Section 7.0
Mitigative Measures for Construction and Operation

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MITIGATIVE MEASURES FOR CONSTRUCTION AND OPERATION

7.1 ENVIRONMENTAL IMPACT MITIGATION

7.1.1 Surface Water

7.1.1.1 Runoff

Surface runoff does have the potential to cause erosion in disturbed areas during and immediately after construction. Potential surface water impacts due to soil erosion transport and deposition will first be minimized by stockpiling excavated top-soil on the proposed site for future use in leveling and landscaping activities and by vegetating disturbed areas. Potential impacts will also be abated through the use of erosion and sediment control best management practices (BMP). Silt fences and ditch check dams will be installed as necessary to reduce the risk of sediment traveling off-site during construction. Long term erosion control will be mitigated through re-vegetation and landscaping once construction is completed.

Areas considered high risk of polluting surface waters are located indoors and all water from the areas will be directed to the City of Winnipeg NEWPCC. Manure and bedding material from cleaned hog delivery trucks will be stored indoors in the truck dry cleaning area removing the risk of surface water contamination. The wash water flows from the holding pens and passes through a trench drain to a rotary screen to remove the manure solids before getting sent to the on-site wastewater pre-treatment facility for treatment. The wastewater from the truck wash will pass through a rotary screen and an oil and sand interceptor prior to being discharged to the City of Winnipeg sanitary sewer. In addition, the trailers used to haul the meal away will be located inside during loading operations; any water from this area will also enter the sanitary sewer system.

Storm water management at the facility includes the construction of a storm water retention pond designed to meet the City of Winnipeg's requirements of back to back 1 in 25-year rainfall events. Assuming that the retention pond is properly controlled by the City of Winnipeg, the retention pond will mitigate against downstream flooding due to the increase in runoff volume from the proposed facility. The retention pond can also serve to improve the quality of water discharging into the receiving water body by removing some sediment.

A possible concern is the potential for runoff from the parking lot to be contaminated by leaks from employee vehicles. Monitoring at other facilities (such as the Ducks Unlimited Office Complex) has demonstrated that the potential for an environmental hazard from parking lot runoff is low.

It is considered that all off-site surface water and aquatic impacts from development runoff will be minimal and insignificant.

A slight potential exists for fuel and other chemical spills on the site to reach surface water. To mitigate the hazard, chemicals for sanitation, maintenance and wastewater treatment will be stored indoors in a designated storage room and diesel fuel tanks will be constructed and operated in accordance with Provincial regulations. During construction, a refueling area will be constructed as described in the groundwater mitigation section. Any accidental spills associated with the operation will be investigated and managed in accordance with the plant's Spill Response Plan and provincial regulations.

7.1.1.2 Sanitary Wastewater

During the construction phase any domestic sewage generated will be collected in tanks at portable toilet facilities and hauled by a licensed contractor for off-site disposal. During the operational phase, all sanitary wastewater will be directed towards the City of Winnipeg NEWPCC for treatment. This will include wastewater from the truck wash which will join the waste stream after being filtered according to City By-laws. No known residual effects requiring further mitigation have been identified at the proposed OlyWest site as a result of the sanitary wastewater management system.

7.1.1.3 Process Wastewater

The process wastewater from the proposed OlyWest facility will be directed towards the City of Winnipeg NEWPCC. Nutrient content in the form of total nitrogen and total phosphorous has been one of the key issues related to process wastewater. In the case of the proposed OlyWest facility effluent the City of Winnipeg is upgrading the NEWPCC to provide nutrient removal capability. The treatment facility will use the SBR process which will be available prior to the operation of the proposed OlyWest facility. This process will compensate for the additional nitrogen discharged to NEWPCC from the proposed development. No further mitigation is required.

Phosphorous will have economic value in the process as a component of the protein recycling facility's product. The DAF system proposed for the proposed OlyWest facility will recover virtually all of the phosphorous from the effluent. There will still be an additional 5 kg/day of total phosphorous directed towards the NEWPCC during operations. This additional load will be accommodated by the City of Winnipeg nutrient removal program. Licence No. 2684R stipulates that "on or after December 31, 2006 centrate from the Centrate Treatment Facility effluent shall contain less than 119 kilograms per day of total Phosphorus". The City of Winnipeg has stated their capability to remain in compliance with Licence No. 2684R with the proposed OlyWest project on line, and no further mitigation is required.

Other components of the effluent will be minimized by the wastewater pre-treatment system and the efficient use of the entire hog in processing. Virtually the entire hog is processed into edible and non-edible product, and this helps to significantly eliminate waste generated from

the process. Emerging issues have been identified with relation to potential EDCs that may be found in trace quantities, particularly those that may be found in the manure from hogs. The science does not currently exist to adequately monitor and evaluate the fate of these compounds in wastewater, and no regulatory guides have been established anywhere. In any event, the total contribution from the proposed OlyWest facility is expected to be low (<1%) based on flows and the estimated volumes of liquid manure that will enter the effluent stream. The City of Winnipeg is ultimately responsible for effluent treatment, and both they and OlyWest are committed to keeping abreast of these new issues. Both parties will implement appropriate actions when identifiable needs and regulations are established. No other mitigation is possible at this time.

The routing of the proposed OlyWest facility effluent via a non-CSO route will eliminate the possibility of contributing to direct flows into the surface water as a result of storm water. Some potential exists for sewer backup along the route of the pipe during emergency events, such as sewer blockage. These events are extremely rare. The City of Winnipeg is experienced in dealing with such situations, and has appropriate response plans, operating procedures and maintenance procedures to deal with such situations. No further mitigation is required.

7.1.2 Groundwater

To mitigate the potential groundwater/soil impacts during construction related to refueling spills, a central refueling area will be constructed on the proposed site if required in a location of low permeability soils. Because of the extensive clay on the proposed site, the refueling area can be constructed anywhere on the proposed site more than 100 m from a surface water body. The refueling area will be constructed at this proposed site by leveling the surface and constructing small berms on three sides, while facilitating surface water drainage on the fourth side. In the event of a spill, the fourth side would be quickly bermed to contain a significant spill in the unlikely event one occurred. If a spill occurs, contaminated soil will be excavated and hauled to an approved land farm or hazardous waste facility, depending on the level of contamination. This clean-up would be conducted in accordance with provincial regulations. Lubricants and other petroleum products that will be utilized will also be temporarily stored at a spill protected area. Fuel for construction equipment purposes will not be stored on the proposed site and refueling trucks will leave the proposed site when equipment is not in use.

In general, should chemical or fuel spills occur on the proposed site, immediate isolation and clean-up measures will be undertaken to prevent the further spread of any soil contamination. This, along with the mitigation and monitoring methods outlined above, will ensure that any potential impacts will be contained on the proposed property and properly cleaned up to the satisfaction of Manitoba Conservation.

In general, the risk of groundwater contamination is low due to the natural site conditions that consist of approximately 14 to 15 m of low conductivity clay soils. Additional measures to reduce the risk of potential groundwater contamination from the proposed operation include locating most sources of potential groundwater pollution indoors and strengthening the concrete and reinforcing specifications under the hog holding facility and the wastewater equalization tank, where the risk is considered highest.

Groundwater monitoring will also be utilized to monitor for any potential contamination as described in Section 9.3. Monitoring acts as another safe guard and will allow for early detection and containment of any potential groundwater pollution.

It is considered that groundwater impacts from the development will be negligible and insignificant, and no further mitigation is required.

7.1.3 Air

The construction and operation of the proposed OlyWest pork processing facility include several potential sources of air quality impacts that could be expected to occur if no appropriate actions were taken. To avoid these impacts, OlyWest has incorporated state of the art controls in the plant design. Mitigation measures taken to reduce these impacts typically included efforts to minimize the contributing activity and assessing the risk associated with the remaining releases. The possible effects of atmospheric emissions (substances), odour, and sound have been evaluated as part of the EIA of the proposed OlyWest pork processing facility.

7.1.3.1 Air Emissions

One of the identified sources of potential environmental impacts is the emission of contaminants to the atmosphere and the resultant changes to air quality. Only air contaminants for which ambient air quality criteria exist or have been adopted in Manitoba were evaluated through air dispersion modeling for potential environmental effects. These contaminants are discussed below.

$PM_{2.5}$

The target ambient concentration of 30 $\mu g/m^3$ will not be exceeded by predicted emissions from the proposed OlyWest operation. The resultant concentration is predicted to be less than 19.3 $\mu g/m^3$.

No further mitigation measures will be necessary at this time.

PM_{10}

The target ambient concentration of 50 $\mu g/m^3$ will not be exceeded by predicted emissions from the proposed OlyWest operation. The resultant concentration is predicted to be less than 38.1 $\mu g/m^3$.

No further mitigation measures will be necessary at this time.

Nitrogen Dioxide

The boilers chosen for the proposed OlyWest pork processing facility will be natural gas units of a low NO_x emissions design and will be kept in good working order. The effect of the anticipated emission rates on the ambient air quality has been estimated. The modeled estimates indicate that the Manitoba MAL for NO_2 will not be exceeded. Alternatively, ultra-low NO_x technologies could be employed. These technologies are not normally used except where health criteria for air quality cannot be achieved otherwise, which is not the case with the proposed OlyWest facility.

No residual effects are predicted and further mitigation is not anticipated.

Carbon Monoxide

Resultant ambient concentrations of CO from the operation of the proposed facility are not predicted to exceed Manitoba Conservation's MAL.

No residual effects are predicted and further mitigation is not anticipated.

Sulphur Dioxide

The 1-hour and 24-hour average predicted ambient concentrations and the annual average concentration would meet the Manitoba MAL off-site. No residual effects are predicted and further mitigation is not anticipated.

7.1.3.2 Odours

Odours and their effects on the quality of life have been the primary source of concern from the public with respect to the construction and operation of a pork processing facility at the selected site. OlyWest has been sensitive to this issue from the inception of the project. They have therefore included mitigative measures, for the control of odour, as an integral component to the proposed facility design and operation. Further to this, the selection of the proposed site was made with criteria of being at least 1 km from residential areas in order to further minimize the potential for impacts.

Protein Recycling

This area was identified as the greatest potential contributor to odour. Effort has been expended to determine the extent of the dispersion of odour and the selection of appropriate technology. The selection of SCP Control, Inc.'s recommendations has reduced odour emissions to the standards dictated by Manitoba Conservation. Under most conditions, the odour control will be far better than that required under regulation. No further mitigation is required.

Wastewater Pre-treatment

Primary treatment activities will be carried out on the proposed site. The selected DAF system will not have any external cells or ponds, with the equalization tank being contained within the proposed OlyWest facility. No impacts from odour emissions are expected and further mitigation is not required.

Hog Receiving Facility

The receiving area has been designed and oriented such that the least possible odour concern will result from its construction and operation. Other mitigative measures will include:

- No feeding of hogs for 12 hours prior to shipping to minimize waste generation;
- Odour suppressants in the wash water used inside the holding facility; and
- Building vents and stacks designed to collect and recycle air and encourage dispersion.

No impacts are indicated from the receiving barn, and no further mitigation is required.

Hog Delivery and Trucks

Approximately 42 loaded hog trucks will be arriving at the proposed OlyWest facility on a daily basis. In order to mitigate impacts related to odour from these trucks, the following procedures will be implemented:

- No feeding of hogs for 12 hours prior to shipping to minimize waste generation;
- Proper removal of bedding material designed to absorb waste to minimize odour;
- Restricted truck arrival routes to avoid residential areas; and
- Cleaning and washing of hog trucks (including on site truck wash) after unloading.

These measures are designed to mitigate to the extent possible any impacts related to odour. Low impacts may still result from this operation. No further mitigation is expected.

Fugitive Odours

Fugitive odours may arise from having open doors at the proposed facility. However, the facility has been designed such that the air flow requires that doors in the main processing areas remain closed. This will be an operational requirement that will mitigate the possibility of concerns from fugitive odours. No further mitigation is required.

OlyWest has taken all steps possible to reduce odour emissions so that nuisance odours off-site will not exist. Should nuisance odours be reported, OlyWest will investigate the source and develop a plan to mitigate against future occurrences.

7.1.3.3 Noise

Construction

Construction impacts from noise are expected to be minimal for people due to the distances from residents, existing ambient noise levels and hours of construction activities. No further mitigation is required.

Construction noise will impact local wildlife, particularly song birds and Boreal Chorus Frogs. This impact is expected to be low and of short duration. No further mitigation is required.

Operation

Noise during the operations phase of the proposed OlyWest processing facility is anticipated to be minimal because the majority of the activities occur, and the equipment is utilized indoors. Some outdoor sound will be generated by traffic, unloading of hogs, cooling towers, and muffled indoor activities. The refrigerated truck loading bays are on the north side of the building adjacent to the St. Boniface Industrial Park. Sound from the trucks should not exceed the background sound from the highway. The nearest residence is 1.3 km (0.9 miles) from the site. Sound levels are predicted to drop to meet the residential sound level guidelines established by Manitoba Conservation (45 dBA) before the nearest residence.

Although no further mitigation is anticipated, OlyWest will investigate reported occurrences of nuisance noise attributed to the pork processing facility and take appropriate mitigation measures deemed reasonable.

7.1.3.4 Greenhouse Gas Emissions

Construction

Emissions of GHG generated during the construction phase of the project are expected to be largely attributed to construction vehicle exhaust emissions. Mitigation of these emissions

will be undertaken by ensuring that properly maintained vehicles and machinery are used on the site.

Operation

All reasonable measures have been taken during design of the proposed OlyWest pork processing facility to limit the amount of GHG emissions during operation. The result is an overall CO_2 equivalent increase of 0.06% to existing provincial levels. The impact from this is low to negligible. No further mitigation is required or anticipated.

7.1.4 Soils

Construction

During construction, impacts on land associated with this proposed site are expected to be restricted to that portion of the proposed site where site leveling and drainage works have been constructed. No significant impacts on land beyond the boundaries of the proposed site are anticipated.

The predominantly silty clay soils of the proposed site will require silt fences to be strategically placed during construction. It will be important to provide topsoil and a cover crop as soon as possible after proposed site development is complete. This will alleviate, to a very large degree, concern about erosion of the proposed site either during or after preliminary construction. In the long term, soil erosion will be minimized through site grading and land leveling as well as seeding runoff ditches.

Any spills of fuels or lubricants will undergo clean-up in accordance with provincial regulations likely by excavation and appropriate disposal of the contaminated soil. Mitigation by excavation is considered to be highly effective in limiting impacts from hydrocarbons on soils. The construction and use of an on-site central refueling area with low permeability soils will limit soil contaminant migration and further minimize the potential impact of fuel or chemical spills on the soils.

Topsoil will be salvaged from disturbed areas, stored in stockpiles and used for landscaping the site upon completion of construction.

The loss of the limited agricultural capability soil will be partially offset by topsoil salvage and re-vegetation; therefore the residual impact is rated low. Training and contingency plans will minimize the risk of fuel or chemical spills, thus the residual impact is considered negligible and no further mitigation measures are required.

Operation

Soils impacts due to hog manure/truck wash/bedding material spreading programs will occur off-site. Total volume is expected to be approximately 3,500 tonnes per year under full operation from all sources at the proposed OlyWest pork processing facility. This is far less than 1% of the current provincial amounts, and the impact would be low. Further, all spreading operations are subject to Manitoba regulations which further dictate conditions and operations that further mitigate effects from spreading operations. No further mitigation is required.

7.2 LAND USE IMPACT MITAGATION

The proposed project is anticipated to have a negligible effect on the use of the surrounding property. Periodically, however, OlyWest employees will contact adjacent landowners to monitor the extent, if any, of experienced impacts related to the plant.

7.3 NATURAL RESOURCE USE IMPACT MITIGATION

Drinking Water Use

The proposed OlyWest facility would be a priority user of potable water due to the holding of animals and being a food processing company, and therefore would not anticipate any significant interruption of water, and would rely on the City of Winnipeg to supply water to the facility as they have committed.

Wildlife

The proposed site has low potential for impacts on wildlife. Confining activities to the proposed project area and landscaping will minimize habitat loss and alienation impacts.

Species adapted to disturbance may remain in the area or temporarily disperse and return once the construction period ends. The residual impact of this habitat alienation on wildlife is considered to be low and no further mitigation measures are anticipated.

Vegetation

The proposed site is currently cultivated land that was last used for limited hay production. This area has not supported native vegetation communities for some time. The reclamation and landscaping program will restore vegetation to disturbed areas not required for proposed project facilities. Impacts of potential fuel or chemical spills will be minimized by employee training programs and development of contingency plans for spill detection, containment and cleanup.

Since there will be no loss of natural vegetation, the residual impact is considered negligible.

Because the entire area of proposed development has been cultivated for decades, there is no concern about rare and endangered species.

Heritage Effects

The proposed development area was judged to hold low archaeological potential. If archaeological site(s) are encountered during construction, a mitigation strategy will be developed. Options can include avoidance, comprehensive controlled surface collection and/or comprehensive mitigation excavation. The strategy chosen, in consultation with the client and Historic Resources Branch, will reflect the integrity of the archaeological resource, the threat of disruption and the development parameters.

7.4 TRAFFIC PATTERN CHANGES IMPACT MIGATION

Increases to both truck traffic and commuter traffic are expected to be low to moderate in the area of the proposed OlyWest pork processing facility.

Impacts of increased traffic on traffic patterns will be mitigated through off-peak shift starting times that result in largest number of vehicles arriving and departing the site, beginning outside the peak travel times of 7:00 and 8:00 in the morning and 16:00 and 17:00 in the afternoon. It would be beneficial if arrangements could be made with Winnipeg Transit to provide scheduled service to the proposed facility at peak hours. This mitigation will further reduce the impacts on local traffic.

To reduce the impact of trucking on traffic patterns, all livestock trucks will utilize the existing Plessis Road from the south to reach the proposed facility, thereby avoiding the Plessis Road and Dugald Road intersection and locally populated areas. Consideration is being given to the construction of a private road at the south side of the proposed property. This would become the only route available for the incoming livestock trucks at the proposed facility and would only be available from the south. The private road option would eliminate any impacts at Camiel Sys Street from arriving trucks, and further it would preclude the use of Dugald Road and Plessis Road south bound by hog-bearing delivery trucks. Once the trucks were unloaded at the plant, cleaned livestock trucks would leave the proposed facility by Camiel Sys Street east and Plessis Road south to the TransCanada Highway.

The City of Winnipeg also plans for major street widening of Plessis Road in their Transportation Concept Plan 2020 and Beyond (2001).

All of these mitigations will reduce operational traffic impacts to a low or negligible level over existing levels. No further mitigation is available at this time.

7.5 ENVIRONMENTAL HEALTH IMPACT MITIGATION

Airborne Emissions

As a result of the extensive treatment of air at potential sources of impact, all regulated airborne emissions are forecasted to fall within existing provincial criteria. OlyWest is committed to maintaining air treatment systems in order to have them operate at peak efficiencies as much as possible. No impacts are expected from airborne emissions. OlyWest will keep informed of emerging issues related to airborne emissions, and will implement appropriate actions when identifiable needs and regulations are established. No other mitigation is possible at this time

Waterborne Emissions

No impacts were identified to environmental health as a result of waterborne emissions from the proposed OlyWest project. OlyWest has acknowledged the current investigations into EDCs although current science does not provide impact assessment or mitigation technology. Some consideration was also given to the production of drug resistant bacteria although current investigations indicated risks are minimal from hog processing operations. OlyWest will keep informed of emerging issues related to waterborne emissions, and will implement appropriate actions when identifiable needs and regulations are established. No other mitigation is possible at this time

7.6 SOCIO-ECONOMIC IMPACT MITIGATION

Sections 7.1.3 and 7.4 outline the mitigation measures for the socio-economic impacts related to odours, noise, and traffic. Other impacts are deemed to be positive in nature and thus do not require mitigation. In addition to these measures, OlyWest will communicate with local landowners and residents within a 3 km radius from the facility after the first year of operation to monitor the extent, if any, of other experienced socio-economic impacts. OlyWest would like to keep the CAC, used in the preparation of the EIS, in place during the first year of operations to provide input regarding socio-economic and environmental issues in this manner.