SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT:	**Nexen Inc. and Nexen Chemicals Canada Limited Partnership**
PROPOSAL NAME:	**Phase VI**
CLASS OF DEVELOPMENT:	**Class 1**
TYPE OF DEVELOPMENT:	**Manufacturing Facility (sodium chlorate chemical production plant)**
CLIENT FILE NO.:	**2768.4**

OVERVIEW:

An Environment Act Proposal, submitted by Nexen Inc. and Nexen Chemicals Canada Limited Partnership and dated July 17, 2003, was received by the Department on July 17, 2003. The proponent proposes to expand the current production level at the existing sodium chlorate production plant in Brandon by an additional 65,000 tonnes (bringing it up to 260,000 tonnes) per year by expanding the existing processing facilities with a currently idle cell line to be imported into Canada from their existing Louisiana plant in the U.S.A. The Proposal acknowledges resulting increases in greenhouse gases, particulate emissions, chlorine emissions, freshwater demand, reject water discharge, noise, and hazardous and non-hazardous waste substances.

The Proposal was advertised in the Brandon Sun on July 19, 2003. As well, copies of the Proposal were placed in Public Registries at: the 123 Main St. (Union Station) main floor, Winnipeg; the Centennial Public Library, 251 Donald St., Winnipeg; Manitoba Eco-Network; 2nd floor, 70 Albert St.; and the Western Manitoba Regional Library, 710 Rosser Ave. Unit 1, Brandon. The closing date for the receipt of public comments was specified as August 5, 2003.

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 August 5, 2003.

COMMENTS FROM THE PUBLIC:

No comments were received from the public in response to the advertisement.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE

Intergovernmental Affairs commented that the proposal concerns an "industrial Chemical Production" facility which is listed as a conditional use in the Zoning By-

law for the industrial area in which it is located. Therefore an expansion of the facility would require a review and decision by City Council in accordance with the provisions of The Planning Act. The proponent should consult the office of the Brandon and Area Planning District concerning this process as well as other site development issues (i.e. setback of structures from the boundary lines, etc.).

Disposition
The comments were referred to the Proponent for their information and action..

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 had no concerns.

Sustainable Resource Management commented:

- Few details are provided with regards to surface water management for phase 6. The Proposal indicates that evaporation will be used to remove surface water runoff from the clay lined bermed area, yet no details are provided to indicate that this approach will be feasible based on evaporation or precipitation rates.
- Part of the proposed process involves expanded use of a natural gas fired dryer. The air emissions from a natural gas unit are significantly more than an equivalent electrical dryer unit. Western Region suggests that consideration be given by the proponent to utilize electrical units rather than natural gas in the expansion process under review.
- The Petroleum Branch indicated that they had no concerns with the existing and proposed additional rates of disposal of the osmosis reject water by deep well injection.
- The Water Rights Branch indicated that they had no concerns with the proposed addition rate of groundwater use, and would amend Nexen's existing Water Rights Licence as soon as they received confirmation that an Environment Act Licence has been issued.

Disposition
The comments were referred to the proponent for response. The proponent submitted responses to the comments on August 26, 2003. The handling of rain, snowmelt and potential process spills was explained. Also, the proponent rationalized the basis for installing the "as is" natural gas dryer versus an electric dryer. The Air Quality Management Section recommended that the proponent undertake a feasibility study within 5 years to review the use of hydrogen or electricity as a source of energy for the Phase VI dryer.

Air Quality Management commented as follows respecting various sections and tables in the Proposal report:

1. Notice of Alteration Submission:
    a. 6.1 Greenhouse Gas Emissions: It is not clearly stated whether the greenhouse gas emissions shown were calculated as CO_2 or CO_2 equivalents in which case other greenhouse gases would have been incorporated (*i.e.,* methane and nitrous

oxide). As another perspective, these greenhouse gas emissions could also have been compared to Manitoba's total annual emissions.

b. 6.5 Hydrogen: From an environmental perspective, it would have been preferable if the hydrogen generated by Phase VI could have been fed to a boiler as fuel rather than being vented to the atmosphere. This would have minimized the increase in greenhouse gas emissions resulting from the Phase VI use of natural gas.

2. Updated Dispersion Modelling of Existing and Proposed Phase VI Point Source Emissions, Brandon Sodium Chlorate Facility Dillon Consulting June 2003.

a. Generally speaking, the air dispersion modelling (*e.g.*, choice of model, meteorological data, choice of receptors, control parameters, *etc.*) was done appropriately.

b. Table 2.1:

> There is a discrepancy between this Table and the model inputs shown in Appendix C; namely, the height of the Phase V sodium chlorate dry dust scrubber vent (DDSCRUB3) is given as 17.0 m in Table 2.1 and 27.0 m in Appendix C.

> It appears that the Phase VI sodium chlorate dry dust scrubber vent (DDSCRUB4) is horizontal (*i.e.*, stack height above roof is "N/A" in Table 2.1). Can the consultant verify this? If the vent does exhaust horizontally, how was this accounted for in the modelling? In Appendix C, the model input shows a gas exit velocity of 15.14 m/s. The model would interpret this as a vertical velocity and consequently would use this to calculate the momentum buoyancy of the plume.

c. 4.1 Air Dispersion Modelling

> The maximum concentration for total chromium (0.00023 $\mu g/m^3$) is the same on Tables 4.1, 4.2, and 4.3 for the 1-hour, 24-hour and annual averaging periods and is the same as the maximum deposition rate given in 4.2 Deposition Modelling - Total Chromium (0.00023 g/m^2). Similarly in Appendix D, the isopleths for total chromium are the same for the three averaging periods. Is this actually deposition rather than concentration? If this is the case, it should be noted in the table that the units are "g/m^3" rather than "$\mu g/m^3$". In any case, one would not expect deposition or concentration to be the same for the three averaging periods.

> Background levels were not considered in the analysis; these would particularly apply for PM and nitrogen oxides (NO_x) for which Brandon data are available.

> Table 4.2: Particulate matter produced by combustion of hydrogen or natural gas is most likely to be in the $PM_{2.5}$ size fraction rather than in the total particulate size fraction for which the criterion of 120 $\mu g/m^3$ would apply. A more appropriate 24-hour criterion for PM would then be the Canada-wide Standard (CWS) for $PM_{2.5}$ of 30 $\mu g/m^3$. The maximum concentration of particulate matter (7.42 $\mu g/m^3$), added to the maximum $PM_{2.5}$ background level measured in Brandon in 2001 (17.9$\mu g/m^3$), would be 25 $\mu g/m^3$ which is still less than the $PM_{2.5}$ CWS.

> Table 4.2: The Ontario 24-hour POI criterion for chlorine is 10 µg/m^3 rather than 150 µg/m^3 and for hydrogen chloride is 20 µg/m^3 rather than 40 µg/m^3. These corrections do not alter the conclusion that the maximum concentrations of chlorine and hydrogen chloride do not exceed their respective criterion.

d. 4.2 Deposition Modelling - Total Chromium: The consultant should verify the maximum annual deposition rate of 0.00023 g/m^2 given the discrepancy noted above in question 2c.

e. Appendix B: It would have been useful if the location of the Nexen facility had been marked on the topographic map.

f. Appendix C: In the "Source Pathway-Source Inputs" printout, the gas exit velocity for the vents is given as "0.00 m/s". Was the value input in the model actually "0.00 m/s" or was the program just unable to print out more than 2 decimal places and the value was "0.001 m/s" or some other low velocity to account for the low gas flows from the vents?

3. Updated Dispersion Modelling of Existing and Proposed Phase VI Point Source Greenhouse Gas Emissions, Nexen's Brandon Sodium Chlorate Plant Dillon Consulting June 2003.

The concern with greenhouse gases relates more to the facility's contribution to the global pool and its contribution to helping Canada to meet its obligations under the Kyoto Protocol rather than to local air quality impacts. The low toxicity of carbon dioxide and methane are reflected in the lack of air quality criteria for these pollutants. Of more interest is the facility's emission inventory of greenhouse gases and how the emissions have changed over time as summarized in the covering document "Notice of Alteration Submission".

Disposition
The comments were referred to the proponent for response. The proponent responded on August 22, 2003 to the satisfaction of the TAC member.

MB Health commented that:
- The environmental control systems and monitoring requirements as per Sections 6.0 – 8.0 of the Executive Summary are crucial elements of responsible care. Manitoba Conservation needs to be consulted regarding the frequency of monitoring and chemical parameters to be included for groundwater, soil, air and leachate collection systems.
- Monitoring results should comply with CCME guidelines.

Disposition
The comments were referred to the proponent for their information.

Industry Trade and Mines commented that the Petroleum Branch has no concerns with Nexen's expansion proposal nor the current and proposed disposal options respecting the deep well reject water injection system that is licenced by a Salt Water Disposal Permit No. 153 B.

Manitoba Agriculture and Food commented that they identified no concerns with the Proposal.

Canadian Environmental Assessment Agency (CEAA) commented that they were advised that Fisheries and Oceans (DFO) require additional information on the project prior to determining whether an environmental assessment under the Canadian Environmental Protection Act would be required for the project. Their concerns are summarized as:

- The basis of design for the 450 m^3 water retention pond is unclear (50 year flood, 1 in a 100 year flood?).
- What measures will be taken if the retention facility is overwhelmed?
- the distance between Nexen's plant and the Assiniboine River is not discernable.
- A figure should be provided illustrating: the direction of run-off; the location of intercept channels; and the size of the retention pond.
- Details of mitigative measures for sediment and erosion control (for during and post construction) should be provided prior to construction.
- The referenced stockpile of salt on the property is not identified on a map and it is not explained hoe the salt pile will be kept contained.
- The proposal states that sodium dichromate will be disposed of in a secure landfill, but does not state whether this material will be stored on site, and if so how it will be secured.
- The depth and permeability of the deep injection well is not identified.
- The locations of the cited control berms, trenches, sumps and retention ponds need to be illustrated.
- It is unclear whether any water from the Taft II sulfate removal system is discharged to the deep injection well.
- It is unclear if the filtrate from the Taft II sulfate removal system will be discharged within the interior 6-inch curb with lined trench and sump system.
- What are the "hot wells" referred to in Appendix A, Sheet 5 of 10?
- Does the reference to the Brandon header mean a freshwater supply from the City of Brandon?
- It is unclear what the predominant recharge source is for the Brandon Channel Aquifer from which Nexen obtains its water supply.
- If the Assiniboine River is the predominant source of recharge, what are the impacts of high and normal pumping rates on the water level and water flow in the Assiniboine River?
- What impact will a withdrawal of 1140 dm^3 per year from the Brandon Channel Aquifer have on the Assiniboine River Instream Flow Needs?

Disposition

The comments were referred to the proponent for their information and response. As of this date, this matter is still ongoing between Nexen and DFO.

PUBLIC HEARING:

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

RECOMMENDATION:

A draft Environment Act Licence 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 the Licence be transferred to the Western Region for administration, surveillance and enforcement purposes.

PREPARED BY:

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