

## **Baseline Inventory and Hazard Analysis – Sections 850.20 & 850.21**

Moderated by Dave Pegram - Focus Topic I: Baseline Beryllium Inventory (§850.20) Joey Brown, Y-12 (remote presentation) Focus Topic II: Hazard Assessment (§850.21) Jim Jenkins, Y-12 (remote presentation).

This session focused on inventory baseline issues. Joey Brown, Jim Jenkins and Tom Ford from Y-12 presented a pilot approach.

The Y-12 approach identifies beryllium legacy areas and operations using a statistical approach.

### Objectives

- Reduce and eliminate areas
- Prioritize based on use
- Develop required documentation
- Be areas, If  $> 2.5$  ug = contaminated area. Regulated areas (current operations)  $> 0.5$ .
- Legacy areas are included in a historical inventory.

### Pilot Approach at Y-12

- Test the statistically based approach using combination of random and bias sampling strategy. Apply to active and legacy areas.
- Obtain buy-in from management and workers.
- Define decision points, in/out program points, statistically based plan.
- Documentation of pilot/site approach to include background, method, technical basis, summary of samples, conclusions, and boundary reduction plan.

### Plan

- Cost effective and flexible
- Apply AIHA exposure monitoring strategy
- Group areas based on perceived risk, non-detect,  $< 5$  ug,  $> 5$  ug. Strategy based on groupings, sq. ft., past use, and area layout.
- Homogeneous surface areas to be targeted and grouped together in separate strata, random sample at minimum 29 samples per strata, and 87 samples per legacy area.
- Develop building-based plan through assemblage of homogenous areas.

### Building Based Plan to Include

- Rules and requirements for Be activities
- Layout
- Legacy groups

- Sample locations
- Reports and actions including follow up corrective actions and a database.

#### Tips

- Know what decisions you have to make.
- Approach needs to be cost effective and sound.
- Validate your approach.
- Define the universe you are trying to manage.
- Define what is known (pick the low hanging fruit, then apply statistically based sampling protocol for the unknown).
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#### **Exposure Reduction and Minimization – Section 850.25**

Moderated by Dave Pegram - Focus Topic: Exposure Reduction and Minimization (§850.25)  
Joel Rabovsky, Office of Worker Protection Programs and Hazards Management

This session focused on implementing the exposure reduction and minimization approaches. Joel discussed how the fundamental concepts of exposure reduction and minimization could be applied in a generic manner.

#### Implementation Issues

- Ease
- Use graded approach
- Practicable, you must define and decide with your area office
- Focus on the process

#### What is practicable?

- Costs are a factor
- Ease of implementation
- Amount of reduction attainable
- Diminishing returns on cost and further level of reduction to very low levels.
- Magnitude of problem

#### Issue

- Formal program not required, but must document in plan, should integrate with overall IH program.
- Should integrate approach with work planning and operations.

## Action Level and Exposure Monitoring – Sections 850.23 & 850.24

Moderated by Dave Pegram - Focus Topic I: Action Level (§850.23) Dr. Mark Hoover, Lovelace Respiratory Research Institute (remote presentation) Focus Topic II: Exposure Monitoring (§850.24) Tom Ford, Y-12, Jim Woodring, Argonne National Laboratory – East.

Mark Hoover presented a review of what is currently known based on recent studies and sampling methods. Tom Ford and Jim Woodring presented two approaches to implementing monitoring strategies. There was a great deal of audience discussion.

### Issue

- Must define the purpose before you begin. What decisions are you trying to make? Then, how to collect data.

### Guidance Needed On

- List of soluble is compounds in Implementation Guide.
- Non detects, when do you stop?
- Sampling, open vs. closed face.
- Representative monitoring and collocated workers, using data from monitored to predict exposures of unmonitored.

### Applying Statistics

- Define the statistical criteria you are going to use.
- Need 30 percent or more samples detected before applying statistics.
- Non parametric statistics need minimum of 60-70 samples.
- Monitoring frequency rule of thumb suggested by Y-12, Non detect = 1 day/month, < Action Level = 1 day/week, > Action Level 1 day or more/week.

### Actions

- If between Action Level and PEL what actions are you going to take, key elements of the rule are triggered.
- Exposure minimization, reduction goals.
- Controls
- Triggers, decision points.
- Non compliance if over PEL. Then must demonstrate that opportunities for engineering controls have been exhausted or not practicable before relying on PPE. DOE should view PEL exceedances in same manner as would OSHA. Inform DOE area office. Get them to concur with your approach. (See in Rule and Preamble: practicable, heirachy of controls, protective clothing and equipment, and DOE approval of plans. See also OSHA Field Office Manual)

## Other Considerations

- Total Be vs. < 10 um Respirable fraction. Respirable vs. thoracic criteria.
- Soluble vs. insoluble forms.
- Housekeeping and exposure minimization
- Skin factor in sensitization.

## Above Action Level

- Documenting determination of the rationale, feasibility and hierarchy of controls (engineering, administrative and personal protective equipment) is important. Get DOE area office review and buy-in to your approach!
- Process should describe, engineering controls, process for control of releases, reducing the numbers of exposed, minimization of exposure, work practices controls and work planning, feedback and improvement.
- Consider using exposure reduction goals.
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## Regulated Areas – Section 850.26

Moderated by Bill McArthur - The two major points, which came out of this breakout session,

- Put it into the CBDPP, and
- Be regulated areas can come and go.

George Fulton presented statistical approaches for determining if an area is actually a regulated Area. Examples presented included using the AIHA Sampling Strategy Manual method and using control limits. This was followed up by a discussion of control charts for determining variations in conditions. (See George Fulton's overheads available on workshop presentations link)

This led to a discussion of the minimum sample size needed to apply the statistical methods. One site indicated they believed if any single sample exceeded the action level (AL) that would trigger establishing a regulated area. This single sample trigger was not completely accepted and it was suggested that the CBDPP should define this concept.

One participant indicated they had a regulated area definition that worked in the past but would probably not apply now, it is:

Regulated area = any area where Be work was conducted.

Regulated area = no work presently conducted and 10 percent of the samples > AL and 1 > TLV

Non-regulated area = no work presently conducted and 10 percent of the samples > AL and 0 > TLV

## **Respiratory Protection – Section 850.28**

Moderated by Bill McArthur - Cathy Wilson gave a description of ORNL's plan, which requires a hazard assessment prior to use of respiratory protection.

John Leonowich (PNNL) gave a presentation discussing some of the concerns, which needed to be addressed in respiratory protection programs.

It was pointed out that prior to any respirator use the standard 'Hierarchy of Controls' should be undertaken.

One participant voiced a concern that with respirators freely available that their use is becoming the rule rather than the exception. The rule contains nothing that precludes incorporating greater controls than necessary, however, a respiratory protection program which requires training, fit testing, etc. must be in place prior to issuing respirators.

## **Protective Clothing and Equipment – Section 850.29**

Moderated by Bill Mc Arthur - David Weitzman presented an overview of this section of the rule.

A question was asked regarding how various facilities were designed for donning and doffing of protective clothing. The concern was how to best facilitate these functions especially removal of potentially contaminated clothing. Two suggestions were presented i.e., use of a HEPA vacuum or misting prior to removal of clothing. These suggestions lead to discussion of the potential for creating secondary dust problems due to energy exerted on clothing when vacuuming or a secondary waste problem with the misting (wetting) of clothes.

The issue of radiological versus beryllium hazard control was brought up in the context of layers of control and the potential of introducing more hazards by having 'too much PPE'. There was a general agreement that the best approach is to use the PPE required for the highest levels of protection and make appropriate assessments to determine if this PPE covers the secondary hazard. During this discussion heat stress was brought up as a possible hazard, it was pointed out that this topic is discussed in the Preamble.

Control procedures for laundry areas. The rule requiring laundry facilities to have procedures to prevent beryllium dust release was a topic of discussion because it is an unusual requirement. To avoid this particular situation several options were considered. They included:

- Disposal versus non-disposable protective clothing,
- Workers cleaning their own clothing at the regulated area, and
- Water soluble bags

A final point brought up during this breakout was that sites should build on their existing health and safety programs such as asbestos as models for their CBDPP.

### **Housekeeping – Section 850.30**

Moderated by Bill Mc Arthur - Barbara Hargis gave a presentation on Los Alamos National Laboratory's approach to this topic. She indicated that the lab believed there is a range of possible interpretations regarding the appropriate time to take surface samples i.e., after every 8-hour shift, at the end of the workday, or after each operation which may be a few minutes to several days.

Another issue is that the rule states that the level of Be on surfaces cannot exceed 3 ug/100 cm<sup>2</sup>. This being the case, the question then arises, "do you have to wait for analytical results prior to restart of operations?" The general response was that you do not have to wait for sample results to continue work.

A third issue was the lack of a 'real time' monitoring device. Currently LANL is trying to validate a real time monitoring method by comparing its results to wipe samples.

LANL has an extensive number of wipe sample results which will be used as a baseline for determining frequency of cleanup. The issue this data will address is how often is it necessary to sample various types of operations. Some operations are in a glove box with HEPA filters and would require less frequent sampling than others and some operations do not lend themselves to wipe sampling.

### **Release Criteria – Section 850.31**

Moderated by Bill McArthur - Doug Heibert (Rocky Flats) discussed release levels. He pointed out that the rule states all three elements (cleaning, labeling, and control of Be by the recipient) must be met prior to release of an item, therefore everything must be labeled. This interpretation leads to the potential of never releasing anything.

To avoid this situation he indicated the first task (in releasing items) is to determine what is contaminated. To do this the site must be fully characterized. Once characterized, you would know where the contamination is i.e., all Be areas will contain contaminated waste while non-beryllium areas may not be contaminated. Their approach will be to assume unknown or non-beryllium areas are clean and try to prove they are dirty (i.e., statistically  $H_0$  [stated as  $H$  subzero] = clean). Upon *failing* to prove the null hypothesis, i.e., the surface is actually dirty, then one must conclude that it's clean. The null hypothesis approach is used because it allows a statistical basis of proof with the least number of samples.

Their statistical approach will be based on a sample size of 59 objects. To obtain this number of objects to sample they will group similar objects together. They have defined size ranges (i.e.,

size of objects such as computers or milling equipment) to determine the number of samples to be taken.

Based on the samples and statistical analysis, if the sample data shows that the surface contamination level is < release criteria all objects are clean or vice versa.

Other issues discussed were:

Preamble – exclusion of building structural material and rubble, good ways to group,

Getting property management personnel to understand the rule.

During the open discussion several topics were brought out often with specific resolutions. These topics include:

How to deal with outliers,

Weapons components transfer,

Use of personal sampling in conjunction with wipe samples... no correlation to air samples, and

Regulated area today lunchroom tomorrow. Can you release rooms or buildings?

Two discussions did provide some general answers. These included the following:

Moving equipment with some identification mark to know what has been tested and released. Rocky has a form i.e., documentation of sampling and Oak Ridge tags items with a survey identification number. However, the tags may be removed once the materials are off site.

Rubble or how do you get rid of the debris? The concept seems to be that beryllium contaminated material needs to be defined in the CBDPP. Hanford offered a definition of contaminated material that was generally accepted.

Beryllium contaminated material: refers to equipment and items that were:

Used in beryllium production work or

Located in a beryllium contaminated area or

Discovered to have surface contamination levels greater than  $0.2 \text{ ug}/100 \text{ cm}^2$  or

Greater than the background level for local soils (dust), whichever is greater.

In response to several of these issues, it was suggested that the sites explore the Be issue in ways similar to their treatment of asbestos or lead.

## Waste Disposal – Section 850.32

Moderated by Dave Weitzman - Doug Hiebert, Kaiser-Hill/Rocky Flats Environmental Technology Site presented. He made the following points:

Waste can be sealed any way that works to prevent release of beryllium particles.

RFETS sends its mixed (beryllium mixed with radioactive) waste to the Nevada Test Site (NTS). They must segregate types of materials, e.g., wood, metal, plastic.

Under the rule they now have beryllium waste which, of course, is not radioactive waste.

They wrap or bag the waste, depending on its size, shape, etc.

They find that wrapping the container before filling and unwrapping it when full keeps the outside surface of the container from becoming contaminated.

They are reviewing options for the beryllium waste:

NTS

Industrial landfill

Metal melt

Other

Dale Brown, Honeywell FM&T, Kansas City, indicated:

They use their hazardous waste system (i.e., bar codes, etc.) for beryllium waste even though it is not [always\*] a hazardous waste under RCRA.

They characterize beryllium waste as a regulated special waste.

They send it to a secure hazardous waste landfill.

They are looking at the cost of other options.

They need approval to dispose of beryllium contaminated material as waste even if that costs less than cleaning and selling it or giving it away.

[Waste concerns should be routed through your local waste management department\*]

\* Added afterwards by Dale



A participant expressed the viewpoint that 850.31 (Release Criteria) and 850.32 (Waste Disposal) are at cross-purposes because the labeling required by .31 will "scare off" any potential re-users of decontaminated materials and thereby eliminate re-use as a means of minimizing beryllium waste.

Doug Hiebert discussed issues surrounding the disposal of beryllium contaminated structural materials and demolition waste.

RFETS has not yet identified disposal sites that are ready to accept RFETS beryllium contaminated waste.

Dale Brown, KC, indicated that KC has identified sites that accept KC beryllium contaminated waste.

RFETS plans to conduct vendor audits of potential disposal sites before contracting with the site to accept RFETS beryllium contaminated waste.

RFETS has a strategy for handling demolition waste from areas that probably are not contaminated with beryllium:

Assume the facility to be demolished is not contaminated.

Swipe the surfaces to confirm lack of contamination using the null hypothesis approach. This approach is statically valid and requires fewer samples than other approaches.

Do not label the waste.

Dispose of as solid waste.

### **Medical Surveillance – Section 850.34**

Moderated by Jackie Rogers. Dr. Stephen Burastero, Lawrence Livermore National laboratory, presented the Chronic Beryllium Disease (CBD) medical surveillance program at Lawrence Livermore National Laboratory (LLNL). Highlights consisted of:

1. Identify exposed workers by conducting a survey. A questionnaire was used as the primary vehicle for identifying beryllium-associated workers at LLNL. It was mailed to over 1,000 current employed potentially exposed workers. It also encouraged workers to self identify.
2. The survey information was combined with sampling data to categorize employee for LPT testing priority. Workers are categorized as priority 1, 2, or 3, based on relative CBD risk.

3. Over 500 potentially exposed workers have been identified as of February 2000. Of these, 180 workers have been categorized as priority 1 workers, which means they had direct contact with beryllium.
4. Workers must now be re-categorized using the rule's definition for beryllium worker and beryllium-associated workers. This will be handled on a case-by-case basis, with a combined industrial hygiene-medical team and input from line managers.
5. Worker briefings on LPT testing was made mandatory in order to increase participation. The briefings present a balance view (pros and cons) of LPT testing and are continually updated with new data. Eighty-five percent of the machinists have attended the briefings. Workers participated in the design of the training material, which stimulated participation.
6. Workers feel that LPT testing participation would improve and want DOE to push for standardized laboratory protocols for LPT testing among the labs.
7. Worker counseling is an important and welcomed feature of the rule. More information is needed to characterize the mental health of a patient diagnosed with CBD or beryllium sensitization. Anxiety and depression are common among this group of individuals.
8. Multiple/alternate physician review is not viewed as a problem at LLNL since medical staff and workers have a good working relationship. Other physicians participating also believed that this was not an issue.
9. Discussion: Some individuals participating in at the workshop believed that LPT results should not be disclosed to the employer or insurance companies. Individuals participating agreed that insurance companies should not be able to receive or review this information. DOE believes that the employer is responsible for the safety and health of the employee and will be able to provide adequate protection for the employee when needed.
10. Most participants believed that they had limited resources and funding to adequately implement the requirements of the rule. Because funding is controlled by the operation offices. CBDPP plans should indicate where funding shortfalls exist.
11. Discussion: Reporting CBD and beryllium sensitization on the OSHA 200 log. Most individuals questioned the recording of CBD and beryllium sensitization on the OSHA log, CAIRS, and considered it inappropriate to provide this information in FOIA requests.

NOTE: The information below is provided in response to paragraph 11 discussion and questions participants had regarding: recording CBD and beryllium sensitization on the OSHA 200 log, the release of medical records under FOIA, and information in the CAIRS database system.

## OSHA 200 Log:

Employers are required to classify, record and report all cases where employees are diagnosed with either chronic beryllium disease (CBD) or beryllium sensitization. Work-related CBD is a recognized occupational illness. Beryllium sensitivity due to an occupational exposure is an abnormal condition that is classified as an occupational illness.

Employers are required to record all work-related illnesses on the “Log and Summary of Occupational Injuries and Illnesses,” (OSHA 200). Employers are required to complete each column of the form. This includes the section that contains the name of the injured or ill employee.

The information below was extrapolated from an interpretation provided by Office of General Counsel for General Law regarding the OSHA Form 200, Log and Summary of Occupational Injuries and Illness (dated 4/8/97).

DOE is not subject to OSHA regulations pertaining to disclosure of the OSHA 200 log. Pursuant to an agreement with the Department of Labor (DOL) reached in 1994 to settle the question of OSHA jurisdiction over the Department of Energy (DOE), DOE, rather than DOL, manages the radiological and non-radiological health and safety aspects of the operations of contractor managing government-owned facilities and OSHA regulations do not apply. Although a contractor physically prepares the logs, they are owned and controlled by DOE, which is subject to the Freedom of Information Act (FOIA). FOIA exemption 5 U.S.C. 552(b)(6) prohibits disclosure of:

...personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy[.]

The logs contain medical information such as a description of the injuries and other information that, if disclosed, would constitute a clearly unwarranted invasion of personal privacy.

## CAIRS Information:

Access to the CAIRS database is controlled. Additionally, access to select information that would invade personal privacy, e.g., employee name, address, social security number or identification number, is restricted to those individuals with a need to know. Information contained on the OSHA log entered into the CAIRS database is protected under the FOIA exemption.

## FOIA - Privacy of medical records (See 10 CFR 850, Federal Register Page 68898):

DOE is requiring Heads of DOE Departmental Elements to designate the CBDPP-required records as federal records. Federal records, except for records containing specific types of sensitive information, are available to the public under the FOIA and related federal policy. The FOIA requires the federal government to release government records upon request, except for information that is exempted from disclosure to protect an overriding interest, such as privacy,

national security, and trade secrets and other confidential business information. The FOIA exemption for information in personnel and medical files (5 U.S.C. 552(b)(6)) is especially important for DOE CBDPP-required records, because many of these records contain medical information that is protected from release by this FOIA provision and other federal laws.

### **Medical Removal and Medical Consent – Sections 850.35 and 850.36**

Moderated by Jackie Rogers - Tom Ford, CIH, Lockheed Martin Energy Systems, Y-12 Plant gave an overview of Y-12's approach for implementing these sections.

The following is a summary of the medical removal and medical consent session:

1. **Medical Removal Practice:** At the Y-12 Plant employees with beryllium sensitization, chronic beryllium disease, or other chronic lung disease are restricted from work in or around beryllium. The restriction is documented on a health evaluation-medical restriction form. Employees are re-assigned to non-beryllium work activities. Currently Y-12 has 13 employees that are beryllium sensitive and 11 employees with CBD. All restricted workers have been assigned work in non-beryllium work areas.
2. Employees with beryllium sensitivity, CBD, or other chronic lung disease are restricted from beryllium regulated areas, beryllium areas, beryllium storage areas, and beryllium buffer areas (areas designated to serve as a warning for individuals with CBD or beryllium sensitization – do not enter, beryllium present).
3. Y-12 Plant has 528 active beryllium workers, 724 former beryllium workers which will be re-classified as beryllium-associated workers under the new rule, and 281 workers on the augmentation list (security, fire, emergency and support staff).
4. Active beryllium workers receive LPT every year, former and augmented workers every 3 years. Anyone self identified as a beryllium worker will also receive a LPT every 3 years.
5. Employees are given “Facts concerning the Be-LPT,” a participation/authorization medical consent form, a beryllium worker medical surveillance questionnaire and a Be-LPT declination form when they are offered a Be-LPT.
6. Worker participation in the medical program is probably less because of the informed consent form. Workers feel that responsible employers should not know the identity of individuals that are beryllium sensitive or have CBD. Some of the physicians participating in the workshop believed that this was a moot point because the work restriction is in place, most employers can basically conclude that the worker is beryllium sensitive or has CBD.

NOTE: EH added that SOMD needs to inform the responsible employer because it is their responsibility to provide protection from safety and health hazards at their facility. The responsible employer cannot provide adequate personal protective equipment, medical surveillance, training and counseling if the employer is not aware of the worker's condition.

7. Discussion: Currently most sites are using different consent forms. Can the informed consent form be modified or exempted?

NOTE: 10 CFR 850, Appendix A is mandatory and the required informed consent form that should be used at all sites that the rule applies to. The form cannot be modified. The rule does not provide an exemption for the informed consent form.

8. Discussion: There was some objection to the consent form. A workshop participant believed that the consent form was unethical.

NOTE: Under the rule, the medical informed consent form is used to ensure that workers receive adequate information to make an informed decision regarding participating in the medical surveillance program. The informed consent form is not used so that workers can sign away their rights, nor is it used so that the responsible employer can have their liability diminished.

9. Discussion: Who determines medical removal?

NOTE: After a discussion between the SOMD and the worker, the SOMD makes the determination for medical removal.

10. Training in medical surveillance/removal/consent section of the rule is needed for beryllium-associated workers and responsible employers so that each person can understand their rights.

11. Discussion: If a worker declines the program when first offered, can a worker join the program later? Can a worker decide to drop out of the medical surveillance program? What happens to the workers records if they drop out of the program?

NOTE: The medical surveillance program is voluntary, no worker will be required to participate in the program. Yes, a worker can decide not to participate in the program when it is first offered. If that worker changes his or her mind at a later date, the worker can still enter into the program. Once enrolled in the medical surveillance program, a worker can still decide to drop out of the program. The medical records are kept by the SOMD.

### **Training and Counseling – Section 850.37**

Moderated by Dave Weitzman - Dr. Mary Benton and Howard Friedman, Lockheed Martin Energy Systems/Y-12 presented their approach to the training and counseling required by the rule.

Dr. Mary Benton and Howard Friedman, Lockheed Martin Energy Systems/Y-12 presented their approach to the training and counseling required by the rule.

Dr. Benton presented on training. She made the following points:

They include beryllium training as part of their risk communication efforts.

Risk communication is a more appropriate term because it emphasizes training by engaging in a dialog rather than relying on a trainee absorbing information from a trainer's monologue.

They obtained broad input (managers, workers, safety and health professionals, etc.).

They primarily use the DOE Training Reference for Beryllium Workers and Managers/Supervisors Participant Manual entitled, Communicating Health Risks, Working Safely with Beryllium, May 1998.

They encourage bringing the information home to workers' families. They do not include any classified information in the training materials to avoid security problems with bring the information home.

They also developed detailed training on site specific Beryllium procedures.

The rule requires some changes over the current beryllium risk communication efforts and procedural training. Y-12 Industrial Hygiene will make changes to the procedure based on the new Beryllium regulations. Then the Training Department will revise the training. The following areas need to be up-dated:

Awareness.

Risk communication.

Y-12 beryllium procedures.

Area specific training.

They use Systems, Applications and Products (SAP) which is an electronic tracking system that includes an electronic qualifications (qual) card.

Y-12 has a web-based test-out for requalification training. Workers can test out of training by answering randomly generated questions from a test bank.

After incorporating changes from the new Beryllium regulations, they will develop a Y-12 specific web-based beryllium course.

Howard Friedman presented Y-12's counseling for workers who are sensitized to beryllium or have chronic beryllium disease. Howard and Dr. Jones, the Y-12 occupational medical director, identified the need for counseling about five years ago and determined that a support group would be the best vehicle for the counseling.

At first the support group had to overcome the legacy attitude that workers who talk to psychologists provided by the company will lose their jobs as a result. They overcame this negative attitude by persistently proving it to be incorrect.

Currently the group meets every other week and 12-15 members attend.

Management shows support including coming to support group meetings from time to time.

The support group meetings:

Are a good venue to relieve the stress of living with CBD and its consequences on the health and well being of the worker and family members. Unrelieved stress can lead to other physical and psychological illness.

Have Y-12 officials explain workers' compensation and other worker benefits.

Have had Dr. Lee Newman, National Jewish Medical and Research Center, visit the group and explain to its members, managers, and local pulmonologists the effects of CBD and its many related issues.

Have spouses attend to help them deal with workers who are stressed and sometimes suffering unpleasant side effects of steroid treatments.

Union representatives are encouraged to attend the meetings.

The support group:

Has a social aspect. Members have occasional social gatherings like a breakfast.

Members are gaining considerable expertise on CBD-related topics.

Encourages participation in Be-LPT screening. Links members who begin Be-LPT screening with mentors who have participated for some time.

Activities are held on site during work hours.

Howard refers members to outside psychiatrists and psychotherapists and to local hospital intensive pulmonary rehabilitation specialists. The hospital program provides education about pulmonary problems and gets the referees started on an appropriate exercise program. Once they “graduate” from the intensive program, patients enter a pulmonary rehabilitation maintenance program in which the patients are encouraged to stay active. Workers participate on company time and are covered by worker’s compensation. The services and group attendance are open to active and retired employees.

Lisa Barker, National Jewish Medical and Research Center, which supports RFETS, commented that the RFETS beryllium support group provides many of the same functions as the Y-12 support group. They are particularly active in helping members understand and work with Colorado's workers' compensation system that does not readily acknowledge occupational chronic illnesses such as CBD. They also link new members with experienced mentors.

Participants from Hanford indicated that the Hanford site has a support group and workers from all the organizations on the Hanford site are welcome to participate.

A participant from Fernald indicated that they have a few beryllium-sensitized workers and are determining what next to do for them.

A participant from Kansas City inquired if any worker's employment has been terminated after the rule's two-year medical removal protection benefit ran out. Other participants pointed out that the two-year period has not expired anywhere yet so this question is unanswerable at this time.

Kim Ellis, University of California/LANL, pointed out that participants accepting the medical removal protection benefit may experience stress caused by not doing the work that gives them the greatest satisfaction, e.g., highly skilled machining

## **Recordkeeping and Use of Information – Section 850.39**

Moderated by Dave Weitzman - Kim Ellis, University of California/LANL, presented on their strategy for the rule's recordkeeping and use of information requirements.

LANL is committed to taking an integrated approach to recordkeeping.

Four Parts:

1. Inventory
2. Hazard Assessments
3. Exposure Monitoring
4. Medical Surveillance

1. For the inventory

LANL is using Microsoft Access at this time.

The data base currently has three main modules for identifying beryllium-associated workers:

Area. Will identify areas where beryllium exposure was or is possible.



Worker Evaluation. Will evaluate workers to determine which workers work or have worked in the areas with potential beryllium exposure. A way to track which workers need further evaluation to characterize exposure, e.g., exposure monitoring.

Workers. Will identify beryllium-associated workers based on the areas and worker evaluations.

2. The recordkeeping system includes a hazard assessment module:

They believe that using the automated recordkeeping system will result in consistent hazard assessments; currently hazard assessments vary with the individual assessor.

Having the system on-line will make it easily accessible to users.

They eventually will link the hazard assessment module with the other modules.

3. The recordkeeping system includes an exposure measurements module:

They place a great emphasis on flexibility and to meet all future needs both LANL's and outsiders (e.g., HQ), for this data.

They are building quality control into the system, e.g., sample flow rates can only be in a specified range, sampling end times must be later than beginning times.

They are building quality assurance into the system, e.g., all IH activities that generate or use data will be peer reviewed by other industrial hygienists.

The system will include equations to automatically calculate results of interest, e.g., exposure concentration from analysis results and sampling data.

Certain workers will enter exposure sampling information when they "hang their own pumps."

It will have three levels of users with access to different modules and different abilities to modify the data base. The levels will generally be:

Workers - who enter data and generate routine reports.

Safety and health professionals - who create customized tables, enter data, link data, conduct analyses, and generate customized reports.

System operator - who has access to the entire data base and controls the data base structure.

Flexibility will allow any desired sorting of the data.

Industrial hygienists will have a home screen from which they can create customized tables and conduct their peer reviews.

The data base will ultimately consist of many detailed tables.

It will ultimately include hazardous chemical agents in addition to beryllium.

It will include descriptions of exposure controls in use when exposures were measured.

It will be capable of generating any desired report, including the semi-annual report to the DOE beryllium registry required by the rule.

4. Beryllium medical surveillance data at LANL is separate from other medical surveillance data because the beryllium surveillance is a research project that includes developing the flow-cytometry method for improving beryllium sensitivity measurements and methods for improving the reliability of measuring markers for determining genetic predisposition to CBD. The only part of the surveillance data that is separate is the Be-LPT test information, which doesn't go into the worker's medical records. The rest of the records, like blood work or PFT go into the worker's medical file.

LANL is determining their different categories of workers based on risk of CBD and establishing priorities for including and scheduling the different categories for medical surveillance.

Workers can be: active or inactive

Exposure can be: Routine (like for machinists)

Infrequent (like for support personnel, His, some researchers)

Incidental (for accidental or one-time exposures)

No exposure (usually for people put on surveillance in anticipation of work with Be that never occurs)

The data system cost and schedule:

Has cost a lot so far.

Expect the beryllium data base will be complete after a one year effort.

Expect an additional year or two to complete for other chemical agents.

## **Performance Feedback – Section 850.40**

Moderated by Dave Weitzman - Ted Helms, Bechtel Jacobs Company LLC/ETTP, and Ken Groves, University of California, Office of the President, presented their organizations' performance feedback systems.

Ted made the following points:

Most of the ETTP beryllium is in waste material.

They approach performance feedback as a component of their ISMS.

They are keeping in mind the rule's 850.39 requirements to include in performance feedback:

Measurements. They are determining what to measure, by what methods, and what measurement tools to use.

Assessments. They are determining the frequency of assessments, are committed to coordinate assessments of their CBDPP with other related assessments, and are committed to an open reporting environment that is devoid of reprisals for reporting "bad" news.

Feedback. They plan to continue to use as vehicles for communicating the feedback:

Meetings: Teams, Beryllium Advisory Committee, company-union advisory committee.

Lessons Learned: Is systematic, captures both good and bad, is included in operating experience weeklies (publication), and includes audit findings.

Issues/Corrective Actions Tracking System (I/CATS): Is a computer system, includes issue information, includes actions information, also includes issues and actions generated by the behavior based application "I Care/We Care."

I Care/We Care: Is a no fault system of raising and resolving concerns and issues.

Ken Groves presented University of California's performance-based contracts with DOE.

UC was the first contractor to use performance-based contracts with DOE.

Began 7 years ago.

End product is the value, not the process.

Is sensitive to local cultures. Involves the workers.

Seven year trend shows:

Quality of science began high and remains high.

Quality of administration began low and now is high.

Overhead costs began high and now are lower.

An example at a more detailed level of indicator is environmental findings which have dropped substantially.

Contract performance measures:

Have evolved over the 7 years.

Include both outcome (60%) and process (40%) measures.

Current process measures address implementation of ISMS:

Are leading indicators, e.g., number of workers trained and self-assessments completed.

Current outcome measures:

Seven or 8 are uniform for all UC/DOE laboratories.

Each lab has some individual outcome measures.

Appendix F of UC/DOE contracts contains the performance measures. It can be found on web site <http://labs.ucop.edu/>

Go to Performance Based Management, then Current Fiscal Year Performance Objectives, Criteria and Measures, then Appendix F, then Part II-2 "Environment, Safety and Health." indicators are tracked.

Performance Assurance is key to performance improvement.

UC works in partnership with management at each lab and DOE.

Each organization establishes policies, develops strategies, and conducts assessments. UC Office of the President collaborates on policies,

strategies, and assessments with management of the labs and the DOE Operations Offices.

Line management assessment is key to performance assurance.

The breakout group discussed the vexing problem that rewarding reduction in illness/injury rates sometimes motivates organizations to manipulate the system to avoid the appearance of increasing rates.

UC participants indicated:

That illness/injury rates are used as division-level performance indicators in the UC/DOE contracts.

Their belief that the reported rates are true reflections of the sites' illness/injury experience.

Their belief that their line management assessments assure the integrity of their system.

That being a not-for-profit organization may help them because their organization does not have award fee as a strong motivator to manipulate the system.

That all of a lab's subcontractors rates are rolled up into one rate for the lab.

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