INTRODUCTION

FIRST: This is the Open End session. It is intended for short presentations and presentations on projects that are in progress but the information that has been gathered so far is interesting enough to present it to this audience. The Open End is also intended for people who have serious questions about issues or equipment and who wish to ask the audience if anyone has a solution or can suggest one from basic principles. This session contains a variety of topics. We have two speakers. My Co-Chairmen on this session is Kenneth Duvall from the Department of Energy. He is with the Office of Environmental Guidance. You may recall Ken was the DOE representative at the 23rd Conference.

DUVALL: Our first speaker is Jan Fretthold. He is affiliated with the Rocky Flats Environmental Technology Safe Sites of Colorado and his discussion is going to focus on the standardized methods for in-place filter testing.

STANDARDIZED METHODS FOR IN-PLACE FILTER TESTING

M. Dykes, *Westinghouse Savannah River Co.*
J.K. Fretthold, *Safe Sites of Colorado, Rocky Flats Environmental Technology Site*
J. Slawski, *US Department of Energy*

Complex - Wide Conference on In-Place filter testing

Monday, March 25 - Friday, March 29, 1996

Westinghouse Savannah River Company, Aiken, SC

As a response to the Defense Nuclear Facilities Safety Board (DNFSB) staff's suggestion on the sharing of testing technology, a conference has been scheduled at the Savannah River Site to begin exchange of information.

Who Should Attend:

- Field in-place test personnel and their management
- Purchasing Representative familiar with blanket-type subcontracting
- Technical Representative familiar with HEPA Filter requirements and specification

Conference Participants Will Share Information For The Following Objectives:

- Work together to develop and standardize a complex-wide procurement specification for HEPA Filters
- Develop an in-place test procedure that will include all requirements that each particular site may have
- Develop a training for future test personnel
- Develop a guide for in-place tests of Non-ASME N509 Systems

As part of the conference, if available, please bring copies of the following documents:

- In-Place test method/procedures
- Purchase specification for HEPA filters for your site
- Receiving inspection procedures/description
- Storage procedure/methods
- In-Place personnel training methods
- Certification requirement for test personnel
- Form of documentation of In-Place test
- Description or photographs of testing equipment
- Test of vacuum, air movers, exhausters

- Information on aerosol generators
- Information on your site's use of different aerosol agents (e.g. EMERY,DOP,DOS)
- Information on your use of private test company (contracting out the in-place testing)
- Respirator testing...documentation of the technical basis for method used

COMPLEX-WIDE CONFERENCE ON IN-PLACE FILTER TEST

CONFERENCE MINUTES

Monday, March 25, 1996

Meeting began at 9:00 a.m. Welcome was given by Maynor Dykes, SRS.

This week's agenda was reviewed and all attendees (28) were introduced.

Purchase Requisitions

Maynor Dykes reviewed the procurement specification used by the Savanna River Site. This was a detailed review to show how current standards are used to control supplier quality. The group was told that this was the specification that will be used in the formation of BOA (Basic Ordering Agreement) to provide HEPA filters on a "as needed" basis to government owned/contractors operated (GOCO) facility throughout the Department of Energy complex. Seven GOCO facilities will participate in the BOA.

Other areas highlighted in this review were:

- All HEPA filters are Level 1 procurement and require Level B storage.
- All HEPA filters receive a visual inspection by qualified trained inspectors prior to storage.

Meeting was adjourned at 11:30 p.m. For lunch.

Jon Fretthold, Rocky Flats, reviewed his company's Procurement Specification. A lengthy discussion was raised of shelf life of a filter. This is a problem were there is no technical guidelines. Jon stated that his company used ten (10) years with a five (5) year requalification. Reasoning behind the use of 10 years explained. Other area discussed by Jon were:

- Level B storage, controlled by filter systems personal
- Filter Inspections are performed by the FTF test personal

V. Martinez, Los Alamos National Laboratory, described his company's procurement specification. Victor stated basically all of the specification and purchase requisitions included the same information. Purchase requisitions are written, then forwarded to purchasing and bids go out. At receiving, QA and visual inspection are performed. Filters are reinspected after received from Rocky Flats. Filters are stored in warehouses and installed as needed. Victor indicated that 1-2% of their filters are rejected each year at receiving. Most of these are administrative problems.

J. Kriskovich, Westinghouse Hanford, stated they were in the process of updating their specification. They are using AG-1 as a base. Jim feels that all filters should not be tested. There is a 1-3% failure rate od Hanford filters at the Rocky Flats test station. At Hanford, visual and beach tests are performed. Receiving personal do all inspections. Hanford has a 1% defective rate at receiving. Most damage is caused by shipping and forklift.

Meeting adjourned at 4:00 p.m.

Tuesday, March 26, 1996

Maynor Dykes, SRS gave opening remarks and introduced Roger Zavadoski, DNFSB.

Roger described the DNFSB and its purpose. "The board consists of 100 members. Roger is the technical staff member that deals with filtered ventilation systems. Roger discussion included the following:

- Protection of the public.
- The role of HEPA filters in D&D.
- Safety Class sys. reduced to Safety Significant - loss of margin of safety.
- The role of the Filter Test Facility; filter QPL; effects of aging, wetting, radiation.

In-Place Testing

Maynor Dykes described the SRS test program highlighting test procedures and test personnel training. He answered questions from the group concerning test frequencies of portable air movers and fixed exhaust systems.

There was a full conference discussion with each GOCO site describing their In-Place test program, procedures and training. There were many difference in training of test personnel. Some sites had no classroom training and depended on "on-the-job" training. There were several problems seen in using Union personnel as testers.

Each site discussed the instrumentation used in their test programs. All sites basically used the same type penetrometer with exception of Los Alamos. There was a long discussion on aerosols with no decision being reached on which was best DOP was being used at Rocky Flats, INEL & SRS; Emery 3004 was being used at LANL and

LLNL; Emery was used at Hanford. ASME N510 was discussed and the conference thought a rewrite was in order.

Wednesday, March 27, 1996

Instrumentation
- NIST Calibration
- Bench Test

It appeared that all sites were using the same photometer with the exception of Los Alamos was using the laser field testing.

Questions were asked concerning calibration of the photometer. Do we require NIST calibration? Do we bench test the photometer on regular intervals, how often do we calibrate to NIST requirement? Do we use a NIST transfer method on our contaminated instruments?

Oak Ridge reviewed these calibration methods stating the Instrumentation Control Division on-site performs calibration to an ATI procedure and it is good for one year. They seldom send there field instruments off-site because of the potential contamination problem. They do not perform bench tests. The FTF instruments are sent off-site for calibration. Oak Ridge uses Thompson's Calibration Laboratory for their off-site calibration.

LLNL described their calibration procedure stating their instruments are sent to ATI for NIST calibration. They have four sets of instruments and a small test station with a known aerosol source. When an instrument gives a suspect reading, it is taken through a bench test procedure.

Hanford requires annual calibration. The Instrument Tech. Group maintains their test equipment and test instrument are sent off-site for recalibration. Hanford uses PNL (Pacific Northwest Laboratory), which is at Hanford, for recalibration. Hanford performs bench testing.

Los Alamos requires annual calibration on their lasers. Sizing is performed on a quarterly basis.

SRS required annual calibration. Instruments are sent to ATI for NIST certifications. SRS maintains two NIST calibration instrument for bench test and calibration transfer on the highly contaminated instruments. When instruments are returned from calibration, the documentation is reviewed, particularly the "As Found" section. If a problem is seen in this section, retests are performed on systems where this instrument was used.
Rocky Flats has personal trained by ATI to calibrate and rebuild their instruments. This is performed on an annual basis.

SRS asked if anyone was checking the penetrometer flow. SRS had discovered a problem with flow on new instruments. All sites indicated they did perform flow checks.

The group agreed that we need to know more about calibration. They wanted to know if their instruments were calibrated to a know traceable concentration of aerosol. Maynor Dykes, SRS, agreed to investigate this problem.

There was a long discussion on penetrometer failure while in service. Hanford stated that they had problems with motors freezing. Some sites had problems in movement and handling. One site leaves instruments in the building where tests are performed to prevent damage. One site stated it was rare to have damage to an instrument from transportation by their group.

All sites have the required documentation in their record keeping.

Thursday, March 28, 1996

In-Place Test Personnel

There was a great deal of discussion on training. Training problems was seen as one of the major problems in HEPA filter testing. Some facility do not have in-house training programs. Others have full classroom training followed by on-the-job and JPM (Job Performance Measures). Testing was required at each level of training. Off-site training at Harvard or NUCON was the only requirement by some. Most sites considered off-site training as "basic" and feel that they could not provide much help in testing their systems. Most sites do not use ASME N510 criteria since they could not test their system to standards. The use of Union personnel as testers was reviewed and seen as a problem since supervision has no control over the people or who received the test assignment. The conference group thinks we should have DOE assistance in development of a training policy. Since test requirements are basically the same at all sites, there was no reason why training should not be alike. At the present time, there is no certification for in-place test personnel.

Site Training Program Qualifications:

- Oak Ridge - Has no in-house training program. Requires training from Harvard or NUCON and on-the-job training.
- Rocky Flats - Requires two-four days supervisor administered training for Union people then on-the-job training for each system.
- Livermore - Requires Harvard training with one year on-the-job.
- LANL - Requires 39 hours classroom, 9 JPMS and 2 years on-the-job.
- SRS - Requires 39 hours classroom, 9 JPMS and 2 years on-the-job. Requalification is required every two years after qualification.
- Hanford - Union tech. OJT by supervisor,Qual. cards.

Test of Air Mover, Vacuum and Portable Exhausters

No one knew of any technical specification for testing portable equipment. Most sites perform tests alike and require qualified HEPA filters.

SRS requires qualification of all portable equipment before purchase. All equipment failing qualification testing will not be purchased. The SRS Filters Test Group has final approval of all portable air movers.
At all other sites, the test personnel have no say in procurement of equipment. Problems arise in this policy because some of the equipment can not be tested or altered so that basic testing can be performed. One site had to alter a vacuum cleaner to eliminate carbon fibers getting into the test instrument.

Private Test Companies

A very short discussion. No one had experience with private companies. Problem areas include security clearances and training on special filtration systems.

Friday, March 29, 1996

Conference Review

The positive response to this conference was outstanding. Everyone agreed that the conference was a great success and should continue. The indicated it was long overdue. All agreed this was the best method to transfer technical in-place testing knowledge throughout the DOE complex. A large number stated this was a training experience where they learned how to better perform their job function as a tester or supervisor.

The group saw the need for better standards, procedures and training of test personnel. It was very evident that most sites are basically doing business alike but with different approaches. It is now known that procedures common to all sites can be written and used effectively.

Many problems were identified at this conference. The one most common to all sites was, the test groups have no authority even though their job function is required by DOE. They cannot require correction of deficiencies and are not included in designs or procurement.

Everyone agreed that DOE should provide direction and support to the test groups. It was agreed that the FTF groups should continue to function. Every site saw a cost savings (waste reduction) in their programs by requiring retest at these facilities.

During the conference, participants were asked to write some of their major concerns. Given below are these concerns:

- Lack of official DOE policy regarding testing at FTF's.
- Lack of DOE or Site specification for portable HEPA systems or filters for these systems.
- Lack of minimum training requirements for filter testing personnel; no DOE guidance.
- Referencing of ASME N510 for the testing of DOE filter systems results in auditing confusion and problems demonstrating compliance with referenced requirements.
- Lack of DOE guidance document or standard for testing of filter systems unique to DOE sites.
- Procurement of HEPA filters by personnel not knowledgeable of requirement for Nuclear Air Cleaning Components.
- Systems have old filters, >20 years. They are routinely tested and pass but the quality of media is in question. Testers have no authority to require replacement.
- Lack of DOE policy concerning shelf and service life of a HEPA filter.
- There is no formal DOE policy that requires facility managers to correct deficiencies found by the test groups.
- How will QPL be handled?
- If testing stations go away, who will perform a calibration efficiency (versus a leak test) tests.
- When will the whole filtration area stop being the unwanted step child at DOE?
- Will the conference continue? How Often? Where?
- There is a large disparity on how you meet or not meet an OSR (TSR, BIO, etc.) requirement.

The conference adjourned at 11:30 a.m.

Future Actions:

Establish a Complex wide (DOE) policy on :

Training requirements for filter test tech.
Test tech. certification
Test aerosol
In-place test procedure - mandatory / optional requirements.
Receiving inspection / QA
Filter specification (ASME / DOE)
QPL requirements for filters
Use of FILTER TEST FACILITIES
Filter service life

List of attendees:

Maynor Dykes	WSRC	Greg Helland	LANL
Ernest R. Brinkley	WSRC	J.C. "Tony" Gross	Lockhead Martin/OR
Gary Mullis	WSRC	George M. May	Lockhead Martin/OR
Dave Simpson	WSRC	David L. Monroe	Lockhead Martin/OR
Kurt Breitinger	WSRC	Gary N. Norman	ORNL
Richard Proctor	WSRC	Terry Schubert	Lockhead Martin/OR
Jim Kriskovich	WHC	Jim Slawski	DOE DP-45 (GTN)
Charles DuPré	Kaiser Hill/Rocky Flats	Jack Jacox	Jacox Associates
Brian Mokler	LANL	Micheal Brandon	RMRS/Rocky Flats
Lawrnel Harrison	INEL	Richard A. Caufield	Dyn Corp/Rocky Flats
John Comer	WHC	J.K. Fretthold	SSOC/Rocky Flats
Roger Zavadoski	DNSFB	Werner Bergman	LLNL
Bruce Bettencourt	LLNL	Victor A. Martinez	LANL
Wayne R. Krause	LLNL		

DISCUSSION

DUVALL: Some time ago at Rocky Flats it was reported that there was significant plutonium discovered in the ventilation system on the walls downstream from the HEPA filters. And I am wondering what was concluded as to how that happened and did it have any bearing on the testing of the filters after that?

FRETTHOLD: Downstream from the filters?

DUVALL: Yes, there was a significant amount of plutonium that was lining the ventilation walls and there was some concern about criticality. In fact, I think that subsequently there were liners put on the ducts.

FRETTHOLD: That was upstream from the filter system between the glove boxes and the final filter plenum entrance. And here again it was a build up that had occurred because of the different processes. The basic systems are designed to move air, not particles. The original concept was, let's stop the particles at the glove box. Unfortunately, not every glove box operation had a filter at that point. Consequently, depending on the type of material, there was a migration into the duct work. Usually there was a reasonable velocity to carry the material, but as soon as any change in direction occurs or where you had a change in velocity you would have material fall out. They went through the system with an external counting device and identified where they had roughly the material. I won't say it was accurate because of background, reflections, and everything else that they were dealing with. But from that point on they could identify the worst locations and they went in with various small vacuum cleaners, scrapers, various other things and removed material from the worst locations. I do not have the numbers handy but I believe they removed one-tenth of what they estimated was there. It was a very successful operation.

BERGMAN: I want to add a comment to yours. I have not seen a report but I have had personal communications with people who know the major sources for this buildup. Regarding the question by Ken Duvall on Pu accumulation in the ventilation ducts at Rocky Flats let me offer the following: The HEPA filters used in glove boxes would plug rapidly and restrict the air flow into the box. This caused insufficient vacuum within the box and occasionally allowed Pu to escape from the box. To prevent this from happening, some workers would punch holes in the glove box HEPA filters to allow air to pass through the plugged HEPA filters.

FRETTHOLD: This took place during the early 60's, and then it stopped. The glove box filter was used as a pre-filter but was not a filter for which credit was taken from a testing standpoint. We had a lot of production going on, so the filters would load up fairly fast. There was a butterfly valve just downstream from the filter which could be opened to a certain point to maintain a negative pressure on the glove box. What you reported was early practice. It was definitely stopped and better maintenance instituted for filter systems and glove boxes.

DERDERIAN: In defense of DOE management, I would like to say that we are beginning to move in a direction that will resolve some of these important issues. Tip Rollins' group in EM is now tasked with coming through with a comprehensive report that will address the filter testing facilities. It will address QPL testing, it will address a number of technical issues that have not been addressed before. I find myself defending management, a very awkward position to be in for an engineer.

FIRST: I was very much interested in your exposition, particularly the aspect of training and certification of personnel. My first introduction to the Committee on Nuclear Air and Gas Treatment standards was to prepare a standard for personnel who did in-place testing. I spent six or seven frustrating years revising that document, because every time I revised it, the utility industry found good reasons why it was not sufficient. We finally had a conference with industry representatives who told us all the things that they wanted to have changed. We dutifully made the changes but then they told us they would not accept the standard under any circumstance. This remains a real problem. I did get the proposed personnel standard published, not in the air cleaning conferences, but in a special conference that took place in France on the subject of high efficiency filtration. If your group ever wants a personnel standard for certification, we have a good start and you can fight with the utility industry from now on.

DUVALL: Our next speaker is from NRC. He is James Lyons, section chief of the plant systems branch. His discussion will be on charcoal filter testing.