

**Group Members:**

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Testing Process

- Tested to standards/safety protocols
- Tested as a measure of structural integrity of the product, so that safety factors can be maintained.
- Max testing of 10,000psi, but more common to test in the hundreds of psi
- Test enclosure connected to system via NPC conduit that varies from  $\frac{3}{4}$ " to 1  $\frac{1}{2}$ "
- Gauges have peak hold which allows them to record the max pressure attained
- Baking timer/stopwatch used currently
- Currently, the enclosure has only one connection, but customer is open to having a release connection.
- Water is used for testing.
- For safety reasons, controls are located outside of the room containing the fixture.
- System is not closed loop.
- No specific issues with existing system other than it's old.

Pass/Fail Criteria

- Explosion tests are done in conjunction with the hydrostatic test.
- Before hydro test can be done, the product needs to be sealed using silicone/rubbers in order to withstand the high pressures.
- Rule is to be 4Xs the safety factor.
  - Ex. if explosion test withstands 150psi, hydrostatic test needs to withstand four times as much (600psi). This 600psi is your minimum requirement.
- Hold pressure for anywhere from 10 seconds to 1 minute
- Continue to ramp up the pressure until failure.
- Some tests run increments of pressure til the product fails, others just take it straight to failure.
- When failure occurs, water is displaced everywhere, and so drainage is currently used.

Requirements

- Programmability of ramp rate, target pressure, hold time
- Pressure transducer-maybe build into system
- Possibly propose a new way to seal the enclosure before hydrostatic test
  - Current sealing process takes 3-4 days, where as the hydro test takes minutes.
- NOT REPLACING PUMP
  - Pump is very expensive (125hp)
  - Atleast 15yrs old
  - Customer will provide pump specs like model info etc
- Digital display where pressure, ramp rate, and hold time can be controlled.
- Possible relief valve if deemed necessary.
- Possible test samples from customer
- NO anticipation for dedicated system
  - laptop used mostly
  - 90% of the time, no data acquisition
- Tolerance for pressure:
  - If target is 500psi, the minimum is also 500psi

Administrative:

- Visit to company can be as soon as Fri 9/13/13 from 9am-6pm
- Customer would like email updates in the form of a progress report every 2-3 weeks
- Contact info of the technician will be forwarded as soon as possible.
- Pump specs will be forwarded as soon as possible.

**More questions for the customer:**

1) Is the pump simply ON/OFF? Or controllable?

**ACTION ITEMS**

<b>NAME</b>	<b>DATE</b>	<b>DESCRIPTION</b>
ALL	9/8/13	Refine Problem Statement
ALL	9/8/13	Refine Eng Req'mts and Customer Req'mts
ALL	9/8/13	Answer questions from ppt. for Week 3 review
ALL	9/8/13	Brainstorm Benchmarking

**Reminders:**

- Mike Zona will be present at our meeting Mon 9/8/13 in MSD room
  - Meeting at 6-8pm
- Read through the Standards again and apply the useful info to the action items.