

APPENDIX M

M1.0 Participants in the Risk Analysis

Table M1.0 - Participants in the Risk Analysis

Number	Name	Organization
11	Nick Szoke	City of Winnipeg
12	Bill Borlase	City of Winnipeg
16	Dwight Gibson	City of Winnipeg
2	Arnold Permut	City of Winnipeg
20	Chris Carroll	City of Winnipeg
3	Ron Hahlweg	City of Winnipeg
4	Ken Smyrski	City of Winnipeg
5	Mike Shkolny	City of Winnipeg
7	Don Faulkner	EMA
8	Jeff Loulson	EMA
1	Saibal Basu	Stantec
10	Cameron Dyck	Stantec
13	Dave Dowhan	Stantec
14	Paul Blanchard	Stantec
15	Ken Madill	Stantec
17	Eric Wiens	Stantec
18	Bob Dawson	Stantec
19	Jamie Brewster	Stantec
6	David Morgan	TetrES Consulting
9	George Rempel	TetrES Consulting

Description of the Structured Risk Analysis Process

M2.0 Risk Analysis

The *Structured Risk Analysis Process* is composed of four major sub-processes including risk identification, risk quantification, risk mitigation and risk management.

M2.1 Risk Identification

A preliminary list of risk factors developed from previous projects and from the preliminary design report for SEWPCC was made available to the participants in the workshop. This was generally supplemented with past project risk analysis results. A brainstorming session was then held and risk factors identified.

The risk analysis team made an attempt to identify every possible event or issue that may cause harm to the project (from the organization's view point). The risk factors were presented in a form that lends itself to quantification. Two acceptable forms were identified as:

- "..... may happen during the execution of which may impact", or
- " If occurs, then an impact to will be realized."

M2.2 Quantifying Risk Factors

The following was used to quantify risk factors:

Determination of the likelihood of the factor being encountered (e.g. probability, or a subjective descriptor) using Table 1.

Determination of the magnitude of the impact if the factor is encountered (e.g. dollar value or a subjective descriptor) using Table 2.

Determination of the overall severity of the factor by multiplying the likelihood (1) by magnitude (2).

The factors were then grouped based on the overall severity score according to the grouping in Table 3.

In general, if the risk factors that scored in the "intolerable" range cannot be mitigated or a process for their mitigation foreseen, then the owner should not proceed further with the project until a plan for mitigating the impacts of the factor can be defined and implemented.

The remaining factors in the other zones can be accepted with a proper risk management plan established to secure reduction in their quantum.

Table M2.1 - Assessment of likelihood/probability of risk occurrence

Descriptor	Explanation	Probability	Value to use
Highly Likely	Almost certain that it will happen, very frequent occurrence	over 70%	100
Likely	more than 50-50 chance	50-70%	50
Somewhat likely	less than 50-50 chance	15% - 50%	25
Unlikely	small likelihood but could well happen	1% - 15%	10
Very unlikely	not expected to happen	0.01% - 1%	1
Extremely unlikely	just possible but would be very surprising	less than 0.01%	0.05

Table M2.2 - Assessment of the magnitude of risk

Descriptor	Explanation	Value to use
Disastrous	The impact is totally unacceptable to the organization –value established in workshop or by owner.	700
Severe	Serious threat to the organization, public etc.	200
Substantial	Considerably affects cost	50
Moderate	Moderately effects costs	15
Marginal	Small effect on costs	5
Negligible	Trivial effect on costs	1

Table M2.3 - Assessment of the consequence of a risk factor

Total severity	Category	Response
Over 4000	Intolerable	Must eliminate or transfer risk, it may jeopardize the entire organization or its cost may be manifold that of the project.
1001 - 4000	Critical	Expected cost to the project is unacceptably high. This risk must be eliminated or transferred before proceeding with the project. Attempt to avoid or transfer risk
301 - 1000	Serious	Expected cost is high compared to total project cost. It probably is cost effective to eliminate or transfer this risk.
51 - 300	Important	Consider eliminating or transferring. If accept then manage proactively.
16 - 50	Acceptable	Accept and manage
1 – 15	Negligible	The expected cost of this risk is too small to justify any mitigation effort. Accept and ignore it.

M2.3 Risk Response

Once the identification and quantification was completed, the Risk Analysis Team developed a response plan to all risk factors in accordance with the following.

- a. Decide on the action to be taken in response to key risks. Actions can include:
 - i. Reduce uncertainty by obtaining more information. (This generally leads to a re-evaluation of the likelihood and sometimes the magnitude of the risk).
 - ii. Eliminate or avoid the risk factor through means such as partial or complete modifications to the proposed ideas, a different strategy or method etc.
 - iii. Transfer the risk element to other parties.
 - iv. Insure against the occurrence of the risk factor if and when possible.
 - v. Abort the project if the risk is intolerable and no other means can be undertaken to mitigate its damages.
- b. Plan response to key risks.
- c. Communicate mitigating strategy and response plan to risk review team.

M2.4 Risk Management

The risk management plan formalizes the risk response by defining specific tasks to be undertaken which will mitigate the risk, assigning responsibility and timelines for the tasks and following up on the risk factors on a regular basis until the project is complete.

