Summary of January 23-25, 2013 Annual Conference
Yuma Pacific Southwest Section, AIHA
(Prepared by Frank Hearl, Program Chair)

President Bob Glenn welcomed the attendees to the 38th Annual Meeting of the YPSW Section of the AIHA. The conference theme for this year was "In the IH Toolbox, Risk Analysis." The conference spanned the two days of meetings. The first day focused on risk assessment as a core competency for industrial hygienists. The second day technical program focused on the use of Bayesian inference as an approach to risks, decisions and judgment for industrial hygiene. The second day program also featured updates from the AIHA, ACGIH, NIOSH and OSHA. The Program was moderated by Program Chair, President-Elect Frank Hearl, who was assisted by members of the YPSW Board of Directors. The program's speaker's presentations will be made available on the YPSW Local Section web site: http://ypswaiha.org

Technical Program: **In the IH Toolbox, Risk Analysis**

The program opened with a presentation by Fred Boelter, CIH, PE, BCEE. His presentation was titled "Risk Assessment as a Core Competency for Industrial Hygiene." Fred Boelter defined the key terms in risk assessment, and put the topic in context with our encounters with risk both on the job, in the environment and in our daily lives. He described how we compare risks and make risk decisions, sometimes based on misinterpretation of the way risk is characterized and presented in risk communications. He concluded by quoting from Paracelsus, "All things are associated with risks and are not without risks; to call everything bad is to call nothing bad."

The second speaker, Adam Finkel, Sc.D., spoke on "The 'Silver Book' and Risk-Based OELs." Dr. Finkel was a member of the NAS committee that produced the *Silver Book* in 2009 which is titled: "Science and Decisions: Advancing Risk Assessment" and can be downloaded for free at www.nap.edu. Adam Finkel noted that we are awash in OELs, "but none of them are risk-based." Current OELs have been decided by lawyers and economists who have assessed some balance to achieve a "reasonable assurance of safety. With the application of safety factors one cannot know how safe or how dangerous a situation actually is. Risk assessment has had its problems in acceptance by many who view it with skepticism and tend to blame risk assessment for process delays. Additionally, techniques often used to set environmental limits (RfC and RfD) by taking the NOAEL and dividing by 100 is not sufficiently protective. Most PELs are between 50 and 50,000 times higher than the EPA's RfC. There is little correlation between the current TLVs and the EPA's RfCs. In conclusion, Dr. Finkel noted that despite their limitations risk assessment methods can be much more informative than our present situation with PELs and control banding's qualitative assessment.

The third speaker was Susan Ripple, MS, MPH, CIH, who spoke on "Risk Assessment in Control Banding." Susan Ripple described the need for IHs to re-invent ourselves as Exposure Risk Assessors and Risk Managers. The use of hazard and control banding exists within the framework off an OEL hierarchy, with hazard banding situation at the base, increasing to prescriptive process-based OELs, then working provisional OELs, then health-based OELs, and at the apex of the pyramid, quantitative health-based OELs. However, we are often operating at the bottom of this hierarchical pyramid. She described the COSHH Essentials model and the WEEL Banding Matrix, as examples; leading to a preview of the second day's program on Bayesian analysis. She concluded noting that working OELs are a starting point for process improvement, with the control banding approach requiring validation and feedback assessment to assure continuous improvement.

The fourth speaker was Pamela Williams, Sc.D. Her talk was titled "Cumulative Risk: Environmental & Occupational Perspectives." Pamela Williams described the evolution of risk assessment from the "Red Book" to the "Silver Book" and beyond. The "Red Book" is a seminal work on risk assessment and was published in 1980 and is formally titled, "Risk Assessment in the Federal Government, Managing the Process" and is also available for free from www.nap.edu. Cumulative risk assessment was driven by the need to assess the risks from pesticides residues and in response to the Food Quality Protection Act of 1996. The EPA was also active in working on a framework for cumulative risk assessment. In the occupational world, both OSHA and ACGIH have a mixtures formula for dealing with multiple substances, and NIOSH developed a NORA research agenda for mixed exposures and dealing with complex mixtures. Cumulative risk integrates exposures from the workplace, from lifestyle exposures, and from the general environment - these need to be considered, along with the effects of non-chemical stressors. Dr. Williams concluded noting that assessment of risk from multiple stressors and considering interactions of various chemicals has generally not been possible, but that chemical risk assessment has the potential to overcome the shortcomings.

The fifth speaker was Cristina McLaughlin, Senior Economist from FDA, who presented a talk titled, "Integrating Risk Assessment into Cost Benefit Analysis: Who pays? Who gains? And who cares?" Cristina McLaughlin introduced the basics economic principles that deal with the balance of scarcity, choice, and cost. Whereas cost-benefit analysis is often seen as an add-on to risk management, she noted that it really ought to intersect and be part of all phases of risk analysis including risk assessment, risk communication, and risk management. She presented several examples to demonstrate how economists optimize risk reduction vs. the cost of risk control to find the optimum economic solution. She also described methods for quantifying wellness using health related quality of life measures using a survey, the EQ5D (see: http://www.ahrq.gov/legacy/rice/EQ5Dproj.htm). She concluded with a description of how to use "Expert Elicitation" to apply expert judgment in the assessment of various risk options.

The sixth speaker was Scott Dotson, Ph.D., CIH, whose presentation was titled, "Assessing Tolerable Risk for Carcinogens and other Toxic Substances." In his presentation, Dr. Dotson described the complexities of risk assessment for occupational health. He described the NIOSH risk assessment process including the quantification of risk, dose-response modeling, dosimetry modeling, and the use of uncertainty factors in arriving at an overall risk estimate. Dr. Dotson used the examples of setting the benzene OEL and hexavalent chromium OEL as case studies in risk assessment. He concluded with a description of NIOSH's efforts to update its carcinogen policy and integrate into that quantitative risk assessment in the REL development process.

Adam Finkel concluded the opening session with a talk, "Modernizing Occupational Safety and Health Enforcement: Improving OSHA's Capability to Prevent, Detect, and Control Grave Risks to U.S. Workers," work sponsored by the Robert Wood Johnson Foundation. He described ongoing work that will evaluate the profiling and targeting of inspection to better detect when worksites are out of compliance with standards.

After the prepared presentations, Chris Laszcz-Davis, CIH, convened the "Roundtable on Risk," a discussion that included the day's six speakers and the next day's two speakers Perry Logan and Jim Rock. Chris Laszcz-Davis began the roundtable with a few general thoughts about risk assessment and the IH profession, and highlighted elements from a 2008 poll conducted by AIHA on the needs for risk

assessment tool development for the IH. The Roundtable participants[1] noted that as a profession we are generally aware of risk assessment, its value and importance; however if one asks a group of IHs to define a "point of departure" (a common term used in environmental risk assessment) you will find the knowledge base is not deep or broad. The Roundtable participants noted that it often takes a generation to have impact on practice, i.e. there is need to train those entering the field more rigorously in risk assessment but we won't see broad adoption until the number of newly trained IHs grow in the profession. It was noted that ABIH does not now include risk assessment as a core competency tested on the CIH exam. Additional involvement by IHs in the Society for Risk Analysis (SRA) was advanced as another means of promoting development of risk assessment tools useful to IHs. The hierarchy of OELs concept was also discussed further with the need to integrate the hierarchy of hazard banding with exposure assessment and the hierarchy of controls and risk management.

The technical program continued on the second day of the meeting with a presentation by James Rock, Ph.D., CIH, PE, titled "Frequentist v Bayesian Inference and the AIHA Bayesian Decision Analysis (BDA)." In his presentation Jim Rock described the procedures for doing Bayesian calculations. His presentation included live data manipulation using a computer-based mathematical package, and described how Bayes rule is applied to assist in decision analysis. He concluded that Bayes rule enables inference using both prior and new data, and that using these tools one can compute the likelihood that a situation being analyzed falls within the regions that describe compliance goals.

The second technical presentation on the second day was by Perry Logan, Ph.D., CIH, and was titled, "Bayesian Approach to Risk, Decisions and Professional Judgment." Perry Logan engaged the YPSW attendees with an interactive presentation demonstrating that without application of calculation tools, such as Bayesian Decision logic, experts can be biased through the conscious and unconscious application of various heuristics that affect our thinking, including: anchoring and adjustment; availability; and representativeness. These biases can affect an IH to misjudge workplace exposures and lead to erroneous risk management decisions. However, one can overcome these biases by using Bayesian tools to make use of prior information and limited data to arrive at more accurate determinations. He described the 3M system for data integration in which prior information from one similar plant in one part of the world can inform decision-making in another plant elsewhere using Bayesian techniques.

Organizational Updates:

AIHA Director of Government Affairs Aaron Trippler described the current political turmoil in Washington, D.C. related to the "Fiscal Cliff" and follow-up crises to follow relating to the Fiscal Year 2013 budget and Continuing Resolutions (CR), and the repeat approach to the Federal Debt Ceiling. He expects some Congressional action in the coming year related to: Recordkeeping, Voluntary Protection Program (VPP), Toxic Substance Control Act (TSCA), OSHA Reform, and regulatory reform in general. AIHA President Allan Fleeger, CIH, CSP and AIHA Executive Director Peter O'Neil, CAE, provided a joint AIHA Update, reviewing the Association's finances, revenue sources, and membership distribution. Overall the AIHA is in good shape and well positioned to take on the problems of the future. One aspect of the presentation that drew discussion from the YPSW was the age distribution curve of AIHA membership. The largest fraction of the membership is over 46, with a sizable fraction over age 60. The

[1] Note: the description of the Roundtable participants' discussion may not represent the views of the panel members collectively or individually; the ideas described in this narrative are not attributed here to particular panel members, and there was not necessarily unanimous agreement.

group discussed the need to attract younger IHs to the AIHA and to bring more young people to the IH profession. We discussed expansion of industrial hygiene (and *changing the IH name* itself) possibly to include *product stewards and managers*, and *environmental health professionals*. Overall though, a bright future is envisioned for the profession and the Association.

Announcement: In recognition of a lifetime of service to the YPSW-AIHA, Allan Fleeger and Peter O'Neil made a surprise announcement awarding Ms. Anna Davis with Lifetime Membership in the AIHA to the delight and applause of all attendees. President Bob Glenn opened the meeting for business, upon which Anna Davis was nominated, seconded, and then unanimously elected as Secretary-Treasurer of the YPSW-AIHA.

Robert Herrick, Sc.D., Board Chair of the ACGIH®, presented the ACGIH® Update, and described his own good fortune at being part of the IH profession as he outlined the situation "then and now." For the ACGIH®, the current business model is unsustainable: 32% decline in members, 36% decline in publication revenues, $3 million in litigation cost and the exhaustion of financial reserves. Some changes occurred this year. The ACGIH® changed from being a 501(c) (6) Professional Membership Organization to become a 501(c) (3) Science Organization which allows ACGIH® greater flexibility in increasing revenue and raising funds. Membership categories were simplified and the Board size was reduced. ACGIH® will seek to make the TLVs® and BEIs® available in more accessible e-formats such as for smart phones and tablets. With the ability to raise funds as a Science Organization the ACGIH® will better reflect current economic models, support stakeholder needs, and be complementary to the activities of stakeholders' professional membership organizations.

John Howard, M.D., J.D., Director of NIOSH, provided the NIOSH Update. John Howard began his presentation by recounting a number of statistics particular to the Local Section's namesake, *Yuma Arizona*: agricultural production at $633 million annually, military bases – Marine Corps and Yuma Proving Grounds, tourism $380 million per year and unemployment (which is 23.7% in Yuma compared to the US rate of 8.6%). With respect to NIOSH, Dr. Howard described the major effort to revamp the NIOSH Policy on carcinogens and REL-setting which serves as the basis for risk management and risk communication decisions. The draft policy will be available for public comment early in 2013. He described NIOSH's current work in assessing risks from exposure to manufactured nanomaterials and noted that a draft Current Intelligence Bulletin would be available for public comment. Finally, he discussed NIOSH's work on exposure assessments related to influenza and the work NIOSH is doing in with exposures to crystalline silica at hydraulic fracturing operations. When asked what YPSW and AIHA members can do to help NIOSH, Dr. Howard asked everyone to participate in the review processes and comment on the draft documents he discussed.

Ken Atha, OSHA Regional Administrator for Region IX, presented the OSHA Update. Mr. Atha reviewed OSHA's inspection and enforcement statistics for the past year and provided the OSHA goals for 2013. He noted that there are now three rules in the Proposed Rule stage: crystalline silica, beryllium, and bloodborne pathogens. OSHA will be developing an oil & gas initiative, and will be continuing efforts concerning workplace violence, falls, heat stress, and whistleblower protection.

The meeting was concluded by President Bob Glenn who presented the Clayton Award to Mr. Robert Wheeler for his outstanding contributions to industrial hygiene over his career. Mr. Glenn concluded the meeting by passing the gavel to incoming President Frank Hearl.