RISK MANAGEMENT

Risk #	Risk Item	Effect	Cause	Likelyhood	Severity	Importance	Mitigation Action	Owner
R1	Ordered Parts do not arrive on time	Adjust Schedule; Worst-case, adjust project goals	Not enough lead time, failure of shipper or supplier	3	7	21	Create design plan, check-in with group members, build-in buffer time for emergencies	All
R2	Ordered Parts are not ordered on time	Adjust Schedule; Worst-case, adjust project goals	Poor planning on the team's part	5	7	35	Create design plan, check-in with group members, build-in buffer time for emergencies	John
R3	Incorrect parts delivered	Adjust schedule.	Supplier Failure	1	7	7	Build-in buffer time for emergencies	All
R4	Engineering Specs are incorrect	Improper models created and project fails	Failure to perform proper engineering verification	1	9	9	Verify specs with knowledgable authorities and engineering principles	All
R5	No Funding	Adjust schedule, limit project goals	Budget constraints, team failure	1	9	9	Focus more energy on fundraising and sponsorship	All
R6	Damping analysis performed incorrectly	System is not properly damped	Poor implementation of engineering principles	5	9	45	Perform thorough analysis and obtain input from experts	Matt
R7	Thermosyphoning analysis performed incorrectly	Thermosyphoning system does not work	Poor implementation of engineering principles	5	9	45	Perform thorough analysis and obtain input from experts	Chris
R8	Injury during part manufacturing	Team member/faculty/staff get hurt	Lack of training or unsafe use of machines	3	5	15	Ensure that everyone is trained and comfortable on the given machine	Ryan
R9	Parts manufactuered improperly	Parts do not fit or system fails catestrphically	Poor design or poor manufacturing	5	7	35	Ensure that everyone is trained and comfortable on the given machine	Ryan

R10	Pump is run while "down" for installation	Pump is damaged or destroyed	Failure to follow Lock-Out, Tag-Out Proceedure; poor communication	3	9	27	Follow Lock-Out, Tag-Out proceedures, continuous communication between groups	John
R11	Injury during installation	Team member/faculty/staff get hurt	Lack of training or unsafe practices	5	5	25	Follow safe practices, do not work alone, stop if unsure.	All
R12	Compressor is damaged during installation	Pump is damaged or destroyed	Lack of training or planning	3	9	27	Follow safe practices, do not work alone, stop if unsure.	All
R13	Contract engineers run over budget	Funding for other components is missing	Poor planning or unforseen problems	3	7	21	Perform thorough planning prior to starting work	John
R14	Contract engineers fail to install mounts properly	System fails catestrphically	Poor choice of contract engineering firm	3	7	21	Ensure that the contract firm is qualified for the job	Ryan
R15	Contract engineers do not do properly perform analysis	System fails catestrphically	Poor choice of contract engineering firm	3	9	27	Ensure that the contract firm is qualified for the job	All
R16	System introduces unforseen vibration	Pump is damaged, building is damaged	Poor implementation of engineering principles	5	9	45	Perform thorough engineering analysis prior to installation	Matt
R17	Concerete cannot support mounts for dampers	Building is damaged, pump might be damaged	Poor implementation of engineering principles	5	9	45	Perform thorough engineering analysis prior to installation	Ryan
R18	DAQ interfers with dampers	DAQ or damping system needs to be modified	Poor communication between SD teams	5	5	25	Plan and communication with the other team, plan thoroughly	Matt
R19	DAQ inteferes with thermosyphoning system	DAQ or thermosyphonings system needs to be modified	Poor communication between SD teams	7	5	35	Plan and communication with the other team, plan thoroughly	Chris
R20	DAQ installation is damaged	DAQ system is no longer functional	Poor communication between SD teams; poor installation processes	5	5	25	Plan and communication with the other team, plan thoroughly, and install very carefully	All
R21	Damping system damages physical plant	Building is damaged, pump might be damaged	Poor planning; Poor implementation of good plans	5	9	45	Plan thoroughly, and ensure that failsafe measures are in place	Ryan

R22	Trip hazard from damping system	Team member/faculty/staff get hurt	Bad planning for safety concerns	7	5	35	Design a cover that preventing tripping hazards	Ryan
R23	Thermosyphoning system mounting fails	Team member/faculty/staff get hurt; pump is damaged; building is damaged	Poor design or poor manufacturing	5	7	35	Perform thorough analysis prior to manufacturing and installation, assemble according to plan	Chris
R24	Thermosyphoning system does not properly cool pump	Pump is damaged or destroyed	Poor health monitoring or poor design of cooling system	5	7	35	Ensure that the existing pump system can be switched to quickly	Chris
R25	Thermosyphoning system leaks	Pump is damaged, building is damaged	Poor installation or design quality	5	5	25	Perform a high-quality installation	Chris
R26	Design does not properly damp system	Pump is damaged	Poor design or poor manufacturing	5	9	45	Peform a thorough analysis, and solicitic expert and faculty input	Matt
R27	Systems fails catestrophically	Pump is destroyed, building is seriously damaged	Poor design, poor manufacturing, or poor installation	5	9	45	Perform a thorough analysis, a thorough installation, and double-check everything before starting the pump.	All