

MSD Water Table Project Risk Assessment Overview

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
	<i>Describe the risk briefly</i>	<i>What is the effect on any or all of the project deliverables if the cause actually happens?</i>	<i>What are the possible cause(s) of this risk?</i>			L*S	<i>What action(s) will you take (and by when) to prevent, reduce the impact of, or transfer the risk of this occurring?</i>	<i>Who is responsible for following through on mitigation?</i>
1	System leaks	Water leaks, posing clean up issue and safety hazard, makes impractical for lab use	Failure to seal system, test specimen apparatus leaks, valves/ piping/ pump leak	1	3	3	Research/seek best sealing methods, test and iterate prior to building, test plumbing before assembly. Ordered assembled tank to reduce risk of leaking from tank itself. System tested, no leaks occurred.	John
2	Test fixture does not hold test piece	No way to demonstrate interesting flows, objective of project fails	Weak design/construction, no backup plans if test fixture fails, improper analysis during MSD I	1	3	3	Peer reviewed design, researched alternative holding methods, built safety factor into analytical calculations	Andrew
3	Water table declared unsafe for use	Electrical hazards, moving parts unsafe for interaction, thus, device would be declared not useable for use	Improper insulation of wire, improper grounding of components, not tested before MSD II for safety, safety official not consulted	1	3	3	Insulate all components, proper safety labels where appropriate procedures written, training of users with proper documentation, discuss design with safety official (Dave Hathaway), develop plan if hazard were to occur.	Danny
4	Cart breaks from loads	The cart is not enough of a robust design. The cart has a dynamic impact on something and breaks, water leaks	Improper analysis of forces on walls of water table tank and legs of table, not planned for odd cases or dynamic impacts	1	3	3	Verify calculations through analytical techniques and testing, plan for high static factors of safety, test pieces where applicable prior to building.	Andrew
5	Flow visualizer does not provide sufficient number of streamlines	Lose educational value in terms of visualizing fluid flow over test specimens. Loss of method to quantify flow straightness.	Electrolysis bubbles rise too quickly, beads/powders used do not provide adequate visualization	1	2	2	Tested electrolysis design in MSD I to determine feasibility. Researched previously used techniques that have been successful	Danny

13	Inconsistent team priorities	Team deadlines are not met. Conflict with team members. Project does not interface well.	Poor leadership and opposing team opinions. Team members are unwilling to compromise.	1	1	1	Establish team values and norms thoroughly. Facilitate team issues early. Make sure everyone's opinion is heard and considered. Consistently check project progress and perform team evaluations.	John
14	Team loses member	Team loses part of working force potentially delaying project	Team member loses interest in project, does not carry weight in project, team member drops out, team member becomes severely ill	1	1	1	Motivating team in project scope. Keeping everyone updated and involved in project. Becoming familiar with many aspects of the project.	John

Likelihood scale	Severity scale
1 - This cause is unlikely to happen	1 - The impact on the project is very minor. We will still meet deliverables on time and within budget, but it will cause extra work
2 - This cause could conceivably happen	2 - The impact on the project is noticeable. We will deliver reduced functionality, go over budget, or fail to meet some of our Engineering Specifications.
3 - This cause is very likely to happen	3 - The impact on the project is severe. We will not be able to deliver, or what we deliver will not meet the customer's needs.

"Importance Score" (Likelihood x Severity) – use this to guide your preference for a risk management strategy	
Prevent	Action will be taken to prevent the cause(s) from occurring in the first place.
Reduce	Action will be taken to reduce the likelihood of the cause and/or the severity of the effect on the project, should the cause occur
Transfer	Action will be taken to transfer the risk to something else. Insurance is an example of this. You purchase an insurance policy that contractually binds an insurance company to pay for your loss in the event of accident. This transfers the financial consequences of the accident to someone else. Your car is still a wreck, of course.
Accept	Low importance risks may not justify any action at all. If they happen, you simply accept the consequences.