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# FLENSE MODEL 4

Lab Report #11

**Date:** 9/7/2022

**Test Conductor:** Vincent Sadowski and Jack Charles

**Location:** Behind the apartment building

**Time: Start** – 10:00 AM    **Finish** – 2:00 PM

**Amount of Water:** 32 oz. of water

**Objective(s):** Test the same latest model of “Flense Model #4”. To measure the distance of the steam can travel through the tubing and into the jar and the full effectiveness of the model without any issues during the test.

**Product(s):** Fresnel Lens #4 – Stainless steel regular size bowl – Water 32 oz. – Thermometer – Pen – Notepad – Time watch – Glass Dome Model #4 – Red Marker – PVC Pipe – Plastic Connector.

**Water Temperature Test: Before** –  $30.38889^{\circ}\text{C} = 86.70^{\circ}\text{F}$     **After** –  $84.05556^{\circ}\text{C} = 183.30^{\circ}\text{F}$

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## Report Detail:

- For today’s test, the same materials for the model are all the same. The goal for today is to measure the outcome and the performance of the model without having any issue during the test that would affect the outcome of the goal. At 10:00 AM, the test began. At 10:45 AM, the PVC pipe began collecting new water as the new water is deposited into the empty glass jar. At 11:20 AM, the steam began to form inside the tubing. At 12:00 PM, the first mark to measure the distance of the fog inside the tubing was marked. At 12:10 PM, the second mark was marked. At 12:35 PM, another mark was marked as more water continues to fill in the empty jar. At 2:00 PM, the test has come to an end. In conclusion, throughout this test, there were no issues that needed to be fix. Also, throughout the test – although the jar didn’t collect as much water as it did yesterday, the jar was still able to collect some water. The only issues that occurred during today’s test were 1st – the PVC Pipe. Due to heat intensity in the silver bowl, the



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pipe original shape formation gradually shifts into an odd shape that prevents to collect excess water coming down from the glass dome. 2<sup>nd</sup> – the speed process to generate more heat. With the current highest heat temperature ever recorded (183.30\*F) throughout the project, the time it takes for the heat to increase to a boiling point is still out of reach with the limited time amount of sun is available. (In other words - It will take more time than just 5 to 6 Hours for the water to reach at a boiling point and produce more steam).

**NEW DISCOVERY – The amount of heat temperature the sun produces, determines the amount of time it will take for the water to go to the process and create new water.** The higher the temperature, the faster it produces new water vs lower heat temperature, the slower it produces new water.

1. **Higher heat temperature = More water it produces. Lower heat temperature = Less water it produces**

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### Conclusion:

- At 2:00 PM, the test has come to an end. In conclusion, throughout this test, there were no issues that needed to be fix. Also, throughout the test – although the jar didn't collect as much water as it did yesterday, the jar was still able to collect some water. The only issues that occurred during today's test were 1st – the PVC Pipe. Due to heat intensity in the silver bowl, the pipe original shape formation gradually shifts into an odd shape that prevents to collect excess water coming down from the glass dome. 2<sup>nd</sup> – the speed process to generate more heat. With the current highest heat temperature ever recorded (183.30\*F) throughout the project, the time it takes for the heat to increase to a boiling point is still out of reach with the limited time amount of sun is available. (In other words - It will take more time than just 5 to 6 Hours for the water to reach at a boiling point and produce more steam).



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### Problem(s):

- 2 issues occurred during this test.
  1. **The PVC Pipe formation.** Due to high heat intensity in the silver bowl, the pipe original shape formation gradually shifts into an odd shape. When this problem occurs, the shape it forms prevents it to collect excess water coming down from the glass dome.
  2. **The speed process to generate more heat.** Because it's impossible to increase more heat to boil the water faster, the amount of time to convert old water to new water becomes very limited due to the limited time of the test run and the sunlight available.

(Example: 5 Hours to do the test and the test begins at 1:00 PM.

Scenario 1: If the water begins to boil at 2:00 PM, then it collected more new water after the test vs,

Scenario 2: If the water begins to boil at 3:00 PM or later. It will still collect some water, but not as much as scenario 1.

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### Next Step:

- Due to the previous 2 to 3 tests previous result in collecting water, it has been confirmed that the latest model can produce new water. Knowing this, there are 2 ideas that we are currently working on in hopes that with new improvements added – it will take the current model's performance to the next level. The 1<sup>st</sup> idea – Gutter redesign. So, for this idea, we are currently working on resigning a round gutter made out of aluminum sheet to replace the PVC pipe. 2<sup>nd</sup> idea – Adding electricity component. With this idea, we are now shifting slowly to move on to the next step process of the project - which includes adding electricity energy components in the model. This will be the next challenge we will tackle and it will take some time to find the best solution. In order for both ideas to come to life, both will need some time of planning and research (Especially the idea of adding energy components in the model). So, in the meantime, for the next couple of testing, we will continue to use the "Flense Model 4" to do further research in hopes to find new discoveries. As always, we will continue to keep posted and keep up to date.