DOE Hoisting and Rigging Technical Advisory Committee

June 17, 2015 Meeting Minutes

1. Welcome and Introductions (Larry McCabe)

    a. Started with a short discussion regarding previous day's Construction Safety Advisory Committee meeting as most people present had attended. Of particular interest to Larry, was feedback re having Mr. Matt Moury, EHSS Associate Under Secretary, provide remarks. The consensus was that his comments and perspective were both encouraging and helpful.

    b. Larry advised that he is available to provide onsite training of OSHA 30 and 10-hour Construction Safety course at no cost. Minimum class size is 10 and maximum is 25.

2. Discussion of H&R membership and charter revision/updating (Larry McCabe) - an example comment spreadsheet will be sent out for members to provide suggestions for revisions to include deletions and/or additions. **ACTION:** all committee members. Due July 10, 2015.

3. Update and revision discussion of the DOE-STD-1090-2011, “Hoisting and Rigging.” Change ASME PALD in the manual (Mike Hansen)

    a. Per the charter, DOE-STD-1090 isn't due for revision till 2016. However, there are several areas for change that were discussed.

    b. ASME P30.1-2014 *Planning For The Use Of Cranes, Derricks, Hoists, Cableways, Aerial Devices, And Lifting Accessories* - it was questioned whether this new standard conflicts with DOE-STD-1090 or should be included. Mr. Tom Mackey, a member of the P30.1 Committee explained that P30.1 doesn't contradict or conflict with DOE-STD-1090 but provides guidance to companies that don't have planning documents. The purpose of P30 is to: "a) prevent or minimize injury to people, and other-wise provide for the protection of life, limb, and property by offering guidance for planning efforts that enhance the safety of load handling activities (b) provide guidance to work site personnel, equipment owners, employers, users, and others concerned with or responsible for the safety of load handling activities (c) guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives". It was suggested that P30 be added to the DOE-STD-1090 reference section but a detailed comparison should be completed first - any volunteers?

    c. DOE-STD-1090 section 13.1 references PALD, "and self contained shop cranes as addressed by ASME PALD, “Portable Automotive Lifting Devices" and "To the extent a lifting device is addressed within the ASME PALD, it shall comply with the applicable portion of that standard without respect to whether it is being used to service motor vehicles." These references need to be changed to ASME PASE.

    d. Discussed PASE prescribed 150% load test compared to ASME B30.20 BTH standard. Mr. Ray Sadre explained the rationale behind PASE's 150% requirement. The group agreed that this

explanation needs to be added to DOE-STD-1090, section 13 regarding following PASE load test requirements.

e. Jacks - should B30.1 or PASE be followed? This lead to a lively discussion whether the use of jacks in material handling is part of "hoisting and rigging". It was observed that ASME has changed their language to eliminate reference to only vertical aspect of hoisting and now includes horizontal movement. Rigging includes anytime a mechanical means is needed to move material. It was clear from the discussion that there are opportunities to add precision to the language used in DOE-STD-1090. **ACTION:** Mr. Ray Sadre agreed to draft definitions for hoisting, rigging, and material handling.

f. DOE-STD-1090 section 2.2.4, "All rigging equipment used in critical lifts (i.e., slings, below-the-hook lifting devices, and rigging hardware) shall be proof load tested in accordance with applicable ASME standards." It was questioned whether "testing per manufacturer's recommendations" language should be added, particularly with respect to load cells. After discussing, the members present concluded the existing language was adequate and no change is recommended.

g. The final topic of discussion related to DOE-STD-1090 was about new or unique equipment not covered by ASME, for example, proprietary lifting devices for motor control centers, Genie Material Lifts that allow pick and carry capability with interchangeable load handling attachments (including hooks), Jergins Kwik-Lok Lifting Pins (similar to swivel hoist rings), CarrLane Lifting Pins, etc. Mr. Ray Sadre described LLNL's engineering design process and agreed to share their procedure with the committee. **ACTION:** add language to DOE-STD-1090 to allow engineering designed equipment not covered by ASME that demonstrates equivalence (similar to text in Pressure Vessel standard – does anyone have this text?).

4. Mr. Patrick Vallejos gave an informational briefing to the committee regarding changes to NQA-1 and potential effects on DOE-STD-1090: DOE-STD-1090 references ASME NQA-1, “Quality Assurance Program Requirements for Nuclear Facilities”. Of particular interest, is Subpart 2.15 " Quality Assurance Requirements for Hoisting, Rigging, and Transporting Equipment of items for Nuclear Power Plants" because this section is being removed from NQA-1 and made into its own standard: ASME- HRT-1-20XX "Rules for Hoisting, Rigging, and Transporting Equipment for Nuclear Facilities". This new standard will provide requirements for the design and use of hoisting, rigging, and transporting equipment used from the time the nuclear facility components are delivered at the point of receipt for the facility until operating phase of the facility. The requirements may also be extended to the design and use of rigging, hoisting, and transporting for modifications involving operating nuclear facilities.

5. Extra-agenda discussion centered on application of 10 CFR 851 versus state standards that are often more stringent, e.g., California and Washington. It was suggested that a regulatory flow chart be

included in DOE-STD-1090 and SLAC indicated that they already have one, which they were requested to share through the STD and charter review process – see Article 2.

Craig Schumann reminded the group of the DOE Safety And Health Regulatory And Policy Response Line (http://energy.gov/ehss/safety-and-health-regulatory-and-policy-response-line). The Response Line is a service maintained by the Office of Worker Safety and Health Policy, AU-11, within the Office of Health and Safety, AU-10. It provides responses to questions from DOE and DOE contractor personnel regarding worker safety and health requirements and guidance. Craig made the point that AU-11 should utilize the expertise of the HRTAC to assist them in developing responses to questions in the hoisting, rigging, and material handling areas.

6. Discussion pre-engineered lifts clarification (Committee Discussion) – DOE-STD-1090 requires lifts to be classified in to one of four categories: ordinary, critical, personnel, or pre-engineered production. Pre-engineered production lifts are covered in DOE-STD-1090 Section 3. The group agreed that this section is written for DOE production operations that have limited scope, repetitious hoisting and rigging activities.

7. DOE white paper on chain hoist inspection (Ray Sadre, LLNL) – the presentation reviewed inspection requirements in DOE-STD-1090, Section 7, Hoists; ASME B30.16, and several manufacturers' maintenance manuals showing the differences regarding periodicity and disassembly guidance. This was followed by a discussion of the risks involved with hoist disassembly including:

    a. Infrequency of activity
    b. Inadequate training
    c. Improper reassembly
    d. Loss of certification by manufacturer
    e. Load tests

    Two proposed revisions to DOE-STD-1090 were made:

    a. Section 7.1 add "inspection" to first sentence to read: *The operation, maintenance, inspection, and testing of hoists not permanently mounted on overhead cranes….* This proposed change was accepted by voice vote.
    b. Section 7.4 add "follow the applicable standards, and" to the last sentence to read: *For subsequent periodic inspections, follow the applicable standards, and an external coded mark on the hoist is an acceptable inspection record in lieu of written records.* This proposed change was rejected by voice vote.

    In addition, it was questioned whether DOE-STD-1090, Section 7, should require UL or NRTL approved hoists. After some discussion, the group consensus was the each DOE Site's electrical equipment procurement program adequately addresses this issue and this requirement is not needed in DOE-STD-1090.

8. Effective H&R program implementation (Ray Sadre): The Lawrence Livermore National Laboratory (LLNL) Hoisting and Rigging Program was described in detail. It was noted the DOE-STD-1090 became a contractual requirement in 2011. The LLNL program consists of an Institutional Hoisting & Rigging Committee and several written documents: design safety standards, ES&H documents 15.3 and 15.4, and Hoisting & Rigging Manuals (one specific to sub-contractors).

   ACTION: set up a HRTAC SharePoint or equivalent to allow for the sharing of documents within the committee (Larry McCabe).

   Inspection, testing, and maintenance processes were described and examples of inspection verification tags were distributed. This was followed by a review of LLNL's hoisting and rigging training flow chart. Additional topics included design of lift plans, lift plan execution, and program metrics.

9. Extra-agenda topic: Pat Vallejos raised a terminology question about lift classification and disconnect between ASME standards and DOE-STD-1090. For example, consider "special lift" - Should the ASME special lift type be a criteria for critical lifts?

10. DOE Round and synthetic sling protection (Tom Mackey/ Mike Gelskey): Tom presented the information contained in a paper released to the public in 2009, *Synthetic Sling Failure - Evaluations and Recommendations*, RPP-RPT-42583 (http://www.osti.gov/scitech/servlets/purl/966779/) Several incidents of synthetic sling failure were discussed to illustrate the extent of the problem. Issues with current standards and terminology related to corner protection were discussed. This was followed by presentation of preliminary results from an engineering study testing various sling and corner protection materials versus corner radius. The take away point is that it doesn't take a sharp corner to cause a synthetic web sling to fail. It is very important that only load-rated, cut resistant corner protectors be used. The final results of the engineering study will be presented in a revision to RPP-RPT-42583

    Michael Gelskey, CEO Lift-It Manufacturing Co., Inc., presented *Cost Effective Excellence is NOT Dropping Loads*. He discussed some recent high profile hoisting & rigging mishaps, examined successful practices, evaluated cost effective measures, and described what we can do to make a difference. During the presentation, he described and demonstrated engineered sling protection while distinguishing between abrasion and cut resistance. He challenged all of us involved in administering hoisting and rigging programs to observe our slings and rigging stores and ask, "Where is my protection?"

    Michael Gelskey noted that a cable tie cinched tight around a synthetic sling can reduce its strength by 15%. This is significant because cable ties are often used to attach inspection tags to slings. He suggested that slings be ordered with "belt loops" that provide a place to attach inspection tags.

11. Separation of Hoisting and Rigging and Material Handling discussion (James Lovejoy/Committee): Unfortunately, Jim was not present to lead this discussion. There was agreement that currently, there is inadequate guidance with respect to material handling. Mr. Ray Sadre gave examples of recent incidents of material handling that could have benefited from a "lift plan". Jacks and rollers are covered in ASME B30 so there is precedent for material handling to be included with hoisting and rigging. After additional discussion, it was agreed that a subcommittee should be formed with the task to review information and requirements regarding material handling from LLNL, ASME B30.1 and OSHA Subpart H with the objective of developing a recommendation with respect to DOE-STD-1090. **ACTION:** Tom Mackey, Pat Vallejos, Jim Healy, and Ray Sadre.

12. Roundtable

    a. Mr. Mike Hansen asked for advice on several topics: (1) INL has its own Utility Company with associated equipment. Does it need to meet ASME? The consensus was that ASME is applicable to lifts, derrick diggers, etc. (2) INL has an all-terrain telehandler lift that includes a manufacturer supplied accessory with a hook for lifting (instead of forks) – is this considered a mobile crane in this configuration? Response: Not a mobile crane. If the accessory is used for hoisting and rigging applications, then the ASME/ITSDF requirements for training, inspection, qualification, placarding, etc. apply. (3) Genie® Lifts – which requirements apply? Response: DOE-STD-1090 Section 13, Miscellaneous Lifting Devices, does not apply; however, the equipment does need to be inspected and operated according to the manufacturer's manual. (4) Does any organization have a lower threshold weight limit for applying DOE-STD-1090? Response: DOE-STD-1090 does not provide a threshold weight, above which the requirements are applicable. No organizations/facilities have a formal weight limit.

    b. Mr. Pat Vallejos observed that DOE-STD-1090 does not address hooks and asked if they need to be included. Response: Hooks only need to be included if DOE has requirements related to hooks that are different from those in ASME B30 or OSHA.

13. Meeting adjourned.

Attendees:

Gary De Winkle, PNNL, 509-371-7026. gary.dewinkle@pnnl.gov

Donald Farnam, BNL, 631-344-8248, farnam@bnl.gov

Michael Gelskey, LiftIt, 213-598-2914, mgelskey@aol.com

Michael Hansen, INL, 208-533-4468, Michael.hansen@inl.gov

Jim Healy, SLAC, 650-926-4989, jim.healy@slac.stanford.edu

Greg Kirsch, SNL, 505-845-9497, gckirsc@sandia.gov

Jay Larson, DOE-HQ, 301-903-9869, jay.larson@science.doe.gov

Thomas Mackey, WRPS Hanford, 509-969-8178, thomas_c_mackey@rl.gov

Larry McCabe, DOE-HQ, 301-903-6732, Larry.McCabe@hq.doe.gov

Ray Sadre, LLNL, 925-422-9279, sadre1@llnl.gov

Bill Schleyer, NNSA, 505-845-5429, bill.schleyer@nnsa.doe.gov

Craig Schumann, Argonne Site Office, 630-252-9176, Craig.Schumann@ch.doe.gov

Steve Terpening, Office of Science, ISC, Chicago, 630-252-2673, stephen.terpening@science.doe.gov

Patrick Vallejos, MSA Hanford, 509-376-2620, patrick_a_vallejos@rl.gov

Mike Viola, PPPL, 609-243-3655, mviola@pppl.gov

Scott Wenholz, SLAC Site Office, scott.wenholz@science.doe.gov