REDHAWK PI-VISION PROCESS DISPLAYS

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Introduction

My name is Adan Partida, and I am studying Electrical Engineering at Arizona State University. I was under the mentorship of Andrew De La Torre who is stationed at the Redhawk power plant.

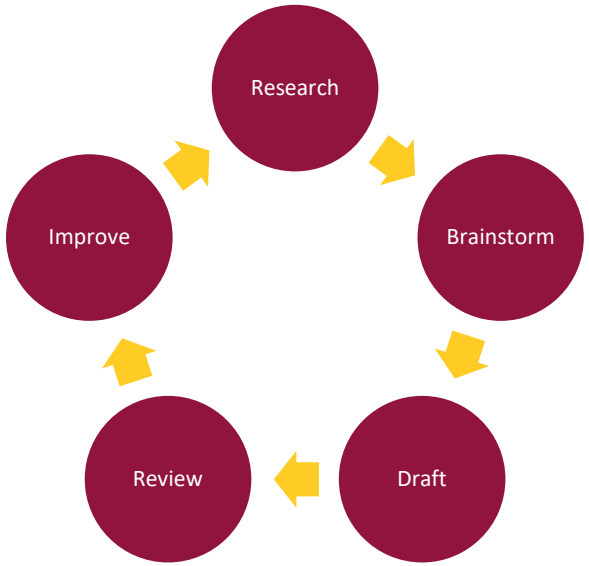


Figure 1. Basic project workflow

Project & Deliverables

The project was to create multiple PI Vision displays to illustrate key plant process data and conditions. These displays were a mixture of conversions from preexisting PB files, PI Vision displays, and new PI Vision displays. A homepage was established to link all the displays together and denote high-level power generation data from Redhawk. A total of 9 displays were created in this project.

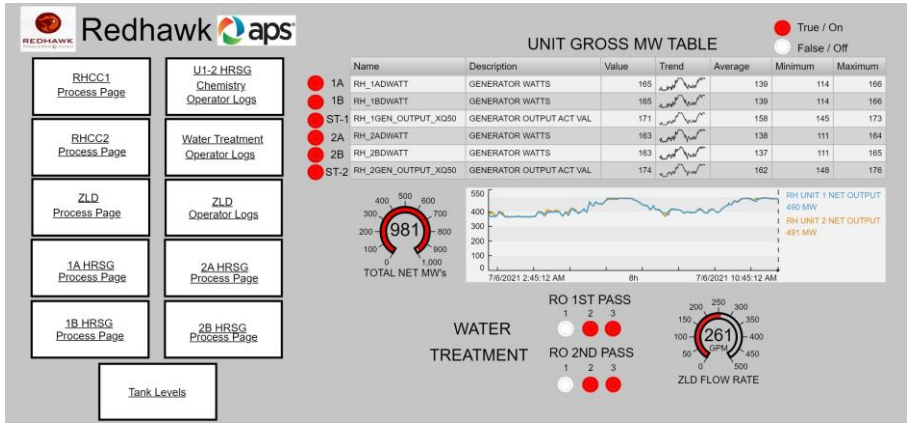


Figure 2. Redhawk home display

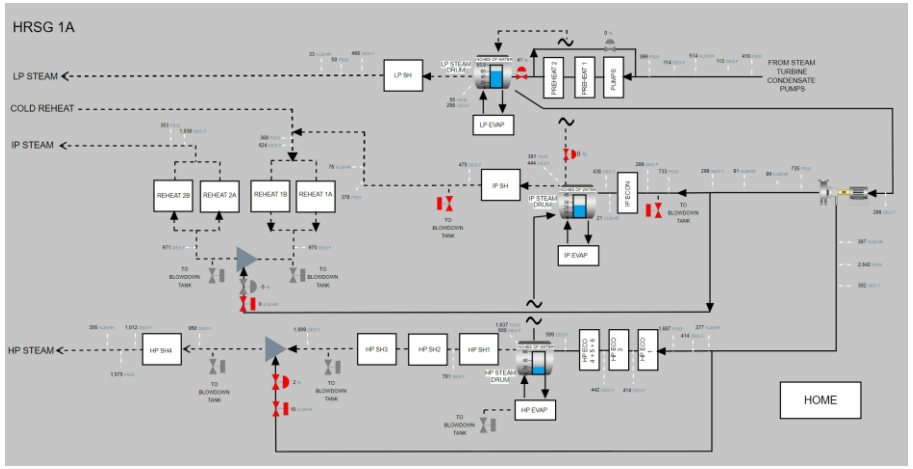
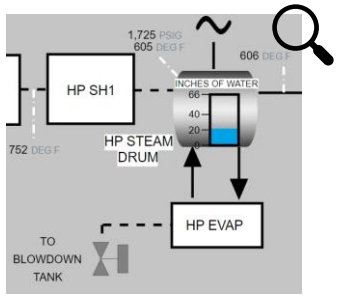


Figure 3. Redhawk HRSG 1A Process display



Research

In preparation for this assignment, I reviewed whitepapers describing the basic functions of combined cycle plants and HRSG systems. Additionally, I studied OSIsoft's PI Vision tutorials to learn the software's functionality. PI&Ds were used in the preliminary design phase and as reference when building the displays.

Findings

Abstractions in modeling preserve critical statistics without sacrificing intelligibility. PI Vision improves data retention via visualization à la graphs, gauges, and levels. Decisions regarding which sensor data to display, flow paths, and original design integrity must be weighed against the needs of the plant users. Throughout the design process, additional PI&Ds and TP files were required to complete the HRSG system display.

Conclusion

The new displays eliminate waste measured in time spent searching for information and increase value to Redhawk plant users by perpetually featuring relevant, real-time system data. Value is passed downstream to APS customers by improving visibility of Redhawk system failures and deficiencies thereby decreasing the probability of broader systemic malfunctions.

Acknowledgements

I'd like to thank Andrew De La Torre for his guidance and expertise throughout the internship and Madinah Fowler for her continued assistance and motivation during the program.