EFCOG HPI Working Group Monthly Conference Call, January 28, 2021

<u>Callers:</u>

- ANL – Paula Plalan
- BNL – Bill Brown
- DOE-HQ – Riz Shah
- FNL – David Baird
- Hanford – WRPS – Lloyd Keith
- Hanford – WTP – Page Eaton
- ICP – Trish Hughes
- LBNL – James Bayshore
- LLNL – Christine Kerr
- LANL – Mike Petrowski
- N3B – Joe Lockwood
- ORNL – Chuck Ramsey
- PANTEX – Lauri Minton
- SRNS – Daryl Smoldt; Cassie Sistare
- Y-12 – Carol Ritz; Andy Hobbs

1)   Task Group Business

a)   Review/Update Tasks and initiatives

- **Task 18-3 (HPI Metrics)**
    - Chuck Ramsey provided an update
        - COMPLETE
        - Uploaded to EFCOG website.

- **2021 Annual Plan**

Human Performance		
Activity(s)	**Benefit(s)**	**Deliverable/Key Milestone(s)**
21-CAS/HPI: Evaluate Methods for Performing Issue Investigations (HPI TG POC - Rich Poliak)	Assist CAS Task Group to provide Best Practices or Information base for CAS Performing Investigations with consideration of HPI perspectives	See CAS annual plan for details (Joint with CAS Group – CAS group to lead, HPI to support)
21-1: Develop Best Practice: Using virtual capabilities or options for HPI application (to reduce errors).	This best practice will highlight and demonstrate how virtual technologies (Webex, Zoom, Blue jeans, etc.) may be used to implement HPI practices such as peer checking, management observations, remote collaboration, Emergency response, etc.	Best Practice Issue results by 9/30/2021
21-2: Develop Best Practice: How to develop and utilize a "Portable HPI Lab platform" (parts list, build instructions, scenarios, etc.).	This best practice will highlight and demonstrate how portable devices, videos, computer applications, etc. may be used to demonstrate and practice HPI concepts such as peer checking, independent verification, procedure use and adherence, place keeping, etc.	Best Practice Issue results by 9/30/2021

- **21-CAS/HPI**
  - Rich Poliak reports on the progress of this team
  - Team:
    - Rich Poliak, SLAC
    - Lloyd Keith, WRPS
    - Kim Leffew, CNS
    - Jason Smith, Accelerent Solutions
  - UPDATE:
    - no update for this meeting
- **21-1**: Develop Best Practice: Using virtual capabilities or options for HPI application (to reduce errors).

- o Team:
  - Mike Petrowski
  - Joe Lockwood
  - Jason Smith
- o UPDATE:
  - Reviewed (and comments) from Brian Baskette, Jake Mazulewicz, Tony Muschara, and Earl Carnes
  - Next meeting February 4
  - Will send draft out to larger group for review once the draft is ready
- **21-2:** Develop Best Practice: How to develop and utilize a "Portable HPI Lab platform" (parts list, build instructions, scenarios, etc.).
  - o Team:
    - Darryl Smoldt, SRNS
    - Cassie Sistare, SRNS
  - o UPDATE:
    - High quality draft developed
    - Started from what Chuck provided
    - Included photos from Lloyd for a virtual escape room
    - Added photos of cart and type of bins recommended for use
    - Next meeting in February

b) **Announcements**

- New members – Lynette Adams is retiring (Hanford (MSA ESH)); she has provided a replacement name for her position on the team; that person is talking to her management for approval to participate
- EFCOG Website – Removed POC list (emails and phone numbers) and now has a form that will send an email to TG leads requesting to be contacted

c) **Upcoming Meetings (EFCOG and other HPI meetings)**

- NERC/WECC Electric Power Human Performance Improvement Symposium (www.WECC.biz www.NERC.ORG) postponed indefinitely
- HPRCT Conference (https://www.hprct.org/) June 21-24, 2021, in Portsmouth, VA
- **Webinars:**
  - o Paradygm Human Performance (UK)
    - www.paradigmhp.com

- Thursdays 2:00 PM <mark>GMT</mark>
- POC - Teresa Swinton: webinar@paradigmhp.com
- Registration: https://www.paradigmhp.com/learning-organisation-webinar
- EUCI - Human Performance Community of Practice
  - Hosted by Knowledgevine
  - HP Community of Practice discussions will continue to take place every other Thursday and are free for the HP community to participate. There will be a presentation and discussion by a few select hosts, followed by a question and answer/discussion period for all. We will follow up on the session with a virtual Happy Hour.
  - To join: https://mailchi.mp/e4274b7f9e84/hpcop
  - HumanPerformanceCOP@gmail.com
- HPRCT
  - Monthly Webinars: https://www.hprct.org/monthly-webinars
  - Developing a "Virtual Community" https://www.hprct.org/virtual-community
  - Virtual Conferences (September 2020) https://www.hprct.org/virtual-conferences

2) HPI Share

- ConOps HPI: 6 questions that take advantage of our biases
  - Lloyd Keith, WRPS
  - He uses a set of questions to help people focus and engage
  - He researched it and defined it when he started teaching his engineering classes
  - In every class, there were a few students who were tuning him out, coasting through the class, and just putting their time in
  - That is NOT what he is about
  - He developed this (note he did not invent the questions but assembled them through his research)
  - He starts off by telling the class "Everyone makes mistakes, but clearly not you."
  - He has them get a pen and paper, and guides them through the questions in the presentation he shared.
  - He lets students know this is going to be fast, because this is simple.
    - Q1: Add the given list of numbers in your head'
    - Q2: Determine the cost of a bat and a ball with given information;
    - Q3: Count the number of times the letter "f" is used in a given paragraph (very short period of time to do so)
    - Q4: Which of the given blue lines is longer?

- Q5: A small amount of algae is introduced into a lake, which doubles insize each day. On what day is 50% of the lake covered?
- Q6: 5 machines make 5 widgets a day. On what day will there be X# of widgets; name a color; name a tool

o Lloyd then went over the answers and some of the science behind failures on the questions:
- He uses a clicker tool to obtain and calculate students answers in real-time
- Q1: Over half the class usually answers 5,000, but the answer is 4,100. He tells them to ask themselves why they got the answer they got. This is where the learning clicks and starts to begin. We can predict that when you see a bunch of zeros, your brain immediately starts to head to 5,000. When he intentionally starts talking and distracting the students while they are adding the numbers, their brains start to malfunction.
- Q2: Most people answer 10 cents; the answer is 5 cents.
- Q3: A lot of people have seen this question now, yet nobody usually gets the correct answer of 7. He then asks, "why is it when you look at a procedure you miss things the first time you read it? Your individual learning style has an effect on how you behave and do work in the field.
- Q4: Most people have seen this before so they get it right. The question is, how do you behave when this is on your desk – you pick up the paper and look at it from the edge and it's close enough.
- Q5: Most students say 20 days, but the answer is "F – other" – it happens on day 39 because it's an exponential growth problem – in a class of engineers they understand exponential growth, but they don't realize it applies to this scenario
- Q6: Most students answer 5 or other. The right answer is "B 5 days." Most people use a familiarity bias and will use a type of math that is familiar to them – pattern matchers answer different than people with other learning styles or biases. Human beings don't like to do the hard work.
- Lloyd then asked "what did you pick for a tool?" You can actually monitor how frustrated you make people; when people are frustrated they go to rudimentary things – red, blue, green, yellow colors; a hammer, screw driver, or other simple tools. When a human gets frustrated they become very narrowly focused – he talked about a Lego exercise – "these are the 2 to 4 age legos and you still got it wrong" – this is how the brain works; it is shockingly powerful to see the room after these questions – they hear him after he goes through these questions.

3) Roundtable

- ANL
  - Paula Pallan – Sue had planned to talk about a pilot they're working at Argonne where they are using some wearable devices to help with covid and on site working. When the wearer is within 6 feet of another person, a light goes off to show them they are too close; it feeds into a database/program that helps them with contact tracing. So they can determine if someone is asymptomatic and has exposed someone else on site. They are starting to get data now; they had one case last week where an asymptomatic employee was confirmed positive. They were able to immediately see if that person had been within 6 feet of someone on site. They are writing a lessons learned now, and are about to share with higher management.. If anyone on the call has questions please let her know.
- FNL
  - Dave – nothing to share at this time.
- Hanford – WRPS
  - Lloyd – They are teaching the manual plant guys the HPI class this week; it has been interesting because of a separate contractor, so they set up a contract mechanism to allow them to do this; teaching them helps them be more mindful about error precursors before they start their tasks. In the go around, we are teaching "Vitrification Plant craft employees"
- Hanford – WTP
  - Page – Lloyd's update covers their manual plant workers; they are also trying to keep their non-manual workers engaged, looking out for mental and physical health during the pandemic
- ICP
  - Trish – Two things to share:
    - 1. They rolled out the error precursor card from their pilot based on the tests they did; they did a PowerPoint presentation talking about error precursors and questions and use of questions on the card during pre-job-briefings to support supervisors during pre-job-briefings to look for those precursors for both the Conduct of Maintenance and the Conduct of Operations groups. It was good timing because they've seen an uptick of injuries and events, so they are hoping to see a reduction of those from the use of cards/tool
    - 2. The other item was a test – they are working with Performance Assurance, looking to see if there are any HPI indicators they want to build a dashboard on for this coming year.
- LBNL
  - James Bayshore – they just finished the Shane Bush practitioner program; there are a lot of folks at their site going though that; he has been asked by his upper management to put a roadmap together to do a focused pilot at his site. Mike Petrowski added that we have all been there – several sites are standing up

programs and several are reigniting programs; do not hesitate to reach out if there is anything this team or participating sites can do to assist.

- LLNL
  - o Christine Kerr – she attended the HOP conference a couple weeks ago. It was really well put together; had a ton of presentations so you had a number of topics to choose from, but you could also go back later and watch videos of the other presentations. She recommends this event for everyone if you have a chance to attend. Mike Petrowski asked her to let this team know about upcoming events or info that group sends out.

- LANL
  - o Mike Petrowski – the learning teams at LANL are picking up. They are getting into the rhythm of doing them virtually; it is not the same as being in the same room with people, but they are still providing value.

- N3B
  - o Joe Lockwood – they are kicking off Human Performance training with the ESH group next week; ESH was were working on an outbrief of a nuclear culture survey, so they consolidated everything into a stoplight dashboard with a sliding scale with (<mark>I didn't catch what Joe said here</mark>); they will outbrief staff next week; the information will raise some eyebrows but it is a great way to see where you can go out and ask a specific group a specific question. He added that he appreciates the work from this group on questions for error precursors; that provided great value for this effort.

- ORNL
  - o Chuck – they are still in the middle of restart efforts and are scheduled end of February, so there is a lot of safety analysis and engineer and knowledge work going on behind that right now. They are having to be deliberate with communicaitons and not get upset when someone has a questioning attitude. He has started working with (<mark>I did not get the name of the group</mark>) on process mapping to try to eliminate road blocks and find efficiencies in the authorization basis process, to help meet customer needs and get experiments completed timely and correctly; (<mark>he was cutting out so I may have incorrectly captured some of this</mark>). There are some organizational changes lab-wide from the "re-imaging ORNL" effort, but management is working through it.

- PANTEX
  - o Lauri – she was made the CNS HPI Lead earlier this month, and continues to feel like she is drinking from a firehose; knows just enough to be dangerous; Kimbel Leffew wanted her to share that the HUCFAM team wants to do their Spring event partnering with this group like the event last Fall; they are proposing the first week of June. Mike Petrowski stated he would put out a "save the date" for the first of June. He added that the EFCOG ISM group is looking at a Spring virtual meeting the week of April 19.

- SRNS
  - Daryl Smoldt – he does not have a lot to update; they are continuing with the HPI lab. They have have all DLA's stored in a cabinet with a binder with instructions for practitioners; have added a ? class (<mark>sound cut out) something with classroom trainers</mark>, then they will go to the HPI lab and run a Hupert exercise; Covid is still bad there; they've seen multiple fatalaties this month; he recognizes people are battling it everywhere. The vaccine roll out in his area is improving. It had a rocky start but is getting better; he thinks people's hope is a little renewed now. Their latest challenge is OMB and federal facilities with Covid controls for expectations; they were already doing almost all of it, but there is a limit for occupancy in federal work spaces at 25% when there is significantly high community transmission. So they are looking at numbers for several counties their stie goes across, developing and have already implemented plans to limit buildings to 25% occupancy or less. Based on a recent request Riz had made for some short HPI videos and stories, and with Covid, the holidays, and running the facility, they were able to get two videos ready; short "this is how HPI helps me" videos. He is compressing those files and Riz has a contact at the NTC to get those videos downloaded and shared. His site is using them on their HPI site. People have been very receptive of those short stories – it has been good for the workforce.
  - Casey Sistare added she has been working with Daryl with the HPI lab and portable HPI lab; no updates. They are still combining efforts and creating new DLA's – working on a few more including a mouse trap one where you literally create the mouse trap game and adding participants to create it. It is difficult to do with Covid protocols so she is brainstorming it at this time.
- Y-12
  - Andy Hobbs wanted to share an article he was reading recently to that might be useful in classes. It is from the Astronomy Magazine website on Project Apollo as a free ebook/articles. In it, there is an interview with Jim Lovell, commander of Apollo 13, who was also with the Apollo 8 crew. Lovell mentions that once they had the explosion in the command module, they had to move into the Lunar Module (LIM). When they launched from the beginning, they aligned the navigation system with the ground. In Apollo 13, the LIM was shut down and there wasn't time for them to align the LIM with the Command Module because they had to evacuate. Lovell talks about people learning from error and how that learning can become very important later on. On the Apollo 8 mission, he bumped a control and was forced to manually realign the navigation system; on the Apollo 13 mission, when they were forced to go to the LIM, Lovell once again had to manually align the navigation system and believes he was only able to do it because he had learned from Apollo 8 – and how the benefits of that learning

could be useful in the future. Christine asked if Andy could you send the article to Mike to distribute to the people on the call. Andy was happy to do so.

- ⊖ Carol Ritz – the UPF continues to build forward; they never stop working; they continue to have rotational assignment staffing for non-manual folks; some are working from home and going in at times; some working from home all the time; things are getting a little better in the area for new positive cases; they have always had to wear a mask, so the protocols that are now in place for government buildings did not require them to make any changes. The "manual folks" continue all the work with all the protocols put in place tyring to build the project. They could only allow so many people on a bus so they had to work through some bussing issues, but it's working and moving along. Most people who are out for positive covid testing were contact traced from home, not at work. So the project continues to move forward. The hardest part for them is with suppliers and vendors who have been shut down and they're tying to catch up. They continue to train observers for their People Based Quality HPI; their 3rd virtual class will be on Tuesday coming up. It is going pretty well and people are still able to do their interations. They are keeping classes smaller to encouorage interactions – but it means they have to hold more training, so the trainers are swamped but she thinks the smaller class sizes are helpful. They currently have >400 project people trained in higher level of HPI and have done over 5,000 interactions with people with questions. They've learned that time pressure is one of the biggest error preccursors by at least double the next precursor. The vulnerability is communication (lack of or poor or ineffective) and not communicating enough to the right people. Planning and scheduling is their second vulnerability that is causing problems, so there are a lot of last-minute problems coming up. They are trying to find and address things that will reduce pressure for people, such as automation, communication, forms, instructions. Her final thing to share is about what Andy was getting at on Lessons learned. They have pushed out LL really hard and there are people having small group discussions and post-job review conversations based on those lessons. They started PBQ about 6 years ago at the startup of the UPF project. Every time they move to a new phase, they learn a little faster, but they are starting to weave PJB into their Start-Up phase of the project
- Brookhaven
  - ○ William Brown talked about working remotely; management there takes it VERY seriously. They have had no on-site spread that they know of but learned a lot in the Spring; the lab is turning to work planning and control and performance management; inevitable external assessment; internally they have been asked to look at a year's worth of events for work planning and control-related

shortcomings or successes. He talked about a "WYLFIWYF" list (what you look for is what you find) and how hindsight bias is a challenge when looking at things like this. He hopes when the assessments are all over he can do some things around work planning and control; things he has been wanting to fix for a while like post-job reviews with an aim of feeding it back to work order system so that pre-job briefs or self-briefs are better because what you learned the last time is in the job order this time – his hope for the future.

- DOE Headquarters
    - Riz Shah – the AU-20 gropu is working teleworking, and things have been quiet. It has been a while since he has connected, and wants to thank those who have reached out to him. He has been dealing with family losses in the last year, so he throttled back on involvement in projects. He has recently volunteered to take over the Accident Investigation Process at AU-20. He is back now, and feels like it is time to hit his stride and get back into these programs (HPI and Accident Investigation). He had productive a meeting with NTC earlier this week and the e-learning course should be coming out by the end of Feburary. He had asked some folks to submit videos, and had a couple of takers. If anyone else has videos, please reach out to him. They are trying to get the course out the door. He had the NTC folks develop some scripts and actors to get the storygelling piece done. In a year to 18 months, they will look at the course again to see if it is meeting it's intent. He is also working with the NTC to figure out how to deliver HPI practitioners course remotely/virtually. The pandemic has exposed some gaps; content delivery with courses is a big one; they are working to see how they can make that more available.
    - Riz took over the Accident Investigation Program. The course is available from the NTS Learning Management system as EIP-400. It is a pretty rigourous 40 hour week course. He has taught all modules on causal analysis for several years; looking to update curruciula updating the science. They are also looking at reciprocity and how it interfaces with the rest of the courses. If anyone is interested in participating with the team, reach out tohim. He has posted the entire curriculum on the "max.gov" site, but he really wants to update the science (e.g., multitasking vs switchtasking); the program is now "accident investigation program and prevention" which he calls Big P little I. From the HQ perspective, he is wanting to build a community of practice for this. They will add a course on "how do you set up an accident investigation board" as a one day, online course – they are in the process of developing that as well.

Mike Petrowski asked if anyone had any re-openers? (no answers). This team will meet again on Feb 25th. Lauri Minton was kind enough to offere to help with meeting notes, so we will work on those and get them out for your review soon.