

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPOSAL NAME: Midwest Food Products Inc.
PROPOSAL NAME: Midwest Food Products Potato Processing Plant
CLASS OF DEVELOPMENT: Class 2
TYPE OF DEVELOPMENT: Food Processing & Wastewater Treatment Facility
CLIENT FILE NO.: 264.1

OVERVIEW:

An Environment Act Proposal, submitted by Midwest Food Products Inc. and dated October 12, 2001, respecting a Proposal for the ongoing operation of their existing Carberry potato processing plant and the associated wastewater treatment facilities, was received by the Department on October 24, 2001.

Midwest Food Products Inc., owned 50% by Nestlé Canada Inc. and 50% by Simplot Canada Limited, owns and operates a potato processing plant located on Sec. 20-10-14 WPM near Carberry. This plant was originally set into operation in 1962. On February 13, 1978, the plant was licenced under CEC Order No. 780 issued by the Clean Environment Commission (CEC). That CEC Order was subsequently revised to CEC Order No. 780 VC by the CEC on October 25, 1979, in order to restrict the use of caustic chemicals in the processing of the potatoes and to address a newly constructed sanitary sewage treatment plant. Since then, potato processing production levels at the facility have gradually increased, which has resulted in increased levels of water use resulting in the generation of increased volumes of wastewater. Concurrently, wastewater management practices associated with this Development generated numerous complaints and raised departmental and public environmental concerns. Several attempts were made in the past by the department to bring about an improvement in the wastewater management practices, but they were always stalled due to delays brought on by pending expansion plans, ownership changes and management changes. The principle environmental concerns were, and still are, related to the effects of the use of a large natural slough which was converted into a deep single-cell lagoon by means of periphery dikes constructed to facilitate the collection, storage and partial treatment of raw process wastewater and pretreated sanitary sewage. Wastewater releases and seepage losses directly to the east of the lagoon facility have created a permanent wetland area that is used for further natural treatment. With the soil being sandy and no clay or synthetic liner having been incorporated to satisfactorily contain the wastewater in the lagoon, the wastewater is free to filter through the underlying sandy soil and into the underlying Assiniboine Delta Aquifer, and migrate in the direction of least hydraulic resistance. In essence, the natural subterranean environment has been, and still is being, used to partially treat, dilute and disperse those daily volumes of wastewater that are not diverted to irrigation fields or otherwise lost to evaporation. A plume of seepage losses from the

lagoon has been defined to the south of the lagoon, however a similar study was not undertaken for the Proposal on the groundwater to the east and south-east of the lagoon. Data from Midwest's ongoing groundwater monitoring program has identified some receiving groundwater locations to contain substances exceeding drinking water quality objectives with respect to: coliform; suspended solids; dissolved solids; manganese; iron; sodium; arsenic; barium; nitrate; and ammonia (which can convert to nitrate). Furthermore, the need to keep the wastewater contained by high dykes has also caused past flooding of adjacent down-gradient lands due to induced higher groundwater levels. Therefore, driven by the need to get rid of excess wastewater, a practice of excessive irrigation of a small area of land west of the lagoon site was carried out to the point of impacting the groundwater quality under that land. Lastly, irrigation with partially treated wastewater combined with anaerobic conditions in the wastewater pond, plus other waste management practices, have resulted in periodic odour nuisance conditions.

Having considered an expansion in production, and so as to assure an adequate availability of water for present and future purposes, Midwest Food Products applied for and received an Environment Act Licence No. 2470 on August 3, 2000, to access and transfer groundwater from a second wellfield eight kilometers east of the plant site to address their raw water supply concerns. This Licence was granted under the condition that their existing waste management practices would come under review and be relicenced. Accordingly, on August 3, 2000, Manitoba Conservation formally requested Midwest Food Products Inc. to file a Proposal respecting the current and intended future operation of their processing plant and associated solids, liquid and air emission environmental management practices such as to assure the operation of a sustainable development.

The requested Proposal was filed by Midwest Food Products Inc. on October 12, 2001. It essentially proposes to maintain the status quo in their wastewater and aquifer management practices but includes additional provision: to mitigate flooding conditions; to more intensely study the groundwater mechanics and chemistry to get a better understanding of the impacts; to expand the role of their irrigation program over greater areas of land; to mitigate the impacted groundwater through the use of more recovery wells with the impacted groundwater directed to irrigation fields and to recharge trenches; to initiate improvements to reduce the odour emissions; and to separate and isolate the treated sanitary wastewater stream from the potato processing wastewater stream. However, the Proposal does not address: any upgrading or replacement of the existing unlined wastewater lagoon with an engineered wastewater treatment facility utilizing best practicable technology; the prevention of continuous seepage losses of wastewater into the underlying aquifer; the re-construction of inadequately constructed dykes on the periphery of the wastewater lagoon; maximizing the recycling of fully treated wastewater to reduce the net wastewater releases; the fate of the accumulated sludge in the receiving lagoon; and does not provide a convincing assurance that all of the pollutants which have and will continue to migrate into the underlying aquifer can be recovered through their network of recovery wells.

The Proposal was advertised in the Brandon Sun on November 17, 2001, and also in the Carberry News Express on November 19, 2001. As well, copies of the Proposal were placed in Public Registries at: the Union Station Library (123 Main) in Winnipeg; the

Centennial Public Library in Winnipeg; Manitoba Eco-Network; the Western Manitoba Regional Library, and the Town of Carberry municipal office. The closing date for the receipt of public comments was specified as January 7, 2002.

Copies of the Proposal were also sent to the applicable members of the interdepartmental Technical Advisory Committee for their review and comment by no later than January 7, 2002.

On February 12, 2004, during the Department's development of a draft Environment Act Licence, Midwest Food Products Inc. submitted an alteration to their Proposal which outlined a 2-year Feasibility Study, followed by a 3-year Implementation Phase, followed by a 10-year Demonstration Period for addressing the future management of liquid wastewaters and the remediation of impacted groundwater. The proposed alteration was accepted by senior management of MB Conservation, and was approved by the Director of Environmental Approvals on the basis of it being accommodated by the ongoing environmental assessment and licencing process.

COMMENTS FROM THE PUBLIC:

Alan Baron (a local resident) filed a letter that outlined numerous concerns with respect to wastewater management and groundwater contamination issues:

- The Proposal fails to offer any new management strategies that would be a significant improvement over what has occurred during the past.
- Most areas of concern that should be addressed are passed off as not having sufficient data for assessment, or are omitted entirely.
- The real reason for the installation of the recharge trenches is never mentioned. After the aquifer depletion problem on and surrounding the main plant is corrected, what is the expected future use of the trenches to be? Long term use of the trenches defies the principles of and practices for aquifer protection.
- The offensive odours generated by wastewater transport ditches, storage and disposal are only briefly alluded to. Does this mean that this is a satisfactory and acceptable nuisance?
- The sewage treatment plant has not been operating according to Environment Act Licence No. 780VC.
- When assessing the impact that the lagoon wastewater is having on the water quality for the surrounding aquifer, why are normal water quality parameters found in the aquifer not used for comparison?
- If irrigation of crops is to be part of wastewater management, then why are irrigation water quality criteria not taken into account?
- Any information to assess the impact that the east wetland area has had on the water quality of the area aquifer is claimed to be inadequate or nonexistent. Were there not samples taken from test holes TH1 through TH8 and specifically TH24, 26, 27 (east side of the wetland area) and what water quality results were found?
- Why is the proponent still using an estimated freshwater use volume of 1.5 - 1.6 MIG/day when measured flow rates submitted for Environment Act Licence No. 2470 were in the 2 MIG/day range?

- The assumed impacts that the recharge trenches will have on the aquifer are not going to happen. Most of the recharge water will flow north and east from the trenches and not to the plant withdrawal wells. There are no monitoring wells in place to assess this impact. (Three hand drawn figures were provided by Alan to describe the aquifer, irrigation leachate, lagoon plume and recharge trench directional flows in the area, based on his personal knowledge and experiences). Regarding Trench 2, the Orr residential well should be monitored closely. Regarding Trench 1, WRB 5LL MN30 located in the N.E. corner of Section 20-10-14 should be monitored for changes in static levels of the aquifer. Other properly located monitoring wells should also be installed.
- Given the quantities of cleaning products that are used in the processing plant operations, why have there not been tests for these chemicals submitted or proposed for the future? What are the quantities of their residual impacts to the wastewater?
- Under "Rehabilitation and Reclamation" in the Section 11 respecting Principles and Practices of Sustainable Development, the section is blank. Does Midwest feel that they don't have a role in this matter?
- How can this Proposal be called a sustainable development?

Disposition

The comments were referred to the proponent for their information and response. Extensive responses were provided by the proponent and were forwarded to Mr. Baron. Mr. Baron was largely unimpressed, and rebutted with more comments concerning inconsistencies and inadequacies in the responses. Mr. Baron's rebuttal was forwarded to the proponent for comment. The proponent in turn addressed each comment. Mr. Baron's general concerns are addressed in the draft Licence.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE

Intergovernmental Affairs commented that since the Proposal is at somewhat of a conceptual level with respect to a comprehensive irrigation program, the proponent should:

- consult the R.M. of North Cypress regarding any pipeline installations in the road allowances under their jurisdiction;
- consult the R.M. of South Cypress if the irrigation scheme extends southerly to the Swan Lake First Nation land;
- consult utility companies and Manitoba Highways regarding detailed pipeline routing;
- review the suitability of all lands for irrigation with Manitoba Agriculture; and
- consider a soil and groundwater monitoring program to evaluate the impacts and adjust the application rates accordingly.

Disposition

The comments were referred to the proponent for their information and response (where applicable). The proponent responded with a conceptual monitoring program. No further concerns were raised by Intergovernmental Affairs.

Historical Resources commented that they had no concerns in regards to the Proposal's potential to impact heritage resources.

Manitoba Transportation & Governmental Services commented that they have a concern with traffic movement at the existing facility. They would desire to have the main plant truck entrance and the weigh station relocated to the north of the current location in order to minimize the impact of the entrance on traffic safety.

Disposition

The comments were referred to the proponent for their information. The proponent responded that they have not seen any data to justify this request and they were not aware of any safety issue(s). MT&GS responded that they have met with the proponent and have explained the safety issues and will continue to meet with Midwest to resolve the matter, and that environmental licencing should not be postponed on this account.

Sustainable Resource Management

Western Region commented:

- the Proposal fails to meet the long-term solutions for wastewater treatment;
- the Proposal only suggests minor changes to their current wastewater treatment and management system;
- the proposed mitigative measures (i.e. the development of an irrigation scheme around the lagoon/wetland system, water conservation, and to modify their current sanitary sewage disposal system) will have little influence on the impact of the large volumes of untreated wastewater on the local groundwater system.
- the main disposal system is by groundwater recharge, which contrasts with MR 42/98 (Livestock Manure and Mortalities Management Regulation) which requires stringent construction requirements for earthen manure storage facilities to contain the liquid manure (in fact, the R.M. of North Cypress prohibits the construction of earthen manure storage facilities and will only allow liquid manure to be stored in constructed tanks due to the sensitivity of the groundwater to contamination in this area);
- reduction of lagoon loading on the immediate underlying groundwater is attempted by pumping groundwater to further locations in the aquifer, i.e. mitigation by diluting the contaminants over a larger portion of the aquifer;
- previous over-irrigation of adjacent cropland has resulted in a nitrate plume, and support documentation for the Water Rights and Environment Act licencing, by KGS Group on behalf of Midwest, stated that management of a relatively large irrigation system would not be fully sustainable;
- nitrate-nitrogen leaching into the groundwater is a concern because of the serious health issues associated with high nitrate levels in water used for drinking water by infants or during pregnancy; and
- to place the issue of the conversion of organic nitrogen to nitrate, and its need to be kept isolated from the groundwater, into perspective relative to the concerns that prompted MR 42/98, the Livestock Manure and Mortalities Management Regulation, Midwest's wastewater lagoon is estimated (on the basis of information provided in the Proposal) to presently be holding 206,040 Kg of total nitrogen, which is approximately equivalent to what 38,990 grower/finisher hogs would produce in one year, or equivalent to the annual total nitrogen from 20 large grower/finisher hog

barns. The nitrogen estimate for the lagoon does not include the additional nitrogen tied up in the lagoon's bottom sediments and that amount present in the wetland east of the lagoon.

Disposition

The comments were referred to the proponent for their information. The proponent rebutted with numerous comments in support of their Proposal. The Region in turn responded that whereas the proponent wants to conduct further studies on certain constituents to better understand the impact that they are imparting on the aquifer, it is very obvious that they are impacting the aquifer. The treatment system for the wastewater must be an effective system such that it has virtually no impact on the aquifer system. They again re-iterated their concern about nitrates, and ammonia levels eventually converting to nitrates. They cited the proponent's year 2000 groundwater monitoring report which demonstrated numerous wells showing greater than 10 mg/L nitrate nitrogen levels, with the highest being 95.9 mg/L. Outstanding concerns are addressed in the draft Licence.

Air Quality Management commented:

- it would be preferable that waste cardboard and other combustible materials be recycled or landfilled rather than open burned;
- the Environmental Assessment did not examine PM₁₀ and PM_{2.5} air emissions that are more significant than total suspended particulate from a public health perspective;
- an assessment of PM₁₀ and PM_{2.5} should be provided;
- only odours from the process wastewater were identified as an issue, yet Simplot (in their Proposal for a new potato processing plant at Portage la Prairie) identified cooking odours as a significant source of odours;
- more odour evaluation should be undertaken on cooking odours, and if they do have the potential to pose a nuisance, mitigation measures to reduce the odours should be identified;
- the Screen3 air emission model was not the most appropriate model to use given the size and configuration of buildings, multiple stacks and burn pile, rather a more advanced air emission model such as the US EPA Industrial Source Complex Model (ISC3) or Aermid should have been used;
- no air dispersion modelling report was included in the Appendices to detail all the assumptions and other inputs;
- a more refined air dispersion modelling (satisfactory to MB Conservation) should be done;
- a listing of all residences and other potential receptors within a 5 km radius of the site should be provided;
- a more complete assessment of background levels should be provided; and
- is stack sampling proposed as part of the consultant's recommendation for a detailed review of air emissions?

Disposition

The comments were referred to the proponent for their information. The proponent responded to the various issues and agreed to provide various future

commitments respecting air emissions. The concerns and recommendations are addressed in the draft Licence.

Water Quality Management commented:

- the proponent should submit a detailed engineering design of the proposed alterations to the sanitary sewage disposal system, for review;
- monitoring of the changing groundwater elevations and flow patterns (due to the operation of the two recharge trenches) is essential to ensuring that the recharge / extraction system is properly managed with respect to groundwater levels in surrounding areas;
- since the sandpoint investigation south of the lagoon identified the present extent of a leachate plume originating from the lagoon, and also confirmed that density stratification is occurring within the groundwater flow system such that the leachate impacted groundwater is driven downwards towards the bottom of the aquifer, the monitoring wells to assess and characterize plume must penetrate the full thickness of the aquifer;
- it is also probable that there are zones of greater hydraulic conductivity within the aquifer that may be transporting the leachate at faster rates at other elevations;
- the identification of the leachate plume emanating from the lagoon is a direct indication that the lagoon is leaking and contributing contamination to the groundwater flow system. A significant area of the aquifer is being impacted. Under existing environmental regulations this is an unacceptable practice;
- the most important step in addressing the leachate plume is to eliminate the source of pollutants through the application of best practical technology (BPT) in accordance with the principles identified in the Manitoba Water Quality Standards, Objectives, and Guidelines;
- application of BPT to minimize the exfiltration through the lagoon floor would involve either lining the lagoon or constructing a proper lagoon to achieve the needed hydraulic conductivity, whereupon focus should then be directed towards remediation of residual impacts;
- the Proposal to collapse the plume within five years through the use of 3 new purge wells to augment the existing wells P6, P7 and P8, is unlikely to succeed because there will be ongoing contribution from the lagoon, plus, the operation of these wells will increase the local flow gradients and result in greater amounts of leachate being pulled through the lagoon floor;
- the proposed plume management system is inconsistent with BPT;
- for the proposed plume management scheme to be effective, complete hydraulic containment of the leachate-impacted groundwater would have to be demonstrated, and pumping conditions would need to be sufficient to capture the entire plume;
- given the complexities of the of the proposed plume management scheme, it carries a significantly lower chance of success than addressing the leaking lagoon;
- the proposed plume management scheme would serve better towards remediating the existing contaminated groundwater than mitigating additional or ongoing contamination;
- with the inclusion of the proposed irrigation system, which would be associated with more groundwater extraction wells, the overall water management system will be very complex in terms of balancing withdrawals and discharges while also managing water

quality for the plant process water as well as supplying water of a suitable quality for irrigation; and

- contingencies for wet and dry years are not addressed, but should be, which would further complicate the overall scheme; and
- since the Proposal does not provide details on these outlined issues, an evaluation of the proposed water management system cannot be undertaken.

Disposition

The comments were referred to the proponent for their information. Extensive responses were in turn provided by the proponent in support of their Proposal. Groundwater Management responded that the proponent's responses did not address the concerns previously identified regarding leakage from the lagoon. They re-iterated that the proponent needs to utilize best practicable technology to prevent losses of untreated wastewater from the lagoon to the underlying aquifer. Outstanding concerns are addressed in the draft Licence.

Environmental Approvals commented:

- the design capability of the sewage treatment plant versus the actual influent loading and actual treatment capability lacked documentation;
- the manner of the periodic disposal of the sludge wasted from the sewage treatment plant was not explained;
- the Proposal recognizes that a portion of the seepage flow from the lagoon flows in the easterly direction, yet no attempt was made to evaluate the extent, if any, of impacts to the groundwater located in that direction.
- the provided water balance was limited to average conditions only, i.e. no attempt was made to demonstrate the influence on the water balance during those periods when irrigation cannot be undertaken (i.e. winter, or non-growing season or prolonged wet period) and evaporation is very limited, and when off-site irrigation storage ponds are full; and
- the Proposal is weak on the issue of minimizing the loss of wastewater pollutants to the environment, and on accounting for their fate and impact. The proponent would rather see a complex groundwater monitoring program monitor the progress, fate and impact of pollutants, augmented with an expanded irrigation project which will at best address only a portion of newly generated, and in-situ, pollutants during a limited growing season.

Disposition

The comments were referred to the proponent for their information and response. Responses were provided by the proponent on most of the issues, but not all of the responses satisfactorily addressed the issues. Outstanding concerns are addressed in the draft Licence.

Manitoba Health commented that the Environment Act licence should address:

- a process and sanitary effluent water quality monitoring program for total and fecal coliform levels;
- a regular groundwater monitoring program, particularly for nitrate and salinity plumes
- periodic monitoring of nearby domestic wells;

- a further evaluation of air emissions and their potential impact since modeled particulate matter and nitrous oxide emissions exceed Manitoba's "Maximum Acceptable Concentrations" at both the nearest property boundary and the nearest off-site residence;
- the mitigation of the polluted groundwater plume;
- the elimination of contamination of the lagoon with sanitary waste;
- the mitigation of odour emissions, and an odour nuisance clause;
- an emergency response plan; and
- the assurance of storage of ammonia, gasoline and diesel as per regulations.

Disposition

The comments were referred to the proponent for their information and response. The proponent provided responses to all the comments except on the air emissions issue. The responses were forwarded to Health, and no further concerns were identified. Outstanding concerns are addressed in the draft Licence.

Manitoba Agriculture, Food and Rural Initiatives commented:

- there are some concerns related to the quality of the water to be used for irrigation, the soil types, and nutrient levels in the fields to be irrigated;
- a more detailed description of the irrigation management and monitoring program would be very useful;
- they want to be provided with information on the handling procedures of culls, tare material, silt, and peel waste for reason of disease management;
- irrigation of crops with effluent water may be of concern;
- management of mud to reduce sludge in the lagoon should be considered for management of soil borne diseases;
- no soil test results were provided to support statements on page 7-7 re: fertility status of Swan Lake FNC land;
- there is no indication of level of detail for soil survey information and acceptability of that level of detail for the proposed activity;
- there are no estimates of actual acreage's for each soil suitability category referenced for the proposed irrigation lands;
- the potential environmental impact rating from soil survey interpretation has not been included;
- no proposed monitoring for irrigation option besides that related to wastewater;
- no justification for lack of agronomic/environmental monitoring despite the identified need for monitoring;
- no explanation that potential impact, mitigation and monitoring issues will be addressed in a site-specific way; and
- there should be details provided regarding annual irrigation program planning which would include identification of irrigation lands, data collection (soil test data, irrigation water quality data, crop selection) land agreements with producers, and monitoring plans.

Disposition

The comments were referred to the proponent for their information and response. The proponent provided responses and information to all the

comments. Manitoba Agriculture, Food and Rural Initiatives reviewed the responses and indicated that they were satisfied with their plans for the management of solid potato waste and were pleased to learn that the proponent would not irrigate potatoes directly with their wastewater out of fears for the transmission of pathogens to potato crops. The expressed concerns and recommendations are addressed in the draft Licence. On March 25, 2004, MB Agriculture, Food and Rural Initiatives submitted specific recommended requirements relating to the proponent's proposed irrigation intentions. These recommended requirements have been incorporated into Appendix 'G' of the draft Licence. On May 14, 2004, due to new evidence Manitoba Agriculture dropped its opposition respecting the irrigation of potato crops with wastewater from the wastewater lagoon and were satisfied that disease transmission concerns could be addressed through the proponent's pest management plan which would require consultation with Manitoba Agriculture.

Canadian Environmental Assessment Agency (CEAA) commented that the application of *The Canadian Environmental Assessment Act* with respect to this project would not be required .

PUBLIC HEARING:

No request for a public hearing on this Proposed development was received by the Department

RECOMMENDATION:

A draft Environment Act Licence, developed in consideration of Midwest's Proposal, the concerns of the Inter-departmental Technical Advisory Committee, and the will of senior management of Manitoba Conservation to authorize the construction and operation of the proposed Development, subject to limits, terms and conditions as outlined therein, is attached for the consideration of the Director of Environmental Approvals. If the Licence is approved, it is recommended that, until otherwise arranged, the Licence be administered by Environmental Approvals, but that surveillance, monitoring, ongoing compliance evaluation and enforcement responsibilities be shared with the Western Region.

PREPARED BY:

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Municipal, Industrial and
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May 18, 2004