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NELHA

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# 01 -Background Information

“The mission of the Natural Energy of Hawaii Authority (NELHA) is to develop and diversify the Hawaii economy by providing resources and facilities for energy and ocean-related research, education, and commercial activities in an environmentally sound and culturally sensitive manner.”

-NELHA

# 01 -Background Information

NELHA supports its mission by:

- Providing sea water to 54 clients
- Managing 840 acres of land
- Diversifies the Hawaii economy by providing opportunity for ocean science and renewable energy projects to flourish



# 01 -Background Information

## What is the project?

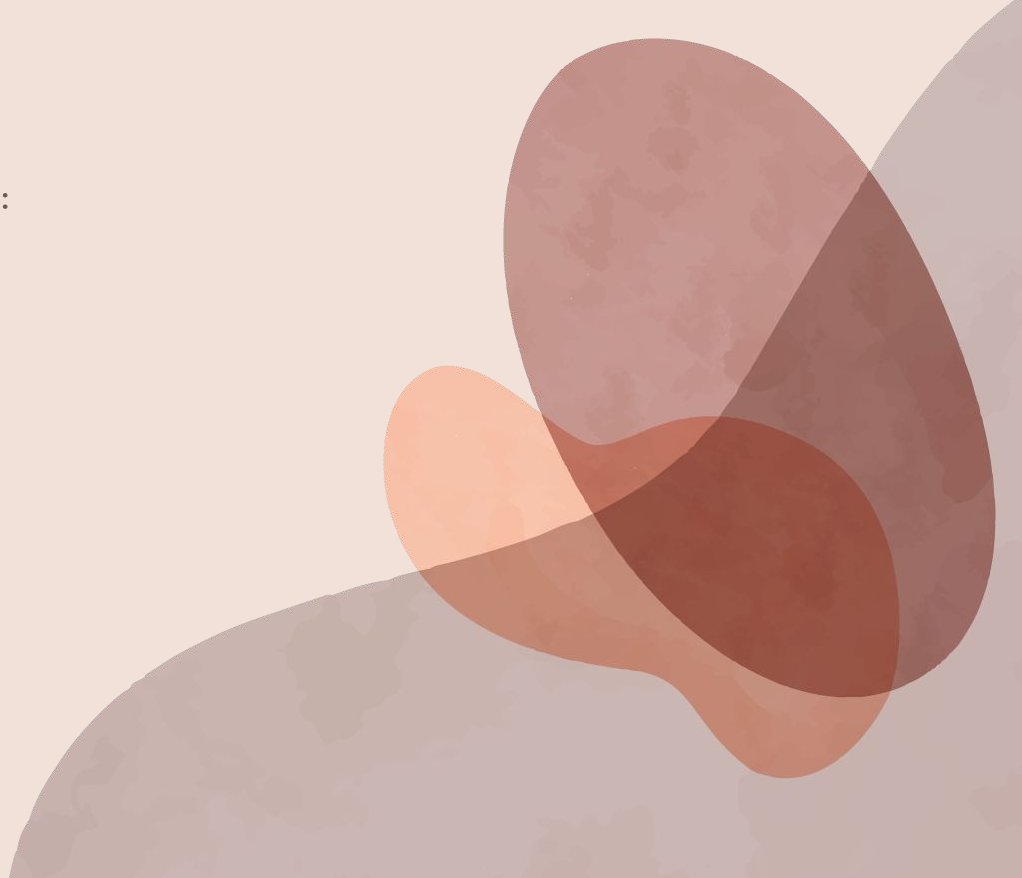
Develop an Electronic Reminder System:

- Scheduling maintenance
- Ordering parts
- Scheduling inspections

## Why do it?

Stuff Happens...

- Safety precautions
- Prevent catastrophic failure
- Prepared to mitigate problems



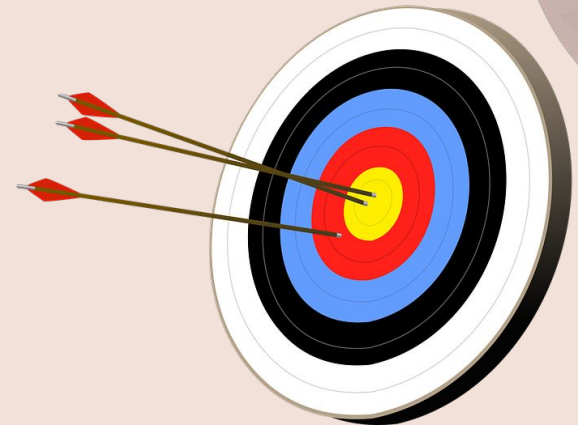
# 01 -Background Information

## Project Goals

By the end of the internship:

- Categorize maintenance and inspection tasks
- Add required parts to complete tasks
- Tabulate in a spreadsheet all categorized maintenance and inspection tasks
- Migrate tasks from spreadsheets to a calendar
- Test the calendar

## GOAL SETTING



# 01 -Background Information

## Project Methods

1. Categorize maintenance and inspection task
  - a. Talk with the operations staff to discover routine maintenance and inspection tasks
  - b. Decide between necessary and unnecessary tasks
2. Add required parts to complete tasks
  - a. Research part numbers for tasks
3. Tabulate in a spreadsheet all categorized maintenance and inspection tasks
  - a. Organize the tasks by frequency they need to be done
  - b. Taking out tasks that didn't apply as a calendar event
  - c. Combining jobs that are the same (ex. Fire extinguisher certification)
4. Migrate tasks from spreadsheets to a calendar
  - a. Research programs to transfer data from the spreadsheet to the calendar Google Sheets -> Microsoft Outlook
  - b. Manually putting the tasks as events
5. Test the calendar
  - a. Confirm NELHA Staff received notification of the calendar event (reminders)

# 01 -Background Information

Reoccurring Work for Operations Department				
Nomenclature	Item	Action	Time	Workers
Sorted by item in A-Z				
Hale Iako	AED Battery	Replace	3-year	Ops Staff
Ke`ena Hana	AED Battery	Replace	3-year	Ops Staff
SunShot Solar Plant	AED Battery	Replace	3-year	Ops Staff
1986 Easylift Boat Trailer	Boat Ramp Permit	Renew	Annual	DLNR
Gas Powered 6Kw Welder / Generator	Engine	Exercise	Annual	Ops Staff
Gas powered Air Compressor	Engine	Exercise	Annual	Ops Staff
Gas powered Concrete Mixer	Engine	Exercise	Annual	Ops Staff
Gas powered Cutoff Saw	Engine	Exercise	Annual	Ops Staff
Gas powered Hammer Drill	Engine	Exercise	Annual	Ops Staff
Gas powered Portable 1Kw Generator	Engine	Exercise	Annual	Ops Staff
Gas powered tow-behind air compressor	Engine	Exercise	Annual	Ops Staff
1972 Grove Crane RT48 s/n 19623	Engine Oil / Filter	Change	3-year	Ops Staff
1981 Toyota Forklift 2-ton	Engine Oil / Filter	Change	3-year	Ops Staff
1988 Boston Whaler Boat	Engine Oil / Filter	Change	3-year	Ops Staff
1990 Caterpillar Backhoe	Engine Oil / Filter	Change	3-year	Ops Staff

# 01 -Background Information

Calendar (keith.olson@hawaii.gov) ▾

99 MAINTENANCE: Change Air Handler Filters (Bi-Annual Requirements) for Hale Iako...

Towle, Carl D Optional

9/ 5/2022 to 9/ 5/2022 All day

Repeat monthly Occurs the first Monday of every 6 months effective Sep 5, 2022.

Add a location Teams meeting

18 hours before ▾

Source Code Pro 11 A B I U ab x<sup>2</sup> x<sub>2</sub>

MAINTENANCE: Change Air Handler Filters (Bi-Annual Requirements) for Hale Iako, Keena Hana, Ops, & Hatch Buildings

Calendar (keith.olson@hawaii.gov) ▾

99 ORDER: Air Handler Filters (Annual Requirements) for Hale Iako, Keena Hana, Ops,...

Olson, Keith Towle, Carl D Optional

8/ 1/2022 from 8:00 AM to 8:30 AM All day

Repeat yearly Occurs the first Monday of August effective Aug 1, 2022 from 8:00 AM to 8:30 AM.

Add a location Teams meeting

15 minutes before ▾

Source Code Pro 11 A B I U ab x<sup>2</sup> x<sub>2</sub>

Hale Iako Building:  
→ 16x20x1 Qty: 30 Part# MERV13  
→ 16x25x1 Qty: 18 Part# MERV13  
→ 16x16x1 Qty: 8 Part# MERV13

Keena Hana and Lab Buildings:  
→ 18x20x2 Qty: 6 Part# MERV13  
→ 16x20x2 Qty: 14 Part# MERV13

Ops Building:  
→ 16x25x1 Qty: 2 Part# MERV13

Hale Kaa Building:  
→ 20x25x1 Qty: 2 Part# MERV13

## Recurrence

Start 8/ 1/2022

Repeat Monthly ▾

Every 6 month(s)

On 1 day

First Monday ▾

End no end date

Occurs the first Monday of every 6 months starting Monday, August 1, 2022.



## O2 -Project Summary

### What did I do?

Since I'm the only one at the NELHA internship site, my mentor and I both worked together on inputting all the information into the calendar.

#### **Critical Maintenance Calendar:**

Lilly, a WHEA high school student, is participating in a full year Hawaiian STEM Program called Project Hokulani. Part of the program is to gain STEM work experience in a professional environment during a two-week summer internship. Lilly is gathering maintenance frequency information for critical infrastructure, utilizing spreadsheets to document parts needed and programming NELHA's electronic calendar to notify Operations staff when to order parts and schedule the services.



NELHA newsletter  
summarizing my project

## O2 -Project Summary

Skills I needed to complete the project/How did I acquire the skills?

- Understanding spreadsheets
- Understanding the calendar program
- Understanding the jobs and what needs to be done

I acquired most my knowledge from trial and error, articles, my mentor, and videos online.



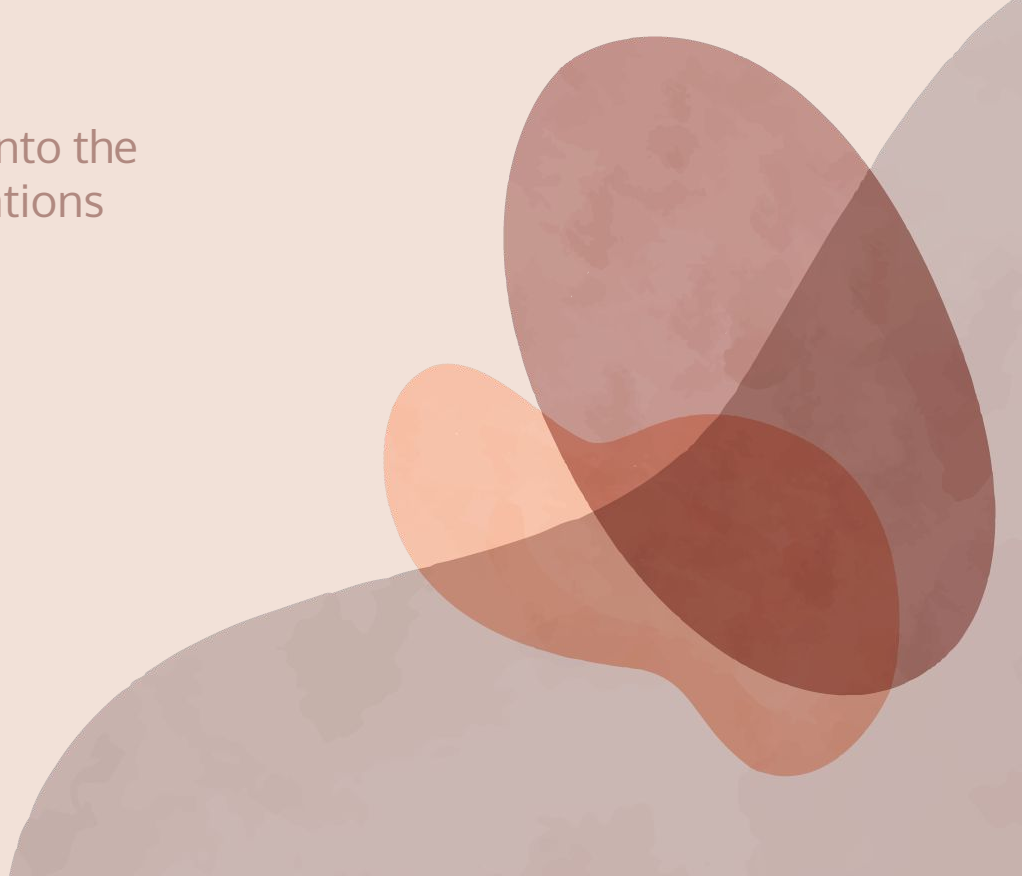
Google Sheets



## O2 -Project Summary

Did we complete our goal?

We accomplished inputting events into the calendar and tested that the notifications were sent to the staff members.



## O3 -Reflection

### What skills did I learn?

I learned how to use spreadsheets, Outlook Calendar, and all the activities they do at NELHA.

I experienced how to prioritize certain tasks and when complications arise, they can be resolved by breaking them down into smaller chunks



Observed NELHA staff opening the sump and replacing a failing pump



## O3 -Reflection

### Improvements? Applications to the real world?

I would spend less time on the one single issue we ran into because it potentially took up a lot of time we could have spent inputting the information into the calendar.

Since my school is very similar to NELHA, I can use the spreadsheet of jobs at school for my main project when school starts. In my Ohana, I might use something like this for chores that I share with my family members.

# Thank you!!

Keith Olson

All the operations staff

Dean

NELHA

Project Hokulani

Mrs. Lee

Brycen

Jo'el

