.

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**Tracey Braun, M.Sc.**  
**Director**  
**Environment Act**

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

**Maximum Total Ammonia - Acute Toxicity Limits pursuant to Clause 34 (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

## 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

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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 NOTICE OF ALTERATION**

Appendix C Product Sheet and Material Safety Data Sheet  
February 20, 2018

**Appendix C Product Sheet and Material Safety Data Sheet**



# MicroC 2000™

## PRODUCT INFORMATION

**MicroC 2000™** is a proprietary, non-hazardous, green chemical designed specifically for use as a carbon source for biological contaminant removal applications in water/wastewater treatment.

### COST EFFECTIVENESS

- ▶ Best value among non-hazardous alternative carbon sources

### NON-HAZARDOUS

- ▶ Eliminates flammability and toxicity concerns of traditional chemicals such as methanol
- ▶ Provides capital cost savings vs. installation of flammable liquid storage and feed system
- ▶ Non-hazardous product enables rapid and flexible deployment of carbon augmentation solutions

### PERFORMANCE ADVANTAGES

- ▶ Rapid start-up/acclimation
- ▶ Superior cold weather performance

### ENVIRONMENTALLY SUSTAINABLE

- ▶ Derived from abundant, renewable resources produced in the United States vs. largely imported fossil-fuel derived carbon sources (methanol)
- ▶ USDA BioPreferred designation

### CONSISTENT AND SUPERIOR QUALITY

- ▶ Rigorous end to end quality control program
- ▶ Consistent Chemical Oxygen Demand (COD) values
- ▶ No product degradation during long-term storage

### VALIDATED PERFORMANCE

- ▶ MicroC™ products in use at over 550 plants in North America
- ▶ Performance validated by leading equipment/process suppliers, consulting engineers and academic institutions
- ▶ Full scale, documented performance validation for:
  - ▶ Nitrate removal
  - ▶ Enhanced Biological Phosphorus Removal (EBPR)
  - ▶ Metals removal
  - ▶ BOD augmentation
  - ▶ Perchlorate removal
  - ▶ Fixed film biological processes (i.e. denitrification filters)
  - ▶ Startup/acclimation dynamics
  - ▶ Cold weather performance
- ▶ Denitrification rates and kinetic parameters determined by Northeastern University

### TECHNICAL SERVICES

- ▶ Application guidance from team of BNR/contaminant removal experts
- ▶ Dedicated support to ensure achievement of contaminant removal goals

### SUPPLY CHAIN EXPERIENCE

- ▶ 20 nationwide MicroC™ manufacturing facilities
- ▶ Over 175 million pounds of MicroC™ products produced and delivered
- ▶ Over 20,000 drums and totes packaged and delivered
- ▶ Over 10,000 customer deliveries completed

### PACKAGING

- ▶ Bulk (1000-4500 gallon) \*
- ▶ 265-gallon IBC/tote
- ▶ 55-gallon drum
- ▶ 30-gallon drum
- ▶ 5-gallon pail

\*Maximum volume 4800 gallons in some markets

## TECHNICAL SPECIFICATIONS

PROPERTY	SPECIFICATIONS	TYPICAL VALUE	TEST METHOD
Glycerin Content	70% - 74%	71%	ASTM D7637-10
Methanol Content	0.3%, max	< 0.1%	EN 14110
Fatty Acid Content	0.75%, max	0.3%	ASTM D5555-95
COD (mg/L)	1,050,000 - 1,150,000	1,100,000	ASTM D1252
pH	4.0 - 11.0	6	ASTM E-70
Specific Gravity at 20°C	1.21 - 1.25	1.235	ASTM D891-00
Bulk Density (lbs/gal)	10.09 - 10.43	10.30	ASTM D891-00
Viscosity (cPs) at 20°C	75, max	45	ASTM D2196
Flash Point	None to 93°C	None to Boil	ASTM D93
Freezing Point (°C)	-18, max	-35	ASTM D1177

## BATCH TEST RESULTS

SDNRmax (mgN/gVSS/hr) 13.3 ± 4.60

COD:N 5.12 ± 1.60

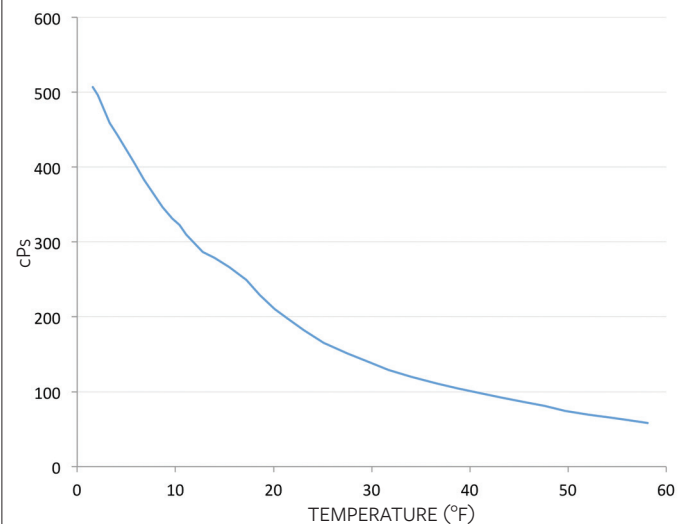
Yobs (gVSS/gCOD) 0.31 ± 0.11

$\mu_{max}$  (1/day) 2.08 ± 0.32

Values are for 20°C

**Denitrification Parameters** The denitrification parameters listed in this table were determined through extensive batch testing at Northeastern University's Department of Civil and Environmental Engineering (Boston, MA). Please contact EOSi for application guidance.

## TEMPERATURE / VISCOSITY RELATIONSHIP



**Note:** Although product freezes below 0°F, viscosity analyses stopped at 0°F due to practical considerations



# 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.