TEXAS STATE UNIVERSITY
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NU PLASMA®
MAKING LIVES BETTER

**TECH 4398**

# Appendix I: Senior Design Project Abstract

## *Analytical Model of Warming Rate of Freezer*

**Product Description:**

An analytical model that reliably predicts the rate of warming of a freezer while no cooling mechanism is applied.

**Abstract:**

There are many circumstances in which the infusion of blood plasma may greatly improve the health of a person. NuPlasma is making a significant contribution to the betterment of our community by providing this valuable product. Between the times of donation and sale, the plasma is stored in freezers at low temperatures in order to preserve the product. If the temperature of the plasma rises above a certain level, it is no longer viable. It is of interest to know how much time it will take for the plasma to reach this threshold temperature should the freezer's cooling mechanism cease to operate. An example of this situation is a power outage. This project will investigate analytical methods of predicting the time in question. Experiments will be conducted with a small-scale freezer to verify the developed model(s). The model(s) can then be applied to the specific circumstance of NuPlasma.

**Project Customer:** Name and contact info for the sponsor's contact person

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