

SmERT

Week 1 Team/Client Meeting Agenda

6/24/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Specific project goals: what *must* be completed
- Obtain contacts from manufacturers for machines
- Shop key
- Timeline/schedule: dates for specific goals
- Secondary goals: what should be completed if time remains
- Review team contract
- Other information/resources/manuals for machines

Action Items to Be Reviewed

- N/A

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Week 1 Team/Client Meeting Minutes

6/24/2014
Tuesday, 11:30 A.M.
Senior Design Suite

- Dr Cordon will provide
 - Receipts for all bottles
 - List of the bottles needed
 - List of current bottles in SmERF
 - Contact information for current gas bottle provider
 - Any user information for the black tower (CIA Machine)
 - Request a shop key for SmERF
- Budget around a few thousand
 - Will depend on cost for purchasing bottles
 - We need to come up with price estimates for purchasing bottles
- Layout of SmERF
 - Black tower will need to be mobile along with gas bottles
- Actions to be completed by end of summer
 - Design and build a cart for the gas bottles
 - Detailed design review containing projected costs, and plans for the project moving forward
- We need to look into OSHA regulations pertaining to gas bottles

Projects:

1. CIA Machine
 - a. Get it ready for use by December
 - b. Cart for gas bottles
 - c. Get correct gas bottles and fittings
 - d. Pull out CO analyzer and send it back to get fixed
 - e. Detailed Design review with costs and plans
2. Ford Equipment
 - a. Get it up and running
3. Work on other projects in the SmERF

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Week 2 Team/Client Meeting Agenda

7/1/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Where have you been? -Pete
- Who to contact about purchasing OSHA regulations on gas bottles, unless we have it already
- Make\review project goals
- Specs to reach goals
- Oxarc contact\receipts for rentals. Should we buy instead?
- Discuss new action items
- Snapshot day
- Current Oxarc receipt

Action Items to Be Reviewed

- Contacting CAI sales rep
- OSHA regulations on gas bottles
- Inventory gases

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Week 2 Team/Client Meeting Minutes

7/1/2014

Tuesday, 11:30 A.M.

Senior Design Suite and SmERF

- Environmental Health and Safety (EHS)
 - They have OSHA regulations information
 - We need to contact them
 - Explain to them what we are doing
 - Ask about making a cart
- Oxarc Contact is Rob or the branch manager 208-743-6571
- Oxarc Receipts
 - Talk to Debbie Foster
 - She is the account tech for NIAD
- Additional bottles are in the SmERFet which is next to SmERF
- Snapshot Day
 - Copy items from our logbooks
 - Provide specs from EHS for cart
- Need proper regulators
 - Inventory all regulators and fittings
 - Check that fittings are on proper bottles
- Create abbreviated instructions sheet for black tower
- Goal – have cart built by end of summer
 - EHS specs
- Dr. Cordon
 - Email Oxarc about bottles
 - Cc us to take over communications
 - Email Debbie Foster

Projects:

1. Determine prices to purchase bottles
2. Figure out regulators
3. Create instructions for black tower

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Week 3 Team/Client Meeting Agenda

7/8/2014

Tuesday, 11:30 A.M.

Senior Design Suite

Note: Kyle will be attending wiki meeting, Jake will take meeting minutes

Discussion Points

- When do we get logbooks and portfolio back
- EHS regulations
- Cart specifications\design ideas
 - Can cart be stationary?
 - Extruded T- slot
- Can we test tower without the CO analyzer

Action Items to Be Reviewed

- Snapshot

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Week 3 Team/Client Meeting Minutes

7/8/2014

Tuesday, 11:30 A.M.

Senior Design Suite and SmERF

- Cart needs to be mobile to be used in other engine bays
- If we use t-slot tubes we need to be able to push on the bottom of the cart to avoid the cart twisting

Projects:

1. Give logbook to DR Cordon next Tuesday 7/15
2. Learn about CAI Tower
3. Cart design next Tuesday
4. Design Review
 - a. Conceptual
 - b. Power Point
5. Milestones and Deliverables
 - a. Cart design
 - b. Bottles and new ones (Buy vs Rent)
 - c. Regulators
 - d. Users Guide
 - e. Ideas for projects after CAI Tower

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Week 4 Team/Client Meeting Agenda

7/15/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Schedule Time for Design review
- Discuss cart design sketches
- Discuss Milestones
- Ask about next project options
 - Dyno
 - Fuel cart project finish
- Shop Layout- Where do you want the Tower and bottles to go?
- Cart Budget

Action Items to Be Reviewed

- Go over cart specifications
- Show list of bottles

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Week 4 Team/Client Meeting Minutes

7/15/2014
Tuesday, 11:30 A.M.
Senior Design Suite and SmERF

- Design Review
 - Scheduled for July 29th at 11:30am in mindworks
 - Have a CAD model of the cart
- Cart design notes
 - Make cart that holds 10 gas bottles
 - Use 4 360 degree casters
 - Can bring the welder to the SmERF when we build cart
 - Can use the paint booth on the cart
 - Try to make it fit between wall and paint booth
 - Put a master lock on the bottom gates
 - Make the specifications measureable
 - Musts and should
 - Rank priorities
 - Consider which direction regulators will point
 - What to do with hoses
 - Possibly make inserts for different bottle base diameters
 - Stagger the bottles
 - Try to make it easy to see all regulators from one side
- Reference guides
 - Make them iteratively as the tower comes online
 - Guides on how to use calibration
 - Guides on how to use gas divider
- Budget
 - Design cart to cost around \$800 max
 - Casters will be expensive
 - Worth paying more on casters so they roll nicely
 - Steel can be purchased from facilities
 - FAX900
 - Activity Code CORDFA
 - Get a receipt
 - Let Molly know about purchase
 - Give Molly an estimate of the cost
 - Make sure facilities has activity code

Projects:

- Ask CAI if we will use any of the calibration gases faster than the others?
- 2nd project can be related to engine testing, and making a new engine stand possibly
- Call Oxarc and Norco to get quotes on renting and purchasing bottles
 - Ask about getting all the same size bottles
 - Want the nitrogen bottle to be as large as possible

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Week 5 Team/Client Meeting Agenda

7/22/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Cart ideas/CAD models
- Cart specifications list
- Norco quote status
- Oxarc quote status
- What size gas bottles to use
- What is the span for NOx analyzer (need to know which concentration of NO to order)

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Week 5 Team/Client Meeting Minutes

7/22/2014

Tuesday, 11:30 A.M.

Senior Design Suite and SmERF

- Cart design notes
 - 2 swivel casters and 2 fixed casters
 - All locking
 - 8 inch caster wheels (height of casters 9.5 inches)
 - Plate mounting casters
 - Add gate only if it fits the design well (low priority)
 - Possibly add an x-brace down middle of cart
- Client approved design, the next step is to show it to E.H.S for their approval at this stage
- Gas quote status
 - Purity of oxygen is 99.993% compressed oxygen
 - Size
 - May be limited to what companies are legally allowed to ship
 - Ask CAI for recommendations for sizes
 - Want as much FID and Nitrogen as possible

Projects:

- Get initial approval from E.H.S on our cart design

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Week 6 Team/Client Meeting Agenda

7/29/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Design Review Power Point Slide Questions
 - Project needs
 - Constraints
 - Deliverables (Design Task?)
 - CO Analyzer Slide
 - Project Learning Slide
 - Risks and Problems
- When are the other presentations
 - Where are they posted
 - How many do we need to attend
- Logbooks and portfolio

Action Items to Be Reviewed

- Oxarc quote status
- Norco quote status

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Week 6 Team/Client Meeting Minutes

7/29/2014
Tuesday, 11:30 A.M.
Senior Design Suite and SmERF

- Design Review on 7/31/14, at 11:30 am in Mindworks
- Other team design review times
 - Vision Quest 8/8/2014, at 12:00 pm in EP 324A
 - Hybrid sometime during week of 8/4-8/8/2014
- Turn in logbooks 7/31/2014, right after design review
- Design review presentation
 - Needs slide
 - Explain that this project is an improvement in infrastructure
 - Address the problem statement
 - Constraints Slide
 - Talk about the budget
 - Time frame to complete project
 - Resources to complete project
 - EHS approval
 - CO Analyzer slide
 - Talk about any troubles that may occur when trying to get it running
 - Project learning slide
 - Talk about information that was new to our team
 - What we have learned about the CAI tower (what it does, how its used, EHS regulations)
 - Risks and problems slide
 - Mention that we are still waiting on quotes from oxarc
 - Lack of documentation for the CAI tower
- Possibly phone conference with CAI to get some training on how to use the tower
- Gas Status
 - We are waiting for Oxarc to send us a quote
 - Waiting for CAI to tell us about Vehicle grade nitrogen
 - We have a quote from Norco

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Design Review Notes

7/31/2014
Thursday, 11:30 A.M.
Idea Works

- Competitor Cart capacity limiting factor?
 - Casters or cart design
- What are our bottle weights exactly?
 - Can we get away with modifying a cart that already exists?
- Look into non-mobile stands (~\$200 used), and pallet jack (\$179) to move stand
- Make a how to guide for loading and unloading Cart concept
- Perform an impact analysis for cart coming to an abrupt stop
- Confirm that casters can handle concrete and asphalt
 - What is the best coating for this
- 1/8" straps welded across cart concept three to help with deflection
- Add a bar underneath the cart to help if cart is ever moved with a fork lift
- Possibly use a bigger tube with thinner walls to achieve the same strength?
- Purchase existing cart and modify it to hold two more bottles on the front above the casters
- We can keep the correct bottles from oxarc and get new bottles from norco
- If we purchase a bottle it is called a customer owned tank and it can be refilled by anyone
 - Ask Norco how customer owned bottles are refilled?
- Ask Norco and oxarc about the turnaround for the specialty gases?
- Call Oxarc and tell them we want to return bottles, ask about the status of the quote
 - This may get oxarc to finally give us the quote
- Determine the rental charge vs the time to use up bottles
 - Decide which bottles are worth buying and which ones should be rented
- If cart can hold ten bottles add an extra FID bottle?
- Do we have to have straps or can we use chains to hold bottles?
 - Compliance issues
 - Talk to EHS about this
- When we make instruction manuals, talk about the removal of the regulators
 - Indicate where regulators go
- Ask CAI if we can mix gases in cylinders
- Design Review PowerPoint slide 6
 - Ask about combining bottles
 - Send back 4 bottles
 - FID Mix 40% H₂/60% N₂ (there are two of these bottles)
 - 90ppm C₃H₈ (propane) balance N₂
 - 4500ppm CO 21% O₂ Bal N₂ (send back if CAI says it won't work with the new range)

- Ask CAI about 4500ppm CO 21% O2 Bal N2, is it good with the new range?

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Week 7 Team/Client Meeting Agenda

8/4/2014
Tuesday, 11:30 A.M.
Senior Design Suite

Discussion Points

- Oxarc
 - If Oxarc won't pick them up until next week, should we wait until next semester?
- Order gases from NORCO
 - How do we pay for them?
- Review decision matrix
 - Weighting of categories
 - Final cart decision
- Is there anything else we need to do before the end of the semester
- What to do when CO Analyzer comes in?

Action Items to Be Reviewed

- Discuss presentation notes

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Week 7 Team/Client Meeting Minutes

8/5/2014

Tuesday, 11:30 A.M.

Senior Design Suite and SmERF

- Ordering bottles
 - Will go through Debbie at NIATT
 - Talk to Norco to see if they can just bill the department or if we need to come with a credit card
 - Purchase the tanks and gas from Norco
- Returning bottles
 - Schedule a time with Oxarc to have them pick up the bottles
 - If they cant do it this week then just do it when fall semester begins
- Weighting bottles
 - The steam plant has a scale
 - Need to contact Scot about using scale
- Decision Matrix
 - Weighting of categories was approved by client
 - Consider convenience in the easy to use category
 - Effect on timeline is included in the labor category
- Because our project is infrastructure getting the CAI tower running is number one priority, everything else is secondary
- Pallet Jack discussion
 - You usually can pick type of material for tires
 - Can be tough to move if there is any gravel, this needs to be considered because SmERF is right next to gravel parking lot
 - Pallet Jack would spend most of its time in the machine shop, so it might be inconvenient when it is needed in the SmERF
- Buy existing cart and modify it
 - Add larger caster and spacers to increase ground clearance so that it will be fork lift compatible
 - Casters are the limiting factor for existing carts
- Combining gases
 - Talk with suppliers about combining gases, can we achieve the proper ranges?
- Put eight bottles on a cart and have the ninth bottle sit along the wall by the analyzer?
- Regulators
 - Want pressure type
 - Some regulators are for corrosive gases and others aren't, so we need to figure out which regulator goes with which cylinder
 - Label the regulators so they are put on the correct cylinders

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Week 8 Team/Client Meeting Agenda

9/8/2014

Monday, 3:30 P.M.

Senior Design Suite

Discussion Points

- Status of CO Analyzer
 - RGA form costs
 - How do we pay for it
- Oxarc Quote
 - Still waiting
- MECO Cart and modify
- Data on bottle weights and diameters
- Waiting on oxarc to pick up bottles
- Ordering bottles
- Figure out team client meeting time
 - Where is Phil?

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Week 8 Team/Client Meeting Minutes

9/8/2014

Monday, 3:30 P.M.

Senior Design Suite and SmERF

- Mentor status
 - Phil isn't in the program, Dr. Cordon will look for a mentor to supervise any work we need done
- Next project options
 - Ford equipment
 - Toyota 3sGTE engine
 - Get a water brake up and running for the dyno
 - Create tutorials on how to use it
 - Possibly add a standalone computer for the engine
 - Gas turbine
- Instructor team meeting time confirmed for Monday at 3:30pm

Projects:

- Talk to Pete at CAI about charges for CO Analyzer being waved
 - Get a new quote
- Send Dr. Cordon information about cart
- Call oxarc to have bottles returned
- Ask Norco about lead times for bottles

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Week 9 Team/Client Meeting Agenda

9/15/2014
Monday, 3:30 P.M.
Senior Design Suite

Discussion Points

- Status of Meco cart
- Gas cylinder funding status
- Oxarc pick up
 - Wednesday or Thursday
- Second project decision
 - R-6 Motor rebuild and test
 - Rory says it needs \$500, is this an option
 - Gas Turbine
 - Water Brake
 - Ford equipment
- CAI Bill status (CO Analyzer)
- Lead times for NORCO gas cylinders
- Review timeline changes
- Mentor status

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Week 9 Team/Client Meeting Minutes

9/15/2014
Monday, 3:30 P.M.
Senior Design Suite and SmERF

- No mentor has been assigned
- Dr. Cordon has the information for the Meco cart
 - It will be ordered by Wednesday
 - Should arrive Friday or early next week
- Gas cylinder funding
 - May start out renting bottles and purchase them later
- Oxarc pick up
 - Ask Russ to unlock the smerf on Wednesday and Thursday
- Still waiting on Pete at CAI to respond about CO Analyzer bill
- Norco
 - Bottles will be ordered through Norlab in Boise
 - No lead times were given
- Work on zero air generator
 - What does it need to be operational
- Figure out what dry compressed air is
 - Will our water trap suffice or do we need something else?

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Week 10 Team/Client Meeting Agenda

9/22/2014
Monday, 3:30 P.M.
Senior Design Suite

Discussion Points

- Zero air generator
 - Location
 - Filter
 - Air supply
- Oxarc pick up
 - Never came
 - Will schedule another pick up!
- CO analyzer new bill, will shop on receipt of payment
- Design review
- Next snapshot
- Gas bottles
- R-6 motor status
- Logbook reviews

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Week 10 Team/Client Meeting Minutes

9/22/2014

Monday, 3:30 P.M.

Senior Design Suite and SmERF

- Zero air generator
 - Put it over in corner by control room
 - Mount on wall, can have facilities put in studs or we can do it ourselves with a hammer drill
- Oxarc
 - Still hasn't picked up the bottles
 - We will schedule another pick up
 - We are going to talk to Russ and see if he has a different contact at Oxarc
- CO analyzer
 - Will be payed for this week
- Design review
 - Plans for our next steps
 - Run analyzer
 - Create instruction manuals
 - Recap project
 - R6 engine
- Gas cart
 - It will be delivered to the HEV by 9/22 or 9/23
- R6
 - Rory will purchase parts
- Logbooks
 - Collected a week after our design review
- Gas bottle status will be ordered this week
- Projects for this week
 - Assemble cart
 - Mount zero air generator

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Week 11 Team/Client Meeting Agenda

9/29/2014
Monday, 3:30 P.M.
Senior Design Suite

Discussion Points

- Design review time (Does Thursday at 3:30 pm in mindworks work)
- Meco Cart Status (was it delivered)
- CO Analyzer status
- Gas bottles status
- R6, have parts been ordered?
- Zero Air generator

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Week 11 Team/Client Meeting Minutes

9/29/2014
Monday, 3:30 P.M.
Senior Design Suite and SmERF

- Design Review time scheduled for Thursday October 2 at 3:30 pm in mindworks
- Meco Cart
 - It is on campus
 - It will be delivered to GJ 120 sometime this week
- CO Analyzer
 - Has been paid for and is being shipped back to us
- R6 parts haven't been ordered yet
 - Dr. Cordon is going to talk to Rory about getting parts ordered
- Gas bottles
 - Order hasn't been made yet
 - Order will be made this week
- CAI tower
 - Get a plastic cover for the analyzer
- Zero air generator
 - Hammer drill will be in SmERF 9/30

Project:

- Put the FTIR units onto their carts