P197

One concern of the plant is pollution to ground water. Your branch conducted an environment impact assessment which states that there is a potential threat to ground water. This could result from spilled or leaked contaminants from the site which could potentially pollute local wells. The assessment lists several potential sources for these spills and leaks such as; fuel and chemical delivery vehicles, storage tanks, meat and bone meal storage silos, oil tanks, truck wash area, as well as wastewater infrastructure including the equalization basin, liquid blood storage tanks, chemical storage room, holding pens and finally the manure and bedding material storage areas. The assessment further states that in the "worst case scenario", it would take approximately sixty years for the groundwater to become contaminated. With so many potential sources for spills and leaks, it creates major concern considering that the provincial government estimates that there is over 20, 000 wells which tap into the ground water throughout southeastern and central Manitoba. The risk of a potential spill or leak affecting the ground water,(possibly as soon as sixty years from now) is a risk that we cannot afford to take. Potable water is one of our most valuable and non-renewable resources therefore even a minute risk to this valuable resource should be considered in the highest regard.

Please refer to Responses C4.1, C8.1, and T14. Further OlyWest will develop a groundwater monitoring program through consultation with Manitoba Conservation. The program will consist of the installation of monitoring wells on-site and routine monitoring events. It is likely that the monitoring wells will be installed prior to construction of the OlyWest facility and groundwater monitoring and sampling will be undertaken to determine the existing groundwater conditions prior to construction.

P198

People may argue that the risk of a spill or leak occurring is indeed very minute and will probably never happen. In 2000 however, there was a four million litre manure spill near Morden. Word of this spill only leaked out three years later in 2003. This shows the willingness of the hog industry to attempt to cover up some of their leaks and spills. Furthermore, there was another four million litres of pig manure which escaped from a break in a steel manure storage tank and contaminated nearby wells near MacGregor in July of 2002. These examples prove that spills and leaks do occasionally happen and reiterates why we cannot allow the hog processing plant to threaten the quality of our ground water. A similar leak or spill from a much larger storage tank at the proposed facility would have drastic environmental effects.

There will not be a manure storage tank on-site as the solids are separated from the liquids and the solids are stored in a storage bin. The liquid is then sent to the on-site wastewater pre-treatment facility and subsequently to the City of Winnipeg North End Water Pollution Control Centre for final treatment via an interceptor sewer. Groundwater monitoring will also be utilized to monitor for any potential contamination.

P199

The proposed plant also threatens to negatively impact surface water. The nearest free flowing water system is the Seine river which is located only four kilometers from the plant site and flows into the Red River. The Environmental Impact Assessment shows how the surface water can be impacted by the hog plant. This could include flooding and the harmful alteration, disruption or destruction of the surrounding aquatic habitat from polluted site runoff, accidental spills and leaks as well as construction waste disposal and combined sewer overflow. Concerns are magnified when the topography of the surrounding area is considered from the assessment. There is a general slope that runs from the hog processing plant down towards the Seine and Red Rivers.

As is discussed in Section 2.7 on page 2-9, the proposed site is not in a designated floodway or floodway fringe, and therefore the risk of flooding is not significant. As indicated in Section 6.3.3.4 on page 6-14, the risk of combined sewer overflows resulting from the proposed facilities are eliminated as the effluent will be directed via an interceptor sewer and will not connect to any combined sewers in the City until reaching the North End Water Pollution Control Centre.

As discussed in Section 2.2 on page 2-2, the site topography is gently sloping. Further to the current slope, the site will be re-graded to cause surface runoff to be collected in a retention pond to be located to the east of the site. For further information on surface water and site drainage please refer to Responses P93, P102, and P166.

P200

Hog manure also has a very high concentration of EDCs,(endocrine disrupting chemicals) which includes estrogen. These chemicals can disrupt the hormonal activities in fish by mimicking normal hormones, blocking or interfering with normal hormones or by triggering hormonal activity. This can cause problems in with our eco system by affecting the reproductive and growth cycles in fish as well as wildlife. The assessment concluded that the effects of EDCs would be negligible but their claim should not be taken into consideration. This is because further in the assessment, they state that there is a lack of understanding with respect to the pathways of EDCs into the environment. The assessment even says how Environment Canada states that "EDCs are a complex problem requiring further study". The Canadian Council of Ministers of the Environment also identifies the "need to reduce the large uncertainty associated with scientific assessments" of EDCs. Furthermore, the United states Environmental Protection Agency states that there are no current standards or conventional screening methods for the detection of EDCs in the assessment. With all this being said, it is clear that assessments conclusion that the effect of EDCs will be negligible cannot be taken seriously.

The leading medical concern involved with large scale hog processing plants is antibiotic resistant bacteria. Pigs are routinely given feed with antibiotics in it to prevent bacteria. However, regularly feeding confined animals this type of feed leads to antibiotic resistant bacteria that can be transmitted to humans through food, water and even airborne dust. In 1999 in Malaysia, their large scale hog production plants were struck with a new found virus called "Nipah". This led to Encephalitis breaking out among the workers of the hog industry. There were over one hundred fatalities due to this outbreak. In January of this year, the largest public health organization in the world ,(the American Public Health Association) joined the Canadian Medical Association and other medical bodies in calling for a moratorium on large scale hog productions citing a number of serious social, environmental and medical concerns. Quebec, North Carolina, Iowa, Taiwan and the Netherlands also have a moratorium on new or expanding hog plants. Robert Lawrence M.D., the director of the center for a livable future at Johns Hopkins Bloomberg School of Public Health can be quoted as saying "Factory farms make their workers sick, pollute the environment and pose serious public health risks to people living nearby. The system needs a major overhaul, if not elimination." This health risk cannot be overlooked as there is over 350, 000 people living within a ten kilometer radius of the proposed plant.

It appears that this question is confusing hog processing with hog production. The OlyWest plant will be a hog processing facility, not a hog rearing operation.

In Section 6.3.3.4 of our report, we discuss EDCs, and feel that we have dealt with the subject fairly and are confident that effects from the OlyWest project will be insignificant. Please refer to Response T10.

Attachments

Project: 91511 Olywest EA

dBA = dBo - 20 log(di/do)

dBo = known sound level
do = distance from source where known sound level is recorded
d = distance from source to point of interest
dBA = soind level at distance d

		dBo	do (ft)	do (m)	d (ft)	d (m)	dBA
1 Blower							
	control	76	25	7.6	25	7.6	76.0
		76	25	7.6	50	15.2	70.0
2 Blowers		79	25	7.6	25	7.6	79.0

		dBo	do (ft)	do (m)	d (ft)	d (m)	dBA
1 Evap. Conditioner							
	control	100	5	1.5	5	1.5	100.0
		100	5	1.5	50	15.2	80.0
		100	5	1.5	25	7.6	86.0
2 Evap. Conditioners		103	5	1.5	5	1.5	103.0
		103	5	1.5	25	7.6	89.0

Total @ 25 ft (2 Blowers + 2 Evap. Conditioners)

2 Evap. Cond.:	89.0 dBA
2 Blowers:	79.0 dBA
difference in sound levels:	10.0 dBA
Adjustment Factor from Graph:	0.5 dBA
Total dBA:	89.5 dBA

Total (2 Blowers + 2 Evap. Conditioners)

	dBo	do (ft)	do (m)	di (ft)	di (m)	dBA
control	89.5	25	7.6	25	7.6	89.5
	89.5	25	7.6	33	10.0	87.1
	89.5	25	7.6	328	100.0	67.1
	89.5	25	7.6	656	200.0	61.1
	89.5	25	7.6	984	300.0	57.6
	89.5	25	7.6	1312	400.0	55.1
	89.5	25	7.6	1640	500.0	53.2
	89.5	25	7.6	1969	600.0	51.6
	89.5	25	7.6	2297	700.0	50.2
	89.5	25	7.6	2625	800.0	49.1
	89.5	25	7.6	2953	900.0	48.1
	89.5	25	7.6	3281	1000.0	47.1
	89.5	25	7.6	3609	1100.0	46.3
	89.5	25	7.6	3937	1200.0	45.6
	89.5	25	7.6	4265	1300.0	44.9
	89.5	25	7.6	4593	1400.0	44.2
	89.5	25	7.6	4921	1500.0	43.6

TOTAL

B.A.C. Evaporative Condenser Selection Program

Release 7.0
Product data correct as of March 25, 2003.
For additional information visit www.BaltimoreAircoil.com.

Project Name: Olymel **Date:** July 24, 2006

Sound Data Inputs

Product Line: Series VC2
Model: VC2-1252
Fan Motor: Standard
Standard Total Fan Motor Power per Unit: 80
Total Pump Motor Power per Unit: 10
Number of Units: 1

Sound Data, per Unit

Sound Pressure Levels (dB)*

Octave Band	Ctr Freq (Hz)	Top 5 Ft	Top 50 Ft	End 5 Ft	End 50 Ft	Air Inlet 5 Ft	Air Inlet 50 Ft	End 5 Ft	End 50 Ft	Back 5 Ft	Back 50 Ft	Sound Power Levels (PWL)'
1	63	87	75	87	77	91	83	87	77	84	75	111
2	125	87	74	77	70	90	79	77	70	81	69	106
3	250	90	77	80	68	97	82	80	68	77	68	109
4	500	79	76	77	66	99	82	77	66	72	69	108
5	1000	85	72	76	61	95	81	76	61	71	61	107
6	2000	79	67	73	57	89	75	73	57	64	56	101
7	4000	75	61	67	50	85	71	67	50	74	50	97
8	8000	73	57	69	42	80	64	69	42	53	42	90
	dBA	88	77	81	67	100	85	81	67	76	68	

*dB re 0.0002 microbar
'dB re 10E-12 Watt

Sound data is for one standard, single-cell unit and does not indicate effects of nonstandard motors, multiple-cell units, or sound-attenuating accessories. Please contact your local B.A.C. sales representative for such ratings.

SCP CONTROL, INC.
Environmental Controls and Services
7791 Elm St. N.E. • P.O. Box 32022 • Minneapolis, MN 55432
763/572-8042 • Fax: 763/572-8066 • E-mail: info@scpcontrol.com

July 29, 2006 SCP File No. 1676

Ms. Alison Weiss
Earth Tech
Winnipeg, Manitoba

Subject: Noise Level from Proposed Odor Control System Blowers Located Outside of Proposed Olymel s.e.c./l.p. Rendering Facility

Dear Ms. Weiss:

Your request for the Noise Level data has been reviewed. The response to this review has been delayed pending the approval of the odor control system design which has now been achieved and is as presented per e-mail to your attention on July 28, 2006.

Per the defined design there will be two 85,000 cfm blowers located on the roof of the rendering facility. SCP's standard blower specifications for this application and capacity are a blower, which will develop 5.5 inches of water and require a 125 Hp motor. The blower rpm will operate at 850 rpm and be of the design supplied by the Phelps Company. The blower will have a backward inclined impeller and be a designated as Model C-600.

The sound data for the model C-600 is given within the Phelps catalog[1] as follows:

Octave	db base value	db plus 30 to correct for Specific blower rpm	corrected Db minus 29 to provide for 25 feet removed from noise source
1	86	116	87
2	75	105	76
3	76	106	77
4	71	101	72
5	69	99	70
6	68	98	69

7	63	93	64
8	63	93	64
dbA	75	105	76

1-Phelps Fan Backward Inclined Fans, Catalogue #2-9-92, Phelps Fan Manufacturing Company, Inc., P.O. 9640, Little Rock, Arkansas 72219, Tel 501-568-5550.

e-mail contact supplied by: Carl M. Peterson, SCP Control, Inc., Minneapolis, Minnesota 55432, Tel 763-572-8042, e-mail carl@scpcontrol.com

Respectively Submitted,

Carl M. Peterson, PhD

CAC Meeting #5 Minutes

EarthTech
A tyco International Ltd. Company

MINUTES OF MEETING NO. 5

PROJECT NAME:	OlyWest EA	PAGE:	1 of 7
LOCATION:	Earth Tech Waverley Office	DATE:	August 24, 2006
DATE OF MEETING:	August 9, 2006	PROJECT NO.:	91511-10
		CONTRACT NO.:	

PRESENT:	Stephen Biswanger	- Earth Tech (Canada) Inc.
	John Donetz	- Earth Tech (Canada) Inc.
	Alison Weiss	- Earth Tech (Canada) Inc.
	Sheldon McLeod	- SLMcLeod Consulting
	Guy Baudry	- OlyWest
	Winnipeg Chamber of Commerce-Representative	
	Local Church Representative	
	Southland Park Representative	
	Plessis Road Resident	
	St. Boniface Industrial Park-Business Owner	

PURPOSE:	Community Advisory Committee (CAC) Meeting #5
DISTRIBUTION TO ALL ABOVE AND:	OlyWest Licensing Committee, Myron Paryniuk, EA Website, Darryl Reid, Bidhu Jha
WRITTEN BY:	Alison Weiss

ITEM	DESCRIPTION	ACTION BY
1.0	**APPROVAL OF AGENDA AND RECORD OF MEETING FOUR**	
1.1	The members in attendance at CAC Meeting #4 approved the minutes from this meeting and agreed that they could be placed in the OlyWest EA website. It was agreed that the minutes from the CAC Meeting #5 will be circulated by email and that approval could be given by email.	
1.2	Sheldon McLeod reviewed the meeting agenda and it was agreed that the meeting could proceed according to the agenda.	
1.3	Sheldon McLeod indicated that at CAC Meeting #4 it was agreed that the CAC members would meet again after the CAC Meeting #5 to provide a summary of comments and recommendations that would be submitted from the CAC to Earth Tech and OlyWest.	
2.0	**ENVIRONMENTAL APPROVAL PROCESS UPDATE**	
2.1	John Donetz indicated that the second OlyWest Open House will be held on August 16, 2006 at the Oxford Heights Community Club – the same location as the first Open House.	
2.2	John Donetz indicated that Earth Tech is currently finalizing their Environmental Assessment report and that it will be submitted to Manitoba Conservation in August. The report will be available for public review after being submitted. It was agreed between Earth Tech and OlyWest that the CAC should be presented with the findings of the Environmental Assessment prior to submission and prior to the public based on the discussions from the previous CAC meeting.	
2.3	The government will appoint a Technical Advisory Committee (TAC) to review the Environmental Assessment report and their comments will be posted on the public registry.	

ITEM	DESCRIPTION	ACTION BY
2.4	A member of the CAC asked once the report has been submitted to the government does it get placed on the public registry right away? John Donetz indicated that it is up to the government, they may review it internally first and request more information and there may be a delay before the government releases the report to the public, however this is entirely up to the government.	
3.0	**SUMMARY OF EA CONCLUSIONS AND SUPPORTING INFORMATION FOR ODOUR**	
3.1	Stephen Biswanger reviewed the odour modeling results. Mr. Biswanger indicated that odour samples were collected from representative hog trucks and from a representative holding facility and manure storage area. Odour samples were also collected from a representative wastewater pre-treatment facility. Initially the air from the wastewater pre-treatment facility was going to be treated in a carbon filter, however potential problems with high humidity levels resulted in the air being treated in the multi-stage scrubbing system. The manufacturer of the odour scrubbing system supplied guaranteed odour emission data for the multi-stage scrubbing system. The odour emission data for the trucks, holding facility, manure storage and scrubbing system were used in a model to predict potential odour impacts. The results of the model were compared to Manitoba Conservation's guidelines for odour. Manitoba Conservation's guidelines are used only during modeling to provide a general indication of whether or not a development can be anticipated to cause odour nuisances. There are different guidelines for residential and industrial land use. Based on the modeling, both the industrial and residential guidelines are satisfied. Manitoba Conservation will use an odour nuisance clause for the development, which is based on complaints not on measured numbers, to enforce the license.	
3.2	A member of the CAC asked why the air from the singer is not controlled. Mr. Biswanger indicated that the singer is not a major emission point as the air is very hot when it is exhausted and that there is minimal odour based on experience at other plants. Also due to the exhaust temperature, there are few methods of practically controlling the odour from the singer.	
3.3	A member of the CAC asked if all of the plant air would be scrubbed. Mr. Biswanger indicated that the air from the "clean" areas of the plant will not be scrubbed.	
3.3	A member of the CAC asked what the averaging period was for Manitoba Conservation's odour guidelines. Mr. Biswanger indicated that the averaging period was 3 minutes.	
3.4	Stephen Biswanger indicated that Earth Tech has collected odour samples from various locations around the City including the North End Water Pollution Control Centre and at the site. At the North End Plant the odour was at about 30 OU and at the site was at about 20 OU. An attempt was made to collect samples at a local church; however the weather conditions were not right. (Post meeting note, the odour scale for comparison to model results and provincial criteria require a conversion that would translate the above quoted information to a level of 5 OU).	
3.5	Earth Tech has used these numbers as a comparison to put the modeling results into perspective. A member of the CAC indicated that the plant odour should be compared to that of a hog barn to put the odour numbers into perspective.	

ITEM	DESCRIPTION	ACTION BY
3.6	John Donetz indicated that Manitoba Conservation's odour guidelines are not the same as regulations. Regulations are enforceable numbers that someone can measure, and if you are above the regulation number, there will likely be a detrimental effect to society. Guidelines are objectives that if they are met, no adverse effects are anticipated. The modeling indicates that the guidelines are met and as such complaints regarding odour are not generally anticipated.	
3.7	A member of the CAC indicated that for people to understand the impacts of the facility, the odour results need to be compared to something people know and understand. The member of the CAC also indicated that he wanted to know what to expect on a daily basis. Mr. Biswanger indicated that the model is based on a 'worst case scenario' and as such, on a daily basis, there will likely be no significant odours. The CAC member indicated that the Quebec government should be contacted to determine if there have been any odour complaints at existing Olymel plants and this can be used to convince people on the odour issue.	
3.8	A member of the CAC indicated he had visited the Valley Jonction plant and that they had spoken to the Mayor. The Mayor indicated that there were no complaints due to odour for the facility. The member also indicated that the Valley Jonction plant was located in a residential area whereas OlyWest will be located in an industrial area.	
3.9	A member of the CAC asked if it was possible for the odour plume to rise up and come down at a distance from the plant creating a situation for example where there would be no odour within 2 km but possibly having odour at 4 km from the facility. Stephen Biswanger indicated that the effect was possible and that the model accounts for this. As such a 5 km radius around the plant was modeled to make sure plume 'drops' are caught.	
3.10	Stephen Biswanger indicated that all assumptions and the model itself are very conservative. This model is similar to what was used during the Simplot Environmental Assessment. Further, the modeling was conducted in accordance with Manitoba Conservation's draft dispersion modeling protocol. The odour modeling has also been reviewed by a University of Manitoba professor as well as others Air Quality specialists in Earth Tech.	
3.11	A member of the CAC asked what happens if there was a backlog of trucks? Guy Baudry indicated that as OlyWest is a partnership with producers, delivery scheduling can be tightly controlled. Also the routing of the trucks will be strictly enforced. From a business perspective it is also more economical for the trucks carrying live hogs to travel on the perimeter as opposed to Lagimodiere Boulevard to reduce fuel costs.	
3.10	Guy Baudry indicated that as odour has been a very important issue, Earth Tech should share the information presented today with the three missing members of the CAC in the form of an alternative meeting. (Post meeting note, the meeting 5 presentation was made to one of the absent CAC members on August 11, 2006)	

ITEM	DESCRIPTION	ACTION BY
4.0	**CHANGES TO OLYWEST DESIGN**	
4.1	Stephen Biswanger reviewed the new option for traffic, which is a proposed private road which will enter the site from the south from Plessis Road. This road option is the preferred option for OlyWest; however it is still in the negotiation and design process. The private road option would be for inbound hog trucks and would keep the trucks further away from the residents on Plessis Road. Due to the turning radius, the private road option, as currently envisaged, would also prevent trucks from coming south down Plessis Road to access the site, as only a truck coming north on Plessis Road would be able to complete the turn. A member of the CAC asked Guy Baudry how long it would be until it was known if the road could be approved. Mr. Baudry indicated that it would take approximately 60-90 days to bring the private road option to a close.	
4.2	Stephen Biswanger indicated the changes to the facility. These included a reduced holding facility capacity due to a review by Dr. Temple Grandin and subsequent reconfiguration. The new holding facility capacity is 2,780 hogs (formerly 3,000 hogs).	
4.3	The exhaust air from the wastewater pre-treatment will be treated in the protein recycling facility multi-stage scrubbing system as indicated previously.	
4.4	The screened material from the onsite truck wash will be combined with the truck bedding and manure solids from the holding facility. The bedding material, truck wash screenings and solid manure will be transported offsite on a regular basis and will be land applied to agricultural land according to existing regulations (*Manitoba Livestock Manure and Mortalities Management Regulation)*. The contingency plan would be to dispose of this material at a licensed landfill with an option for composting in the future.	
4.5	Previously it was indicated that the manure from the intestines would be combined with the manure in the receiving bin. Now, the large intestine (containing manure) will be sent to the protein recycling facility for processing and the contents of the small intestine (partially digested food) will be sent to the onsite wastewater pre-treatment facility.	
4.6	The hog unloading bays will be equipped with drains that will be connected to the sanitary sewer system to prevent any manure or bedding materials from entering into the onsite retention pond. A member of the CAC indicated that these drains should be heated to prevent slush from freezing and clogging the drains.	
4.7	OlyWest will pre-treat their wastewater onsite and will send their wastewater to the North End Water Pollution Control Centre for final treatment. It is estimated that OlyWest will generate 410 kg/day of nitrogen in their wastewater when plant is operating at full production capacity. Nearly all of the phosphorus will be removed from the wastewater during pre-treatment, the remaining loads at the North End plant are projected to be insignificant. The City of Winnipeg will increase the nitrogen removal capacity of the soon-to-be-constructed centrate treatment system to compensate for the additional load from OlyWest. The centrate treatment system will be completed in 2007-2008. OlyWest will begin to generate wastewater in 2009. As a result there will be no net effect due to OlyWest in the Red River or Lake Winnipeg.	
4.8	A member of the CAC indicated that he had received a call from a citizen that was concerned that the plant would draw water directly from the aqueduct. Stephen Biswanger indicated that the plant would receive water from the existing City of Winnipeg water distribution network and would not draw water directly from the aqueduct and that this point would be emphasized during the upcoming Open House.	

ITEM	DESCRIPTION	ACTION BY
5.0	**REMAINING EA FINDINGS**	
5.1	John Donetz indicated that during the construction phase of the project 92 items were examined and that during operation 178 items were examined. Areas that were investigated included air (odour, noise, particulates etc.), water (ground and surface water), nearby land use (zoning), natural resource use (wildlife viewing) etc. A series of tables were completed which included the magnitude of impact, duration and direction.	
5.2	During construction, the residual impacts include traffic in the industrial park and noise from pile driving. The noise from the pile driving assumes that the piles will be driven, however they may be poured in place which would mitigate the noise impact. All of the assessment has considered the worst case scenario for impacts.	
5.3	During operation, there are no residual impacts that are higher than a low impact. The traffic in the industrial park will increase by 1%. The issues that could potentially create significant impacts have been mitigated through engineering of the plant. An example of this is wastewater. Wastewater could have been a significant impact to the rivers and lakes, however as pretreatment will be conducted and the City will be adding final treatment, the impact is negligible. Mr. Donetz indicated that OlyWest is a Class 1 development because the technology is available to mitigate the impacts.	
5.4	A member of the CAC indicated that as we move forward, the plant design is becoming more concrete. The environmental approval process has committed OlyWest to building what they have told us. John Donetz indicated that some minor changes in the design may take place, however if there are substantial changes, the proponent would have to apply for a license alteration through a formal process with Manitoba Conservation.	
6.0	**NEXT STEPS**	
6.1	Sheldon McLeod asked Earth Tech and OlyWest if they had anymore questions for the CAC. John Donetz asked the CAC if they found the process a useful exercise. A member of the CAC indicated that as a result of the CAC, there have been changes to the design etc. As a result of these changes the CAC member indicated that he feels good about the process. A second member of the CAC indicated that he enjoyed the experience and that he hoped that the CAC would stay together once the construction and operation stage of the project began, which would allow the CAC to give updates to the community. Mr. McLeod indicated that this recommendation could be made formally to OlyWest in the CAC recommendation report.	
6.2	A member of the CAC indicated that it was a good process as there were people on both sides of the issues. Also the meetings allowed the CAC members to make decisions based on science not only on rumors.	
6.3	A member of the CAC asked if it was common in industry for the company designing the building to also conduct the Environmental Assessment. Stephen Biswanger indicated that Earth Tech has completed several projects like this. The CAC member indicated that initially he saw this as a conflict of interest, now he sees it as the opposite. Mr. Biswanger indicated that as it is the same company, there is a lot more information exchange and it can take away a lot of communication barriers. Guy Baudry indicated that for OlyWest, Olymel brings a lot of the design from their experience in industry and that Earth Tech did not design this facility from scratch. Mr. Baudry also indicated that having Earth Tech design the building and conduct the Environmental Assessment has increased the efficiency of the process.	

ITEM	DESCRIPTION	ACTION BY
6.4	Guy Baudry indicated that as of November 2005, there have been several revisions and changes to the proposed facility. An example is the enhanced air scrubbing system. OlyWest is committed to not causing odour nuisances. This enhancement has cost OlyWest more money. Also the plant size has increased from 300,000 ft^2 to 382,000 ft^2. This also translates to more money to 'get it right'.	
6.5	A member of the CAC asked Guy Baudry if he had to do it all over again what would he have done differently. Mr. Baudry indicated during site selection, the political climate was not really considered. Mr. Baudry indicated he would have been more proactive with the businesses in the Industrial Park as he did not anticipate the reaction he got from them. Also Mr. Baudry indicated that by establishing these relationships he would be able to differentiate with them perceptions as opposed to facts.	
6.6	Stephen Biswanger indicated that the second Open House will be held on August 16, 2006 at Oxford Heights Community Club from 12 p.m. to 9 p.m. The CAC member from the local church indicated that his members may not be able to attend on this date. Guy Baudry indicated that there was a possibility that Earth Tech could host something for the local church. The church representative indicated that he would contact Earth Tech regarding this event. A member of the CAC indicated that at the CAC Meeting #4, several CAC members had recommended that the Open House be advertised at least two weeks in advance as the Open House will be held during the summer months when a lot of people are away on vacation. The CAC member indicated that he did not anticipate a large attendance at the Open House #2 due to the amount of notice given and the fact that it will be held during summer time.	
6.7	Sheldon McLeod indicated that at the July CAC meeting, it was agreed that the CAC would get together to come up with formal recommendations to OlyWest and Earth Tech. It was agreed that this meeting would occur at the St. Boniface Industrial Park Business Owner's facility and would take place during the last week of August between 7 and 9 p.m. The date of this meeting will be confirmed with the CAC members by email. Earth Tech and OlyWest will not attend this meeting and the minutes will be written by Sheldon McLeod.	
	These minutes are in the writer's best interpretation of discussions held during the meeting. Please inform the writer of any noteworthy omissions or errors. _____ Alison Weiss, E.I.T. AW:snb	

CAC Meeting #6 Report

25 October 2006

To: **Mr. Stephen Biswanger**
Earth Tech

Mr. Guy Baudry
Hytek

Fr: **Sheldon McLeod**
Community Advisory Committee (CAC) Facilitator

Re: **Report of the CAC**

Please find attached the report of the CAC arising from their examination of the Olywest proposal for a hog processing facility in the St. Boniface Industrial Park and its related environmental and community impacts.

The Committee understands that this document will be made public and, at a minimum, be placed on the environmental assessment website. As media may well have questions about the report, two members of the Committee have volunteered to be spokespeople for the CAC. These are Glenn Clark, from the perspective of the residential communities in the area, and Mr. Craig McIntosh, from the business perspective. Of course, any member may speak about their own perspectives on the report, but the two selected individuals are prepared to characterize the broader Committee views.

The Committee is appreciative of the opportunity to be engaged in this process and would note that an ongoing role for such a committee through the construction and operating phases, should the proposal progress through those stages, is seen as being of benefit to the community and to the proponent and the relationship between the two.

The CAC would be happy to meet with Earth Tech and Olywest to discuss the report or any future ongoing role for the Committee at a mutually convenient time.

On a more personal note, I want to express my thanks to the CAC members. They had a variety of perspectives but each worked quite hard to ensure that all interests could be respected and included in this report. They brought a very collaborative attitude to the table.

c: Community Advisory Committee Members

COMMUNITY ADVISORY COMMITTEE
Report to the Community, to Earth Tech and to Olywest
October 2006

Background:

The Community Advisory Committee (CAC) was established in the spring of 2006 to:

- Provide advice on substantive issues related to environmental and community concerns of the Olywest proposal to build a hog processing facility in the St. Boniface industrial Park
- Provide advice on the public engagement process as part of the environmental assessment.
- Share project information with the community and to identify community perspectives on the proposed project.

It is comprised of representatives as follows:

- A resident of Plessis Road – John Couture
- A resident of Mission Gardens – Ken Medgyes
- A resident of Windsor Park – Bob La Fleche
- A business owner in the St. Boniface Industrial Park – Craig McIntosh
- A representative of a local area church
- A representative of the Southland Park Residents' Association – Glenn Clark
- A second representative of Southland Park
- A representative of the Winnipeg Chamber of Commerce – Chuck Davidson

The group was professionally facilitated. Earth Tech participated in all but one meeting informing the CAC about the way in which the environmental concerns were being addressed and listening to the concerns raised by the community representatives. A representative of Olywest participated in one meeting. Six meetings were held in the period April through August 2006. The meetings focused largely on the issues anticipated to form a large part of the environmental assessment. Meeting proceedings may be found on the Web at http://www.olywesteia.com/en/cac_agenda_and_minutes.aspx.

The CAC decided to share its perspectives on the project and on the environmental and community concerns which have received much attention over the last few months. The following is a summary of those perspectives.

Initial Announcement and Engagement of Governments:

The initial announcement of the Olywest hog processing plant came as a surprise and shock to many residents in the area. Many questions were raised about why the announcements seemed so final and that there had been no opportunity for public engagement. The CAC did not have a lengthy discussion about this topic but would offer the following brief observations:

◊ The CAC understands that business requirements necessitate some elements of secrecy. However, it would have been preferable for the two orders of government involved to have at least shared the concept that was being discussed prior to engaging in the their negotiations.

◊ Following the announcement and the emergence of opposition, the province and the city hid behind the environmental approval process. Since they were partners in the negotiation, they should have been more visible and been clear about their stance on the project.

- ◊ In the summer of 2006, the City decided not to fund an additional upgrade to the Dugald Road sewer as had been originally intended. This was a decision which appears to be shortsighted and poor from the economics perspective. Overall, it appeared that there was little leadership shown by the civic and provincial governments.

Environmental and Community Concerns:

The primary reason for the formation of the CAC was to advise Earth Tech on their preparations for the environmental assessment. Thus the bulk of the discussion time in the CAC was spent on the following issues. Most concerns were on the agenda more than once. The first time, the CAC would declare their interest and specify their major concerns. Earth Tech would offer any answers they had, but for the most part, would take the questions back with them with the promise of answering them at a later meeting. The second time the concern would be on the agenda, the focus would be on Earth Tech's description of the concern and the proposed mechanism by which the Olywest facility would deal with the concern – what design or operational elements would lessen the concern.

Odour was seen as the top environmental and community issue.

- ◊ The CAC was disappointed that there seemed to be a reluctance to talk about odour up front. Many concerns could have been alleviated if more could have been said sooner.

- ◊ The CAC could have been provided with some experts to talk with earlier in the process. The lack of information led to uncertainty and anxiety. Appropriate experts could have provided information on standards or guidelines and performance parameters earlier.

- ◊ Throughout, it would have been helpful to link the odour discussions to experience that the members could understand and relate to. There were no benchmarks for good or poor performance provided to the members until quite late.

- ◊ The CAC members who received the Earth Tech information on odour modeling and control are comfortable with the work which has been done on that topic. While they recognize that the modeling carries some lack of precision with it, due in part to the fact that the measurements taken for model calibration were not always from plants which would be an exact parallel to the St. Boniface facility (i.e. the St. Boniface facility will include protein recycling), they believe that Earth Tech has made appropriate modifications to the odour control mechanisms and have staked their reputation on the results. The CAC is comforted by that.

Wastewater and other water-related issues were seen as the next most important environmental and community concern.

- ◊ The proposed level of on-site treatment of wastewater is good, especially the removal of phosphorus. The CAC was impressed with the level of information and analysis with respect to wastewater and its treatment including the information provided on the city treatment process.

- ◊ However, the CAC has some remaining anxiety related to possible odour releases from the lengthy sewer lines connecting the Olywest facility with the North End Water Pollution Control Centre and the ability of the city to achieve the level of nutrient removal promised.

- ◊ There was an initial and unfortunate impression that water supply was going to be drawn directly from the near-by aqueduct. This caused unnecessary concern about the integrity of Winnipeg's water supply. The CAC now understands and is happy with the knowledge that water will be provided through the normal city water system. There was some community concern about the potential contamination of Winnipeg's water supply due to the proximity of the planned facility to the aqueduct. The CAC believes that the aqueduct will be well protected by the following:
    - o No surface storage of contaminated water on site
    - o Separation requirements to protect the aqueduct from sewer and water supply lines which must cross under that structure

- ◊ Regarding groundwater, the CAC was provided with information on all registered well locations within a three-kilometre radius of the site, and on the types and thickness of soil and bedrock materials underlying the area. This information, plus the knowledge that there will be no surface storage of contaminated water on site, provided the CAC with comfort that the groundwater will not be endangered in any way.

Traffic was seen as another important community concern.

- ◊ Residents had concerns about additional traffic near their homes.

- ◊ The industrial park is not well designed for a heavy traffic increase.

- ◊ The proponent and Earth Tech did put proposals forward during the consultation period which assisted in alleviating this concern. The proposal to create a new and separate access to Plessis Rd. for the trucks carrying the hogs was important and should be implemented.

- ◊ There remains some concern about traffic onto and off of Dugald Road and also on Bournais Drive. This is non-animal-related traffic. It is product and employee traffic. Turning and acceleration lanes on Dugald Road are liable to be required.

Other issues were also raised by the Committee:

- o Noise was not discussed in detail by the CAC but is not anticipated to be a problem.

- o There was some initial concern about protein recycling (rendering) occurring on site. However, as the CAC deliberated, it became evident that it was preferable to have protein recycling on site rather than to have the additional environmental concerns that would come with it occurring at a different location.

- o The public and the business community have expressed interest and sometimes concern in respect of issues such as property values and other benefits and costs to individuals and businesses. These potential socio-economic effects, whether positive or negative, should have been more fully shared with the CAC. Much of this type of information could have been drawn from examining the impact of similar facilities in other locations.

Comments on Public Engagement:

One purpose of the CAC was to advise Earth Tech on public engagement with respect to the completion of the environmental assessment. In the early going, the CAC were not familiar enough with their role or the approvals process to provide much advice. In the latter stages,

the open houses were seen as doing an adequate job, even though the timing of them was not optimum.

- ◊ There should have been better communication from the governments and from the proponent. Specifically, the business community was not engaged either sufficiently or at the appropriate time.

- ◊ The role of the CAC took time to emerge. It was unclear where the CAC fit in the context of the project, the environmental assessment, the environmental approval process and public involvement, including the CEC hearings. The facilitator and Earth Tech could have made this clearer earlier in the process. In the end, the CAC believed they were there to help the consultants be prepared.

- ◊ The CAC consistently suggested that open houses should not be held with less than two weeks public notice and that summer was a poor time for public engagement. The second open house was held on one week's notice in mid-August.

- ◊ While Earth Tech may have had practical reasons for selecting the site they did for the open houses (Oxford Heights Community Centre), the location outside the area of most probable impact may have adversely affected attendance at the events.

- ◊ It was fortunate the CAC had a diversity of views represented by its members. It ensured the issues were raised and pursued until comfort was attained and not simply set aside as of little importance.

- ◊ The CAC is aware that it has had more fulsome information than most of the rest of the public. A significant challenge exists to provide this information more widely to help the inevitable debate be more informed and less emotionally-based.

Other Process Observations:

- ◊ Earth Tech conducted themselves professionally.

- ◊ The integration of the engineering and environmental assessment functions within the same firm actually seemed to aid the project and the responsiveness to the issues raised by the CAC and the environmental assessment.

- ◊ The process worked from the perspective that it allowed the CAC to influence final plans and designs. In addition, the Open Houses probably worked better than otherwise would have been the case had the CAC not been involved and taken the time to review and comment on the display materials developed for those events.

- ◊ There is a legitimate ongoing role for this group through the construction and operation phases.

CAC Operational Procedures

OPERATIONAL PROCEDURES
Community Advisory Committee – Olywest Proposal - 2006

Background to Committee

Olywest is proposing to build a hog processing plant in the St. Boniface Industrial Park. An environmental impact assessment process has begun and as part of the community consultation process this advisory committee has been developed.

Purposes of the Committee

The Committee is established to:

- Provide advice on the public engagement process
- Provide advice on substantive issues related to environmental concerns and Olywest's reaction to those concerns
- Share project information with the community; identify community perspectives on the proposed project

Membership of the Committee

Membership of the Committee (six to eight people) is drawn from:

- Local residents
  - Suggestions from councillors, MLAs
  - Geographic representation
  - Range of views on the proposal
- Chamber of Commerce
- Local businesses in industrial park
- Other interests
- Earth Tech and *SLMcLeod Consulting* (EIA and Facilitator)

The Committee may draw upon the following organizations as resource people for particular discussions. The Committee would decide on their involvement on a case-by-case basis:

- Regulators
- Other city or provincial government representatives
- Olywest representatives
- Other experts

Responsibilities

The following are the responsibilities of Earth Tech:

- To supply/solicit appropriate expertise to address issues with the group
- Provide venue and logistical support for meetings
- To listen fairly to all perspectives
- To report outcomes of meetings (both positive and negative – meeting record)
- To incorporate input into the environmental impact statement (EIS)
- To take the advice seriously and to explain to the Committee when the Committee recommendations cannot be followed

The following are the responsibilities of the members of the Committee:

- Members will represent and explain the interests, needs and concerns of the organization or interest they represent
- Members will seek to understand the interests, needs and concerns of the other members of the Committee
- Where applicable, members will maintain a strong connection with the organization they represent and ensure a timely exchange of information and opinions with their organization, such that the organization/interest group is well-informed of the activities and considerations of the Committee and the Committee is well-informed of the evolving needs and interests of the organization.

- Members will endeavour to identify recommendations which meet the needs of all members of the Committee.
- Members will attend all meetings of the Committee or will, when unable to attend, attempt to identify an alternate, and ensure that the substitute is fully prepared for the meeting.

The following are the responsibilities of the Facilitator:

- Assist Earth Tech with meeting organization and arrangements, the production and distribution of meeting materials. Meeting materials will normally be provided at least one week in advance of the meeting date.
- Work with Earth Tech to ensure notes are taken during the meetings and that a meeting record which meets the needs of the Committee is prepared and distributed in a timely way following each meeting. The Meeting Record will normally be prepared and distributed in draft form within one week following the meeting.
- To be impartial and to ensure operational procedures agreed to by the Committee are followed
- Aid members in clarifying their interests and issues

Committee Decision-making

The following describe the decision-making process for the Committee:

- The Committee will make decisions by consensus.
- Consensus will mean no significant dissent
  - This means every member can live with the result
  - This means every member effectively has a veto on consensus
- If consensus it achieved, it will not normally be revisited at subsequent meetings except when the Committee agrees
- If and when consensus cannot be achieved, the diverse views of committee members will be described and the reasons for those views explained in the meeting notes.

Other Operational Procedures

- Members will reveal the interests and needs of their organization early in any discussion to enable the inclusion of those needs in the formulation of recommendations, where applicable.
- Members will respect fellow members and their diverse views
- Members will listen when their fellow members are speaking
- Members will not attempt to dominate the discussion, recognizing that all members have an equal right to the floor
- Members have a dual accountability – to their organization (where that applies) and to their fellow members
- Members are free to represent their own views to the media but may not represent the views of the Committee or other members of the Committee in discussions with the media.
- The Committee may identify a spokesperson to represent the views of the Committee.

Sub-committees

- If the Committee identifies sub-committees, the sub-committees will work in accord with the same operational procedures as the Committee.

The Meeting Record

- The meeting record will be an elaborated record of conclusions, highlighting conclusions reached or recommendations made and the rationale for each, but not including exhaustive detail.
- Specific remarks will not normally be attributed to the spokesperson in the record unless requested by that person. This should lead to open and frank discussion.
- Records will identify areas of consensus by ensuring the statement of agreement is in **bold type**.
- Members shall be free to distribute a draft or approved record to the constituents/members of their organizations.
- Meeting Records are available to any who request them once approved.

Executive Policy Committee Report

Report – Executive Policy Committee – November 16, 2005

Item No. 3 Olywest Project: Economic Development Incentive Package
File FL-2.6

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On November 16, 2005, the Executive Policy Committee concurred in the administrative recommendation and submits the following to Council:

1. That the Chief Administrative Officer be directed to finalize terms and conditions of all agreements including all collateral and ancillary agreements, required to provide an economic incentive package in favor of Olywest Consortium to support development of a new state-of-the art pork slaughterhouse and processing facility pursuant to a proposal dated October 13, 2005 (Schedule "A") which agreements, in the opinion of the Chief Administrative Officer, will satisfy the intent of Council.

2. That those lands contemplated for sale as set out in Schedule "A" be declared surplus to the City's requirements.

3. That the source of the Economic Development Incentive Grant be the Economic Development Investment Reserve.

4. That the Proper Officers of the City be authorized to do all things necessary to implement the foregoing.

Report – Executive Policy Committee – November 16, 2005

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENATION:

On November 16, 2005, the Executive Policy Committee concurred in the administrative recommendation and submitted the matter to Council.

Further, on November 16, 2005, the Executive Policy Committee considered a submission from Glen Koroluk in opposition to the Olywest Project: Economic Development Incentive Package.

Re: OLYWEST PROJECT: PROPOSED ECONOMIC DEVELOPMENT INCENTIVE PACKAGE

For submission to: Executive Policy Committee

Original report signed by: Director of Planning, Property and Development

Report date: November 9, 2005

Recommendation(s):

1) That Council direct the CAO to finalize terms and conditions of all agreements including all collateral and ancillary agreements, required to provide an economic incentive package in favor of Olywest Consortium to support development of a new state- of- the-art pork slaughterhouse and processing facility pursuant to a proposal dated October 13, 2005 (attached as Schedule "A") which agreements, in the opinion of the CAO, will satisfy the intent of Council;

2) That Council declare surplus those lands contemplated for sale as set out in Schedule "A";

3) That the source of the Economic Development Incentive Grant be the Economic Development Investment Reserve;

4) That the Proper Officers of the City be authorized to do all things necessary to implement the foregoing.

REPORT SUMMARY

Key Issues:

- The City of Winnipeg and the Province of Manitoba have been in negotiation with a consortium of two significant pork producers and a processor that has proposed a new $132 million, 300,000 sq. ft. and state-of-the-art slaughterhouse and pork processing plant (Olywest) to be constructed in the eastern Prairies. The consortium were in similar negotiations with one other city in Western Canada
- The new Olywest facility would provide approximately 1,100 new jobs and will have an estimated positive economic impact to the City in excess of $ 1 million annually (including municipal taxes and spin-off benefits).
- The Olywest Facility meets the priorities set out in Plan Winnipeg as well as the Homegrown Economic Development Strategy (HEDS) by drawing from the local employment pool, supporting further employment in value added agribusiness enterprises, as well as enhancing Winnipeg’s export profile.

- The Administration has proposed an economic benefit package including land, grants, and a development and permit fee reduction estimated at a total value of $ 3.75 million in order to bring the Olywest facility to Winnipeg.

- Key provisions of the City package include;
  - 60 acres of non-serviced "raw" city-owned industrial land (estimated value $ 600,000)
  - an option for $1 on a further 40 acres of adjacent raw city-owned industrial land (estimated value $ 400,000)
  - an economic development incentive grant estimated at $ 2.4 million
  - a cap on development and building permit fees at a total of $ 1 million (estimated value $ 350,000).

- Additional funding for the Economic Development Investment Reserve Fund will be required to finance the $2.4 million in grants beginning in 2009.

- The Province of Manitoba has also provided an economic benefit package in support of this project that includes training funds, a Manitoba Industrial Opportunities (MIOP) Loan, as well as Infrastructure funding.

- The proposed site is an approximate 114 acre (46 ha) site within the St Boniface Industrial Park immediately east of (the future extension of) Mazenod Rd., south of the Aqueduct, west of Plessis Rd. and north of the CN Symington Rd. marshalling yards (refer to the attached site plan- note that the Parcel in question is referred to as the Proposed site bordered in yellow).

- A key provision of the project is for the City to establish a Local Improvement District (LID) that will see the City front-end the capital cost of an estimated $ 9 to 14 million in public infrastructure including, road, sewer, water, land drainage, signalization, and intersection improvements, to be repaid by benefiting property owners (and principally repaid by Olywest) over a 20 year period.

- The LID that will be largely paid for by the consortium through an annual LID tax, also provides services to an adjacent 119 acre city-owned M3 Industrial zoned site (parcel bordered in green on the attached site plan). City lands suitable for heavy industry are in short supply and this LID will enable the city to market this land for development in the short term. These adjacent city-owned lands are also capable of being rail served making them more attractive to market for both the City and CN Rail.

- Due in part to the Provincial licensing requirements for the facility which may require Public Hearings, the facility will likely break ground in the spring of 2007, with plant opening scheduled for January 2009.

- Key impacts as a result of the Project that will require mitigation include noxious odour and increased trucking to service the plant.

Implications of the Recommendation(s):

General implications:

	None
X	**For the organization overall and/or for other departments**
X	**For the community and/or organizations external to the City of Winnipeg**
X	**Involves a multi-year contract**

Comment(s):

- The Olywest consortium includes a Manitoba Pork Producer (Hytek), a Saskatchewan Pork Producer (Big Sky Farms), and a Quebec Processing Firm (Olymel).
- The proposed $ 2.4 M Economic Development Incentive Grant is to be disbursed over a 9 year period, while the Local Improvement District Taxes will be imposed on property owners in the LID over a 20 year period.

Policy implications:

	No
X	**Yes**

Comment(s):

- Once the appropriate data has been collected and analyzed, Council may be asked to consider a revised Sewer Rate By-law that would include a new surcharge on high strength nutrient discharge.

Environmental implications:

X	**No**
	Yes

Comment(s):

- The project will be subject to Provincial Clean Environment Commission Licensing.

Human resources implications:

X	**No**
	Yes

Comment(s):

-

Financial implications:

	Within approved current and/or capital budget
X	**Current and/or capital budget adjustment required**

Comment(s):

- The Economic Development Reserve will require additional funding to support the proposed $ 2.4 M Economic Development Incentive Grant to be disbursed over a nine (9) year period (likely 2009-2017).

- The Grants are not disbursed until the taxes are received.
- The estimated $ 9-14 million in local improvements would be included within the City's capital budget. However, these local improvements would not impact the City's $61 million borrowing cap as the project will be financed through recoveries from the benefiting property owners over 20 years. The City would interim finance the project until the cost is fully recovered.

REASON FOR THE REPORT:
This Report recommends an economic incentive package estimated at a total value of $3.75 million including the provision of city owned land, economic development incentive grants, as well as a capping of development and building permit fees to Olywest; a consortium of three partners proposing to build a new 300,000 sq. ft. state-of-the-art slaughterhouse and pork processing plant in Winnipeg.

The provision of such economic incentives requires Council approval.

HISTORY:
On Wednesday May 25, 2005, the Mayor and the CAO first met with a consortium represented by Hytek Farms (La Broquerie MB), Big Sky Farms (Humboldt, SK), and Olymel S.E.C. / L.P. (Saint-Hyacinthe, QUE). Representatives from the Manitoba Pork Council were also in attendance. The consortium proposed a new 300,000 sq. ft. and state-of-the-art slaughterhouse and pork processing plant to be constructed in the eastern Prairies. The consortium identified that the total cost of the facility would be approximately $132 million (with working capital of approximately $180 million) and would employ approximately 1,100 new jobs in the City. The consortium was also assessing the possibility of locating the facility in one other Western Canadian City.

Several meetings have occurred subsequent between the consortium (represented by Hytek), the City, the Province of Manitoba, with support from Destination Winnipeg.

Following a number of Administrative proposals and counter-proposals, on October 13, 2005, the Director of the Planning, Property, and Development Department sent the President of Hytek the 3rd Revised Offer (attached) from the City that identified details on the provision of the administration's proposed economic incentive package that would be recommended to Council. The Province of Manitoba provided a similar Term Sheet offer to the consortium.

The Planning, Property and Development Department had received verbal confirmation that the consortium had accepted the terms of the conditional Administrative offer.

Since July 2005, the Province of Manitoba and the consortium have been conducting the necessary due diligence on the Business Plan, the Olywest facility, as well as the proposed site.

Also since July, the City of Winnipeg has been assisting the consortium with their site planning, the determination of the infrastructure necessary to service the site, as well as with the zoning, planning, and local improvement district issues associated with the proposed project.

On November 2, 2005, the President of Hytek confirmed in writing that the consortium had accepted the terms of the Administrative Proposal that is being presented herewith for the consideration of City Council.

DISCUSSION:
Background:

The Manitoba Pork Council has been working with the consortium for almost two years in order to attract a major pork packing plant to the eastern Prairies (and preferably Winnipeg), to minimize risks associated with international export trade (complaints from US Pork Producers), to add more value-added processing to the Western Canadian economy (currently exporting "unfinished" pigs), and to provide competition in the pork processing industry.

The consortium includes:

- Olymel L.P.is owned by a federation of agricultural cooperatives from across Quebec (SFG – a large Quebec Government Venture Capital Fund also owns a large portion). Olymel is a national and an international player in the retail, foodservice, and industrial sector. The company has 10,000 employees and annual sales of $2.5 billion.
- Hytek Ltd. is a Manitoba Company based out of La Broquerie MB. Hytek currently has approximately 400 employees, 50,000 sows, as well as a feed mill to service their hog production.
- Big Sky Farms is a Saskatchewan Company based out of Humboldt, Saskatchewan. Big Sky has approximately 400 employees, 29,000 hogs, as well as approximately $100 million in revenues.

The Pork Industry in Manitoba:

Manitoba is Canada's third largest pork-producing Province (24% of national production). Manitoba has a growing pork processing industry. In 1999, Maple Leaf Pork built a new state-of-the-art processing plant in Brandon that employs approximately 1,150 workers with the capacity to employ another 1,000 to operate a second shift.

Although some suggest that Manitoba is getting close to its pig production limit based upon its current slaughter capacity, marketing for 2003 totaled approximately 7.3 million head of which approximately 1.14 million slaughter pigs and 2.64 million weanlings were exported directly to the US. While the US processors pay a premium for the weanlings, shipping to the US has been impacted in the past by challenges from US producers claiming that Canadian Producers are "dumping".

Manitoba has essentially established two pig industries; an industry to supply slaughter animals both locally and internationally, and a weanling industry to supply grower-finisher barns in the US.

The Proposed Project:

The consortium has stated that the proposed 300,000 sq ft. fully integrated plant would include an enclosed live hog receiving barn (for 4,000 hogs), a kill floor, de-bone, chill, cut, package and rendering plant. A marketing function would also be developed. Two shifts would see the plant operating 16 hours per day.

A 'kill' operation of this scale would be unique within the City of Winnipeg. Among the more significant impacts associated with the plant would be the amount of associated truck traffic estimated at 250-350 incoming trailers with live hogs and 500 smaller outgoing trailers per week with processed product. Much of the product will be shipped to Saskatoon, Japan, Australia, the US Midwest, as well as to the Eastern US and Canada.

The consortium has indicated that the desire is to have the plant under construction by the spring of 2006 with the aim of opening the plant in January of 2008. However, the facility will require a Clean Environment Commission License that likely will require public hearings. It is more likely that the plant will be under construction in the spring of 2007 with the plant opening in January 2009. A Pro-Forma on the Project indicates that the plant would ramp up to full capacity within 5 years.

The "Ask":

The consortium had originally requested a package of incentives from the City and the Province that would total $25 million as well as provide for $30 million in subordinate debt (through the Manitoba Industrial Opportunities Program -MIOP). It is believed that another Western Canadian City, in association with their Provincial government, had offered an Economic Development Incentive package of this magnitude. The range of City of Winnipeg incentives that were originally requested by the consortium included 60 acres of serviced land (for Phase I), the possibility of fixed long-term sewer and water rates, transit service, as well as tax deferral.

Site Selection:

The consortium originally had a short-list of 5 sites within the City of Winnipeg that interested them (four city-owned and one privately held). Two of the sites were associated with the Public Markets site (adjacent to the Manitoba Pork Producers off Marion), with the other three sites in close proximity to the St Boniface Industrial Park site.

In subsequent meetings with the consortium, the City administration had strongly recommended the St. Boniface Industrial Park site as the more appropriate location for such a facility. The recently prepared Public Markets Land Use Plan envisioned "cleaner" industry through enhanced performance standards and medium and light industrial zoning thereby moving away from uses such as meat packing plants.

The proposed site is an approximate 114 acre (46 ha) site within the St Boniface Industrial Park immediately east of (the future extension of) Mazenod Rd., south of the Aqueduct, west of Plessis Rd. and north of the CN Symington Rd. marshalling yards (refer the attached site plan- note that the proposed site is bordered in yellow). A preliminary planning and zoning analysis performed on this site indicate very few approval issues associated with a project of this type (i.e. a short-form sub-division requirement only).

Site Servicing:

This site is essentially non-serviced "raw" M3 (Heavy Industrial zoned) land that requires extensive public infrastructure including road access, water, wastewater and land drainage sewer, as well as storm water retention. Because of the extensive truck movements, significant signalization, intersection, and road improvements would be necessary at Dugald and Mazenod, Ray Marius Rd. and Camiel Sys St., as well as Camiel Sys St. at the intersection with Plessis Rd.

The administration has estimated that the site could be serviced for $ 9 million (i.e. including roads, sewer, intersection improvements, and water brought to just south the aqueduct as well as a retention pond constructed in the south east corner of the 114 acre parcel). A further estimated $ 6 million in "private" infrastructure development south of the aquaduct may be required to service the site (including "looping" of wastewater sewer and water, and roadways). Therefore the cost of servicing this site may total an estimated $15 million including all engineering and contingencies.

The administration has discussed the possibility of extending the public services to the perimeter of the Olywest site thereby extending Mazenod Road south towards the future Elizabeth Road right-of-way as well as extending Ray Marius Road southward. This would provide Olywest with the appropriate infrastructure necessary for their operation (access, egress, service redundancy, etc.)

Policy Review and Benefits associated with the Project:

Positive impacts:

- The proposed site is the best city-owned site for this land use.
- The proposed Local Improvement District will provide public infrastructure necessary to enable the development of adjacent and key city and privately held industrially zoned lands.
- Agribusiness diversification (i.e. will result in two significant pork processors located within the city)
- A new state-of-the-art facility (the Maple Leaf Warman Rd. facility is also fairly new) helping to secure a long-term meat processing industry presence in the city.
- Substantial job creation – 1,100 jobs.
- Substantial new assessment and tax base for the city (estimated $ 1.5 million in local realty and business taxes annually).
- Spin off benefit to local industry
    - Trucking / Inter-Modal Facility (CN)
    - Local construction industry
    - Machinery (water treatment, refrigeration, hydraulics, boilers)
    - Packaging
    - Housing
- Jobs for a growing city and economy

As required in Plan Winnipeg (2C-01) – The City developed and implemented a long-term economic development strategy called "A Homegrown Economic Development Strategy for Winnipeg". It sets out that the City will focus on:

- Growing Local Enterprise and Expanding Exports
- Closing the Skills Gap and Enhancing Immigration
- Creating an Enabling and Competitive Municipal Government

Based on information provided, the slaughterhouse and meat processing facility meets the priorities set out in Plan Winnipeg and its long-term economic development strategy. It will draw from the local employment pool, support further employment in value added enterprises, and enhance Winnipeg's export profile.

Several other Plan Winnipeg policies support this proposal. They include:

2C-02 Facilitate Opportunities for Business Growth in Winnipeg
2C-03 Capitalize on Comparative Advantages
2C-04 Implement Industrial Land Planning Strategy
2C-06 Support Inter-Modal Transportation Strategy
3A-02 Promote Compact Urban Form
3B-06 Accommodate New Industrial Areas

Compatibility with surrounding Land Uses

- The proposed land-use is compatible with the adjacent and surrounding land-uses.
- The proposed facility represents a logical transition from the heavy industrial uses of Symington Yards to the lighter industrial uses with higher development standards found in the existing developed portion of the St. Boniface Industrial Park.
- The nearest residential dwellings are 1.5 kilometres to the northeast and 1.5 kilometres to the southwest.

Potential negative impacts from the Olywest project to be mitigated:

- Odour (the project will be subject to Provincial Clean Environment Commission Licensing)
- Additional trucking requirements and traffic issues
- Potential impact on the types of industry attracted to the remaining St. Boniface Industrial Park lands.
- Lack of adequate existing public Transit Service

Sewer and Water:

Slaughterhouse and meat processing facilities require significant amounts of water for their processing and can discharge high nutrient strength and volumes (notably nitrogen) into the wastewater sewer system. The City's Water and Waste Department (W&W) have planned for new wastewater treatment facilities and additional costs to be incurred as a result of the Province's stated goal of removing nutrients in Lake Winnipeg to 1970 levels. The City currently has planned for over $ 380 million in wastewater treatment plant facility upgrades as well as an

additional $10 million in operating costs (not including the cost to pay off debt) in order to achieve the Provincial targets for nutrient reduction by 2014.

W&W are therefore in the process of considering a possible revision to the Sewer By-law that, subject to Council approval, would see all heavy producers of high levels of nutrients pay a surcharge for their wastewater treatment based upon discharge strength and volumes. There is a sound policy rationale for this By-law revision as all ratepayers should not be required to subsidize high nutrient discharge industries.

While Olywest will be providing on-site treatment of their wastewater sewage discharge, it is likely that the Plant will be subject to a high nutrient load surcharge should it be approved by Council. The administration have therefore disclosed to Olywest the W&W intent with regard to a revised Sewer Rate By-law that could incorporate a future high nutrient loading surcharge.

Olywest have naturally expressed some concern that the City's sewer and water rate structure remain "competitive" within the Canadian context. The Administration have responded by advising Olywest that "competitiveness" depends upon a host of factors including provincial requirements, costs to implement those requirements, financing costs, transfers, as well as what is happening in other jurisdictions with which we are trying to be competitive. Furthermore, the costs of sewer and water service are an extremely small percentage of the on-going operating costs for the facility.

As a condition for the private financing on this project, Olywest will require some assurance of future access to the City's sewer and water over a long term. This would include the possibility of the Olywest facility potentially doubling its capacity. The City will work towards a mutually agreeable Sewer and Water Access Agreement in this regard.

FINANCIAL IMPACT:

The Olywest Project has significant and positive financial benefits for both the City and the Province. City economic benefits estimated in excess of $ 1 million annually include;

- An increased Assessment base
- Municipal property and business taxes estimated at approximately $ 760,000 annually.
- Municipal taxes on Hydro and Natural Gas estimated at $ 134,000 annually.
- School Division taxes and Provincial Education Support Levies estimated at $ 736,000.
- Frontage fees and Local Improvement District Levies.
- Development and Building Permit Fees estimated at between $1.2 and $1.35 million (to be capped at $ 1 million as a recommendation of this Report).
- Additional spin-off and multiplier impacts associated with 1,100 new jobs and a $ 130 M capital investment in the city.

Local Improvement District

A key to the project will be the provision for a Local Improvement District (LID) that will allow the City to develop an estimated $ 9-14 million in public infrastructure to service the site including road, signalization, street lighting, and intersection improvements, wastewater sewer, land drainage sewer, retention pond, and water. Olywest, and any other landowners in the LID, will reimburse the City through payments on their annual tax statement as a Local Improvement District tax over a 20-year period.

A LID will require Council approval by by-law subsequent to a public hearing and public notice process. Council cannot approve the LID if 50% of the property owners in the proposed LID file notices of objection.

Both the City and the consortium benefit greatly from the provision of the LID. The consortium will be able to service their site without a significant upfront capital expenditure. The annual LID Levy would be based on the City's long term preferred rate of borrowing (currently estimated at 6.5 %) with a 1% charge for administration.

The estimated $ 9-14 million in local improvements would be included within the City's capital budget. However, these local improvements would not impact the City's $61 million borrowing cap as the project will be financed through recoveries from the benefiting property owners over 20 years. The City would interim finance the project until the cost is fully recovered. The provision of the new infrastructure, essentially paid for by Olywest, will provide site services for adjacent city as well as privately held properties.

These newly serviced city owned M3 lands are in extremely short supply within Winnipeg. It has been estimated that the adjacent 119 acre (48 ha) site would not have been ready for marketing or sale for another 20 years due to the significant cost of servicing the site. This site is also readily rail serviced by the adjacent CN Rail. Rail serviced industrial land is becoming much more marketable as the rising cost of fuel are allowing shipping freight by rail to be economically advantageous. The PP&D, CN Rail, and Destination Winnipeg are already co-marketing this land as potentially rail served.

The Province as a whole will benefit substantially from the economic impacts associated with the development of this facility. Because of the need for guaranteed "local" hogs to feed the plant, new hog barns and feed operations would need to be built, new jobs operating the barns and feed mills will be created, local trucking firms will benefit from the increased business, as well as the spin-off "multiplier" effect that such job creation and investment will provide to rural Manitoba. The risk to cross border movement of hogs (because of possible trade sanctions) would also be negated.

Based upon detailed information as provided by the consortium, the Property Assessment Department provided the following assessment and property tax estimates associated with the proposed Olywest Project as follows:

Estimated Assessment:	$26,373,000

Estimated Business Assessment:	$ 2,600,000 ARV[1]
Estimated Property Taxes:	
Municipal Portion	$ 508,890
School Division	$ 455,046
Provincial Education	$ 280,861
Total	$ 1,244,797
Business Tax	$ 253,500
Total Property & Business Tax	$ 1,498,297[2]

Estimated municipal portion of property taxes + business tax therefore = $508,890 + $253,500= $762,390. The City will collect an additional estimated $ 134,000 of municipal taxes on Hydro and Natural Gas charges.

The Province of Manitoba has also provided an economic benefit package in support of this project that includes training funds, a Manitoba Industrial Opportunities (MIOP) Loan, as well as Infrastructure funding.

The Administration recommend that the Chief Administrative Officer be delegated the authority to finalize the terms and conditions of all agreements including all collateral and ancillary agreements required to satisfy the intent of Council.

Additional funding for the Economic Development Investment Reserve Fund will be required to finance the $2.4 million in grants beginning in 2009.

[1] Annual Rental Value is 10% of realty value to estimate Business Assessment

[2] Assumptions: Taxes calculated full year 2005 / School Div Louis Riel/ Business tax rate 9.75% / Portioned as commercial property 65% / Does not include frontage levies

Financial Impact Statement

Date: November 9, 2005

Project Name:

OLYWEST PROJECT: PROPOSED ECONOMIC DEVELOPMENT INCENTIVE PACKAGE

First Year of Program 2007

	2007	2008	2009	2010	2011-2028
Capital					
Capital Expenditures Required	$ 9,000,000				
Less: Existing Budgeted Costs					
Additional Capital Budget Required	$ 9,000,000	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal					
Debt - External					
Grants (Enter Description Here)					
Reserves, Equity, Surplus					
Other - (LID Taxes - principal portion)			208,000	223,000	8,569,000
Total Funding	$ -	$ -	$ 208,000	$ 223,000	$ 8,569,000
Total Additional Capital Budget Required	$ 9,000,000				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ 675,000	$ 659,000	$ 1,393,000	$ 1,187,000	$ 7,142,000
Less: Incremental Revenue/Recovery	-	-	1,767,000	1,767,000	31,806,000
Net Cost/(Benefit)	$ 675,000	$ 659,000	$ (374,000)	$ (580,000)	$ (24,664,000)
Less: Existing Budget Amounts					
Net Budget Adjustment Required	$ 675,000	$ 659,000	$ (374,000)	$ (580,000)	$ (24,664,000)

Additional Comments:

This analysis is based on the following assumptions: 1) that services will be installed half way down the future extension of Mazenod Road (i.e. $9M), 2) that the $9M cost will be incurred in 2007, 3) that interest payments on the $9M debt will begin in 2008, and 4) that the economic development grant payments and all tax revenues will begin to flow in 2009. The "Other - LID Taxes - Principal Portion" under "Funding Sources" totals $9M between 2009-2028. Direct costs consist of $7.5M in financing costs on the $9M plus $1.2M in admin costs plus $2.4M in grants paid from the Economic Development Investment Reserve, which will require additional funding. Incremental revenues include municipal realty & business taxes, gas & hydro taxes, and LID taxes. Over the course of the 20-year LID amortization period, net revenues will total $24.3M. No provincial taxes or "spin-off" benefits are included in this analysis. Permit revenues of approximately $1M less any estimated admin costs has not been included in this analysis as it is not considered material.

"Original Signed By"
Mike McGinn, CA
Manager of Finance

IN PREPARING THIS REPORT, THERE WAS CONSULTATION WITH AND CONCURRENCE BY: WATER & WASTE, PUBLIC WORKS, LEGAL SERVICES DIVISION, PROPERTY ASSESSMENT, CORPORATE FINANCE, REAL ESTATE DIVISION, PLANNING AND LAND USE DIVISION

THIS REPORT SUBMITTED BY:

Planning, Property and Development Department
Division: Office of the Director
Prepared by: Jim Paterson

Document name: O:\Reports Directive\Office of the Director\Downtown Manager\Olywest Project.doc

Insert electronic attachments here

Site Plan **Schedule "A"**

Manitoba Pork Sep 15.pdf

Olywest Revised.pdf

St. Croix Sensory Inc.
Laboratory Evaluations Report

St. Croix Sensory, Inc.

Laboratory Evalautions:

- *Statement of Services*
- *Quality Assurances*
- *Odor Parameters*
- *Nomenclature*
- *Chain of Custody*

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St. Croix Sensory, Inc.

STATEMENT OF SERVICES

St. Croix Sensory is a laboratory dedicated to practicing state-of-the-art sensory evaluation and to advancing the science of sensory perception.

We are a family owned and operated business providing our clients with personal customer service, flexible scheduling, timely results.

Our focus is to provide the best professional services available to help make your project or product a success.

St. Croix Sensory provides the following services:

- Odor evaluations
- Product / material evaluations
- Taste evaluations
- Sensory assessor training
- Field inspector training: "ODOR SCHOOL"®
- Community involvement programs
- Nasal Ranger® Field Olfactometer
- Sampling equipment and supplies
- Odor laboratory set-up and auditing
- AC'SCENT® International Olfactometer

Visit our web site **www.fivesenses.com**

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St. Croix Sensory, Inc.

Odor Evaluation Quality Assurance

- The St. Croix Sensory laboratory conducts odor evaluations in accordance with ASTM (American Society for Testing and Materials), CEN (European Committee for Standardization), and ANSI (American National Standards Institute) Standard Practices.

- Odor concentration evaluations (detection & recognition thresholds) are conducted in accordance with ASTM Standard Practice E679-91, "Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series Method of Limits" and prEN 13725, "Air Quality - Determination of odor concentration by dynamic olfactometry." These evaluations are performed using the AC'SCENT® Dynamic Dilution Forced-Choice Triangle Olfactometer.*

- The AC'SCENT Dynamic Dilution Forced-Choice Triangle Olfactometer complies with all aspects of the ASTM E679-91 standard as well as the operational requirements of the European Odor Testing Standard, prEN13725, "Air Quality - Determination of Odour Concentration by Dynamic Olfactometry."

- The detection and recognition thresholds are reported as defined by ASTM E679-91 and prEN 13725.

- By special request, the Illinois Institute of Technology Research Institute (IITRI) Triangle Olfactometer can be used for odor concentration measurement.

- Odor intensity evaluations are conducted in accordance with ASTM Standard Practice E544-99, "Referencing Suprathreshold Odor Intensity." The IIT Research Institute (IITRI) Dynamic Dilution Binary Scale Butanol Olfactometer ("Butanol Wheel") is utilized to determine odor intensity.

- The odor evaluation panel is managed in accordance with ANSI/ASQC Q2-1991, "Quality Management and Quality System Elements for Laboratories." The odor evaluation panels consist of individual assessors that are selected and trained following the "Guidelines for Selection and Training of Sensory Panel Members" (ASTM Special Technical Publication - STP 758) and prEN 13725.

- Odor sample bags equilibrate to laboratory ambient temperature for a period of not less than one hour prior to evaluation with the olfactometer.

- Samples are consumed during the evaluation.

- Sample bags are destroyed 48 hours after transmittal of the Odor Evaluation Report, except for special requests.

* Unless noted in the Comments section of the Odor Evaluation Report.

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St. Croix Sensory, Inc.

Odor Evaluation Parameters

Odor Thresholds - Detection Threshold DT *& Recognition Threshold* RT*:*

Odor thresholds are determined using a presentation method called the "3-alternative forced choice" (3-AFC) method or the "triangular forced-choice" (TFC) method. Each assessor performs the odor evaluation task by sniffing the diluted odor from an olfactometer. The assessor sniffs three sample presentations; one contains the odor while the other two are "blanks" (odor-free). They must then select the one of the three that is "different" from the other two. The assessor is required (forced) to choose one of the three and acknowledge their response as a "guess", "detection", or "recognition", as defined by ASTM E679-91.

After the first set of three presentations, the assessor is then presented with the next dilution level. The assessor is again presented with three sample choices, one of which is the diluted odor sample. However, this next dilution level presents the odor at a higher concentration (i.e. two times higher). This is one-half the dilution ratio (fewer number of dilutions = higher concentration). The first dilution level presented to the assessors is below the odor threshold (subthreshold). The assessor proceeds to higher levels of sample presentation following these methods. This statistical approach is called "ascending concentration series."

Results are computed for each assessor based on the dilution levels where correct "detection" or "recognition" responses are recorded. The responses of all assessors are averaged to determine the sample's detection and recognition thresholds.

The dynamic dilution of an odorous emission is the physical process that occurs in the atmosphere down-wind of the odor source. An individual, or citizen from the community, sniffs the diluted odor. The dilution ratio is an estimate of the number of dilutions needed to make the actual odor emission just detectable. This is known as the Detection Threshold (DT). The Recognition Threshold (RT) is the dilution ratio at which the assessor first detects the odor's character ("smells like...").

Odor modeling frequently uses the RT value because it represents the concentration of the odor in the air that would be first noticed by an individual down-wind of the odor source.

The dilution ratio is dimensionless; however, the pseudo-dimensions of "Odor Unit per Unit Volume" are commonly used. For example, odor units per cubic foot (o.u./ft3) or odor units per cubic meter (o.u./m3) are frequently used.

Thresholds determined using an AC'SCENT® Dynamic Dilution Triangle Olfactometer have a sample presentation flow rate of 20-lpm and a method detection limit for DT and RT of '5'.

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St. Croix Sensory, Inc.

Odor Evaluation Parameters - page 2

Odor Thresholds (continued):

St. Croix Sensory follows two procedures for the determination of odor threshold, depending on the customer's needs and project specifications. These two procedures utilize either a "qualified panel of assessors" or a "certified panel of assessors."

Qualified Odor Panel Evaluations

A qualified odor panel evaluation utilizes six (6) to twelve (12) trained and experienced assessors who, together, posses odor sensitivity representative of the general population. Detection thresholds are determined following ASTM E679-91 - Standard Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series Method of Limits.

For this testing, St. Croix Sensory can use two types of olfactometers with a variety of operating flow rates. The AC'SCENT® Dynamic Dilution Triangle Olfactometer can be used with an operating flow rate of 3-lpm, 10-lpm, or 20-lpm. Alternatively, the Illinois Institute of Technology Research Institute (I.I.T.R.I.) olfactometer can be used operating at 0.5-lpm. The AC'SCENT® Olfactometer is used operating at 20-lpm unless otherwise requested by the customer.

Certified Odor Panel Evaluations

A certified odor panel evaluation follows all elements of the new draft European odor testing standard, prEN 13725: *Air Quality - Determination of odor concentration by dynamic olfactometry*. prEN 13725 exceeds the requirements of ASTM E679-91. This standard is expected to be the official olfactometry standard of Europe in 2002. The standardization organization of Australia/New Zealand has already adopted an identical standard (AS/NZ 4323.3-2001).

Assessors are tested with a standard odorant (n-butanol) and are required to meet specific sensitivity criteria outlined in the European testing standard. These assessors are required to have an average n-butanol detection threshold between 20-80 ppb based on their last 20 evaluations of n-butanol. Assessors also must maintain a defined standard deviation of n-butanol threshold measurements in order to satisfy repeatability requirements of the standard.

For a certified odor panel session, following the requirements in prEN 13725, St. Croix Sensory uses five (5) trained and experienced "certified" assessors. These assessors are presented each odor sample twice. Final results are retrospectively screened in order to evaluate and identify assessors who may have a specific hypersensitivity or anosmia to the odor sample presented.

For this testing, the AC'SCENT® Dynamic Dilution Triangle Olfactometer is always used with an operating flow rate of 20-lpm.

Odor Evaluation Parameters - page 3

Odor Intensity I:

The odor Intensity **(I)** is the relative strength of the odor above the Recognition Threshold (suprathreshold). The intensity of an odor is referenced on the ASTM Odor Referencing Scale described in ASTM E544-99, Standard Practice for Referencing Suprathreshold Odor Intensity. The IITRI Dynamic Dilution Binary Olfactometer (Butanol Wheel) is the method St. Croix Sensory uses for the procedure of odor intensity referencing.

The odor referencing is accomplished by a comparison of the odor intensity of the odor sample to the odor intensity of a series of concentrations of the reference odorant, which is butanol. The olfactometer delivers the butanol in air to glass sniffing ports. The olfactometer has 8 sniffing ports that make-up a series of increasing concentrations of the butanol. The series has an increasing concentration ratio of 2 (binary scale).

The odor intensity of an odor sample is expressed in parts per million (PPM) of butanol. A larger value of butanol means a stronger odor, but not in a simple numerical proportion.

The Odor Intensity Referencing Scale serves as a standard method to quantify the intensity of odors for documentation and comparison purposes.

The average value of the odor evaluation is the reported intensity **(I)** for the odor sample.

Odor Evaluation Parameters - page 4

Hedonic Tone HT:

Hedonic Tone **(HT)** is a measure of the pleasantness or unpleasantness of an odor sample. The hedonic tone is independent of its character. An arbitrary but common scale for ranking odors by hedonic tone is the use of a 21 point scale:

+10	**Pleasant**
0	**Neutral**
-10	**Unpleasant**

The assigning of a hedonic tone value to an odor sample by an assessor is "subjective" to the assessor. An assessor uses her/his personal experience and memories of odors as a referencing scale. The assessor, during training, becomes aware of their individual odor experience and memory referencing.

The average value of the odor evaluation is the reported hedonic tone **(HT)** for the odor sample.

St. Croix Sensory, Inc.

Odor Evaluation Parameters - page 5

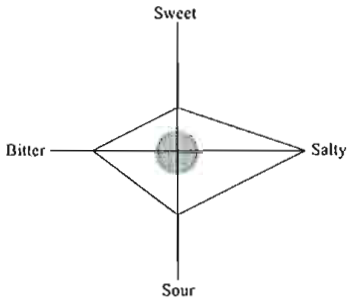
Odor Characterization:

Odors are characterized using a referencing vocabulary for **Taste, Sensation, and Odor Descriptors**.

Taste Descriptors

The perception of *taste* is experienced in the evaluation of certain odors. The 4 recognized taste descriptors are **Salty, Sweet, Bitter, and Sour**. The taste descriptor evaluation results are represented as a spider graph. The extension on the spider graph, for example in the direction of **Salty**, is on a scale of 0 to 5 referencing to relative intensity (faint to strong).

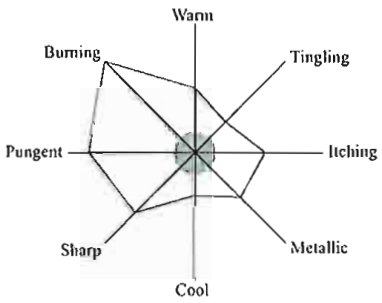
Example Taste Descriptor Graph



Sensation Descriptors

The Trigeminal Nerves (Fifth Cranial Nerve), located throughout the nasal cavity and in the upper palate, and other nerves sense the presence of some odors (i.e. "feels like..." vs. "smells like..."). 8 reported *sensation* descriptors are **Itching, Tingling, Warm, Burning, Pungent, Sharp, Cool, Metallic**. The sensation descriptor evaluation results are represented as a spider graph. The extension on the spider graph, for example in the direction of **Burning**, is on a scale of 0 to 5 referencing to relative intensity (faint to strong).

Example Sensation Descriptor Graph



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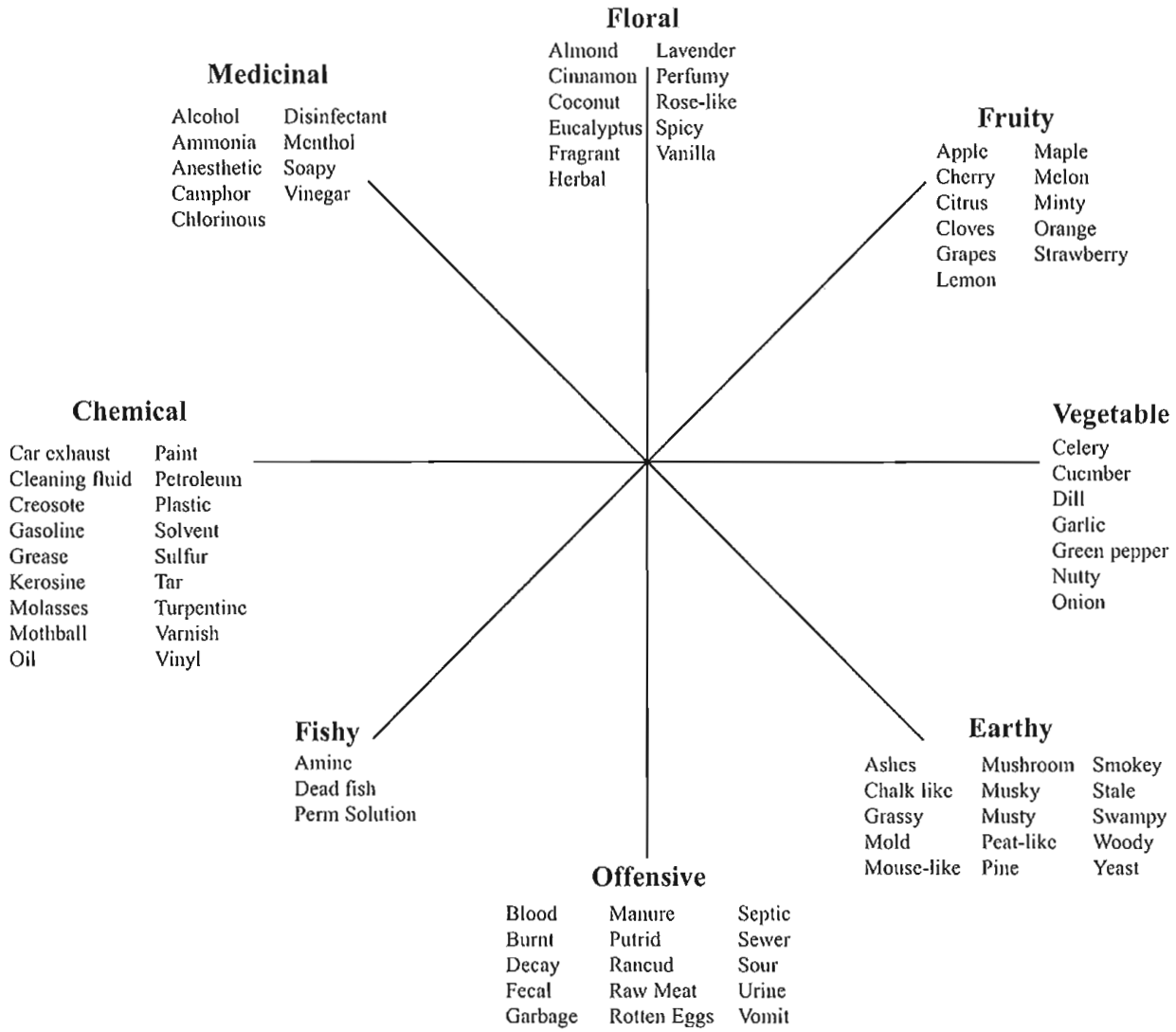
Odor Evaluation Parameters - page 6

Odor Characterization Continued:

Odor Descriptors

Numerous "standard" *odor* descriptor lists are available to use as a referencing vocabulary. 8 recognized odor descriptor catagories are illustrated as an "odor wheel"; **Vegetable, Fruity, Floral, Medicinal, Chemical, Fishy, Offensive, Earthy**. Specific descriptors within each odor catagory are presented in the subsequent diagram.



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Odor Evaluation Parameters - page 7

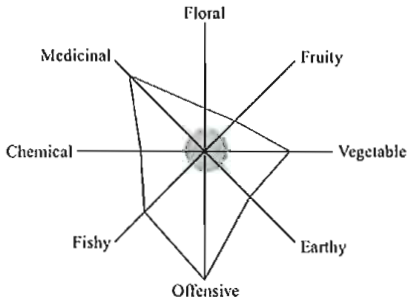
Odor Characterization Continued:

Odor Descriptors

The odor descriptor evaluation results are represented as a spider graph and as a histogram.

The 8 recognized odor descriptor catagories are the first part of the odor descriptor evaluation. The evaluation results are represented as a spider graph. The extension on the spider graph, for example in the direction of **Offensive,** is on a scale of 0 to 5 referencing to relative intensity (faint to strong).

Example Odor Descriptor Graph



Specific odor descriptors are the second part of the odor descriptor evaluation. A histogram presents the percentage of assessors that assigned specific descriptors to the odor sample.

Example Odor Descriptor Histogram

Garlic	*******
Onion	**********
Apple	*******
Herbal	**********
Almond	*******
Disinfectant	**********
Ammonia	**********
Chlorinous	*******
Oil	**********
Sulfur	*******
Amine	**********
Sewer	**********
Burnt	**********
Manure	**********
Rotten eggs	**********
Putrid	*******
Stale	**********
Chalk-like	*******
Smoky	**********

Odor Evaluation Parameters - page 8

Odor Persistency ("Dose Response"):

Odor persistency is a term used to describe the rate at which an odor's perceived intensity decreases as the odor is diluted, i.e. in the atmosphere down-wind from the odor source.

The rate of change in intensity verses odor concentration is not the same for all odors.

The odor intensity **(I)** is related to the odor concentration **(C)** by the following equation, where **'K'** is the constant and **'n'** is the exponent:

$$\mathbf{I} = \mathbf{K}(\mathbf{C})^{\mathbf{n}}$$

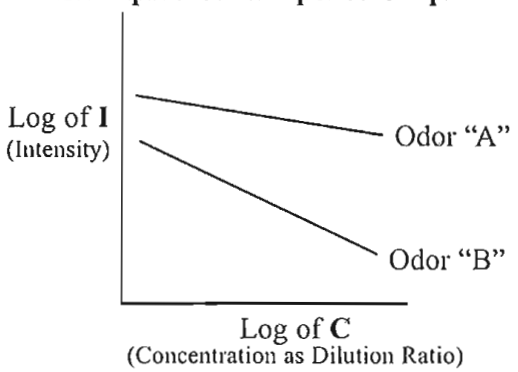
$$\log \mathbf{I} = \mathbf{n} \log \mathbf{C} + \log \mathbf{K} \qquad \text{[logarithmic transformation]}$$

This relationship is a "Dose-Response" function (a psychophysical power function), known as Steven's Law, or the Power Law.

Therefore, the persistency of an odor can be represented as a "Dose-Response" function. The "Dose-Response" function is determined from intensity measurements of an odor at various dilutions and at full strength concentration. Plotted logarithmic values of the odor intensity and odor dilution ratio is the "Dose-Response" function for the odor sample. The resultant straight line for the log-log plot is specific for each odor, with the slope of the line, **n**, representing relative persistency.

The flatter slope of Odor "A", compared to the steeper slope of Odor "B", represents a more persistent odor ("A") compared to less persistent odor ("B").

Example Dose-Response Graph



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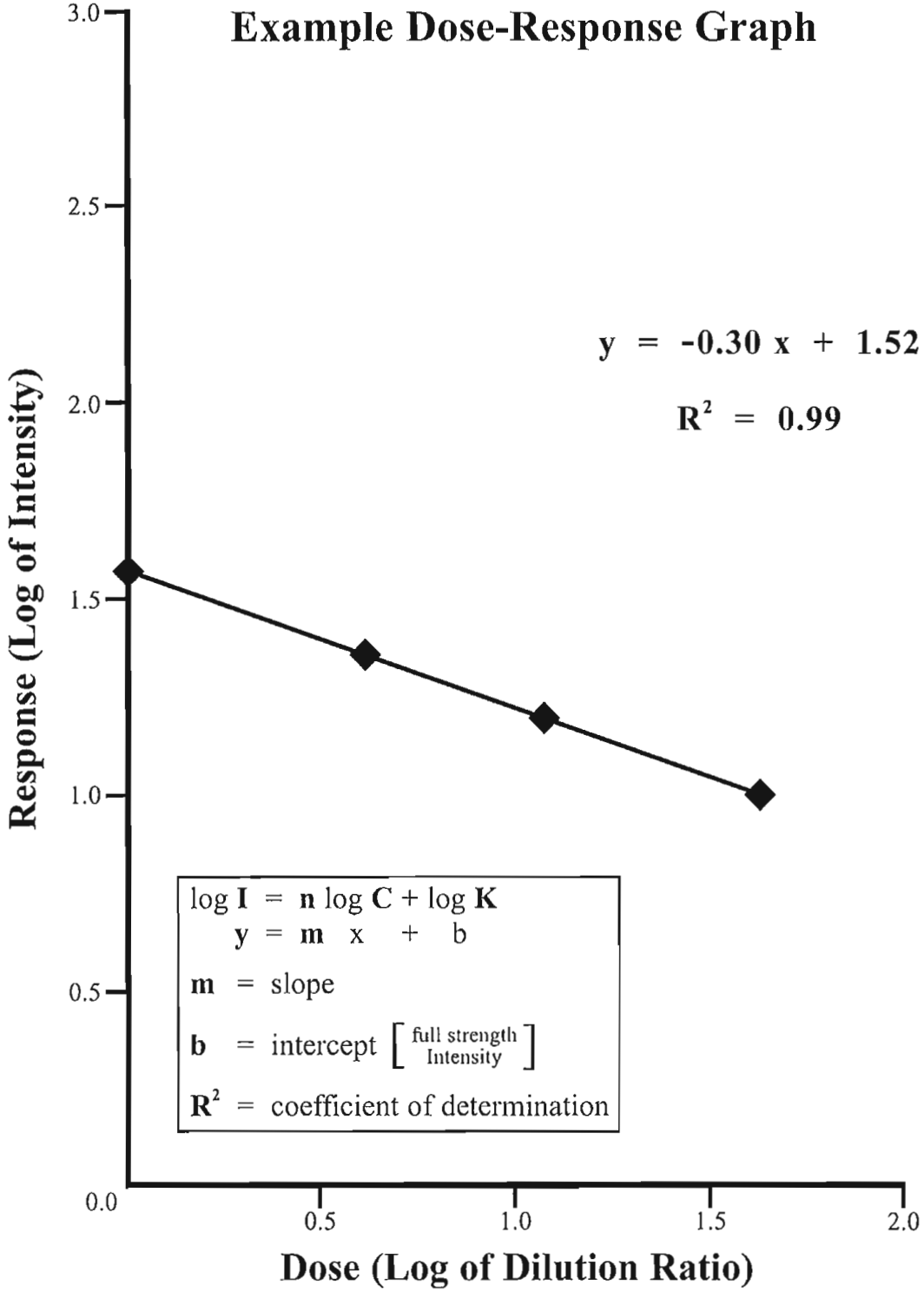
Odor Evaluation Parameters - page 9

Odor Persistency Continued:

Example Dose-Response Graph



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St. Croix Sensory, Inc.

Odor Evaluation Report Nomenclature

DT Detection Threshold

RT Recognition Threshold

I Intensity

HT Hedonic Tone

Comments:

A Sample bag was received without sample.

B Insufficient sample volume to complete evaluations.

C Sample bag was received with condensation in the bag.

D Sample description was not provided.

E Assessors did not observe the sample at full strength for Intensity, Characterization, or Dose Response evaluations.

- **E1** Sample was observed at a maximum of 50% dilution.
- **E2** Only Dose Response evaluation was conducted.

F Assessors did not observe the sample for Intensity, Characterization or Dose Response evaluations.

G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for DT and RT of '4', was used to determine the thresholds for this odor evaluation.

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CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Client:	Sampled By:	Odor Evaluations Requested: (X)				Page___of___
Project Name:	Sampling Date:	**Odor Concentration** (DT, RT)	**Odor Intensity** (PPM)	**Odor Characterization** (Hedonic Tone & Descriptors)	**Odor Persistency** ("Dose-Response")	*For Laboratory use Only* Odor Evaluation Report No.
Comments:						Laboratory Sample No.

Line No.	Field No.	Sample Description	Sample Time	Field H_2S (ppm)	LN	FN
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Transfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes_____

Relinqished By	Date	Time	Accepted By	Date	Time	Comments & Exceptions Noted
Received at St. Croix Sensory Laboratory						

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