**Multi State Wildland Firefighter Project WDC39 Meeting**

**Present: Emiel, Sonya, Ellen, Addie, Casey, & Meredith (Tony by phone)**

Call with Tony Petrilli

* Big survey done on wildland ff PPE in 2007-08
* Redesigned pants/ shirts
* Pants- 2010 revision
* Shirts- 2011 revision
* Wear Testing- 40-50 (each of the below garments)
* Milliken/ Tencate- different nomex 3A
  + Womens - wear trial
  + No urgent needs - future long term
  + Forest service – one size fits all
    - Structure in single style
      * Model can’t warehouse lots of styling/custom patterns
      * Only 2 pant styles
* Wildland PPE Manufactures – can purchase with their own money
* Anecdotal - more standard issue clothing being worn by wildland FF now than private market since redesign in 2010

**\*\*\* needs 1) alternative to standard issue**

**2) female firefighter sizing/fit- anthropometric difference**

* History of Wildland PPE Materials:
* 2010- 6.8 oz nomex 3A twill- light green
  + Men new vs. old style materials?
* 7.7oz nomex 3A
* 6.5 oz- 60/40 kevlar/nomex ripstop late 90s
* 8.5oz nomex 3A- late 80s/early90s carbon anti-staic
* 2 New Pants
* Nomex- nomex 3- nomex 3A- 6.8oz twill
  + Wont wear if over 75 degrees (worn in Phoenix (100 degrees ↑) desert brush- better brush protection
* Kevlar 7.4 oz- ripstop BWR finish
* Wearable tech: worth exploring
* Parameters? of tracking
* System integration
  + Location tracking , GPS, bio- tracking, co exposure
  + Wear Testing
* Physical Study & approval for wear testing- contact
  + Out of Boise, Idaho
* Human testing/lab testing
  + Health & Safety report
* Climate regional differences
* Trade off between protection and comfort

Meeting Introduction:

NIFA system- National Institute of Food & Agriculture

USDA land grant universities

Members/Role:

Sonya (Univ of Idaho)- administrator/research participant

Ellen (IA State)

* technical/ creative design (social psychology)
* Pattern making- innovative
* Sizing/fit- garment adjustability
* TC2 body scanner/structure scanner
* Comfort lab with environmental chamber/hot plate
* Sweating man/hand

Addie (GA Southern)

* newer body scanner
* fit plus- size/body variations

Casey (LSU)

* apparel design- fit/sizing
* Pattern making
* (LSU fine training facility)
* Size stream- 4 yrs old
* Optitex
* regional temperature/environmental issues

Meredith (FSU)

* textile scientist/technologist
* thermal/physical comfort assessment
* fabric durability/wear life assessment
* textile lab/ ISSM/ Body scanner
* Tallahassee Tall Timbers Research Station - prescribed bums

Emiel (NCSU)

* Human thermal phys.
* Modeling heat exchange
* Different environments
* College of natural resources
* Wildland shelter project
* Does not have exercise science

Sonya- Reviewed NIMSS:

* User guide/manual
* Granted permission to request write new proposal
* Western Development Committee (WDC)
* Not funding but authorizing
* Land grant regions
* 39 - given number
* \* Need another western region university involved (Oregon, Colorado, Wyoming)
* Other IA state members not participating
* Support one member/institution
* Experiment Station Director
* Funding to attend 1 meeting/ yr for project research committee
* Can have non-land grant members
* \*\* (New) Proposal vs. Grant Writing (Funding: build in for non- land grant participants)
* Oct 1st-Sep 30th Federal fiscal year
* Fund 1 meeting/yr

**Project Proposal due Jan 15th, 2019:**

* Through NIMSS system
* 3-5yr duration
* find NIMSS proposal example
  + NC170
* Recommend and suggest reviewers
* Have it reviewed prior to submission
  + (Tony P) experts (NC170)

WDC39 Committee:

Chair: Emiel - communicate with Sonya

Secretary:

Co-Chair/Chair- elect:

\*\* This will be a **NEW** proposal not a renewal

* Decision March/April 2019
* Become a new active project committee
* Researchers can join at any stage
* Funding separate from NIMSS
* Industry Funding Ideas?
  + Crew Boss- Oregon (Kathy)
  + Propper- Robert Brin
  + Neese Industries
  + Fire Dex- Todd Herring
* Experiment Station Funding: Hatch Proposal- within your own state (land grant)
* Funding from Ag Exp. Station to your department
* Due first part of March
* Don’t have to have approved project to apply
* Specific to each Pl/University
* External Funding
* DHS/FEMA – Letter of Support – R&D, Education
* NIST – PSIAP – User Interface
* FSU CRC Supplies

Dr. Joe Roise: Presentation – Natural Resources:

* Trained workforce
* PPE tools for 22 person crew
* Train 25 new firefighters per year
* Research forest ecosystem restoration/ fuel reduction
* "crown fires"- ff spreads from tree top to tree top
* Lot of controlled/prescribed fire
* Control 90k acres on 7 forests in SE
  + NCSU College of Natural Resources
  + Raleigh 300 acre forest – burn
  + Early Spring – April
  + Gatlinburg fire
* NWCG --> agency in charge of educating ff- required yearly training
  + (outcome- safety education material)
* Nomex Clothing Improvements:
  + Great thermal protection but don't protect from cold (at night) - don't have humidity – cold night snow
* \*\*Rugged conditions – blackberries – rip clothes to shreds
  + Chaps – additional piece of clothing
* Lightweight breathing system
  + Respiratory protection
  + Ravenel – breathing device
* Yellow – Visibility –challenge to see each other – radio communication
* Cleaning --> Improper practices!
* Educational piece
* Incident Command System – forest service
* Standard crew = 20 people

Project & Individual Objectives:

* Literature Review- Synthesis
* Gather User Needs- Survey & Focus Group Int.
* Education- safety Manual (wearing, cleaning, etc.)
* Casey: Fabric combos for thermal comfort & durability/ brush protection
* Ellen: Design Proposal Process

Long Term Objectives:

* USFS – multiple stations in KY
* Training station
* FSU, UK, LSU, NCSU, Idaho
  + Wear trial opportunities (regional differences)

Key Focus Areas:

* Sizing: anthropometric study
* Fit: male vs. female
* Material Testing: lab – durability (new/wash)
* Design: Self Modification
* Garment Testing: manikin/wear

Proposal: (20K word limit)

* Statement of Justification & Issues
  + Update W2191 original proposal
* Related current and previous work (Lit Review)
  + 2-3 pages – W2192 Update
* Objectives
* Methods
  + Outputs
  + Outcomes/Project Impacts
* Milestones (by year)
* Outreach Plan
* Org/Dev
* Literature Cited

Purpose: To increase Wildland FF clothing satisfaction, safety, and functions/performance

Objectives:

1) Improve design (soc/psych- Casey, Sonya) – Lead(s): Casey , Ellen, Addie

2) End user education (fit- Addie, Ellen) (functions- Casey) – Lead: Sonya

3) Material/tech perform (use & care) – Lead(s): Meredith, Liz, Emiel

4) Design comm/standard review – Lead(s): Emiel, Sonya, Meredith

Tasks to complete by Next Meeting:

1) Each individual write out formal objective assigned above

2) Write method

3) Update literature review

Next Meeting:

* **Monday, June 4th 12-2pm (remotely)**
* By next meeting: write draft objectives & methods
* Elect sec, chair, chair-elect, at fall in-person meeting
  + Meeting planner position
* Next meeting: Tallahassee (potentially); meet where non-land grant members don’t have funding (Meredith & Addie)
* Potentially add tour or rep from DHS/USDA/NIFA