



# New Mexico State University Water Treatment Filtration System (WTFS)



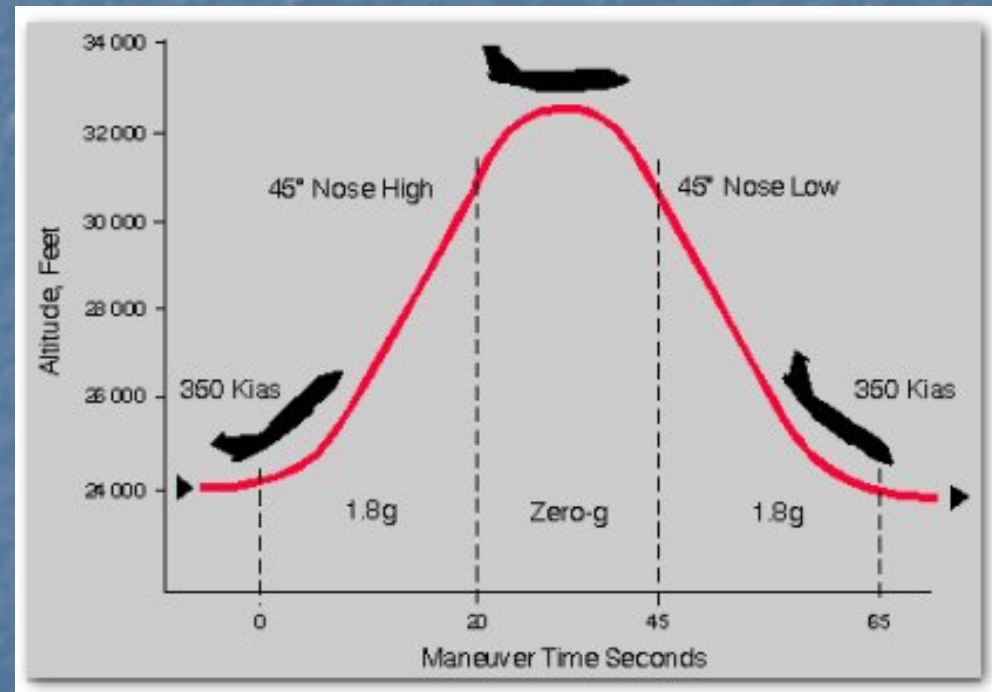
NASA Reduced Gravity Student Flight  
Opportunities Program, Spring 2003

# KC-135 Program General Overview

The NASA Reduced Gravity Student Flight Opportunities is a highly competitive and unique program that allows student organized university teams to propose, design, assess, fabricate and carry out their experiment aboard Johnson Space Center's KC-135 or "*Weightless Wonder*".

# KC-135 "Weightless Wonder"

- 32 Parabolas per flight
  - 30 Zero-G
  - 1 Lunar-G
  - 1 Martian-G
- 2 flights per team
- 2 team members per flight



# 0-G

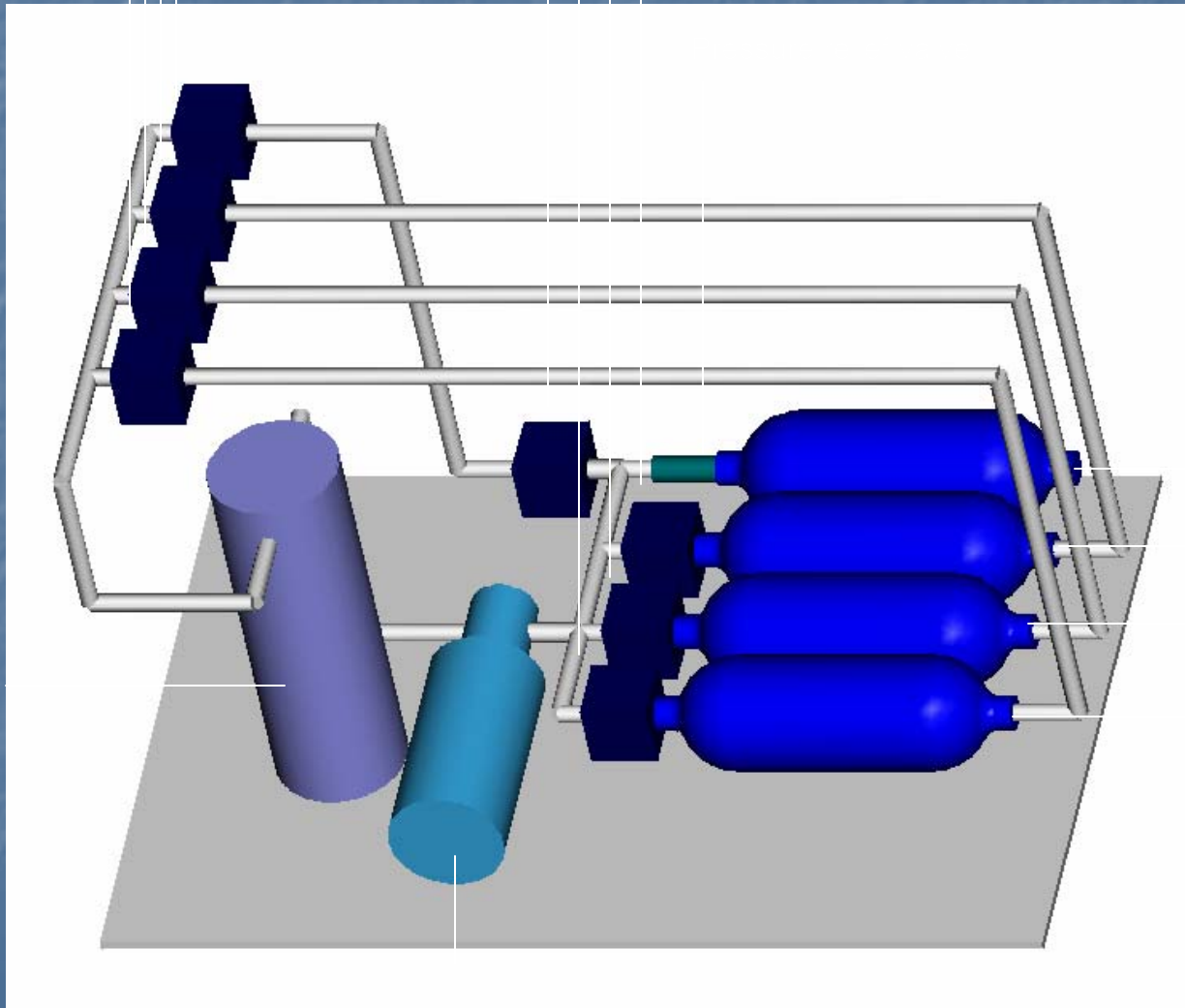


# Experiment Goals

- Determine whether the filtration system designed is appropriate in a 0-G environment
- To remove the contaminants by means of filtration so that the water may be used for bathing or experimental purposes
  - It is predicted that this format of a filtration system will be effective in 0-G.

# Experiment Layout

Two-way valves



Filter housing

Pump

Relief Tank

Storage tanks

# Experimental System



# Data Recording

- Recorded the pressure of the system
- At NMSU tested the levels of turbidity in all of the samples
- Analyzed the ion concentration
- Determined the amount of soap still in the water samples

# Results

- The filter was effective in removing much of the turbidity.
- More specific test are currently being conducted.

# Conclusion

- The system was effective in overcoming the lack of gravity .
  - Upon completion of sample analysis and comparison with the ground tests the filter was determined to be ineffective for removing soap and salt.
  - Alternative filters, filtration systems, and purification requirements will be experimented with in future experiment.

Questions?