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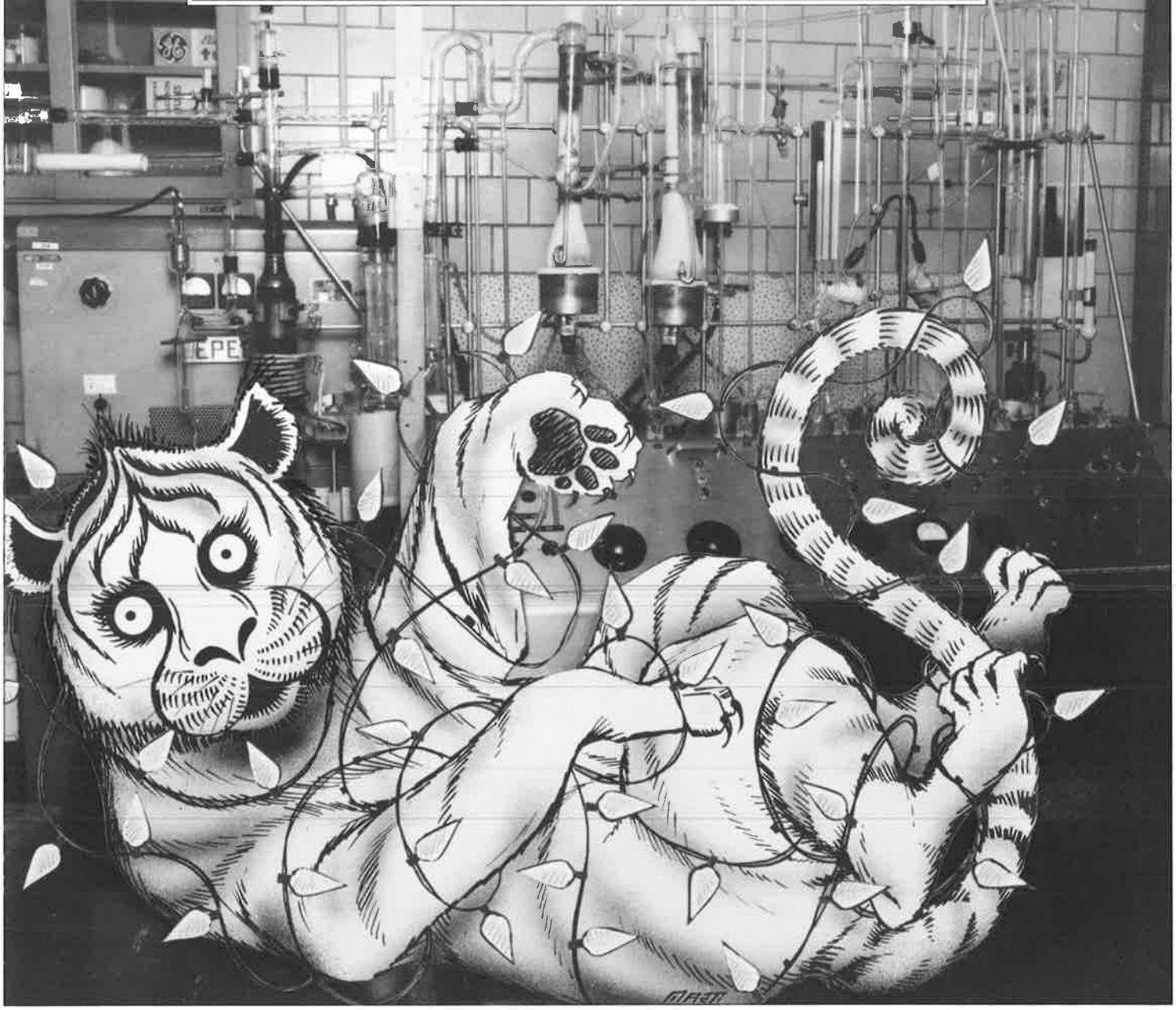
INSIDER

Newsletter for the Employees of Ames Laboratory ■ Volume 2, Number 12 ■ December 1991

Don't Get Tied Up in the Holiday Rush; Do Your ES&H Housekeeping Now



Getting to the Surface of Things

New Surface Analysis System Available to Scientific Staff

"It's a great machine, but not a simple toy to use," says Associate Chemist Jim Anderegg, scientist in charge of the new Multi-Technique Surface Analysis System.

Associate Chemist Jim Anderegg loads a sample into the sample introduction chamber of the new Multi-Technique Surface Analysis System.

This close-up view shows a sample typical of those Anderegg analyzes with the new ultrahigh vacuum system.

At the heart of the complex ultrahigh vacuum (UHV) system is its ability to investigate the surface of materials through a variety of techniques. It performs x-ray photoelectron spectroscopy (XPS), static secondary ion mass spectroscopy (SSIMS), static Auger spectroscopy and ion scattering spectroscopy (ISS).

"We'll be using the system to look at polymers, metals and ceramics and for a variety of other surface studies."

–Jim Anderegg

The system has three different x-ray sources and four different ion sources for a variety of excitation energies.

"We'll be using the system to look at polymers, metals and ceramics and for a variety of other surface studies," explains Anderegg. "The XPS capability yields information about the nearest neighbor environment of the surface—chemical bonding and/or oxidation state. SSIMS gives information concerning the long-range chemical environment of the surface of a material."

Careful handling and preparation of samples are prerequisites to an accurate surface analysis. One person requesting an analysis handed Anderegg a stainless steel sample, wanting to know if there was sulfur on the surface. "Right away I knew one thing would definitely be there—sweat. Dirty samples are a real problem," notes Anderegg. "People need to bring as clean a sample as possible because this is a surface technique. I'm looking at only the top 100 angstroms of the surface." (One angstrom is one hundred-millionth of a centimeter.)

Anderegg used the system's XPS capability to analyze the stainless steel sample. He bombarded it with x-rays and looked at the electrons coming off. "At first all I could see was surface crud," says Anderegg, "carbon, nitrogen, sodium, chlorine and oxygen." To get beyond that point, Anderegg made use of argon-ion etching to etch away several layers of the sample's surface. "You must be careful with the etching," says Anderegg. "You can etch right through the area of interest and completely miss it."

The Multi-Technique Surface Analysis System was built by Perkin Elmer to meet 18 pages of specifications written by Anderegg and the selection committee. With special training on the system, Anderegg performs analyses for anyone at Ames Lab. Arrangements can also be made for outside requestors to use the service. Anyone wanting surface analysis done using the new system should schedule a time with Anderegg.

"It's top-notch equipment," notes Anderegg of the surface analysis system. "At this point in time, it's one of the best in terms of SSIMS, XPS and ISS capabilities." ■

Richard Markuszewski, program director of Fossil Energy and director of the Iowa State Mining and Mineral Resources Research Institute, resigned from Ames Lab in October to become the Assistant Vice President for Education for the Institute of Gas Technology located in Chicago on the campus of the Illinois Institute of Technology (IIT). Upon the retirement of Gas Technology's current vice president at the end of 1991, Markuszewski will assume the duties of Vice President of the Education Division.

David Martin, senior engineer in Environmental Technology Development, is the new president of the ISU Faculty Senate. Active in the Senate for four years, Martin was the senate vice president before becoming president. He received his doctorate from ISU in 1966 and has been an ISU faculty member since 1971. He became an Ames Lab associate in 1985. In addition to being a ceramic engineer and a glass expert, Martin is an artist, blowing red-hot liquid glass into vases and other works of art.

Outstanding Employee Welcomes Change

"I was definitely surprised," laughs Accountant Ila Haugen after receiving the Outstanding Employee Award for FY91 at the annual meeting of the Administration Division. "I didn't even know the outstanding employee award was on the meeting's agenda."

Nominated and selected for her dedicated service to Ames Lab, Haugen applies her expertise to many budget office functions. Handling overhead accounts that amount to roughly $8 million yearly, she makes sure the Lab balances out with the funds available for overhead purposes. Examples of additional accounts Haugen is budgetarily responsible for include shops administered by Rollie Struss; environment, safety and health; and assigned scientific accounts. Directing time and talent to the annual work authorization system (WAS) budget submission, Haugen presents a summary of the entire Lab picture, including the establishment of overhead factors, a high-priority effort within the broader scope of her WAS responsibilities. During preparation of last year's WAS, she unselfishly put in 140 hours of unpaid overtime in service to the Lab. "Ila's contributions to the budget office are many, varied and valued," declares Budget Officer Dale Knutson. "It's gratifying to see her publicly recognized for her outstanding services to Ames Lab."

Well suited for her job, Haugen says she enjoys working with numbers and interacting with a variety of people. "I see a lot of changes in my job and that keeps things interesting and exciting," notes Haugen. "Situations and emphases shift with the climate in Washington as well as the state of Iowa; these changes impact the work I do at the Lab."

Change is an ingredient Haugen values in her activities outside of the Lab as well. Always on the go, she manages to find projects that lead her to new experiences and bring out hidden talents. Building a cabin with her parents and brothers and sisters in northern Minnesota fifty miles from the Canadian border is one of her biggest undertakings. "We've been working on it for six summers," says Haugen. "I've been up there four times this year. All that's left to do is the screened-in porch."

Haugen says she and her family primarily used recycled materials to build the cabin. "We tore down an old barn and a corncrib to get the lumber we needed." As difficult as that sounds, Haugen says there was another obstacle that caused more stress. "Getting Mom and Dad to agree on the design was the biggest headache of the whole cabin-building process; there's no question about that," declares Haugen.

Smiles and a three-way handshake make it official—Ila Haugen is the Outstanding Employee of the year for the Administration Division.

The completed Haugen-family cabin has a kitchen and dining area, a living room, three bedrooms and a bath. "It also has outdoor plumbing," says Haugen. "It took us over a week to build the outhouse. We collect rainwater off the roof for the shower system and for washing dishes, but haul in drinking water," she explains. "There's an old well on our property that we may eventually use, but it needs to be cleaned out. The water should also be tested, but my brother's horses liked it and they're still alive!"

Change also comes with adventure, and Haugen has had a few of those. One memorable event was rafting the entire Grand Canyon in oar-powered 19-foot rubber rafts. A future adventure may be the 20-mile round-trip Bike Ride to Rippey (BRR). This doesn't sound too out of the ordinary until you realize the ride is annually held on the first weekend in frigid February. Haugen is also anticipating a trip to Norway with her family, tentatively scheduled for next summer.

"I have a list of places to go or adventures to take from now until the time I leave this earth," states Haugen. "I've added to that list and combined some things, but I haven't eliminated any! It's my way of making sure that I balance things out between work and play." ■

Environment, Safety and Health- Who's Responsible?

As the Laboratory prepares for February's environment, safety and health (ES&H), and management appraisal, it is necessary to review our responsibility and accountability for these areas. The Tiger Team will be measuring the degree of each employee's understanding of their ES&H obligations. Furthermore, a commitment to ES&H matters will continue to be a requirement after the Tiger Team leaves as we change our ES&H culture and the way we do business.

RESPONSIBILITIES

ES&H responsibility is a line responsibility extending from the Director through all management levels, to and including the individual employee.

Employee - Each employee is responsible for following established ES&H practices and rules when performing Ames Lab work. Each employee has a responsibility to correct any ES&H deficiency they find as quickly as possible. If the deficiency cannot be corrected by the employee, it should be reported to their supervisor or ES&H staff.

Supervisor - Evaluating supervisors are responsible for implementing ES&H programs developed by the Lab and assuring daily operational compliance with these programs.

Program Director and Manager - Program Directors and Managers have primary responsibility for ES&H operations under their authority. They are responsible for developing their own ES&H programs and assuring that their supervisors implement these programs.

Environment, Safety and Health Group - The ES&H Group is responsible for assisting the Director in providing for continuity, completeness and appropriate standardization in all Laboratory matters of operational ES&H activities. The Group is responsible for developing ES&H policies and monitoring compliance as well as being a resource for all operational units.

ACCOUNTABILITY

Accountability for ES&H actions or inactions rests equally with each employee and their supervisor. ES&H work performance will be a part of the performance evaluation process.

The Occupational Safety and Health Administration's (OSHA) General Duty Clause states that: "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." The OSHA Act also contains stipulations for dealing with "Willful Violations" of the Act and includes the possibility of fines and/or imprisonment upon conviction. Willful means that the employer knew about a hazardous condition and did not make a reasonable effort to eliminate the condition or permitted operation knowing that a hazardous condition existed. ES&H negligence could also result in civil litigation. Supervisors are not immune from accountability in these cases.

Each of us must make ownership of ES&H responsibilities a part of our daily work activities. For example, ownership of your housekeeping responsibility will go a long way toward making your workspace a more pleasant and safer place. The admonition of "clean up your own workspace – your mother doesn't work here" applies to each of us. When this ES&H ownership becomes part of the way we do business, efficiency will improve and ES&H performance will reflect our commitment to a new safety culture. ■

— Lowell Mathison

Where Have all the Chemicals Gone?

Gone to ES&H every one, or so it seems to Lowell Mathison, manager of Environment, Safety and Health. "We're receiving copious amounts of chemicals at a record rate," sighs Mathison.

Pleased about the cleanup of unneeded chemicals but faced with the dilemma of where to store them until removed for disposal, Mathison last month restricted chemical returns to ES&H for a three-week period. "We physically ran out of space to put more chemicals," states Mathison. An Environmental Protection Agency (EPA)-licensed vendor arrived during the third week of November to remove the first avalanche of chemicals that roared through the doors of ES&H on the heels of a stimulating all-Lab Tiger Team forum. "The cost for chemical disposal for the year as of November was $56 thousand; in the past we typically spent $8 to $10 thousand per year," notes Mathison. "We're faced with the fact that we are no longer a small-quantity generator of hazardous wastes as defined by the EPA."

If daytime activities have any bearing on dreams, Lowell Mathison (left) and Ken Malaby may very well be counting chemicals in their sleep. Here they inventory some surplus and waste chemicals returned to ES&H.

"The return of several 'acute toxic' chemicals put Ames Lab over EPA limits for small-quantity hazardous waste generators for the months of October and November," says Mathison. "Also, a mixed waste, one that has radioactive and hazardous waste properties, was turned in. Mixed wastes create real problems because there is no place in the country they can be disposed of at present. They must be stored, inspected monthly and reported on annually by the Laboratory to the EPA," Mathison explains.

ES&H relies on labeling by Ames Lab researchers for identification, separation and temporary storage of returned chemicals. Organic solvents that are similar are combined in barrels and stored in the Lab's waste disposal building at the Applied Sciences Complex. The barrels are later picked up by an EPA-licensed vendor and taken to a disposal facility where the chemicals are incinerated. Inorganics are separated by the vendor, who selects specific groups of chemicals and puts them in "lab packs," hazardous chemical transportation containers that have a large amount of absorbent material to guard against spills.

Literally caught in the middle of a chemical junkyard, Ken Malaby, assistant chemist in charge of surplus and chemical waste management, has managed to find a scrap of time to assess the surplus-to-waste ratio of returned chemicals. "We've taken in about two-thirds surplus and one-third waste chemicals," he notes. Mathison adds, "A time limit is set for reissue of the surplus, after that we call it waste and dispose of it."

Temporary home for the unneeded and unused, ES&H continues its role as halfway house for exiled chemicals, orphaned from the laboratory shelves of scientists who are taking ownership of their housekeeping responsibilities and learning to incorporate environment, safety and health into the routine of daily research activity.

Find-A-Fault Contest

Keep the Suggestions Coming

WINNERS!

Carla Alves, graduate assistant, Processes and Techniques:

Devise a label for identifying and logging wastes in waste containers.

Sandi Bishop, secretary III, Associate Directors' Office:

Train several bi-lingual employees as special safety coordinators to work with graduate students and visiting scientists in safety issues.

Marilyn Kniss, clerk typist III, Processes and Techniques and Materials Chemistry:

Treat the floors in tunnels connecting buildings to reduce the slick surface and prevent falls.

Glenn Norton, associate chemist, Fossil Energy:

Establish a position description for Safety Coordinators that includes authority to deal with programmatic safety issues as well as the responsibility.

Phil Bazan, research helper, Materials Preparation Center:

Label all chemicals and hazardous materials with colored stick-on dots to denote flammables, corrosives, carcinogens and the like.

John Hayes, chemist, Environmental Sciences:

Require a diagram or written description of laser beam paths in laser hazard assessments.

John Mason, associate metallurgist, Metallurgy and Ceramics:

Provide a free period (no-fault) for analysis of unknown waste chemicals that will promote their processing.

Beth Weiser, editorial assistant II, Office of Information:

Write and issue a safety guidelines handbook for typical safety issues. Cover electrical, chemical and other hazards and where assistance can be obtained.

Bob Dawson, (left) postdoctoral fellow, Fossil Energy and **Warren Straszheim**, associate chemical engineer, Chemical Engineering:

Correct the door swing on rooms 273, 4 and 5 in MD building so they do not block hallway for fire egress.

There will be two more selections of winners in the Find-A-Fault Contest.

MANDATORY TRAINING

Safety training for all employees is required to meet OSHA rules and standards. Hugh Hammond, Ames Lab's safety coordinator, will facilitate the training in hazard communication/Right-to-Know, chemical lab standards, and the Ames Lab lock-out/tag-out program.

This MANDATORY training will be held on the following dates and times in the Spedding Hall auditorium. Please note that half of each program will attend the first session and the other half the second session. Attendance will be taken. If you are unable to attend during your assigned time, please come to one of the other scheduled sessions. If you have any questions, call Hugh Hammond, 4-5634.

Wednesday, 12/18	9:00	Facilities Services Engineering Services
Thursday, 12/19	8:45	Facilities Services Engineering Services
Friday, 12/20	10:00	Administration Division Office of Information Environment, Safety & Health
"	11:00	Same groups as 12/20 at 10:00
Friday, 12/27	1:15	Safeguards & Security Applied Mathematical Sciences Environ. Restoration/Waste Mgmt. High Energy Physics Scientific Computer Services
"	2:15	Same groups as 12/27/91 at 1:15
Monday, 12/30	9:15	Fundamental Interactions Environmental Sciences
"	10:15	Fundamental Interactions Environmental Sciences
Tuesday, 12/31	1:30	Metallurgy and Ceramics
"	2:30	Metallurgy and Ceramics
Friday, 1/3	1:30	Fossil Energy
"	2:30	Fossil Energy
Monday, 1/6	9:15	Processes & Techniques
"	10:15	Processes & Techniques
Wednesday, 1/8	1:30	Condensed Matter Physics
"	2:30	Condensed Matter Physics
Friday, 1/10	9:15	Materials Chemistry
"	10:15	Materials Chemistry

A projection TV and VCR, located in the 301 Spedding Hall auditorium, is available for official Lab use. Please sign the user log on top of the TV so usage can be tracked. The TV/VCR may not be moved from the stage unless arrangements are made with the Office of Information, 4-5662. Room reservations should be made with Jeanine Crossman, 4-3757.

During the Lab's housecleaning, some old artifacts have been found. Hal Sailsbury found some aluminous oxide powder dated October 1, 1943. If you can beat this, call the Insider staff at 4-5635 or 4-3474.

Most environment, safety and health (ES&H) policies and procedures can be found in the Ames Laboratory Safety Manual. Your program director/manager has a copy of this manual. Consult this document concerning ES&H questions. If your questions cannot be answered, then call the Environment, Safety and Health Group at 4-2153.

NAME CHANGE

Effective immediately, Safety, Health and Plant Protection's new name is Environment, Safety & Health (ES&H).

Effective November 1, Bill Buttermore became Acting Program Director for the Fossil Energy Program and Acting Director for the Iowa State Mining and Mineral Resources Research Institute. Buttermore has been at the Lab since 1984.

Back to School

Marj Paradis

"You must have dedication and discipline," says Assistant Budget Officer Marj Paradis about going back to school while continuing to work full time. "You must set new priorities."

Paradis plunged into the arena of higher education in 1989 when she began work on a master's in business administration (MBA). With an undergraduate degree in history, Paradis wanted a degree more in line with her job functions. "I thought an MBA would improve my management skills. Working on the MBA also makes me more aware of what is going on in the business world, politics and global economics," explains Paradis.

Whittling away at the 48 credits required for an MBA, Paradis took two classes a semester and one each summer starting in the fall of 1989. "I'll be done fall semester of 1992," she says.

"A lot of people are helping me accomplish this goal. My network of friends, which includes some Ames Lab people, is very supportive." Paradis also credits her husband Phil for his encouragement and help, especially with the house. "He's quite a good cook, and it's a fair exchange since I helped him through his Ph.D.," she laughs.

Paradis has no specific post-MBA plans at this time, but says she is always ready for new challenges. "I do like change," she says. "It helps you realize that many things are important in life, and certainly change makes you resourceful. I also have a strong need to contribute to an organization; this is critical for me."

On occasions when Paradis budgets some more relaxing moments, she most often goes to performing arts events. She attends both the blues and jazz series at the Memorial Union Maintenance Shop each year. "I've gone with the same group of people for several years," notes Paradis. "I enjoy the performers, the music and the friendships, and the Shop offers such a relaxed atmosphere." After attending Dracula, The Ballet, during this year's first ice storm, Paradis praises the performance and says, "I would have skied to C.Y. Stephens to see it." ■

Taking Stock

Last month an enthusiastic group of employees participated in the Administration Division's annual meeting, more familiarly known as the Stockholder's Meeting. Chaired by CEO John Eckert, the meeting recognized new employees, promotions and outstanding employee service. Accountant Ila Haugen received the Outstanding Employee Award for FY91. (See story on page three.)

The people standing in the photo below were recognized for their contributions to developing the bi-monthly pay system for merit employees. Following a measure of good-natured banter between Eckert and division stockholders, the meeting picked up a jungle beat. Eckert discussed preparing for February's Tiger Team visit and stockholders viewed the Argonne closeout video. ■

Parks Library to Provide Literature Searching

Beginning January 1, the Parks Library will be providing literature searching for Ames Lab researchers. The search service will no longer be a function of the Office of Information.

All search services previously provided by the Office of Information are available at the Parks Library, including Chemical Abstracts (CA) searches which are offered on the same academically discounted program the Lab currently receives. CA searches are run on Wednesday or Thursday evenings. Requests should be directed to Gerry McKiernan, 4-3642.

The Parks Library will also accept search requests by fax (4-1885) or E-mail (JL.GJM). Individuals not familiar with literature searching are encouraged to make their request in person the first time they use the service.

Turn-around time for obtaining search results is usually two to four days, but may be sooner depending on when the search request is received relative to the evenings the service is offered. Search results may be picked up in 152 Parks Library, Monday through Friday from 8:00 a.m. to 5:00 p.m.

The Library vendacard system will be used to pay for literature search services. Requestors **MUST** bring their vendacards when picking up search results. Many people currently use vendacards to pay for photocopying and interlibrary loans. Extra funds may need to be added to those already in place for vendacards, allowing for the additional expense of literature searches. Some groups may wish to designate one vendacard specifically for literature searches. To add funds to an existing vendacard or set up a new vendacard, contact Tracy Scebold in Purchasing at 4-1780.

For answers to questions regarding changes in the literature search service, contact Saren Johnston at 4-3474. ■

Consultants Findings

The Jefferson Group, a consulting organization hired to conduct an audit to assess the Lab's readiness for the Tiger Team visit in February, spent three days in October inspecting facilities, reviewing documents and interviewing management and employees. They found "a serious gap between the laboratory safety and health practice urged by the Environment, Safety and Health staff, and the actual condition and operation of the laboratory facilities that were audited."

The report offered the following recommendations. (The detailed report is available from your safety coordinator.)

1. A systematic inventory and evaluation needs to be undertaken of chemicals stored and being used in the laboratories.

2. Chemical storage needs to be evaluated and regularly audited. There appears to be no system to assure that dangerous chemicals are not stored in close proximity to each other.

3. Only chemicals used routinely should be kept on hand in the laboratories in large quantities.

4. Ames needs to establish a program to assure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the identity of the hazardous chemical and appropriate hazard warnings.

5. Housekeeping in the laboratories is deplorable. Formal housekeeping and chemical hygiene inspections should be held at least quarterly. Informal inspections should be continual. A system needs to be developed to document areas that need correcting and that follows up to see that the corrections are made.

6. A chemical hazard identification program needs to be developed and implemented, and all employees trained.

7. MSDSs need to be more readily available to employees in the immediate area where chemicals are used.

8. The wide-spread use of extension cords, or drop cords, needs to be evaluated. Extension cords are temporary wiring, and are not meant to be used in a permanent way in place of hard wiring.

9. Changes need to be made to the current Laboratory lock-out/tag-out program to bring it into compliance with OSHA requirements.

10. Employee training needs to be developed and presented on electrical hazard recognition.

11. The Ames Laboratory Chemical Hygiene Plan needs to be completed and implemented, including employee training.

12. Ames needs to control the use of "dust masks" that are really a type of respirator. Fit testing and training also need to be provided to the users of these masks. Proper storage and maintenance needs to be stressed.

13. Training records need to be centralized to assure that all employees receive the necessary and required training, and the training itself needs to be audited to determine if it is effective.

14. A formal, one semester course in laboratory safety and health principles, focusing on the chemical laboratory, should be required for all graduate students.

15. The relationship between Ames Laboratory and Iowa State University should be strengthened to better protect shared students and facilities. ■

Tiger Team Preparation

Schedule of Activities

October-November, 1991
Complete Self-Assessments

December 2-13, 1991
Chicago will conduct an ES&H Program Review (approximately 20 people)

December, 1991
Write Self-Assessment Report

December 9-10, 1991
Doug Abrahamsen (DOE) will be here to determine Tiger Team needs

Early January 1992
Tiger Team Pre-Assessment visit

January, 1992
Write Corrective Action Plan to remedy deficiencies in Self-Assessment

February, 1992
TIGER TEAM HERE!

INSIDER

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