UNC CHARLOTTE
Department of Engineering Technology

LABORATORY SAFETY ANALYSIS

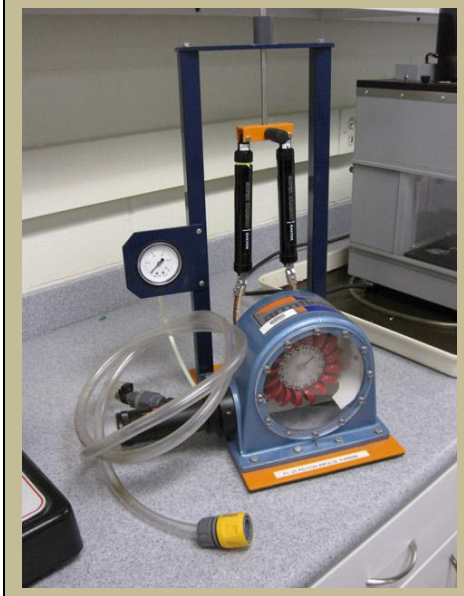
OPERATING THE ARMFIELD PELTON TURBINE

Location: Smith 103

Required Training: The Armfield Pelton Turbine is designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of this apparatus, do not use until proper training and knowledge have been obtained. This apparatus is used in conjunction with the Armfield Fluids Bench and therefore the LSA for the fluids bench remains applicable when using the Pelton Turbine with it.

Required Personal Protective Equipment (PPE): Safety glasses.

Reference Materials: Manufacturer's safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Wear clear safety glasses with side shields.	High pressure water stream	• Students are required to provide their own safety glasses. • See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.
	Inspect safety glasses for cracks, scratches or other defects. Ensure the ANSI standard Z87.1 is stamped into the side of glasses. If necessary inspect leather gloves and face shield.	High pressure water stream	• If defects are found report to your laboratory instructor before using.
	Put on PPE	High pressure water stream	• Wear safety glasses at **ALL TIMES** around this apparatus!
	Inspect work area, walk around area looking for water, oil, or other foreign objects	Slips, trips & falls	• Clean area around apparatus as needed prior to beginning experiment. .
	Attach the turbine to the fluids bench.	High pressure water stream, water leaks	• Never turn pump on until experimental apparatus is connected. • Ensure that the "quick connect" connection to the fluids bench is securely attached. • Ensure that the supply hose of the turbine apparatus is not kinked and that the open bottom of the turbine is positioned to drain into the holding well of the fluids bench.

			• Turn flow control valve to minimum flow prior to turning pump switch on.
	Run experiment	High pressure water stream, water leaks, friction burns	• Increase flow control valve gradually to avoid excessive flow/pressure. • Monitor supply connection for leaks. • When engaging or adjusting the brake mechanism, keep hands and fingers away from the pulley. • Never try to stop the turbine by hand with the pulley, use only the integral brake strap mechanism. •
	Shut down	Water spills, slips, trips, falls.	• Allow the experimental apparatus to drain thoroughly prior to disconnecting it from the bench. • Never connect or disconnect the turbine with pump running. • If water has been collected/measured in the holding well, drain it back into the fluids bench reservoir.
	Clean work area and return all PPE to clean, dry storage area.	Water spills, slips, trips, falls.	• Ensure adequate housekeeping measures to prevent accidents. • Clean up any areas where water may have collected on the floor around the bench.

For more information about this LSA, contact the *Department of Engineering Technology* at UNC Charlotte (704) 687-2305

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The development of Laboratory Safety Analyses is a very effective means of helping reduce incidents, accidents, and injuries in the workplace. It is an excellent tool to use for training purposes and can also be used to investigate "near misses" and accidents.