SAN FRANCISCO

Preliminary Program

Health Physics Society

39th Annual Meeting

June 26-30, 1994

San Francisco, California

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KEY DATES

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HPS 39th Annual Meeting	June 26-30
American Board of Health Physics Written Exam	June 27
Lawrence Berkeley Laboratory Technical Tour	June 30
SLAC/NASA Ames Technical Tour	July 1
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REGISTRATION HOURS

Saturday, June 25	1:00 - 6:00 pm
Sunday, June 26	7:30 am - 8:00 pm
Monday, June 27	8:00 am - 6:00 pm
Tuesday, June 28	8:00 am - 5:00 pm
Wednesday, June 29	8:00 am - 3:00 pm
Thursday, June 30	8:00 am - Noon

AFFILIATES PROGRAM

Monday, June 27	6:00 - 8:30 pm (Opening Reception)
Tuesday, June 28	9:00 am - 5:30 pm
Wednesday, June 29	9:00 am - 4:00 pm

Saturday, June 25, 1994

AAHP Courses 1, 2, 3
8 am - 5 pm — Rooms: TBA

Sunday, June 26, 1994

PEP Courses — Rooms: TBA

1-A thru 1-J	8 - 10 am
2-A thru 2-J	10:30 am -12:30 pm
3-A thru 3-J	1:30 - 3:30 pm
4-A thru 4-J	4 - 6 pm

Welcome Reception
6 - 8 pm — Continental 4, 5, 6

Registration Hours

Saturday	1 - 6 pm
Sunday	7:30 am - 8 pm
Monday	8 am - 6 pm
Tuesday	8 am - 5 pm
Wednesday	8 am - 3 pm
Thursday	8 am - Noon

Monday, June 27

Continuing Education Classes

CEC-1 Health Physicist Role in Litigation
7:15 - 8:15 am — Plaza A

CEC-2 Radioactive Waste Minimization
7:15 - 8:15 am — Plaza B

MAM-A Plenary Session
8:30 am - Noon — Continental 4,5, 6

Professional Enrichment Program
12:15 - 2:15 pm — Rooms: TBA

M-1 Basic Radiological Protection for Tritium Facilities

M-2 Current Approaches to Regulating Public Exposures to Radionuclides and Hazardous Chemicals

M-3 Indoor Radon: Sources and Solutions

M-4 Recent Trends in Radiation Detectors

M-5 Skin Dosimetry and VARSKIN 2

MPM-A Power Reactor Section
2:30 - 5:30 pm — Continental 5

MPM-B Radon Section - Instrumentation & QA
2:30 - 5 pm — Continental 7, 8, 9

MPM-C Uranium Section - Exposure Control and Dosimetry
2 - 5 pm — Continental 6

MPM-D Population and Worker Radiation Exposures at the Dawn of the American and Russian Atomic Era Special Session
2:30 - 50 pm — Continental 4

MPM-E Government Section - The Impact of the Clean Air Act on Government Agencies
2:30 - 5 pm — Imperial A

Exhibitor Reception
6 - 8:30 pm — Grand Ballroom/ Yosemite

Tuesday, June 28

Continuing Education Classes

CEC-3 Biological Safety for the Health Physicist
7:15 - 8:15 am — Plaza A

CEC-4 Passive Internal Monitoring
7:15 - 8:15 am — Plaza B

TAM-A External Dosimetry I
8:30 - 11:30 am — Continental 5

TAM-B Environmental I
8:30 - 11 am — Continental 6

TAM-C Waste Management/ Decommissioning I
8:30 - 11 am — Continental 7, 8, 9

TAM-D Student I - Internal Dosimetry
8:30 - 11 am — Continental 4

TAM-E Radon
8:30 am - Noon — Imperial A

TAM-F Education, Training and Public Information I
9 - 11 am — Yosemite

TAM-G Computer Applications I
9 - 11 am — Yosemite

TAM-H AAHP Special Session - What Role Should CHP'S and the Academy Play in Current Legislative Trends for Ionizing Radiation?
8:30 - 11 am — Imperial B

Professional Enrichment Program
12:15 - 2:15 pm — Rooms: TBA

T-1 History of Radiation Experiments Utilizing Human Subjects

T-2 DOE's 10CFR20 Part 834, Radiation Protection of the Public and the Environment; Status and Direction

T-3 Auditing Techniques for the Health Physicist

T-4 Current Issues in Radiation Litigation

T-5 Issues and Regulations Regarding Very Low Level Radioactive Waste

TPM-A External Dosimetry II
2:30 - 5 pm — Continental 5

TPM-B Environmental II
2:30 - 5 pm — Continental 6

TPM-C Waste Management/ Decommissioning II
2:30 - 5 pm — Continental 7, 8, 9

TPM-D Student II - Neutrons
2:30 - 5 pm — Continental 4

TPM-E Student III - Environmental and Radon
2:30 - 5 pm — Imperial A

Tuesday Continued

TPM-F Education, Training and Public Information II
2:30 - 3:15 pm Yosemite

TPM-G Computer Applications II
2:30 - 3:15 pm Yosemite

Night Out at the Exploratorium
6:30 pm

Wednesday, June 29, 1994

Continuing Education Classes

CEC-5 Radiological Emergency Response to Transportation Incidents
7:15 - 8:15 am Plaza A

CEC-6 Air Sampling
7:15 - 8:15 am Plaza B

WAM-A Accelerator Section I
8:30 am - Noon Continental 6

WAM-B Risk Analysis
8:30 am - Noon Continental 7, 8, 9

WAM-C Internal Dosimetry and Bioassay I
8:30 am - Noon Continental 4

WAM-D Dose Reconstruction I
8:30 - 11 am Imperial B

WAM-E Operational Health Physics I
8:30 - 11 am Continental 5

WAM-F Instruments and Methods I
9 - 10 am Yosemite

WAM-G Student IV - External Dosimetry
8:30 - 11 am Imperial A

Professional Enrichment Program
12:15 - 2:15 pm Rooms: TBA

W-1 Health Physics Activities at Low-Level Radioactive Waste Disposal Facilities

W-2 Similarities and Differences Between DOE and NRC Basic Standards for Occupational Radiation Protection

W-3 Waste Management at Decommissioning Projects

W-4 Implementation of the Revised 10CFR Part 20

W-5 Lower Limits of Detection

WPM-A Accelerator Section II
2:30 - 5 pm Continental 6

WPM-B NCRP Special Session
1:30 - 5 pm Continental 7, 8, 9

WPM-C Internal Dosimetry and Bioassay II
2:30 - 3 pm Continental 4

WPM-D Dose Reconstruction II
2:30 - 5 pm Imperial B

WPM-E Operational Health Physics II
2:30 - 4:45 pm Continental 5

WPM-F Instruments and Methods II
2 - 30 pm Yosemite

WPM-G Student V - Waste Management
2:30 - 5 pm Imperial A

Annual Business Meeting
5 pm Continental 4

Wednesday Continued

WPM-H Aerosol Measurements
7 - 9 pm Continental 7, 8, 9

Thursday, June 30, 1994

Continuing Education Classes

CEC-7 Ventilation
7:15 - 8:15 am Plaza A

CEC-8 Where in the World is NORM?
7:15 - 8:15 am Plaza B

THAM-A Dose Reconstruction III
8:30 - 11:30 am Yosemite

THAM-B DOE Special Session
8:15 - 10:45 am Imperial A

THAM-C Human Experiments Special Session - Administered Radionuclides and Human Subjects: The Early Years
8:30 - 11:30 am Imperial B

THAM-D Works-in-Progress
8:30 - 11:30 am Yosemite

Awards Luncheon
12:30 -2:30 pm Grand Ballroom

HEALTH PHYSICS SOCIETY COMMITTEE MEETINGS

SATURDAY, JUNE 25, 1994

RULES COMMITTEE
8:00 am - 4:00 pm

NRRPT
8:30 am - 3:30 pm

FINANCE COMMITTEE
9:00 am - Noon

ABHP BOARD OF DIRECTORS
9:00 am - 5:00 pm

CONTINUING EDUCATION COMMITTEE
12:30 - 6:00 pm

EXECUTIVE COMMITTEE
1:00 - 5:00 pm

SYMPOSIA COMMITTEE
1:00 - 5:00 pm

SUNDAY, JUNE 26, 1994

HPS BOARD OF DIRECTORS MEETING
8:00 am - 5:00 pm

VENUES COMMITTEE
8:00 am - 5:00 pm

ANSI N42.2 WORKING GROUP ON TRACEABILITY
8:00 am - 8:00 pm

NRRPT
8:30 am - 3:30 pm

N13.30, WORKING GROUP 2.5 PERFORMANCE CRITERIA FOR RADIOBIOASSAY
9:00 am - 4:00 pm

ABHP BOARD OF DIRECTORS
9:00 am - 5:00 pm

STUDENT BRANCH OFFICERS MEETING
4:00 - 6:00 pm

HPS ENVIRONMENTAL RADIATION SECTION BOARD MEETING
7:30 - 10:00 pm

MONDAY, JUNE 27, 1994

NRRPT
8:30 am - 3:30 pm

STRATEGIC PLANNING COMMITTEE
11:00 am - 1:30 pm

ACADEMIC EDUCATION COMMITTEE
11:15 am - 1:30 pm

N13.30, WORKING GROUP 2.5 PERFORMANCE CRITERIA FOR RADIOBIOASSAY
1:00 am - 5:00 pm

AAHP EXECUTIVE COMMITTEE
1:00 - 5:00 pm

AAHP CONTINUING EDUC. COMMITTEE
3:00 - 4:00 pm

TUESDAY, JUNE 28, 1994

ANSI 13.36 CORE TRAINING IN RADIATION PROTECTION FOR WORKERS
8:00 am - 5:00 pm

NRRPT
8:30 am - 3:30 pm

LABORATORY ACCREDITATION - POLICY
11:00 am - 1:00 pm

PUBLIC EDUCATION COMMITTEE
11:00 am - 1:30 pm

STUDENT BRANCH COUNCIL MEETING
11:15 am - 1:30 pm

MEMBERSHIP COMMITTEE
Noon - 2:00 pm

ABHP PART I PASSING POINT WORKSHOP
1:00 - 5:00 pm

ABHP PART II PANEL OF EXAMINERS
2:00 - 3:00 pm

WEDNESDAY, JUNE 29, 1994

NRRPT
8:30 am - 3:30 pm

AAHP EXECUTIVE COMMITTEE
9:00 - Noon

SUMMER SCHOOL COMMITTEE
11:00 am - 1:30 pm

ACADEMIC PROGRAM DIRECTORS
11:15 am - 1:30 pm

NOMINATING COMMITTEE
Noon - 2:00 pm

N13.33 WORKING GROUP
1:00 - 3:00 pm

THURSDAY, JUNE 30, 1994

HPS ENVIRONMENTAL RADIATION SECTION BOARD MEETING
7:00 - 8:30 am

AWARDS COMMITTEE
7:30 - 8:30 am

LOCAL ARRANGEMENTS COMMITTEE
7:30 - 9:00 am

HPS BOARD OF DIRECTORS MEETING
8:00 am - Noon; 2:30 pm - ??

CONTINUING EDUCATION COMMITTEE
3:00 - 5:00 pm

PROGRAM COMMITTEE
3:00 - 5:00 pm

ANSI N13.22 WORKING GROUP ON URANIUM BIOASSAY
3:00 - 6:00 pm

General Information about San Francisco

San Francisco—the City by the Bay—is a unique and beautiful city located on the tip of a peninsula with the San Francisco Bay on the east, and the Pacific Ocean on the west. There are spectacular views in all directions, and limitless things to do. San Francisco boasts of year round mild temperatures (except for the few days each year which have record hot temperatures in the 90's, with low humidity). There is more temperature fluctuation on a day to night basis than there is on a summer to winter basis, so be prepared with the "layered look." Regardless of how hot you are when you pack, bring sweaters and a wind breaker so you are not compelled to buy more than a couple sweatshirts from street vendors. The city is also world famous for its hills—so bring comfortable walking shoes and leave the spike heels at home. By east coast standards, California is quite casual; come and enjoy our culture!

Something Old: Hospitality Room

The Hospitality Room will be open to registered companions and members alike, and (if our luck holds), promises to be spectacular, as it will be located in the Hilton's Vista Room at the top of the Tower, where the panoramic view is breathtaking. The Hospitality Room will not only be a great place to rest or visit with friends, but will have information on independent activities like how to get to the clothing outlets, Golden Gate Park, the Academy of Sciences, theaters, baseball games, Marine World Africa USA, bay cruises, etc. There will be a Mixer Monday morning for all registered Companions and Kids, which will feature a complimentary Continental Breakfast, and a Security talk. Food service will be available each morning (on a cash basis) to help get your day off to a good start.

Something New: Registration for Kids

San Francisco is an excellent city to bring children to as there are *lots* of fun things to do for kids and adults, alike. This year, we are offering registration for kids, which is the best bargain going. Whereas Companion registration provides access to the receptions and banquet, Kids registration provides access to professional babysitting services during these events. Both Companion and Kids registration include access to the Hospitality Room and complimentary breakfast Monday morning.

Assuming a minimum of 12 preregistrants, babysitting services will be provided by a professional babysitting service which provides a highly qualified, bonded staff trained in CPR and/or First Aid. The adult to child ratios will be limited to provide top quality care for your children. Children between the ages of 6 months and 12 years are welcome. (Individual babysitting service can also be arranged through the concierge desk, but will cost on the order of $10/hour.) **To ensure this service will be available, and so we can arrange for the right number of staff, we *strongly* recommend you register in advance by checking the childcare box at the top of page 2 of the registration form. Babysitting service for on-site registrants will be available only as space permits without exceeding the specified sitter/child ratios.**

Something Borrowed: Trivia Contest

The Atlanta Chapter created the idea of the Trivia Contest, which was a lot of fun and a great success. We will continue the tradition, and continue the fun. Here's how the process works: Each registration packet will include a questionnaire with approximately 20 trivia questions on it. The answers to these questions will be posted throughout the Vendor exhibits, and the answers will be moved periodically. After finding all the answers (because surely, no one will KNOW the answers!!), the completed questionnaire is turned in, and the winner is drawn from the collection of sheets with all correct answers. Join the fun!!

Something Blue:

Check out that Pacific Ocean!!

Transportation:

Driving in the City is a unique experience best left for those who are *really* good with a clutch, have already lived a full and happy life, and who don't mind paying top dollar for parking. Remember, there are *hills* the likes of which most people have never seen before. Although we do drive on the right side of the road, many of the roads are narrow (have we mentioned *steep*?), and pedestrians seem to suffer from color-blindness (i.e., few of them can tell red from green...). Parking at the Hilton is $22/day (discounted from $25/day!), with in-and-out privileges. So, what do we recommend??

Take BART (Bay Area Rapid Transit)! Take buses! Take Cable Cars! Take taxis!

From the **San Francisco International Airport** (SFO) to the Hilton (or other downtown hotels): The Airport bus provides service to and from downtown hotels, and leaves the airport every ten minutes between 6 a.m. and 11 p.m. The cost is $8 each way, or $14 for round trip service. Advance reservations are not necessary. Taxi service costs about $30 each way.

From the **Oakland Airport** to the San Francisco Hilton: Take the Air BART bus from the airport to the Coliseum BART station and get on the San Francisco/Daly City train. Get off the train at the Powell Street station and go out the Hallidale Plaza exit. Take the escalator on the right to the Powell Street and walk 2 blocks straight ahead. Turn LEFT onto O'Farrell Street and walk 2 blocks; the Hilton is on the corner of Mason and O'Farrell. Bus fare is $2; train fare is $1.90. NOTE: You need to have dollar bills or change to purchase tickets from the fare machines.

In and around the Hilton: Take the famed San Francisco Cable Cars to the top of Nob Hill, the Financial District, Fisherman's Wharf, or Pier 39. Fare is $3.00 and the Powell Street Line is two blocks from the Hilton. No ticket is needed prior to boarding; simply pay the Conductor when you board.

More specific information about getting around town will be available in the Hospitality Room.

Technical Tour Information

This year, we are pleased to offer both a daytime and an evening technical tour. "The Accelerator Night-Out," scheduled for Thursday, June 30, is sponsored by the Accelerator Section of the HPS and will include a tour of Lawrence Berkeley Laboratory and an evening at the Lawrence Hall of Science. A more traditional daytime tour to the Stanford Linear Accelerator and NASA Ames will be offered on Friday, July 1, following the meeting. Both tours provide unique and unforgettable experiences and are well worth your time and effort. See the full page write-ups for more information.

Social/Tour Information

GOOD NEWS! We have an excellent array of tours for both the meeting attendees and their companions and children. Some tickets had to be reserved up to a year in advance, which means you will have opportunities that most tourists could only dream about (e.g., trips to Alcatraz, Beach Blanket Babylon, and Yosemite). Availability on these tours is obviously limited, and tickets will be allocated on a first-come, first-served basis (i.e., register early!).

BAD NEWS! The HPS meeting coincides with the International Soccer finals, which will be held in arenas around the Bay Area. Consequently, demands for tours and buses are high, so pre-registration is *really* important.

IMPORTANT NEWS! Registration for Alcatraz, Beach Blanket Babylon, and Yosemite ***MUST*** be received by ***May 15th***, as we must either pay for these tickets at that time, or forfeit them. On-site registration will either be *very* limited, or unavailable.

GREAT NEWS! We are offering a *COST SAVINGS* of approximately 25% for those who register for tours by June 3.

(Note that some tours have a May 15th registration deadline!)

Group Tours and Events

		Time	Pre/On-site registration ($/person)
Sun June 26	**Wine Country Tour**--Enjoy a guided tour through the countryside where vineyards stretch as far as the eye can see. Visit and sample the wines at two wineries, each complementing the other with their different approach to the art of wine making. (This tour is also offered Friday, July 1.)	8:00 am-4:00 pm	$38 / $45
	San Francisco City Tour--This tour will give you a taste of the week to come, letting you experience the sights, sounds, and sensations of one of the most scenic and cosmopolitan cities in the world. A good orientation, especially valuable for first-time visitors.	1:00 - 4:00 pm	$20 / $25
	Opening Reception	6:00 - 8:00 pm	Included in reg fee
Mon June 27	**Hospitality Room "Mixer" and Security Talk**--Registered companions and kids can enjoy a continental breakfast while meeting others who are attending the meeting. See what independent tours are available, or pick up information on getting around the city. A security guard will also present a short presentation on Big-City Security.	9:00 - 10 am	Free
	Alcatraz Tour--Cruise to the infamous former federal prison, home to Al Capone, "Machine Gun" Kelly, and the Birdman of Alcatraz. Tour the prison and see first hand how prisoners lived, then tour the outside of the prison where the guards' families lived and unique and beautiful plants abound. (Price includes transportation from the hotel to the ferry, roundtrip ferry ride, and admission to Alcatraz. Return transportation is NOT included, but cable cars or taxis can be used to return to the hotel.) **Tickets are limited!! Reservations required by May 15th!**	10:15 am or 2:15 pm	$11 / $15 (But likely will not be available on-site)
	Vendor's Reception	6:00 - 8:30 pm	Included in reg fee
Tues June 28	**5k Run/Walk**--This year's fun run won't actually be a full five kilometers, it'll just feel like it. The hilly and scenic trail starts in the shadow of the Golden Gate Bridge; if you're planning to walk, bring a camera! For serious runners, the course will be a challenging mix of dirt trails, stairs, a tunnel, and some paved roads, with prizes divided between youngsters (under 40) and masters. This will be a unique look at the San Francisco coast and Bay - don't miss it!	6:00 - 8:30 am	$15 / $15
	Muir Woods and Sausalito Tour--Head across the Golden Gate Bridge for an excursion to the 550-acre preserve of giant redwood trees--Muir Woods National Monument. This trip is guaranteed to be good for the soul! Then visit Sausalito, a quaint artist's colony, formerly a fishing town and hideout for bootleggers during the Prohibition.	9:00 am-1:00 pm **or** 1:00 - 5:00 pm	$25 / $30
	Night-Out at the Exploratorium--As quoted in Newsweek, "There are two models for great American amusement centers...Disneyland, and the Exploratorium. This place feeds all the senses." *Please see the Night-Out write-up for additional information.*	6:30 - 11:30 pm	$25 / $25 adults $10 / $10 (6-17 yrs) <6 free

Group Tours and Events

		Time	Pre/On-site registration ($/person)
Wed June 29	**Monterey/Carmel/17 Mile Drive**--This trip will take you down California's most spectacular and memorable shoreline into historic Monterey, where you will have time to browse through the many shops of Cannary Row made famous by John Steinbeck. The trip continues through Pacific Grove and on to 17 Mile drive, characterized by white sandy beaches, craggy rocks, pounding surf, twisted cypress trees and world famous golf courses. The tour includes a stop at Carmel, where you will have time for lunch and a little shopping.	7:30 am-5:30 pm	$51 / $60
	Beach Blanket Babylon--San Francisco's longest running, biggest hit musical revue, is a fast paced, punch laden, parody musical revue featuring rafter reaching hats, glittering props and show-stopping music. **Only 90 tickets are available!! Reservations must be made by May 15!** (Dinner is not included.)	7:00 - 11:00 pm	$34 / $40 (But may not be available on-site)
Thurs June 30	**Chinatown Walking Tour**--Take a guided walking tour of Chinatown, the largest Chinese settlement outside of China. Learn the colorful history of this world famous neighborhood, view the unique architecture, and meet the local merchants in pharmacies, open produce markets and pastry shops. Learn how fortune cookies came to be born in San Francisco and taste them fresh off the iron.	9:00 am-12:00	$27 / $35
	Awards Luncheon	12:30 - 2:30 pm	Included in reg fee
	Accelerator Night Out--Tour the new Advanced Light Source at Lawrence Berkeley Lab, followed by an evening at the Lawrence Hall of Science, where you will enjoy spectacular views, fine wines from the Napa Valley, and a talk by Dr. Pief Panofsky, Director Emeritus of the Stanford Linear Accelerator. *Please see the Accelerator Night-Out write-up for additional information*	3:30 - 9:30 pm	$25 / $30 (Seats are limited)
Fri July 1	**Technical Tour to SLAC and NASA Ames**--Visit Stanford's 2-mile long, 50 GeV linear accelerator, and the 80 meter diameter synchrotron radiation storage ring. Then, visit NASA Ames' Research Center, home of the largest wind tunnels in the world. *Please see the Technical tour write-up for additional information.*	9:00 am-4:30 pm	$25 / $25
	Wine Country Tour--Enjoy a guided tour through the countryside where vineyards stretch as far as the eye can see. Visit and sample the wines at two wineries, each complementing the other with their different approach to the art of wine making.	8:00 am-4:00 pm	$38 / $45
	Yosemite National Park--Yosemite is arguably one of the most spectacular places in the world. Take this unique opportunity to spend a few days in the park, and unwind after our action-packed meeting. **Only 76 rooms are available!! Reservations must be made by May 15!** *Please see the Yosemite tour write-up for additional information.*	Friday - Sunday 2/3 days 2/3 nights	Varies (see write-up for details) No on-site registration

Independent Tours

	Date / Time	Cost ($/person)
Golden Gate Park Golden Gate Park has everything from magnificent gardens to world class museums. The deYoung Museum has centuries-old art, the Academy of Sciences houses one of the largest natural history museums in the world, and the Asian Art Museum has a comprehensive collection of Asian treasures. There are botanical gardens, a Japanese tea garden, and beautiful parks to enjoy. A peaceful but stimulating day...	Your choice	Entry fees into museums; local transport
Marine World Africa USA Board a high-speed catamaran at Fisherman's Wharf for a thrilling ride directly to Vallejo, home of America's premier marine mammal and wildlife park. Ride an elephant, kiss a whale, walk *through* a huge shark aquarium while sharks swim over and around you. There are many spectacular shows and attractions to enjoy; a real must if there are young people in your party. (Price includes transportation and Park Admission.)	Your choice	~$36
Oakland A's Baseball June 25th and 26th--Detroit day games. June 27th, 28th, and 29th--California Angels night games	Info available on-site	~$10 ticket ~$5 BART Info available on-site
City Shopping The garment district is none to far away, and world famous stores like Saks, Nieman Marcus, and FAO Schwartz are within walking distance. Detailed information will be available in the Hospitality Room.	Your choice	Credit card limit!!

TECHNICAL TOUR

Stanford Linear Accelerator and NASA-Ames

Friday, July 1, 1994 (9:00 AM - 4:30 PM)

Cost: $ 25.00/person

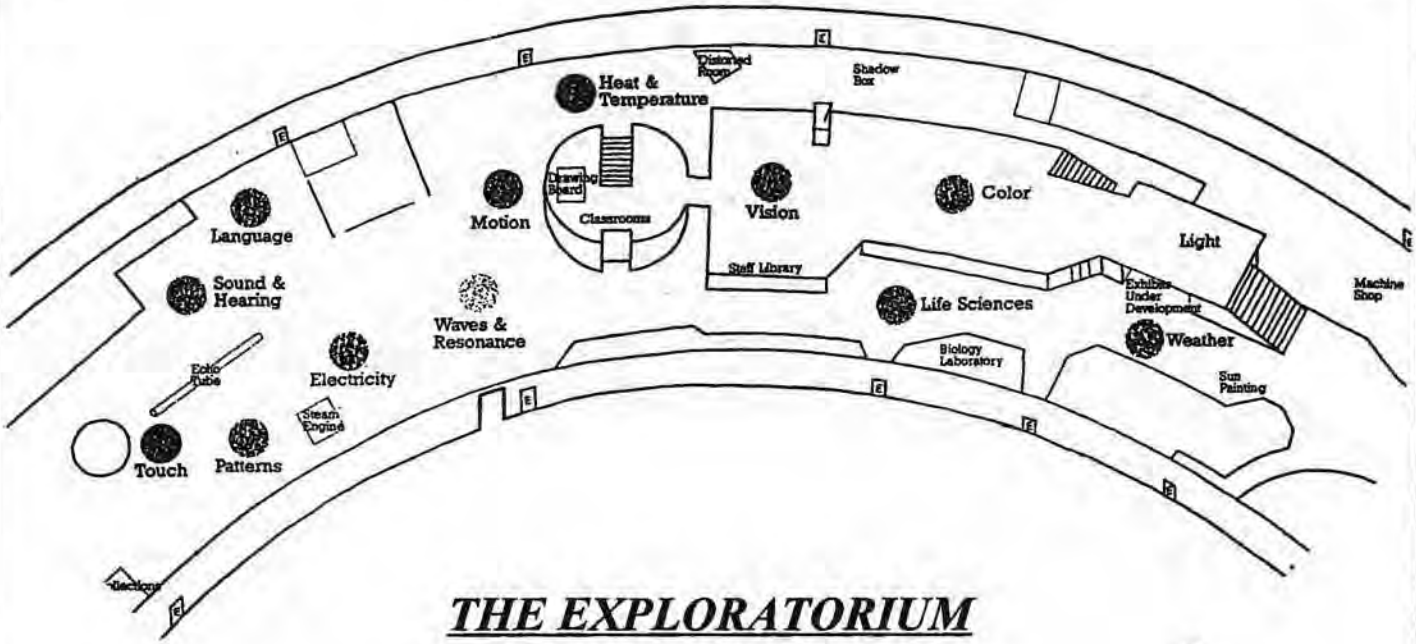
VISIT TWO OF OUR COUNTRY'S MOST UNIQUE RESEARCH INSTITUTIONS!!

SLAC specializes in experimental and theoretical research in elementary particle physics to discover and explore the basic constitutes of matter and the forces acting between them. They are also on the forefront in developing new technologies. We will tour SLAC's facilities, which include a 2-mile long 50-GeV linear accelerator housed in one of the world's longest buildings, and a synchrotron radiation source in an 80-meter storage ring. In addition, we may have the opportunity to visit the new asymmetric B-factory, now under construction, which will be located in an 800-meter storage ring.

Following the SLAC tour, we will go to the NASA Ames Research Center to visit their manned (womaned?) space flight research facilities where there are some of the largest wind tunnels and blimp hangers in the world. We will see flying laser research platforms or civilian versions of U-2 or SR-71 in the experimental aircraft hangers, and experience the shuttle craft flight simulator.

Buses will leave the Hilton at 9:00 AM and return at 4:30 PM.
Lunch will be available at the Ames Research Cafe.

The Night-Out



THE EXPLORATORIUM

Tuesday, June 28, 1994 (6:30 PM - 11:30 PM)

Cost: $25.00 (Adults), $10.00 (6-17 yrs), (under 6, free)

Come enjoy a Night-Out at the famed EXPLORATORIUM, where there are more than 650 hands-on, innovative exhibits to stimulate the senses of young and old alike. Exhibits which demonstrate the concepts of light, sound, vision, touch, motion, waves, temperature, and animal behavior are here not just to admire, but to manipulate, push, pull, open, look through, listen to, and touch (should be every HP's dream...). If this sounds like pure play-time . . .

YOU'RE RIGHT!! IT IS !!!

Founded in 1969, the Exploratorium is a hands-on museum of science, art, and human perception that has attained an international reputation for its unusual exhibits. It is housed in one of the city's most magnificent landmarks, the Palace of Fine Arts, the sole surviving structure from the Panama-Pacific Exposition of 1915.

You can look forward to:

- Shuttles, which will run between the Hilton and the Exploratorium throughout the evening, starting at 6:30 p.m. Ride as many times as you like!
- Your favorite meal—at what ever restaurant you choose! (i.e., a formal dinner is not included, although the Exploratorium's cafe will be serving a light dinner menu until 9:30.)
- Dessert and coffee (or sodas), are included in the admission price and will be available throughout the evening. There will be room set aside to enjoy the desserts and sit and visit with friends. (Desserts are *guaranteed* to be delicious as they were picked out by people who take such things *seriously!)*
- You won't be under dressed in jeans and tennis shoes (i.e., dress casually!!)

"THERE ARE TWO MODELS FOR GREAT AMERICAN AMUSEMENT CENTERS . . . DISNEYLAND AND THE EXPLORATORIUM. THIS PLACE FEEDS ALL THE SENSES."
Newsweek

Accelerator Night-Out

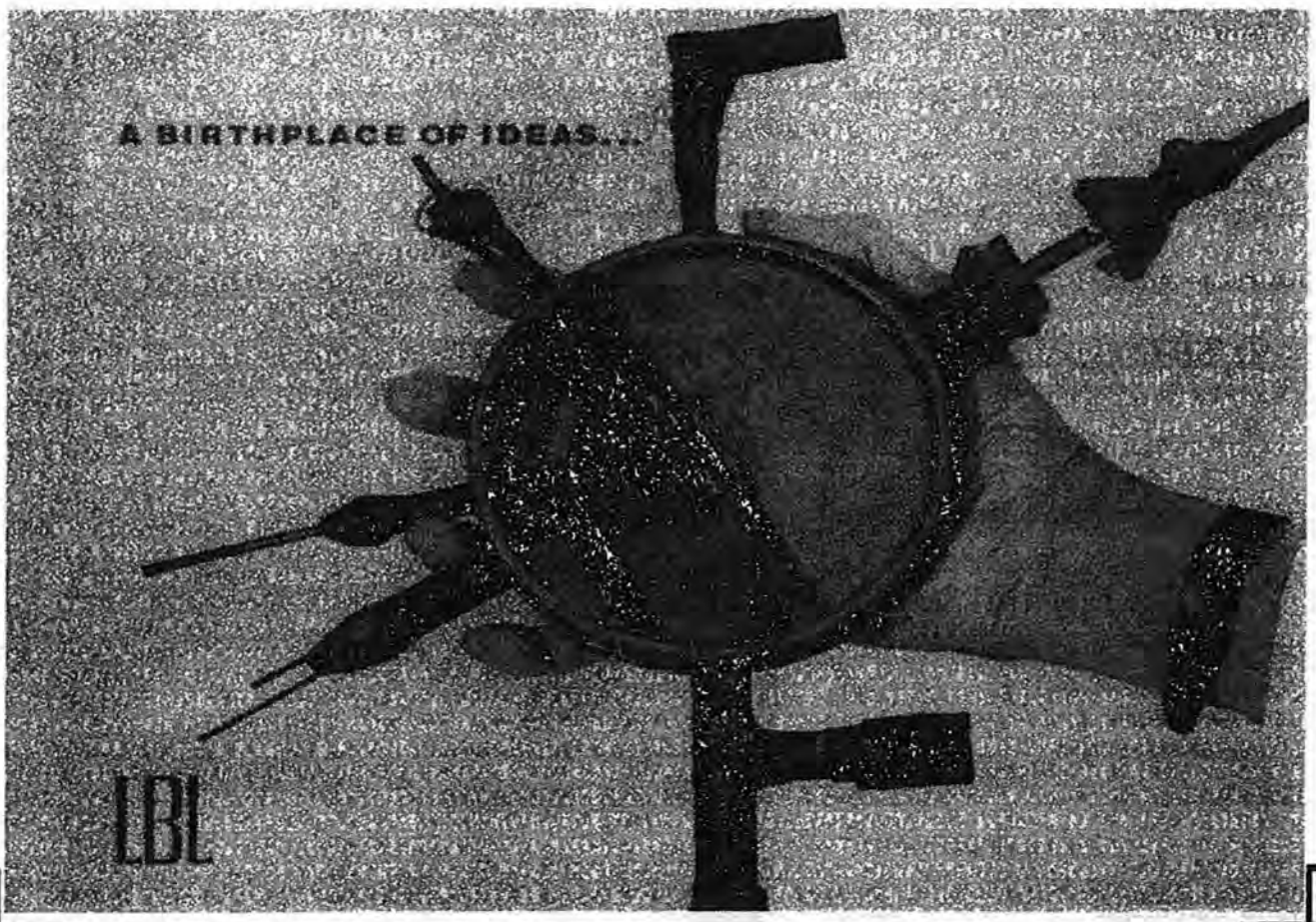
Thursday, June 30, 1994 (3:30 - 9:30 p.m.)

Cost: $25 Pre-registration, $30 On-site Registration

Tour the new Advanced Light Source at the Lawrence Berkeley Laboratory, birthplace of the cyclotron. Enjoy the beautiful views of San Francisco and the Golden Gate Bridge at sunset from the Lawrence Hall of Science (LHS) while you savor fine wines from California's Napa Valley, delicious hors d'oeuvres, hear one of the world's most talented physicists, Dr. Pief Panofsky, Director Emeritus of the Stanford Linear Accelerator Center and government Advisor, as he discusses health physics problems in the early days.

Attendees will be shuttled from the San Francisco Hilton to LBL for the ALS tour, after which they will be taken to the LHS for wine tasting, hors d'oeuvres, Baroque music provided by a string quartet, followed by Dr. Panofsky's talk.

Don't miss your chance for an intriguing evening out!!



YOSEMITE NATIONAL PARK

July 1-3or 4, 1994

What better way to end your stay at the 1994 Annual HPS meeting than relaxing in beautiful YOSEMITE NATIONAL PARK!! Yosemite is truly one of the most beautiful places on earth, where you can

- Marvel at SPECTACULAR waterfalls
- Hike or rent bikes to explore the many splendid trails
- Relax before the campfire and enjoy the sunsets
- Gain a full understanding of Yosemite's beauty as seen through the eyes of Ansel Adams

Yosemite is one of those places that everyone should experience at least once in their lifetime. We have reserved 25 rooms at the Yosemite Lodge and 51 tent cabins in the Yosemite Valley. Lodge rooms are like a regular hotel room; there is a restaurant in the lodge. Tent cabins have bedding (beds, sheets, blankets, and pillows), shared shower/bathroom facilities (remember, you *are* camping!) no kitchen facilities, but several places to eat within the immediate area.

There are two ways to get to Yosemite: (1) Leave the driving to us and ride a bus, or (2) drive your own (or rental) car. Buses will leave the Hilton at 9:00 a.m. on July 1 and return about 3 p.m. on Sunday July 3. Whether you drive or take the bus, there are free shuttles to take you throughout the park. Park entrance fee is $5 for cars.

Bring sturdy hiking or walking shoes and warm clothing and enjoy the cool evenings around the campfire.

Space is limited!! Reservations must be received by May 15, 1994 and will be honored on a first-come/first-served basis

IMPORTANT INFORMATION: The buses will depart on Sunday, July 3. If you want to stay three nights, you MUST be staying in a tent cabin (lodge is for two nights only) and you MUST have your own transportation to return to San Francisco on Monday, July 4.

- **NIGHTLY RATES FOR DELUXE YOSEMITE LODGE** (plus 9% Room Tax):

All rooms - 2 double beds

- ❑ Single $96.50 / Room (two nights + tax = $210.37)
- ❑ Double$96.50 / Room (two nights + tax = $210.37)
- ❑ Triple$108.00 / Room (two nights + tax = $235.44)
- ❑ Quad $119.50 / Room (two nights + tax = $260.51)

- **NIGHTLY RATES FOR PLATFORM CABIN TENTS** (no Tax)

11 cabins - 3 singles; sleep up to three people
40 cabins - 3 singles and 1 double; sleep up to 5 people

- ❑ Single $36.50 / Cabin (two nights = $73.00/three nights = $109.50)
- ❑ Double $36.50 / Cabin (two nights = $73.00/three nights = $109.50)
- ❑ Triple $41.50 / Cabin (two nights = $83.00/three nights = $124.50)
- ❑ Quad $46.50 / Cabin (two nights = $93.00/three nights = $139.50)
- ❑ Quint $51.50 / Cabin (two nights = $103.00/three nights = $154.50)

- ❑ Please forward roommate information to me.
- ❑ Non smoking room if available.

TRANSPORTATION:

- ❑ Am Planning to Drive Myself
- ❑ Please reserve ___ seats on the bus at $75.00 /person: Total $_____

PAYMENT:

Name:_____

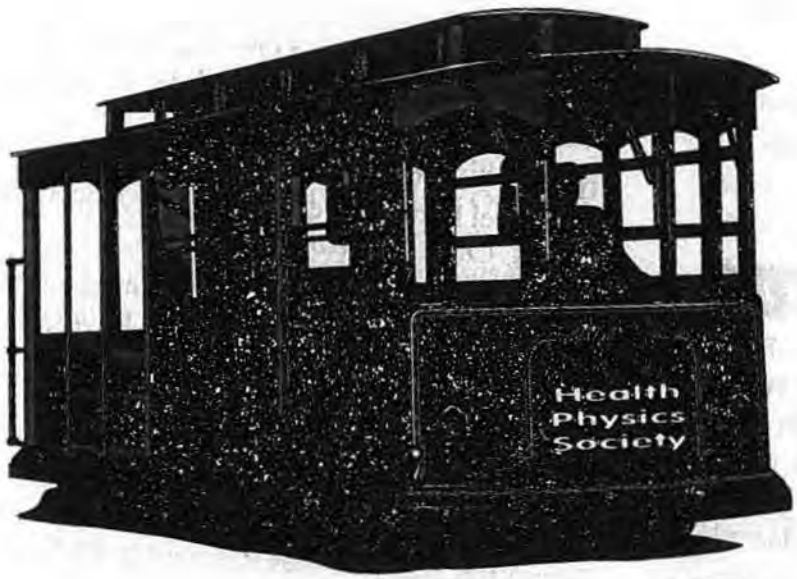
When making payment, include both Accommodations and Transportation costs (if applicable)

Total Transportation: $_____

Total Lodging: $_____

TOTAL ENCLOSED: $_____

Note: Transfer total to appropriate line on meeting registration form.



San Francisco

Health Physics Society Thirty-Ninth Annual Meeting

San Francisco, California
June 26-30, 1994
Scientific Program
(Preliminary Program)

If a paper is going to be presented by other than the first author, the presenter's name is underlined.

Monday, June 27

Continuing Education Classes

7:15 - 8:15 am Room: Plaza A

CEC-1 Health Physicist Role in Litigation; *David Wiedis, Jose & Wiedis*

7:15 - 8:15 am Room: Plaza B

CEC-2 Radioactive Waste Minimization; *Joe Ring, Harvard University*

8:30 am - Noon *Room: Continental 4, 5, 6*

MAM-A: PLENARY SESSION
(Oral Session)

MAM-A1 Keynote: *The Honorable E. Gail de Planque, Commissioner, United States Nuclear Regulatory Commission*

MAM-A2 Morgan Lecturer, *Roger Clarke, NRPB, United Kingdom*

MAM-A3 Landauer 40th Anniversary Lecture

MAM-A4 Radiation Epidemiology in Atom-Bomb Survivors; *M. L. Mendelsohn, Radiation Effects Research Foundation, Japan*

MAM-A5 Status of Occupational Epidemiological Studies at DOE Facilities; *J. J. Cardarelli, NIOSH*

12:15 - 2:15 pm *Rooms: TBA*

PROFESSIONAL ENRICHMENT PROGRAM

M-1 Basic Radiological Protection for Tritium Facilities; *Douglas G. Draper, EG&G Mound Technologies*

M-2 Current Approaches to Regulating Public Exposures to Radionuclides and Hazardous Chemicals; *David C. Kocher, Oak Ridge National Laboratory*

M-3 Indoor Radon: Sources and Solutions; *Ronald B. Mosley, U.S. Environmental Protection Agency*

M-4 Recent Trends in Radiation Detectors; *Glenn F. Knoll, University of Michigan*

M-5 Skin Dosimetry and VARSKIN 2; *James S. Durham, Battelle Pacific Northwest Laboratory*

2:30 - 5:30 pm *Room: Continental 5*

MPM-A: POWER REACTOR SECTION
(Oral Session)

Part I - Radiological Remediation

Co-Chairs: Dennis Quinn and John Sullivan

MPM-A1 Cintichem Decommissioning Experience; *J. Adler and E. J. Truskowski, TLG Services Inc. and Cintichem, Inc.*

MPM-A2 Radiological Surveys in Support of Decommissioning Power Reactor Facilities; *J. D. Berger and T. J. Vitkus, Oak Ridge Institute for Science and Education*

MPM-A3 Recent Radioactive and Mixed Waste Remediation Experience; *G. Jobson, RUST Remedial Services Inc.*

MPM-A4 Radiological Surveys for Facility Decommissioning - Some Observations Based Upon the Shoreham Project; *B. J. Mann, Consultant, Lancaster, PA*

MPM-A5 Current and Future Trends in Low-Level Radioactive Waste Management; *M. T. Ryan, Chem-Nuclear Systems, Inc.*

MPM-A6 How to Let Go: Release Criteria; *C. A. Willis, US Nuclear Regulatory Commission, Washington, DC*

Part II - Lessons Learned From 10CFR20 Implementation at US Nuclear Power Plants

Co-Chairs: Regis Greenwood and Linda Sewell

MPM-A7 NUMARC Perspective on Some Future Regulatory Issues Relevant to Radiation Protection in the Nuclear Power Industry; *R. L. Andersen and J. F. Schmitt, Nuclear Management and Resources Council Inc.*

Monday, June 27

MPM-A8 Lead BWR New 10CFR20 Implementation NRC Inspection Experience and Lessons Learned; *D. W. Miller, Illinois Power Company*

MPM-A9 The Use of an Effective DAC; *L. M. Sewell, Pacific Gas & Electric Co*

2:30 - 5:00 pm *Room: Continental 7, 8, 9*

MPM-B: RADON SECTION - INSTRUMENTATION & QA

(Oral Session)

Co-Chairs: Syd Porter and Ron Kathren

MPM-B1 Intercomparison of the Instrumentation Used in the Radon Instrument Tamper Study; *W. P. Brodhead and S. W. Porter, Jr., WPB Enterprises, Inc. and Porter Consultants, Inc.*

MPM-B2 Quality Assurance for Radon Measurements; *M. Ronca-Battista and P. Jenkins, Consultant, Phoenix, AZ and Bowser-Morner, Inc.*

MPM-B3 EPA's Radon Measurement Proficiency Program: Recent Changes and Future Plans; *E. L. Sensintaffar, S. W. Poppell, S. DeScisciolo and P. Jalbert, US Environmental Protection Agency, Montgomery, AL and Washington, DC*

MPM-B4 TBA

MPM-B5 Application of NIST ^{222}Rn Emanation Standards for Calibrating ^{222}Rn Monitors; *P. Kotrappa and L. R. Stieff, Rad Elec Inc.*

MPM-B6 Radon and Climatic Multiparameter Analysis: An Effective Tool for Optimization and Verification of Radon-Reduction Techniques; *V. Genrich, Genitron Instruments, Germany*

5:00 - 7:00 pm Radon Section: Discussion and Business Meeting

2:00 - 5:00 pm *Room: Continental 6*

MPM-C: URANIUM SECTION - EXPOSURE CONTROL AND DOSIMETRY

(Oral/Poster Session)

Co-Chairs: Edgar Wagner and Ty Miller

Oral Presentations

MPM-C1 Review of Uranium Metabolism; *E. Wrenn, University of Utah*

MPM-C2 Ultrasensitive Method for U-235 Analysis; *N. Singh, University of Utah*

MPM-C3 Assessment of Accidental Intakes of Uranyl Acetylacetonate (UAA); *D. Fisher and J. K. Briant, Pacific Northwest Laboratory*

MPM-C4 Comparison of Uranium Process and Radiological Safety Hazards; *E. R. Wagner, Martin Marietta Utility Services*

Poster Presentations

MPM-C5 Occupational Radon Exposure and Control at a Former Uranium Processing Facility; *J. W. Neton and M. C. Tester, Fernald Environmental Restoration Management Corporation and Nuclear Fuel Services*

MPM-C6 Adjustments to Specific Activity for Enriched Uranium; *B. S. Manninen, Martin Marietta Utility Services*

MPM-C7 Revised Uranium Dosimetry Model; *L. Bertelli, University of Utah*

MPM-C8 Dependence of Shallow Dose Equivalent on Distance From an Infinite Slab of DU; *J. C. Ashley, J. E. Turner, M. L. Souleyrette, R. S. Bogard and K. L. McMahan, Oak Ridge National Laboratory*

MPM-C9 Uranium Acute Intake Urinalysis Data; *J. Thompson, Martin Marietta Utility Services*

MPM-C10 Skin Dose from Uranium Contamination; *J. Thomas, Martin Marietta Utility Services*

4:30 - 5:00 pm Open Discussion - Implementation of 10CFR20 and RADCON Manual at Uranium Processing Facilities; *Moderators: Scott Murray and Jerry Hunt*

Monday, June 27

2:30 - 5:00 pm *Room: Continental 4*

MPM-D: POPULATION AND WORKER RADIATION EXPOSURES AT THE DAWN OF THE AMERICAN AND RUSSIAN ATOMIC ERA SPECIAL SESSION

(Oral/Poster Session)

Co-Chairs: Shlomo I. Yaniv and Marvin Goldman

Tentative Speakers and Titles

American Worker Exposures 1940-1960; *H. Pettingill and an Associate; US DOE*

Environmental Dose Reconstruction; *M. I. Balonov, St. Petersburg*

Atmospheric Transport of Radionuclides in Russia in 1950-1960; *Y. Israel, Moscow*

Biological Dosimetry in Exposed Popula tions; *A. Akleev, Chelyabinsk*

Dosimetry of Techa River Populations; *M. Degteva, Chelyabinsk*

Cancer and Leukemia Experience in Techa River Exposed Populations; *M. Kossenko, Chelyabinsk*

Physical Dosimetry of Sr-90-Burdened Persons; *V. Kojeourov, Chelyabinsk*

Occupational Exposures from Accidents; *E. Lubchanski, Chelyabinsk-65*

Medical Consequences of Radiation Over exposures; *N. Koshurnikova, Chelyabinsk-65*

Pharmacokinetics and Dosimetry of Plutonium in Humans; *V. Khokhryakov, Chelyabinsk-65*

Registries of Radiation Exposed Populations in the South Urals; *N. Shikina, Chelyabinsk-65*

Environmental Monitoring Around the "Mayak" Site; *V. Yachmenyov, Chelyabinsk*

Dose Rate Influence on Radiogenic Leukemia in People; *I. Filyushkin, Moscow*

Posters

Biological Half-life of Chernobyl Radioactivity in Fish; *O. I. Nasvit, Kiev*

Demonstration of Dosimetric Software at Chernobyl; *V. Berkovsky, Kiev*

Groundwater Potential Source Term from Chernobyl to Downstream Drinking Water; *D. Bugai, Kiev*

Small Watershed Approach to Studying Radionuclide Transport at the Bogyslav Site in Ukraine; *I. Bilyi, Kiev*

2:30 - 5:00 pm *Room: Imperial A*

MPM-E: GOVERNMENT SECTION - THE IMPACT OF THE CLEAN AIR ACT ON GOVERNMENT AGENCIES

(Oral Session)

Co-Chairs: Vandy Miller and Frank Congel

Speaker from US EPA

Speaker from US NRC

Agreement States

Application to Nuclear Power Plants/Panel Discussion

5:00 - 5:30 pm Government Section Business Meeting

Tuesday, June 28

Continuing Education Classes

7:15 - 8:15 am ***Room: Plaza A***

CEC-3 Biological Safety for the Health Physicist; *Robert Emery, University of Texas-Health Science Center at Houston*

7:15 - 8:15 am ***Room: Plaza B***

CEC-4 Passive Internal Monitoring; *Eric Darois, Seabrook Station*

8:30 - 11:30 am *Room: Continental 5*

TAM-A: EXTERNAL DOSIMETRY I

(Oral Session)

Co-Chairs: Warren Reece, Jr. and Richard Traub

TAM-A1 Electronic Personnel Dosimeter Performance in Low Dose Measurement; *C. F. Wu, T. E. Goff and T. R. Ohlhaber, Waste Isolation Pilot Plant and Siemens Gammasonics Inc.*

TAM-A2 Testing and Results of Hypersensitive TLD Material in Card Configurations; *K. J. Velbeck, Y. Tan and R. A. Tawil, Harshaw/Bicron Radiation Measurement Products*

TAM-A3 A New Approach to Screening Abnormal Glow Curves; *Y. Tan, J. E. Rotunda, K. J. Velbeck and R. A. Tawil, Harshaw/Bicron Radiation Measurement Products*

TAM-A4 A Study of the Angular Dependent Problem in Effective Dose Equivalent Assessment; *X. G. Xu, W. D. Reece and J. W. Poston, Sr, Texas A&M University*

TAM-A5 Iridium-192 Misadministration and Contribution of Build-Up Factors to Public Dose; *C. G. Jones, US Nuclear Regulatory Commission, Washington, DC*

TAM-A6 Field Experience with Remote Monitoring; *A. E. Desrosiers, Bartlett Services Inc.*

TAM-A7 Why Do Beta Particles Move Through Matter in Tortuous Paths?; *J. E. Turner and R. N. Hamm, Oak Ridge National Laboratory*

TAM-A8 Effect of Phantom Size and Composition on Neutron Dosimeter Reading; *J. C. McDonald, J. E. Tanner, R. D. Stewart, R. Michel and M. K. Murphy, Pacific Northwest Laboratory*

TAM-A9 The Feasibility of Digital Neutron Dosimetry Using Three-Dimensional Computer Optical Memories; *M. Moscovitch, Georgetown University*

TAM-A10 The Response Calculation, Calibration, and Effective Utilization of Bonner Spheres for the Measurement of Neutron Fields Related to Personnel Dosimetry in General Radiation Work Areas and Reference Dosimetry around Critical Assemblies Used for Accident Dosimetry Testing; *W. H. Casson and H. H. Hsu, Los Alamos National Laboratory*

8:30 - 11:00 am *Room: Continental 6*

TAM-B: ENVIRONMENTAL I

(Oral Session)

Co-Chairs: Thomas Hakonson and Kjell Johansen

TAM-B1 The INEL Environmental Dose Reconstruction Project; *J. J. Shonka, Shonka Research Associates*

TAM-B2 Results of a Nationwide Radiological Monitoring Program in the Republic of the Marshall Islands; *S. L. Simon and J. C. Graham, RMI Nationwide Radiological Study*

TAM-B3 Contamination of Surface Soil in Colorado by Plutonium, 1970 - 1991: Summary and Comparison of Plutonium Concentrations in Soil in the Rocky Flats Plant Vicinity and Eastern Colorado; *R. W. Terry, Colorado Department of Health*

TAM-B4 Estimated Soil Mass Loading on Vegetation in the Vicinity of the Rocky Flats Plant; *S. B. Webb, S. A. Ibrahim and F. W. Whicker, Colorado State University*

TAM-B5 Radiological Impact From Coal Burning; *C. Papastefanou, Aristotle University of Thessaloniki, Greece*

TAM-B6 Decommissioning Vs. Long Term Ecological Risks of Residual Depleted Uranium at Jefferson Proving Ground; *T. P. Oxenberg, M. H. Ebinger and R. H. Herring, U.S. Army Test and Evaluation Command Los Alamos National Laboratory and U.S. Army Jefferson Proving Ground*

TAM-B7 Expected Effects of Depleted Uranium Fragments on Deer and Human Health at Aberdeen Proving Ground; *M. H. Ebinger and W. R. Hansen, Los Alamos National Laboratory*

Tuesday, June 28

TAM-B8 An Experimental Examination of the Representativeness of Air Monitoring Surveillance Sites; *D. W. Walker, J. L. Downs, S. G. Oberg and G. E. Start, State of Idaho and NOAA Air Resources Laboratory*

8:30 - 11:00 am *Room: Continental 7, 8, 9*

TAM-C: WASTE MANAGEMENT/ DECOMMISSIONING I

(Oral Session)

Co-Chairs: Walter Carey and Christine Pollard

TAM-C1 A Decay Storage Waste Assay System; *J. P. Ring, X. Yan, B. Gottshcalk and E. Hammerman, Harvard University*

TAM-C2 Status of the Fort St Vrain Decommissioning Project; *F. J. Borst and R. J. Sexton, Public Service Company of Colorado and Scientific Ecology Group*

TAM-C3 Disposal of Low-Level Radioactive Waste: An Expensive and Uncertain Environment for a Utility; *W. C. McArthur, G. Hudson and L. Riales, Tennessee Valley Authority*

TAM-C4 Characterization of Two Facilities at Oak Ridge National Laboratory; *G. J. Mandry and K. N. Fleming, Martin Marietta Energy Systems and Ogden Environmental and Energy Services Inc.*

TAM-C5 ALARA Design Review for a Chemical Stabilization/Solidification Facility at the Weldon Spring Site Remedial Action Project; *D. J. Hillman, S. W. Green and T. French, Jacobs Engineering Group Inc.*

TAM-C6 A Health and Safety Primer for the Practicing Health Physicist; *L. E. Ross, M. D. Kinney, M. C. Bradshaw, W. R. James, J. M. Hylko and R. E. Cornish, Jacobs Engineering Group, Inc., Roy F. Weston, Inc. and US DOE, Albuquerque, NM*

TAM-C7 Proposed NRC Radiological Criteria for Decommissioning; *J. C. Malaro, US NRC, Washington, DC*

TAM-C8 Characterization of Class A Low-Level Radioactive Waste - A Guided Tour of NUREG/CR-6147; *J.-C. Dehmel and J. Malaro, S. Cohen & Associates, Inc. and US NRC, Washington, DC*

8:30 - 11:00 am *Room: Continental 4*

TAM-D: STUDENT I - INTERNAL DOSIMETRY

(Poster Session)

Co-Chairs: Paul Ziemer and Kim Kearfott

TAM-D1 ESR Bone Dosimetry; *J. F. Copeland, G. E. Chabot, N. Azzam, C. MacFarlane, G. B. Inglis, F. T. Greenaway and I. J. Das, University of Massachusetts at Lowell, Lowell General Hospital, Clark University and Fox Chase Cancer Center*

TAM-D2 Estimates of Electron Absorbed Fractions of Energy for the Upper Respiratory Tract; *S. Calvo, K. F. Eckerman and W. E. Bolch, Texas A&M University and Oak Ridge National Laboratory*

TAM-D3 A Revised Dosimetric Model of the Gastrointestinal Tract; *J. W. Poston, Jr., K. A. Kodimer, W. E. Bolch and J. W. Poston, Sr., Texas A&M University*

TAM-D4 Monte Carlo Based Estimates of S-Values for Bone Seeking Beta Emitters; *R. A. Parry, W. E. Bolch and J. W. Poston, Sr., Texas A&M University*

TAM-D5 Microscopic Approach in Cellular Dose Calculation for Electron Sources; *E. H. Kim, W. E. Bolch, W. D. Reece and J. W. Poston, Texas A&M University*

TAM-D6 Development and Applications of the Lawrence Livermore National Laboratory Torso Phantom; *F. Taylor, D. Hickman and P. A. J. Englert, US Nuclear Regulatory Commission, Walnut Creek, CA, Lawrence Livermore National Laboratory and San Jose State University*

TAM-D7 Experimental Determination of Absorbed Fractions and Dose Profiles in a Gelatine-Based Tissue Substitute; *J. J. Sadler, W. E. Bolch and J. W. Poston, Sr., Texas A&M University*

TAM-D8 Experimental Beta Dosimetry in Radiation Synovectomy; *L. S. Johnson and J. C. Yanch, Massachusetts Institute of Technology*

TAM-D9 A Computational Approach to the Calibration of the Whole-Body Counting Systems; *E. He, G. Laurer and N. Cohen, New York University Medical Center*

Tuesday, June 28

TAM-D10 An Evaluation of Gender-Based Weighting Factors for Internal Dosimetry; *J. H. Spiars and J. W. Poston, Texas A&M University*

TAM-D11 Assessment of Doses for the Ingestion of ^{3}H, ^{14}C and ^{32}P Using Liquid Scintillation Urinalysis; *S. M. Hodges, P. E. Hamrick, J. E. Watson, Jr. and D. J. Crawford-Brown, National Institute of Environmental Health Sciences and University of North Carolina, Chapel Hill*

TAM-D12 Monitoring of Thorium Workers in Brazil - A Case Study; *B. M. Dantas, M. C. Lourenco and J. L. Lipsztein, IRD/CNEN, Brasil*

TAM-D13 A ^{137}Cs Age-Dependent Biokinetic Study; *D. R. Melo, J. L. Lipsztein, C. A. N. Oliveira, D. L. Lundgren, B. A. Muggenburg and R. A. Guilmette, IRD/CNEN, Brasil and Inhalation Toxicology Research Institute*

TAM-D14 Estimation of Skeletal Deposition of Plutonium from Analysis of a Selected Bone Subset; *C. A. Hall and R. E. Filipy, Washington State University*

TAM-D15 Determination of Trace and Minor Elements in Amyotrophic Lateral Sclerosis (ALS) Patients by Instrumental Neutron Activation Analysis (INAA); *R. Lee and I. Olmez, Massachusetts Institute of Technology*

TAM-D16 Epithelial Cell Kinetics of the Upper Respiratory Tract of Wistar Rats Following Radon Exposure; *E. M. Atencio, R. A. Gies, K. M. Groch, C. L. Sanders, F. T. Cross and A. L. Brooks, Battelle Pacific Northwest Laboratories and Inhalation Toxicology Research Institute*

TAM-D17 Radiation Effects on an Electric Field Gradient Distribution Function Using Nuclear Quadrupole Resonance; *L. H. Iselin and D. E. Hintenlang, University of Florida*

TAM-D18 Alpha Radiation Risk Coefficients for Liver Cancers, Bone Sarcomas, and Leukemia; *M. Hunacek and R. L. Kathren, Washington State University at Tri-Cities*

TAM-D19 Monte Carlo Calculations of Electron Specific Absorbed Fractions for the Thyroid of Anthropomorphic Pediatric Phantoms; *K. A. Kodimer, W. E. Bolch and J. W. Poston, Jr., Texas A&M University*

8:30 am - Noon *Room: Imperial A*

TAM-E: RADON

(Oral/Poster Session)

Co-Chairs: Arthur Scott and Robert Holub

Oral Presentations

TAM-E1 Water Use Contribution to Indoor Radon; *P. Chittaporn and N. H. Harley, New York University Medical School*

TAM-E2 Modeling a Four Year Radon Data Base; *N. H. Harley and P. Chittaporn, New York University Medical School*

TAM-E3 TBA

TAM-E4 Method for Monitoring of Retrospective Radon Exposures in Homes by Nuclear Track Detectors; *J. Kvasnicka, Radiation Dosimetry Systems, Australia*

TAM-E5 A Test of the Linear-No Threshold Theory for Radon-Induced Lung Cancer - Final Report; *B. L. Cohen, University of Pittsburgh*

Poster Presentations

TAM-E6 Analytical Model of Effects of Airway Surface Irregularities on Particle Diffusion in the Human Lung; *T. B. Martonen, Z. Zhang and Y. Yang, US EPA, North Carolina, University of Rhode Island and University of North Carolina*

TAM-E7 Evaluation of Radon Resistant Residential Construction; *D. E. Hintenlang, A. Shanker and K. K. Al-Ahmady, University of Florida*

TAM-E8 Overview of the State of the Art of Instruments for Measuring Radon/Thoron and Their Progeny; *A. C. George, US DOE, New York*

TAM-E9 Measurement of Indoor Radon Concentration Variability; *A. G. Scott; American Atcon Inc., Canada*

TAM-E10 A Radon Passive Stack System Study; *K. A. Coleman, Washington State Department of Health*

TAM-E11 Radon Dosimetry of Red Bone Marrow in Beagle Dogs Using Histological Imaging; *G. Akabani, A. C. James and G. E. Dagle, Pacific Northwest Laboratories*

Tuesday, June 28

9:00 - 11:00 am *Room: Yosemite*

TAM-F: EDUCATION, TRAINING AND PUBLIC INFORMATION I

(Poster Session)

Co-Chairs: Hector Mandel and Jeffrey Leavey

TAM-F1 National Registry of Radiation Protection Technologists - Steps in a Continuing Process; *R. S. Argall, Scientific Ecology Group*

TAM-F2 Remember When Science Was Fun? Encountering "Nuclear Fallout in Your Wood Stove" and Other Mysteries at the Northwestern New Mexico Regional and State Science Fairs; *R. J. Shelton, R. C. Buck, L. A. Brandvold, M. L. Miller and J. M. Hylko, Santa Fe Prep School, University of New Mexico, New Mexico Institute of Mining and Technology and Roy F. Weston Inc.*

9:00 - 11:00 am *Room: Yosemite*

TAM-G: COMPUTER APPLICATIONS I

(Poster Session)

Co-Chairs: Hector Mandel and Jeffrey Leavey

TAM-G1 Graphical Representation of Comprehensive Radiological Data Using a Desktop Mapping System; *R. V. Bishop and A. L. Walker, Oak Ridge National Laboratory*

TAM-G2 Development of a Bioassay Data Management System for a Large DOE Facility; *E. M. Brackett and D. A. McLaughlin, Martin Marietta Energy Systems, Inc. and Oak Ridge National Laboratory*

TAM-G3 DCAL: Radiation Dose and Risk Calculational System; *K. F. Eckerman, M. Cristy, R. W. Leggett, R. C. Ward, A. L. Sjoreen, J. C. Ryman and C. B. Nelson, Oak Ridge National Laboratory and US EPA, Washington, DC*

TAM-G4 Expert System Application to Radiological Posting at DOE Facilities; *R. E. Durrer and W. F. Eisele, Los Alamos National Laboratory*

TAM-G5 Utilization of the Bioassay Data Management System at the Oak Ridge National Laboratory; *R. L. Ferguson, E. M. Brackett and D. A. McLaughlin, Oak Ridge National Laboratory and Martin Marietta Energy Systems, Inc.*

TAM-G6 Quality Assurance Techniques Used with Automated Analysis of Gamma-Ray Spectra; *E. W. Killian, L. D. Koeppen and D. A. Femec, EG&G Idaho, Inc.*

TAM-G7 Study of Applicability of Object-Oriented Techniques for Health Physics Computer Applications; *D. S. Lin, D. C. Lin, C. F. Wu and J. T. Caplinger, Waste Isolation Pilot Plant and University of Massachusetts at Lowell*

TAM-G8 Computer Based Training for Radiation Workers; *L. A. Slaback and M. A. Miller, National Institute of Standards and Technology*

TAM-G9 Evaluation of CAP-88 for Calculating Effective Dose Equivalents; *R. Moore and S. J. Maheras, US DOE, Idaho Falls, ID and SAIC*

8:30 - 11:00 am *Room: Imperial B*

TAM-H: AAHP SPECIAL SESSION - WHAT ROLE SHOULD CHP'S AND THE ACADEMY PLAY IN CURRENT LEGISLATIVE TRENDS FOR IONIZING RADIATION?

(Oral Session)

Chair: Jerry A. Thomas

11:00 am - Noon Business Meeting

12:15 - 2:15 pm *Rooms: TBA*

PROFESSIONAL ENRICHMENT PROGRAM

T-1 History of Radiation Experiments Utilizing Human Subjects; *Bernard L. Cohen, University of Pittsburgh*

T-2 DOE's 10CFR20 Part 834, Radiation Protection of the Public and the Environment; Status and Direction; *Andrew Wallo III and Harold T. Peterson, Jr., U.S. Department of Energy*

T-3 Auditing Techniques for the Health Physicist; *Christopher Martel, Arthur D. Little, Inc.*

T-4 Current Issues in Radiation Litigation; *David J. Wiedis, Jose & Wiedis*

T-5 Issues and Regulations Regarding Very Low Level Radioactive Waste; *Michael Phillips, BDM Federal, Inc.*

Tuesday, June 28

2:30 - 5:00 pm *Room: Continental 5*

TPM-A: EXTERNAL DOSIMETRY II

(Poster Session)

Co-Chairs: Stephen Musolino and Riad Tawil

TPM-A1 Extremity Dose Measurements at Pantex; *J. S. Durham, E. E. Hickey, J. B. Martin and M. G. Prather, Battelle Pacific Northwest Laboratories and Battelle Pantex*

TPM-A2 Performance of a New Direct-Reading Extremity Dosimeter; *G. Mackay, N. Whyte, K. Shortt, I. Thomson, C. K. Steeves and A. Egan, Thomson & Nielsen Electronics Ltd, Canada, National Research Council, Canada and Nordion International Inc., Canada*

TPM-A3 Operating Experience with Automated TLD Readers at the Oak Ridge National Laboratory; *A. B. Ahmed and K. R. Shaw, Oak Ridge National Laboratory*

TPM-A4 Cooled Optically Stimulated Luminescence Using CaF_2:Mn in Plastic Matrices for Gamma Dosimetry; *S. D. Miller, M. R. Tinker and P. E. Eschbach, Battelle Pacific Northwest Laboratories*

TPM-A5 Long-Term Fading and Dosimetric Properties of LiF Using Optically Stimulated Luminescence; *S. D. Miller and M. R. Tinker, Battelle Pacific Northwest Laboratories*

TPM-A6 Development of Multi-Detector for Personal Dosimeter; *H. Nakaoka, M. Nishimura, S. Matubara, N. Tateishi, T. Yanai and T. Oshima, Aloka Co, Ltd., Japan*

TPM-A7 Performan[illegible]essment for an Accredited External P[illegible] Dosimetry Program; *S. W. C[illegible]nd R. J. Gunter, Martin Marietta Energ[illegible]stems, Inc.* CANCELLED

TPM-A8 Assessment of Siemens Plessey Electronic Personal Dosimeter; *C. R. Hirning and P. S. Yuen, Ontario Hydro, Canada and AECL Research, Canada*

TPM-A9 Deconvolution of Complex Distributions; *G. G. Simons, Kansas State University*

TPM-A10 Establishment and Implementation of Laboratory Protocol for a Hand-Held Survey Instrument Calibrations Facility; *R. J. Kobistek and T. M. Kraus, Victoreen Inc.*

TPM-A11 Calculation of Photon Exposure-To-Dose Conversion Factors for Several Slab Phantoms; *G. Akabani, J. C. McDonald and R. M. Loesch, Pacific Northwest Laboratories and US DOE, Washington, D. C.*

TPM-A12 Neutron Field Characterization for a Calibration Laboratory; *A. J. P. Ghilardi, E. B. Lee, W. H. Casson and J. S. Bogard, Universidade de Sao Paulo, Brasil, University of Tennessee, Los Alamos National Laboratory and Oak Ridge National Laboratory*

TPM-A13 Guidance to Data Collection and Submittal of Studies to the DOE Comprehensive Epidemiologic Data Resource (CEDR); *J. J. Fix and B. G. Brooks, Pacific Northwest Laboratory and US DOE, Maryland*

2:30 - 5:00 pm *Room: Continental 6*

TPM-B: ENVIRONMENTAL II

(Poster Session)

Co-Chairs: Kevin Miller and Wayne Hansen

TPM-B1 Development of a Field Method for the Detection of Technetium-99 in Soil; *J. B. Miller, L. F. Miller and T. L. Hatmaker, University of Tennessee and Oak Ridge National Laboratory*

TPM-B2 Preliminary Estimates of Potential Collective Doses in the Region Surrounding the Site of a Potential Geologic Repository at Yucca Mountain, Nevada, after Permanent Closure; *R. B. Neel, US Nuclear Regulatory Commission, Washington, DC*

TPM-B3 A Radiological Assessment of Two Operable Units at the Rocky Flats Plant; *B. Johnson and L. F. Miller, University of Tennessee*

TPM-B4 Multi-Compartmental Analysis for Systems with Time-Dependent Transfer Coefficients and Forced Functions; *J. H. C. Wang, National Science Council*

Tuesday, June 28

TPM-B5 In Situ Measurement of Gamma Radiation From High-Efficiency Particulate Air Filters Using Portable Low-Resolution Gamma Spectroscopy; *J. M. Barnett, Westinghouse Hanford Company*

TPM-B6 A Study of Soil Profiles in the Marshall Islands: Inter-Relationships Between ^{137}Cs Concentration, Relaxation Length, Organic Matter and Annual Precipitation; *J. C. Graham and S. L. Simon, RMI Nationwide Radiological Study*

TPM-B7 Accuracy and Precision in Thick Sample Alpha Counting; *A. C. Lucas, Victoreen Inc.*

TPM-B8 The Application of Am-241 Gamma Measurements to Delineate Pu-239 Contamination in Soil; *S. A. Ibrahim, M. J. Schierman and F. W. Whicker, Colorado State University*

TPM-B9 Monitoring the Near-Field Operational Environment of Hanford; *J. W. Schmidt, J. J. Dorian, J. B. Hall and A. R. Johnson, Westinghouse Hanford Company and US DOE, Richland,WA*

TPM-B10 Protocols for Field Screening of Alpha-Contaminated Soils Using Passive Alpha Detectors; *K. E. Meyer, R. B. Gammage, C. S. Dudney, P. Kotrappa, R. V. Wheeler and M. S. Salasky, Oak Ridge National Laboratory, Rad Elec Inc. and Landauer Inc.*

TPM-B11 Low-Level Determination of Plutonium by Gamma and L X-Ray Spectroscopy; *S. C. Lee, R. C. Gatti and H. Nitsche, New Mexico State University and Lawrence Berkeley Laboratory, University of California, Berkeley*

TPM-B12 Cs-137 in Medicinal Plants of the Republic of the Marshall Islands; *S. Duffy and S. L. Simon, Nationwide Radiological Study and Colorado State University*

TPM-B13 Temporal Radioactive Changes in Tobacco; *A. M. Jabir, J. Owens, J. A. Fiedler, A. N. Serafini and K. Thomson, University of Miami School of Medicine*

TPM-B14 Environmental Gamma Radiation Monitoring with Portable Instrumentation; Evaluation and Performance; *J. A. Rundo, J. G. Johnston, R. J. Dmytryk, K. J. Velbeck and J. G. Bellian, Harshaw/Bicron Radiation Measurement Products*

TPM-B15 The Impact of Different Protocols on the Accuracy and Reliability of Exterior and Interior Characterization Surveys; *C. R. Flynn, M. S. Blair and R. R. Highfill, CHEMRAD Tennessee Corporation*

TPM-B16 Calculated Radon Doses From Radioactive Scrap Metal Handling Options; *D. J. LePoire and S. Y. Chen, Argonne National Laboratory*

2:30 - 5:00 pm *Room: Continental 7, 8, 9*

TPM-C: WASTE MANAGEMENT/ DECOMMISSIONING II

(Poster Session)

Co-Chairs: Walter Carey and Christine Pollard

TPM-C1 Operating Experience of Spent Fuel Dry Storage at Duke Power Company; *C. D. Lan and G. R. Walden, Duke Power Company*

TPM-C2 Worker Exposure Tracking System; *S. W. Green, M. J. Vaughn and D. L. Fleming, Jacobs Engineering Group Inc.*

TPM-C3 The Use of Surface Contamination Limits in Building Demolition; *W. C. Gaul, RUST Federal Services*

TPM-C4 Development of a Cleanup Protocol for ^{230}Th at UMTRA Project Sites; *M. L. Miller, R. Cornish, D. E. Gonzales and J. Hampshire, Roy F. Weston Inc., US DOE, Albuquerque, NM and Jacobs Engineering Group Inc.*

TPM-C5 Adsorption of I-125 in Aqueous Waste by Addition of Activated Charcoal; *N. W. Couch, S. G. Blanchard, G. Chandra, A. F. Parr and B. E. Edwards IV, Glaxo Inc.*

TPM-C6 Radionuclides in United States Commercial Nuclear Power Reactors; *N. C. Dyer, OAR Services*

TPM-C7 Options for High-Level Waste Disposal Standards; *J. P. Hageman and R. G. Baca, Center for Nuclear Waste Regulatory Analyses*

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TPM-C8 Monitoring of Tritium Contaminated Surfaces with Passive Detectors; *R. B. Gammage, K. E. Meyer and W. Fisher; Oak Ridge National Laboratory*

TPM-C9 Waste Segregation Program for R&D Personnel; *C. M. Tuday and M. J. Vala, Jr., Bristol-Myers Squibb*

2:30 - 5:00 pm *Room: Continental 4*

TPM-D: STUDENT II - NEUTRONS

(Poster Session)

Co-Chairs: James Tarpinian and Wesley Bolch

TPM-D1 Twodant Simulation of Mixed Neutron-Gamma Ray Intensities for Dosimetry Studies Using a 14 MeV Neutron Generator; *B. Izuhara, M. K. Gehlen, R. Cerbone and P. J. Papin, San Diego State University*

TPM-D2 Experimental Verification of Twodant and MCNP Predictions of Neutron and Secondary Gamma-Ray Sources for Dosimetry Studies; *M. K. Gehlen, B. Izuhara, R. Cerbone and P. J. Papin, San Diego State University*

TPM-D3 Use of the MCNP Code in the Design of a Cf-252 Irradiator; *Y. Aliakbar and P. A. J. Englert, San Jose State University*

TPM-D4 Shielding Design and Dose Assessment for Accelerator Based NCT; *W. B. Howard and J. C. Yanch, Massachusetts Institute of Technology*

TPM-D5 A Compact Accelerator-Based Epithermal Photoneutron Source for Boron Neutron Capture Therapy; *H. Mitchell, Georgia Institute of Technology*

TPM-D6 BNCT Rodent Phantom Dosimetry at GTRR; *T. M. Evans and R. D. Ice, Neely Nuclear Research Center*

TPM-D7 2-D Monte Carlo Methods to Obtain 3-D Microdosimetric Parameters for the Neutron Capture Therapy; *C. Yam, G. Solares and R. Zamenhof, Massachusetts Institute of Technology and New England Medical Center*

TPM-D8 A Comparison of Neutron Detection Systems with Radioisotopic Neutron Sources; *A. J. Teachout, M. M. Elsalim, P. A. J. Englert, J. H. Kleck, J. C. Liu and V. Vylet, San Jose State University, Varian Associates and SLAC*

TPM-D9 Characterization of Neutron Spectra of Varian Clinacs Model 2100C and 2300C/D Medical Linear Accelerators; *M. M. Elsalim, A. J. Teachout, P. A. J. Englert, J. H. Kleck, J. C. Liu and V. Vylet; San Jose State University, Varian Associates and SLAC*

TPM-D10 Evaluating the Potential for Determining Neutron Sources Using Electrochemically Etched Cr-39; *B. Buddemeier, D. Hickman and P. A. J. Englert, Lawrence Livermore National Laboratory and San Jose State University*

TPM-D11 Investigation of Alternate Droplet Material Bubble Dosimeters; *B. W. Baker, United States Naval Academy*

TPM-D12 Accident Dosimetry Using Lithium Tetraborate; *E. B. Lee, J. S. Bogard, W. H. Casson and L. F. Miller, University of Tennessee, Oak Ridge National Laboratory and Los Alamos National Laboratory*

TPM-D13 Modeling the Response of an Albedo Neutron Dosimeter Using MCNP; C. B. Pomatto, *G. T. Mei and L. F. Miller, University of Tennessee and Oak Ridge National Laboratory*

2:30 - 5:00 pm *Room: Imperial A*

TPM-E: STUDENT III - ENVIRONMENTAL AND RADON

(Poster Session)

Co-Chairs: John Horan and Mike Ryan

TPM-E1 The Automation of the Environmental Surveying Process: An Integrated Monitoring and Assessment System; *W. E. Bolch, G. F. Harder and R. G. Handy, University of Florida*

TPM-E2 Determination of Gross Alpha and Gross Beta Radioactivity in Drinking Water with Elevated Total Dissolved Solids Content; *W. Regits and M. E. McLain, Texas A&M University*

TPM-E3 The Sorption of Select Radionuclides on Subsurface Media of the Snake River Plain, Idaho; *R. W. Goff, M. D. Blevins, R. A. Fjeld, A. W. Elzerman and M. E. Newman, Clemson University and EG&G Idaho*

TPM-E4 Investigations of Natural Variations of Cesium-137 Concentrations in Residential Soils; *A. Wallo III, M. Moscovitch, J. E. Rodgers, D. Duffey and C. Soares, Georgetown University,*

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University of Maryland and National Institute of Science and Technology

TPM-E5 The Use of Superheated Liquid Dispersion Technique for Measuring Alpha-Emitting Actinides in Environmental Samples; L. K. Pan, C. K. Wang and W. Lim, Georgia Institute of Technology

TPM-E6 Determination of Trace-Element Composition in Wet Deposition Over Lake Champlain; *X. Huang and I. Olmez, Massachusetts Institute of Technology*

TPM-E7 Evaluation and Sensitivity Analysis of a Radon Flux Model; *H. J. Mohammed and W. E. Bolch, University of Florida*

TPM-E8 Testing Radon Source Assignments for North Central Florida; *Y. Pan, C. E. Roessler, R. Richards and H. Mohammed, University of Florida*

TPM-E9 Characterization of the Temperature Effects on Radon Driving Forces and Radon Entry for Slab-On-Grade Residential Structures; *K. K. Al-Ahmady and D. E. Hintenlang, University of Florida*

TPM-E10 Determination of Alpha Radiation Peaks Linearity in TLD-500 (Al_2O_3:C) Exposure to Low Source Strengths; *S. D. Chesney and D. E. Hintenlang, University of Florida*

TPM-E11 Degree of Etch Effects on the Calibration Constant of Alpha Track Radon Detectors; *I. S. Hamilton and M. E. McLain, Texas A&M University*

TPM-E12 The Influence of Charcoal Canister Diffusion Barrier Size and Material on the Adsorption and Desorption of ^{222}Rn; *M. W. Enghauser, S. M. Jeffries and J. E. Watson, University of North Carolina, Chapel Hill*

TPM-E13 Radon Levels of Homes in Eastern Wisconsin; *K. Knight, S. Kraemer and R. Nielson, Lakeshore Technical College*

2:30 - 3:15 pm *Room: Yosemite*

TPM-F: EDUCATION, TRAINING AND PUBLIC INFORMATION II

(Poster Session)

Co-Chairs: Hector Mandel and Jeffrey Leavey

See TAM-F for listing of papers

2:30 - 3:15 pm *Room: Yosemite*

TPM-G: COMPUTER APPLICATIONS II

(Poster Session)

Co-Chairs: Hector Mandel and Jeffrey Leavey

See TAM-G for listing of papers

Wednesday, June 29

Continuing Education Classes

7:15 - 8:15 am Room: Plaza A

CEC-5 Radiological Emergency Response to Transportation Incidents; *Brian Dodd, Oregon State University*

7:15 - 8:15 am Room: Plaza B

CEC-6 Air Sampling; *Herman Cember, Northwestern University*

8:30 am - Noon *Room: Continental 6*

WAM-A: ACCELERATOR SECTION I

(Oral Session)

Co-Chairs: Sarah Hoover and Lutz Moritz

WAM-A1 Synchrotron Radiation and Its Applications; *A. Bienenstock, SLAC*

WAM-A2 Synchrotron Radiation Beamline Shielding at the APS; *N. E. Ipe, D. R. Haeffner, E. E. Alp, S. C. Davey, R. J. Dejus, U. Hahn, B. Lai, K. J. Randall and D. Shu, SLAC, Argonne National Laboratory and HASYLAB at DESY, Germany*

WAM-A3 Zero-Degree Bremsstrahlung: Comparison of EGS4 Calculations with Experimental Measurements at 10 GeV; *R. J. Donahue, N. E. Ipe, T. M. Jenkins, J. C. Liu and W. R. Nelson, Lawrence Berkeley Laboratory and SLAC*

WAM-A4 Comparison Between Monte Carlo Calculations and Measurements of the Large Angle Bremsstrahlung Source Terms for Electron Energies Below 100 MeV; *S. Mao, S. Rokni, V. Vylet, W. R. Nelson, K. Kase, N. Ipe and J. Liu, Stanford Linear Accelerator Center*

WAM-A5 Monte Carlo Calculation of Shielding Parameters for Scattered Megavoltage X-Rays; *J. E. Rodgers, P. L. Taylor and G. F. Popescu, Georgetown University Medical Center*

WAM-A6 Deep Shielding Penetration Calculations for a 1 GeV Proton Beam; *G. C. Moeller, R. J. Donahue and E. Greenspan, University of California, Berkeley and Lawrence Berkeley Laboratory*

WAM-A7 The Radiation Protection Systems for the Final Focus Test Beam at the Stanford Linear Accelerator Center; *S. H. Rokni, E. C. Benson, D. L. Burke, R. H. Iverson, T. M. Jenkins, J. C. Liu, G. Nelson, W. R. Nelson, H. E. Smith, P. G. Tenenbaum, D. R. Walz and V. Vylet, Stanford Linear Accelerator Center*

WAM-A8 Neutron Dosimetric Intercomparison in the 1993 CERN-CEC Experiment; *J. C. Liu, S. Roesler and G. R. Stevenson, CERN, Switzerland SLAC and University of Leipzig, Germany*

WAM-A9 Special Considerations for the Radiation Training Program at the Superconducting Super Collider Laboratory; *S. L. Galpin, S. Revell and G. B. Stapleton, Superconducting Super Collider Laboratory*

12:30 -1:30 pm Accelerator Section Board Meeting

1:30 pm Accelerator Section General Meeting

8:30 am - Noon *Room: Continental 7, 8, 9*

WAM-B: RISK ANALYSIS

(Oral/Poster Session)

Co-Chairs: Troyce Jones and James Turner

Oral Presentations

WAM-B1 Low-Dose Risk and RBEs for Protection From Neutron and Gamma Doses: A Cell-Kinetics Analysis of Cytopenia and Repopulation in Stomal- and Stem-Cells; *T. D. Jones and M. D. Morris; Oak Ridge National Laboratory*

WAM-B2 Radiological Analyses for Importation of Russian Uranium; *C. D. Massey and A. P. Litman, Sandia National Laboratories and US DOE, Washington, DC*

WAM-B3 Probabilistic Descriptions of Human Interactions with Radiation Sources Based on Historical Accidents; *D. J. Strom, R. L. Hill and J. S. Dukelow, Pacific Northwest Laboratory*

WAM-B4 Issues Related to Standards for Unrestricted Release of Radioactive Scrap Metals; *S. Y. Chen, L. A. Nieves, D. J. LePoire and B. K. Nabelssi, Argonne National Laboratory*

Poster Presentations

WAM-B5 A Comparison of Radiological Risk Assessment Models Used by the BEIR V Committee, UNSCEAR, ICRP, and EPA (for NESHAP); *L. E. Wahl, Los Alamos National Laboratory*

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WAM-B6 Postmortem Findings in USTUR Case 246; *R. E. Toohey and R. L. Kathren, Washington State University*

WAM-B7 Inhaled $^{239}PuO_2$ and Cigarette Smoke Act Synergistically to Produce Lung Tumors in Rats; *G. L. Finch, E. B. Barr, W. E. Bechtold, B. T. Chen, W. C. Griffith, C. H. Hobbs, M.D. Hoover, J. L. Mauderly and K. J. Nikula, Inhalation Toxicology Research Institute*

WAM-B8 A Risk Categorization System for Use with the Graded Approach in Implementing Management Requirements at Department of Energy Facilities; *L. J. Shyr, R. O. Murphy, J. A. Mahn, S. A. Walker, L. F. Restrepo and A. O. Bendure, Sandia National Laboratories and Environmental Services Inc.*

WAM-B9 Radioactive Waste Transportation Risk Analysis with Unit-Consequence Factors; *B. M. Biwer, F. A. Monette, D. J. LePoire and S. Y. Chen, Argonne National Laboratory*

WAM-B10 Transportation Radiological Risk Assessment for the Programmatic Environmental Impact Statement: An Overview of Methodologies, Assumptions, and Input Parameters; *F. A. Monette, B. M. Biwer, D. J. LePoire and S. Y. Chen, Argonne National Laboratory*

WAM-B11 Bayesian Estimation of Dose-Rate Effectiveness Factors; *J. J. Arnish and P. G. Groer, University of Tennessee, Knoxville*

WAM-B12 Development of the Stochastic RESRAD Code; *C. Yu, D. LePoire, E. Dovel, B. Biwer, B. Nabelssi and A. J. Zielen, Argonne National Laboratory*

WAM-B13 Information Bias and Lifetime Mortality Risks of Radiation-Induced Cancer; *L. E. Peterson, W. J. Schull, B. R. Davis, S. P. Cooper and P. A. Buffler, UT Health Science Center and UC-Berkeley School of Public Health*

8:30 am - Noon *Room: Continental 4*

WAM-C: INTERNAL DOSIMETRY AND BIOASSAY I

(Oral/Poster Session)

Co-Chairs: Wesley E. Bolch and T. Edmond Hui

Oral Presentations

WAM-C1 An Updated Whole-Body Counting Report on Cesium ... Northern Republic of the Marshall ... (1980-1993); *L. C. Sun, J. H. Clinton, C. ...plan and C. B. Meinhold, Brookhaven ...tional Lab*

CANCELLED

WAM-C2 IAEA Reference Asian Man Coordinated Research Program (CRP); *R. V. Griffith, International Atomic Energy Agency, Austria*

WAM-C3 A Proposed Work Group Bioassay Monitoring Program for Hanford; *J. A. MacLellan, Pacific Northwest Laboratories*

WAM-C4 Monte Carlo Estimates of Electron Absorbed Fractions in Trabecular Bone; *W. E. Bolch, A. Zuzarte de Mendonca and J. W. Poston, Sr, Texas A&M University*

Poster Presentations

WAM-C5 1991 Implementation of ALARA Administrative Radiation Exposure Levels: Experiences and Lessons Learned; *T. L. Aldridge, B. L. Baumann and L. K. Aldrich, II, Westinghouse Hanford Company*

WAM-C6 Bayesian Estimation of the Retention Function Parameters for Bone-Seeking Radionuclides From Multiresponse Data; *M. F. Amer, P. G. Groer and B. A. Carnes, University of Tennessee, Knoxville and Argonne National Laboratory*

WAM-C7 A Dose-Averted Approach to Intervention Levels for Intakes of Plutonium; *D. E. Bihl, Pacific Northwest Laboratory*

WAM-C8 Removal of Pu(IV), Am(III), Np(V), and U(VI) From Mice by TREN-Me-3,2-HOPO); *P. W. Durbin, B. Kullgren, J. Xu and K. N. Raymond, Lawrence Berkeley Laboratory and University of California, Berkeley*

WAM-C9 Changes in Soft Tissue Concentrations of Plutonium and Americium with Time After Human Occupational Exposure; *R. E. Filipy and R. L. Kathren, Washington State University*

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WAM-C10 Dose Contribution From Metabolized Organically Bound Tritium After Tritiated Water Intake; *D. Galeriu and A. Trivedi, AECL Research, Canada*

WAM-C11 Experience in Using Fecal Bioassay Following Accidental Inhalation of Plutonium; *R. L. Hill and E. H. Carbaugh, Pacific Northwest Laboratory*

WAM-C12 Confirming the Time Interval of a Urine Sample for Radionuclide Excretion Studies; *J. Anderson, E. M. Kim, T. R. LaBone, R. Rosson and B. Kahn, Georgia Institute of Technology and Westinghouse Savannah River Company*

WAM-C13 Absorbed Fraction of Uranium in Humans; *B. L. Tracy and M. Limson-Zamora, Health Canada*

WAM-C14 Tritium in Urine After Chronic Intakes of Tritiated Water; *A. Trivedi, E. S. Lamothe, T. Duong and D. Galeriu, AECL Research, Canada*

WAM-C15 Determination of Environmental Influence Upon Internal Dosimetry Results; *W. W. Wadman, III, Wm Wadman & Associates*

8:30 - 11:00 am *Room: Imperial B*

WAM-D: ENVIRONMENTAL RADIATION SECTION - DOSE RECONSTRUCTION I

(Oral Session)

Co-Chairs: Tom Widner and Charles Roessler

WAM-D1 The Off-Site Radiation Exposure Review Project (ORERP) - A Dose Reconstruction Effort Following Nuclear Weapons Testing in Nevada; *B. W. Church, D. L. Wheeler and L. R. Anspaugh, US DOE, Las Vegas, NV and Lawrence Livermore National Laboratory*

WAM-D2 Overview of the Hanford Environmental Dose Reconstruction Project; *D. B. Shipler, B. A. Napier, W. T. Farris and M. D. Freshley, Battelle, Pacific Northwest Laboratories*

WAM-D3 Overview of the Fernald Dosimetry Reconstruction Project; *K. R. Meyer, P. G. Voilleque, G. G. Killough, D. S. Schmidt, S. K. Rope, B. Shleien, R. E. Moore, M. J. Case and J. E. Till, Keystone Scientific, Inc., MJP Risk Assessment, Inc., Hendecagon Corporation, Health Physics Applications, Environmental Perspectives, Inc., Scinta, Inc., Moore Technical Associates, Inc., Independent Consultant, Idaho and Radiological Assessments Corp.*

WAM-D4 Dose Reconstruction Activities in the Republic of the Marshall Islands; *S. L. Simon, RMI Nationwide Radiological Study*

8:30 - 11:00 am *Room: Continental 5*

WAM-E: OPERATIONAL HEALTH PHYSICS I

(Oral Session)

Co-Chairs: Wayne Wiatrowski and James Kofler

WAM-E1 Contamination of a Brine Coolant System by Naturally Occuring Radioactive Material (NORM); *M. E. Carter, N. T. Montgomery, B. L. Davidson and S. D. Hampton, Eli Lilly and Company*

WAM-E2 Adaption of a Nuclear Power Plant Database Management Program to a Broad Scope NRC Licensee; *S. D. Hampton, M. E. Carter, M. J. Thornsberry and L. F. Booth, Eli Lilly and Company, DAI Information System Consultants and Canberra Industries*

WAM-E3 Customized Radiological Posting; P. S. Hoover, *K. C. Olson, Jr. and R. C. Stokes, Los Alamos National Laboratory*

WAM-E4 Intercomparison of ANSI Isokinetic Stack Sampling Probes and the New Shrouded Probe Design; *J. C. Rodgers, A. R. McFarland C. A. Ortiz and C. Fairchild, Los Alamos National Laboratory and Texas A&M University*

WAM-E5 Experimental Characterization of the AFIT Neutron Facility; *O. J. Lessard, R. L. Hartley, D. C. Moss, C. R. Brennan and N. E. Hertel, Air Force Institute of Technology and Georgia Institute of Technology*

WAM-E6 "This Ain't No Science Project:" The High Flux Isotope Reactor Iridium Release Incident; *J. L. Westbrook, R. V. Bishop and D. E. Perkins, Oak Ridge National Laboratory*

WAM-E7 Recovery Operations Following the Failure of an Iridium Target; *K. R. Geber, R. F. Utrera and R. V. Bishop, Oak Ridge National Laboratory*

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WAM-E8 A Networked System for Alpha Continuous Air Monitors; *D. C. Nelson, Los Alamos National Laboratory*

9:00 - 10:00 am *Room: Yosemite*

WAM-F: INSTRUMENTS AND METHODS I

(Poster Session)

Co-Chairs: Ken Swinth and Thomas Gerusky

WAM-F1 An Optimal Target-Filter System for Electron Beam Generated X-Ray Spectra; *H. H. Hsu, D. G. Vasilik and J. Chen, Los Alamos National Laboratory and Institute of Radiobiology, Germany*

WAM-F2 A New Neutron Dose Equivalent Meter; *R. H. Olsher and A. M. Beverding, Los Alamos National Laboratory and San Jose State University*

WAM-F3 An Improved Method of Gamma Irradiator Calibration; *R. E. Sorber and D. N. Mei, Duke Power Co.*

WAM-F4 Technical Assistance for Response to Nuclear Weapon Accidents in the Former Soviet Union (FSU); *D. J. Skinner and D. M. Van Etten, US Department of Energy, Albuquerque, NM and Los Alamos National Laboratory*

WAM-F5 A New Improved Classic Analog Survey Meter; *J. D. Shearer and C. W. King, Victoreen Inc.*

WAM-F6 Analysis of Alpha CAM Performance at the Waste Isolation Pilot Plant (WIPP); *D. L. Wanningman, R. F. Farrell, A. V. Rochino and G. L. Troyer, Westinghouse Electric Corporation, US DOE, Carlsbad, NM and Westinghouse Hanford Company*

WAM-F7 Investigation of Bonner Spheres to High Energy Neutrons; *K. R. Alvar and H. H. Hsu, Los Alamos National Laboratory*

WAM-F8 Sequential Device System (SDS) Design Using a Fixed-Air Sampler; *L. C. Sun and H. L. Pai, Brookhaven National Laboratory and RAD Service and Instruments Ltd, Canada*

WAM-F9 Sensitivity Recovery of LiF Thermoluminescent Material by a New Annealing Procedure; *R. Michel, F. N. Eichner, J. C. McDonald and P. J. Papin, Pacific Northwest Laboratory and San Diego State University*

WAM-F10 Recent Development of High Dose Gamma-Ray Irradiation System; *S. T. Hwang, S. H. Hah and H. M. Kim; Korea Research Institute of Standards and Science*

WAM-F11 The Construction and Evaluation of a Simple Probe for Direct Measurement of Tritium Surface Contamination; *D. J. Allard and S. M. Burrill, Arthur D. Little Inc.*

WAM-F12 Technological Advancements in Portable Ion Chamber Instrumentation and Its Impact on the Health Physicist; *J. A. Rundo, J. G. Johnston, R. J. Dmytryk, K. J. Velbeck and J. G. Bellian, Harshaw/Bicron Radiation Measurement Products*

WAM-F13 Emergency Response Equipment Support to the Former Soviet Union; *D. M. Van Etten and D. J. Skinner, Los Alamos National Laboratory and US DOE, Albuquerque, NM*

WAM-F14 Simplified Solubility Testing for Uranium and Transuranic Radionuclides on Breathing Zone Air Samples; *R. L. Metzger, M. A. Coombs, K. L. Stuhr, A. M. Bousquet and B. G. Howell, Radiation Safety Engineering Inc.*

8:30 - 11:00 am *Room: Imperial A*

WAM-G: STUDENT IV - EXTERNAL DOSIMETRY

(Poster Session)

Co-Chairs: Ed Lessard and Kenneth Miller

WAM-G1 Improved Dose Point Kernels for Beta-Particle Dosimetry; *D. C. Lin and G. E. Chabot, University of Massachusetts at Lowell*

WAM-G2 The Characterization of the Response of a New, Thin, Solid Thermoluminescence Extremity Dosimeter to Beta Radiation; *C. A. Ribaudo, M. Moscovitch, J. A. Rodgers, R. A. Tawil and C. G. Soares, National Institutes of Health, Georgetown University, Harshaw/Bicron Company and National Institute of Standards and Technology*

WAM-G3 Energy Response Calculations of Filtered $CaSO_4$:Dy Dosimeters Using EGS4 Monte Carlo Simulations; *C. Miles, J. Liu and P. A. J. Englert, San Jose State University and Stanford Linear Accelerator Center*

Wednesday, June 29

WAM-G4 Development and Characterization of a Dual Phosphor α/β Radiation Detector; *L. J. Phillips, Phillips HP Services*

WAM-G5 Dual Integral Glow Analysis - A New Method for Beta and Beta-Gamma Mixed Field Dosimetry; *E. Samei, K. J. Kearfott and C-K. C. Wang, The University of Michigan and Georgia Institute of Technology*

WAM-G6 Electronic Equilibrium as a Function of Photon Energy and Depth in Tissue; *J. A. Myrick and W. D. Reece, Texas A&M University*

WAM-G7 Characterization of Bremsstrahlung Radiation Patterns at the CAMD Storage Ring; *J. Li, M. L. Marceau-Day, L. M. Scott and J. B. Scott, Louisiana State University and A&M College*

WAM-G8 Excitation Functions of 30 to 67.5 MeV Proton Induced Reactions on Carbon Magnesium, Aluminum, Silicon Dioxide, and Silicon; *C. Gans, A. Beverding, K. Kim and P. A. J. Englert, San Jose State University*

WAM-G9 Mass Optimization Studies of Gamma Shield Materials for Space Nuclear Reactor Applications; V. Banjac and A. S. Heger, University of New Mexico

WAM-G10 Electromagnetic Propagation & Radiation Effects From a NMR Volume Head Coil Along the Length of the Body in a Phantom; *G. O. Redmond and J. E. Rodgers, National Institutes of Health and Georgetown University*

12:15 - 2:15 pm *Rooms: TBA*

PROFESSIONAL ENRICHMENT PROGRAM

W-1 Health Physics Activities at Low-Level Radioactive Waste Disposal Facilities; *Steve Adams, EG&G Mound Applied Technology*

W-2 Similarities and Differences Between DOE and NRC Basic Standards for Occupational Radiation Protection; *C. Rick Jones, U.S. Department of Energy*

W-3 Waste Management at Decommissioning Projects; *Wayne C. Gaul, Chemical Waste Management, Inc.*

W-4 Implementation of the Revised 10CFR Part 20; *Donald A. Cool and Charleen T. Raddatz, U.S. Nuclear Regulatory Commission*

W-5 Lower Limits of Detection; *Thomas B. Borak, Colorado State University*

2:30 - 5:00 pm *Room: Continental 6*

WPM-A : ACCELERATOR SECTION II

(Poster Session)

Co-Chairs: Henry Kahnhauser and Jeffrey Kleck

WPM-A1 Comparing the Response of an Albatross Neutron Monitor, Bonner Spheres and a Fission Chamber to Known High Energy Neutron Spectrum in an Accelerator Beam Line; *L. S. Walker, J. Koster, J. L. Ullmann, P. W. Lisowski, S. A. Wender and R. L. Mundis, Los Alamos National Laboratory and SAIC, Inc.*

WPM-A2 Analysis of Potentially Mixed Waste From Niobium Cavity Activation and Reprocessing Activities; *S. O. Schwahn, R. T. May, K. B. Welch and C. Sinclair, Continuous Electron Beam Accelerator Facility*

WPM-A3 Estimation of Radionuclide Specific Activities in Accelerator Activated Materials Using Survey Instrumentation; *V. R. Cupps, K. Vaziri and A. Elwyn, Fermi National Accelerator Laboratory*

WPM-A4 Use of In-Situ Gamma Spectroscopy for Activation Products at CEBAF; *R. T. May, S. O. Schwahn, K. B. Welch and D. Dotson, Continuous Electron Beam Accelerator Facility*

WPM-A5 Be-7 Contamination Incident at LAMPF; *B. Stokes, L. S. Walker and R. L. Mundis, Los Alamos National Laboratory and SAIC, Inc.*

WPM-A6 Radiological Survey of Surface and Tunnel Areas at the Superconducting Super Collider; *S. Revell and V. D. Romero, Superconducting Super Collider Laboratory*

WPM-A7 Airborne Radionuclide Releases From the Antiproton Target at Fermilab; *K. Vaziri, V. R. Cupps, D. Boehnlein, D. Cossairt, A. Elwyn and T. Leveling, Fermi National Accelerator Laboratory*

WPM-A8 Environmental Radiation Monitoring Station; *S. I. Baker and V. D. Romero, Superconducting Super Collider Laboratory*

Wednesday, June 29

WPM-A9 Health Physics Experience Around Synchrotron Radiation Beamlines; *R. Ryder and M. P. Holbourn, Science and Engineering Research Council, UK*

WPM-A10 Shielding Design of a Secondary Beam Line at SLAC; *V. Vylet, W. R. Nelson and S. Rokni, Stanford Linear Accelerator Center*

WPM-A11 LINAC Accelerator System (RFQ) Commissioning Radiation Survey Results; *G. Arbique, J. Lenz, S. Revell and G. Stapleton, Superconducting Super Collider Laboratory*

WPM-A12 A Study of Radiation Streaming Through a LINAC Waveguide Penetration; *J. S. Bull, G. B. Stapleton and L. S. Waters, Superconducting Super Collider Laboratory and Los Alamos National Laboratory*

WPM-A13 Baffle Walls for the MEB Access Shafts; *I. Baishev, J. Bull, J. Coyne, N. Mokhov and G. Stapleton, Superconducting Super Collider Laboratory*

WPM-A14 Second Intercomparison of High-Energy Neutron Personnel Dosimeters Used at DOE Accelerator Facilities; *J. C. McDonald, G. Akabani, L. W. Brackenbush and R. M. Loesch, Pacific Northwest Laboratories and US DOE, Washington, D. C.*

1:30 - 5:00 pm *Room: Continental 7, 8, 9*

WPM-B: NCRP SPECIAL SESSION

(Oral Session)

Co-Chairs: Charles Meinhold and James Spahn

WPM-B1 The NCRP and Radiobiology, Epidemiology, Risk and Basic Radiation Protection Criteria; *M. Fry, Oak Ridge National Laboratory*

WPM-B2 The NCRP and Operational Radiation Safety; *K. Kase, SLAC*

WPM-B3 The NCRP and Dosimetry and Metabolism of Radionuclides; *B. B. Boecker and K. F. Eckerman, Inhalation Toxicology Research Institute and Oak Ridge National Laboratory*

WPM-B4 The NCRP and Radionuclides in the Environment; *M. W. Carter, Atlanta, GA*

WPM-B5 The NCRP and Radioactivity and Mixed Waste; *D. G. Jacobs, Roy F. Weston, Inc.*

WPM-B6 The NCRP and Nonionizing Electromagnetic Radiation; *D. H. Sliney, U.S. Army Environmental Hygiene Agency*

2:30 - 3:00 pm *Room: Continental 4*

WPM-C: INTERNAL DOSIMETRY AND BIOASSAY II

(Poster Session)

Co-Chairs: Wesley E. Bolch and T. Edmond Hui

See WAM-C for listing of papers

2:30 - 5:00 pm *Room: Imperial B*

WPM-D: ENVIRONMENTAL RADIATION SECTION - DOSE RECONSTRUCTION II

(Oral Session)

Co-Chairs: Naomi Harley and Gene Schreckhise

WPM-D1 Rocky Flats Nuclear Weapons Plant Phase I Health Studies: A Project Overview; *S. R. Ripple and T. E. Widner, ChemRisk*

WPM-D2 Oak Ridge Phase I Health Studies: A Project Overview; *T. E. Widner, ChemRisk*

WPM-D3 Assessment of the Thyroid Doses Received by the American People Due to Iodine-131 From Nevada Atmospheric Nuclear Weapons Tests; *A. Bouville, National Cancer Institute*

WPM-D4 Environmental Dose Reconstruction and the Centers for Disease Control and Prevention; *C. W. Miller and J. M. Smith, Centers for Disease Control and Prevention*

5:00 - 6:00 pm Environmental Radiation Section Business Meeting

2:30 - 4:45 pm *Room: Continental 5*

WPM-E: OPERATIONAL HEALTH PHYSICS II

(Poster Session)

Co-Chairs: Wayne Wiatrowski and James Kofler

WPM-E1 Magnetic Field Measurements Near VDT's and TV's; *W. S. Boivin, E. F. Dawson and D. J. Witters, Jr., US FDA, Massachusetts and Maryland*

Wednesday, June 29

WPM-E2 VDT Measurements: Assessing VDT User "Dose;" *D. L. Haes, Jr and M. R. Fitzgerald, Massachusetts Institute of Technology*

WPM-E3 Using Oxidation as a Technique for Analyzing Ash Resulting From the Incineration of Radioactive Waste; *M. A. Albanese, Merck Research Laboratories*

WPM-E4 Evaluation of the Concentrations of C-14 and H-3 in Stack Gas, Water and Ash Effluents Following the Incineration of Radioactive Wastes Containing C-14 and H-3; *E. M. Crim and T. E. Johnson, The Dow Chemical Company*

WPM-E5 Incident Investigation and Decontamination from a Destructive Cleaning Procedure of a Nickel-63 Containing Electron Capture Detector; J. *L. Kitchens, Technology Applications Inc.*

WPM-E6 ALARA Oversight at Rocky Flats, The Process; *P. P. Psomas and C. H. Cofer, US DOE Rocky Flats, Colorado and M. H. Chew and Associates Inc.*

WPM-E7 Radiation Shielding, Interlock, and Monitoring Systems for Radiation Research Facility; *R. J. Buchanan, Halliburton Research Center*

WPM-E8 Improvements Implemented in a Radiation Protection Program Following the Delayed Detection of an Accidental Inhalation Intake of Americium-241; *D. A. McLaughlin, P. S. Rohwer and S. A. Hamley, Oak Ridge National Laboratory*

WPM-E9 The Reduction of Patient Dose in Interventional Radiography; *C. C. Chamberlain, SUNY Health Science Center*

WPM-E10 Evaluation of Mammography Shielding with Aluminum Oxide TLDs; *R. P. Lieto, D. J. Peck and L. Hefner, Henry Ford Hospital and William Beaumont Hospital*

WPM-E11 A "Catch 22" Involving the Attempt to Dispose of a Radioactive Source Found in Scrap Steel; *A. LaMastra, Health Physics Associates, Inc.*

WPM-E12 Operational Health Physics Program During the Tokamak Fusion Test Reactor (TFTR) D-T Experiments; *J. Gilbert, G. Ascione, K. Rule, S. Elwood, J. Stencel and D. Speed, Princeton Plasma Physics Laboratory*

2:00 - 3:00 pm *Room: Yosemite*

WPM-F: INSTRUMENTS AND METHODS II

(Poster Session)

Co-Chairs: Ken Swinth and Thomas Gerusky

See WAM-F for listing of papers

2:30 - 5:00 pm *Room: Imperial A*

WPM-G: Student V - Waste Management

(Poster Session)

Co-Chairs: David Waite and Howard Dickson

WPM-G1 Autoclave and Chemical Methods of Disinfecting Biohazardous-Radioactive Waste; *S. R. Woods, G. W. Purdy, K. S. Helm, S. L. O'Brien and P. J. Papin, San Diego State University and University of California at San Diego*

WPM-G2 Autoclaving Methods for Biohazardous-Radioactive Waste; *G. W. Purdy, S. R. Woods, K. S. Helm, S. L. O'Brien and P. J. Papin, San Diego State University and University of California at San Diego*

WPM-G3 Environmental Radioactivity Measurements at the Texas A&M University Landfill; *C. A. Riland and M. E. McLain, Texas A&M University*

WPM-G4 Hydrologic Evaluation of Four Landfill Cover Designs for Radioactive and Mixed Waste Landfills; *R. W. Warren, T. E. Hakonson, K. V. Bostick, G. Trujillo, K. L. Manies and J. L. Martinez, Colorado State University and Los Alamos National Laboratory*

WPM-G5 Determination of Waste Container Curie Content Utilizing Multiple Detectors; *B. G. Scott, University of Florida*

WPM-G6 Source I[illegible]ory of Low-Level Radioactive Waste [illegible]ous Releases; *M.-S. Yim, S. A. Sim[illegible] D. W. Moeller, Harvard University a[illegible]* CANCELLED

WPM-G7 Ion Chromatography and On-Line Scintillation Counting for the Analysis of Non-Gamma Emitting Radionuclides in Reactor Coolant; *S. Guha, S. H. Reboul, R. A. Fjeld, T. A. Devol and J. D. Leyba, Clemson University and Rust Remedial Services*

WPM-G8 Measuring Parts Per Trillion Levels of Metal Ions in Spent Fuel Pool Water; *G. Vosnidis and J. F. Kunze, University of Missouri-Columbia*

WPM-G9 A Method for Estimating the Activity of Packaged Accelerator-Induced Low-Level Radioactive Waste; *E. A. Bonano, United States Air Force*

WPM-G10 Application of a Relational Database to Maintaining an Inventory of Byproduct Material for the Oregon State University Triga Reactor; *J. S. Bae and J. F. Higginbotham, Oregon State University*

WPM-G11 Dose Rate Measurements of the Highly-Enriched Uranium Fuel at the UMR Reactor; *M. L. Hill and A. E. Bolon, University of Missouri-Rolla*

WPM-G12 Decontamination of Metal Surfaces Using Electrocleaning Methods; *J. Lu, University of Missouri*

7:00 - 9:00 pm Room: Continental 7, 8, 9

WPM-H: AEROSOL MEASUREMENTS

(Oral Session)

Co-Chairs: Morgan Cox and Gary Troyer

Speakers TBA

Notes

San Francisco

Thursday, June 30

Continuing Education Classes

7:15 - 8:15 am Room: Plaza A
CEC-7 Ventilation; *Kenneth Price, University of Connecticut*

7:15 - 8:15 am Room: Plaza B
CEC-8 Where in the World is NORM?; *Ed Bailey, State of California*

8:30 - 11:30 am *Room: Yosemite*

THAM-A: ENVIRONMENTAL RADIATION SECTION - DOSE RECONSTRUCTION III

(Poster Session)

Co-Chairs: Tom Widner and Gene Schreckhise

THAM-A1 EPR Dosimetry of Internal and External Radiation Exposure Following Nuclear Accidents Using Enamel and Dentine as Biological Dosimeters; *E. H. Haskell, V. I. Polyakov and G. H. Kenner, University of Utah and Institute of Geology, Estonia*

THAM-A2 Luminescence Techniques for Accident Dosimetry; *E. H. Haskell and G. H. Kenner, University of Utah*

THAM-A3 Results of the INEL Historical Dose Evaluation; *E. W. Chew, R. L. Dickson, M. D. Otis, H. K. Peterson and D. R. Wenzel, US DOE, Idaho Falls, ID, SAIC, EG&G Idaho, Inc. and Westinghouse Idaho Nuclear Company, Inc.*

THAM-A4 The Rocky Flats "903 Pad" Drum Storage Area: Off-Site Doses and Health Risks From Dispersal of Contaminated Soil; J. E. Buddenbaum, *T. E. Widner and S. R. Ripple, ChemRisk, Ohio and California*

THAM-A5 Oak Ridge Radioactive Barium/ Lanthanum Production: History and a Screening Evaluation of Potential Off-Site Dose Significance; *T. E. Widner, ChemRisk*

THAM-A6 Environmental Accumulation of Radioactive Materials [illegible] to the Columbia River; *W. T. Farris, [illegible] Snyder, Battelle, Pacific Northwest Laboratories* CANCELLED

THAM-A7 Reference Individual Doses Resulting from Hanford Atmospheric Releases, 1944-1992; *B. A. Napier, W. T. Farris and T. A. Ikenberry, Battelle, Pacific Northwest Laboratories*

THAM-A8 Reconstruction of Radionuclide Concentrations in the Columbia River for the Hanford Environmental Dose Reconstruction Project; *W. H. Walters, M. C. Richmond and B. G. Gilmore, Battelle, Pacific Northwest Laboratories and Washington State University*

THAM-A9 Dose Reconstruction Research at Hanford Involving Native Americans; *E. B. Liebow, T. A. Ikenberry, J. C. Simpson and B. A. Napier, Battelle Human Affairs Research Centers, Battelle, Pacific Northwest Laboratories and Golder Associates*

THAM-A10 Uncertainty and Sensitivity Analysis of HEDR Dose Estimates; *P. W. Eslinger and J. C. Simpson, Battelle, Pacific Northwest Laboratories and Golder Associates*

THAM-A11 Reconstruction of Hanford Production Reactor Releases to the Columbia River, 1944-1971; *C. M. Heeb and D. J. Bates, Battelle, Pacific Northwest Laboratories*

THAM-A12 Estimates of Dose from Groundwater Pathways; *M. D. Freshley and W. T. Farris, Battelle, Pacific Northwest Laboratories*

THAM-A13 Doses from Exposures to Radioactive Materials Released to the Columbia River; *W. T. Farris and B. A. Napier, Battelle, Pacific Northwest Laboratories*

THAM-A14 Compilation, Evaluation, and Use of Historical Environmental Monitoring Data; *M. E. Thiede, D. J. Bates, E. I. Mart, R. W. Hanf and D. H. Denham, Battelle, Pacific Northwest Laboratories and Consultant, Bend, OR*

THAM-A15 Search, Retrieval, Evaluation, and Declassification of Hanford-Originated Information for the HEDR Project; *G. L. Harvey and S. P. Gydesen, Battelle, Pacific Northwest Laboratories*

THAM-A16 Validation of Models for the HEDR Project; *B. A. Napier and J. C. Simpson, Battelle, Pacific Northwest Laboratories and Golder Associates*

THAM-A17 Modeling of Environmental Accumulation of Radioactive Materials Historically Released to the Atmosphere From Hanford; *B. A. Napier, J. C. Simpson and T. A. Ikenberry, Battelle, Pacific Northwest Laboratories and Golder Associates*

Thursday, June 30

THAM-A18 Computer Implementation of HEDR Integrated Codes; *P. W. Eslinger, K. S. Lessor, T. B. Miley, W. E. Nichols and S. J. Ouderkirk, Battelle, Pacific Northwest Laboratories and Boeing Computer Services Richland*

THAM-A19 Atmospheric Transport and Deposition of Iodine-131 Released From Hanford; *J. V. Ramsdell, C. A. Simonen and K. W. Burk, Battelle, Pacific Northwest Laboratories*

THAM-A20 Reconstruction of Hanford Separations Plant Atmospheric Releases, 1944-1972; *C. M. Heeb, Battelle, Pacific Northwest Laboratories*

THAM-A21 Developing Food Production and Consumption Information for Use in Dose Estimation; *D. M. Anderson, T. L. Marsh and D. E. Deonigi, Battelle, Pacific Northwest Laboratories*

THAM-A22 Developing Estimates of Exposure Rate Near the Nevada Test Site; *C. B. Thompson and R. D. McArthur, Desert Research Institute*

THAM-A23 Ingestion of Neveda Test Site Fallout: Internal Dose Estimates; *F. W. Whicker, T. B. Kirchner, L. R. Anspaugh and Y. C. Ng, Colorado State University and Lawrence Livermore National Laboratory*

THAM-A24 Estimating Internal Dose Due to Ingestion of Radionuclides from Nevada Test Site Fallout; *T. B. Kirchner, F. W. Whicker, L. R. Anspaugh and Y. C. Ng, Colorado State University and Lawrence Livermore National Laboratory*

THAM-A25 The ORERP County Data Base; *H. L. Beck and L. R. Anspaugh, US DOE, New York and Lawrence Livermore National Laboratory*

THAM-A26 A Model for External Dose Estimation; *R. W. Henderson, Los Alamos National Laboratory*

8:15 - 10:45 am *Room: Imperial A*

THAM-B: DOE Special Session

(Oral/Poster Session)

Co-Chairs: C. Rick Jones and R. Thomas Bell

Oral Presentation

THAM-B1 Department of Energy Radiological Protection Policy and Guidance Initiatives and Session Overview; *R. T. Bell, US DOE, Washington, DC*

Poster Presentations

THAM-B2 Federal Rule on Occupational Radiation Protection in the Department of Energy Complex; *J. L. Rabovsky, US DOE, Washington, DC*

THAM-B3 The Department of Energy's System of Radiation Protection Requirements and Guidance; *S. G. Zobel, J. L. Rabovsky and D. M. Rohrer, US DOE, Washington, DC*

THAM-B4 Implementation Guidance for Title 10 Code of Federal Regulations Part 835, "Occupational Radiation Protection," within the Department of Energy; *D. M. Roher, US DOE, Washington, DC*

THAM-B5 The Department of Energy's Radiation Dose Registry and 1992 Annual Radiation Exposure Report; *N. Rao and S. G. Zobel, US DOE, Washington, DC*

THAM-B6 The Department of Energy's Applied Health Physics Research Program; *J. Foulke, US DOE, Washington, DC*

THAM-B7 Biodosimetry Tools; *R. M. Loesch, T. Straume and J. N. Lucas, US DOE, Washington, DC and University of California, Lawrence Livermore National Laboratory*

THAM-B8 Rongelap Resettlement Activities Pertaining to the U.S. Department of Energy's Marshall Islands Program; *P. V. O'Connell and N. M. Barss, US DOE, Washington, DC*

THAM-B9 The Department of Energy's Training and Staff Development Programs; *H. L. Scott, US DOE, Washington, DC*

THAM-B10 Radiological Assessment & Design System (RADS) Computer Program; *J. M. Connelly, B. J. Dionne and S. Masciulli, US DOE, Washington, DC, Brookhaven National Laboratory and Vertechs Corporation*

THAM-B11 Enhancements in Radiological Protection Programs at the Department of Energy; *M. Sharma, US DOE, Washington, DC*

8:30 - 11:00 am *Room: Imperial B*

THAM-C: HUMAN EXPERIMENTS SPECIAL SESSION - ADMINISTERED RADIONUCLIDES AND HUMAN SUBJECTS: THE EARLY YEARS

(Oral Session)

Co-Chairs: Chet R. Richmond and George L. Voelz

Panel Members: *B. Mills and M. Sikov*

Introductions and Background on the Topic; *C. R. Richmond*

Manhattan Engineer District; *H. Friedell*

Lawrence Berkeley Laboratory Studies; *P. Durbin*

University of Rochester Studies; *N. Stannard*

Los Alamos Studies; *G. Voelz*

Birth of Nuclear Medicine; *A. B. Brill*

Department of Defense Studies; *J. Ainsworth*

General Question and Answer Period

8:30 - 11:30 am *Room: Yosemite*

THAM-D: WORKS-IN-PROGRESS

(Poster Session)

12:30 - 2:30 pm *Grand Ballroom*

HEALTH PHYSICS SOCIETY ANNUAL AWARDS LUNCHEON

Notes

AAHP COURSES

Saturday, June 25, 1994 - 8:00 am - 5:00 pm

AAHP COURSE 1

RADIATION LITIGATION; David Wiedis, Jose & Wiedis Attorneys at Law

This course will begin with a discussion of basic legal concepts which are fundamental to understanding radiation litigation. The student will learn how lawyers investigate a radiation case and how the case proceeds from the incident, through the discovery process, preparation for trial and trial. Practical examples from cases will include strategy developed for depositions and trial. Cases will be examined from both the plaintiff's and defendant's points of view. The course will examine issues currently being litigated in this field. Those issues include: The role of the federal dose standards, the role of ALARA, statutory employer, what constitutes compensable injury, what is adequate proof of causation, and probability of causation. The question of "expert" testimony and "junk science" will be discussed along with some role playing using actual trial transcripts. Emphasis will be placed on how to avoid litigation and what to do in the event you are sued.

AAHP COURSE 2

A COMPREHENSIVE REVIEW OF THE BASIC REGULATIONS FOR TRANSPORTATION OF NUCLEAR MATERIALS; Alfred W. Grella, Grella Consulting Inc.

This course is intended to provide a comprehensive review of the current and basic regulations of the USA for safe transportation of radioactive materials. Principal regulations discussed are those of DOT in 49 CFR Parts 171-178 and NRC in 10 CFR part 71. The international standards basis of U.S. transport regulations as found in IAEA Safety Series No. 6. (SS#6) is discussed, as is the current status of DOT/NRC rulemaking to adopt regulatory revisions based on the 1985 version SS#6. Whether experienced in nuclear transportation activities, or just a beginner, successful completion of this course will provide the attendee with a firm basis of technical knowledge and understanding of the DOT/NRC transport regulations. The course is also designed to be a possible factor an employer might choose to consider in his certification of a hazmat employee's training pursuant to the new training regulation in DOT Docket HM-126F. The course manual will prove to be a comprehensive information resource for future reference.

AAHP COURSE 3

LOW LEVEL RADIOACTIVE WASTE MANAGEMENT, PAST, PRESENT AND FUTURE; F. X. Masse, Massachusetts Institute of Technology

This presentation includes a review of the circumstances leading to Congress' 1980 and 1985 actions shifting the responsibility for siting LLRW disposal facilities to the states and the results of those actions. The regulatory changes following the congressional action are also reviewed. The states' efforts in forming compacts or independently seeking solutions plus the progress of such efforts are summarized.

This entire program has had a profound financial and technical impact on the radioactive materials user community and that impact is analyzed. Drastic changes in waste management are occurring and waste avoidance gains increasing importance as most of the LLW generators in the nation face loss of access to operating LLW sites. The developing techniques in LLW management designed to help radioactive materials users through the impending mandatory storage periods are presented and analyzed.

The impacts these developing techniques are likely to have on the slow-moving site development programs are also discussed. The financial and scientific commitment gradually unfolding in this entire issue is discussed and suggestions made on approaches to consider that might help to avoid or minimize the impending crisis.

NOTE: Each course will earn sixteen (16) continuing education credits.

PROFESSIONAL ENRICHMENT PROGRAM

Sunday, June 26, 1994 through Wednesday, June 29, 1994

The Professional Enrichment Program (PEP) provides a continuing education opportunity for those attending the Health Physics Society Annual Meeting. The topics for the PEP are specifically chosen to cover a broad range of subjects. Some of the sessions are popular repeats from last year and the rest are completely new lectures in response to your suggestions. The two hours allotted each course ensure that the subjects can be discussed in greater depth than is possible in the shorter programs offered elsewhere in the meeting. The class size is limited to allow for interaction between the lecturer and the students.

The speakers, course titles, and the times for each presentation are listed on the following pages. On Sunday, June 26, the day before the Annual Meeting, a series of 40 courses will be offered. These courses are divided into 10 topical areas. The Sunday sessions begin early to allow for 4 sections that day. The program begins at 8:00 a.m. and finishes at 6:00 p.m. These sessions will be completed in time for the Welcome Reception which begins at 6:00 p.m.

On Sunday, June 26, the PEP includes two, two-hour sessions to prepare candidates for Part I and Part II of the ABHP Certification Examination. Some of these are more applicable to those planning to take the exam further in the future, so please read the abstracts carefully to ensure that you register for the session that is appropriate to your needs. These classes are not restricted to those actually registered for the exam. The size of the preparation classes (J1 and J2) are limited to 35. Please note: These sessions are not intended to constitute solid and total preparation for the exam on Monday. These sessions are to give those attendees who have been preparing for the exam an opportunity to have last-minute questions answered and to fine-tune their test-taking skills.

In addition to the above-mentioned sessions for Sunday, five PEP lectures are scheduled on Monday, Tuesday and Wednesday afternoons. Routine PEP attendees should note that the times of the mid-week sessions are 12:15 - 2:15 p.m. again this year, to be consistent with the revised scheduling of the Annual Meeting.

Registration for each two-hour course is $30. Attendees may register for courses in one topic area or may attend courses in several topic areas. Registration will be limited to 60 attendees (except as noted) per course on a first-come, first-served basis. Those whose registrations are received before the pre-registration deadline will be sent confirmation of their PEP course registration.

In order to further the Society's commitment to the next generation of Health Physicists, students with a current ID card will be admitted free of charge to any sessions which still have space available after the waiting list has been admitted. Student admission will be on a first-come, first-served basis and will only begin 15 minutes after the start of the session to allow for completion of ticket processing.

Continuing Education Credits from the American Board of Health Physics have been granted for the PEP. The PEP lecture registration fees should be included with registration fees for the Annual Meeting. The PEP registration is included on the Annual Meeting Pre-registration form. **Note that due to space limitations, purchase orders are not accepted for these courses. You are not considered registered for a course unles payment is included with your form.**

Please Note!!

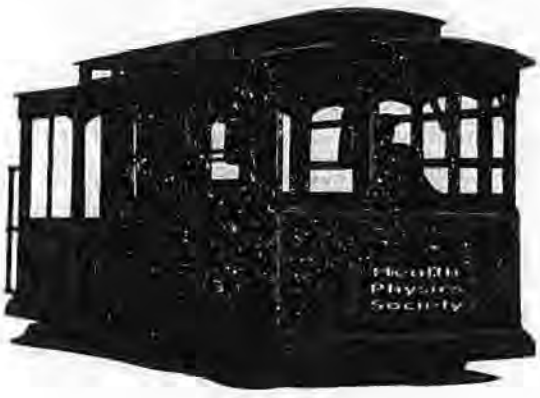
Please remember to be on time for your sessions. The lecturer will begin promptly at the scheduled time. Please allow time for check-in. The HPS reserves the right to schedule a substitute speaker or cancel a session in case the scheduled speaker is unavailable.

Attendees not present at the starting time of the session cannot be guaranteed a space, as empty spaces will be filled from the waiting list at that time. Spaces left after the waiting list has been admitted may be filled with students. If your duties at the meeting cause you to be late for your lecture (e.g., chairing a session), contact the PEP registration desk so that your name can be placed on the waiver list and your space held. We understand that there are circumstances that will prevent you from being on time, but we do not want to turn people away and have empty seats due to no-shows.

PEP Program Categories

Note: Each course is two (2) hours in length and will earn four (4) continuing education credits.

Category A	General
Category B	Dosimetry
Category C	Measurements
Category D	Regulatory/D&D
Category E	Medical
Category F	Incidents/Accidents
Category G	Management/Evaluation
Category H	Communications/Training
Category I	Non-ionizing/Industrial Health
Category J	ABHP Review/Other Topics



Sunday, June 26, 8:00-10:00 am

A-1 (General)

RISK AND "DOSE" IN HEALTH PHYSICS - Daniel J. Strom, Battelle Pacific Northwest Laboratories

Various dose-like quantities have been used as surrogates for risk in radiation protection for years. With its Publication 65, the International Commission on Radiological Protection (ICRP) has broken the link between the sievert, a unit of effective dose, and physical dosimetry in terms of ionizing energy deposited per unit mass. The ICRP has chosen, instead, to make the sievert a risk unit, at least as far as inhalation exposure to short-lived progeny of radon are concerned. This PEP course provides a review of the evolution of the various dose-like quantities and various human health risks (and benefits) ascribed to radiation throughout the history of radiation protection. The roller-coaster relationship between risk and dose is presented, as are recent developments such as International Commission on Radiation Units and Measurements Publication 51. Also provided is a discussion of what we believe as scientists in contrast with what we do as health physicists to manage risks from exposure to ionizing radiation. Examples of scientific facts that are at odds with radiation protection practices include the linear-quadratic dose-response relationship, relative biological effectiveness as a variable function of dose and endpoint, age and gender dependence of risk per unit dose, and the difference in risk associated with a 50-year committed dose and an acute dose of the same magnitude. The reasons for our current risk management policy choices are discussed.

B-1 (Dosimetry)

INTERNAL DOSIMETRY BY MIRD AND MIRDOSE: THEORY AND DOSE CALCULATIONS - Wesley E. Bolch, Texas A&M University

The safety assessment of potential new imaging agents requires the determination of their biokinetics and resulting absorbed dose distributions. The MIRD methodology has been used for a number of years to compute internal dose from radiopharmaceuticals. The software package MIRDOSE provides a routine to utilize biokinetic data in the computation of average absorbed doses to organs of interest. While this methodology was

intended for use in nuclear medicine, it has been widely used in radiation protection. This course will review the MIRD methodology and will provide instruction on the use of MIRDOSE which is written for IBM-compatible PCs. Approximately one-half of the course will be devoted to formal instruction in the use of MIRD methodology and one-half devoted to applications in nuclear medicine and radiation protection. Each student will receive information on obtaining a free copy of the program. MIRDOSE Version 3 will be featured. This version includes the standard Cristy & Eckerman family of pediatric phantoms as well as three new phantoms describing pregnant women at various stages of gestation.

C-1 & M-4 (Measurements)

RECENT TRENDS IN RADIATION DETECTORS - Glenn F. Knoll, University of Michigan

Recent developments in methods for the detection and spectroscopy of ionizing radiation will be reviewed, with emphasis on those that hold promise for improving measurement capabilities over the next decade. Topics will include new scintillators, photodetectors, advanced semiconductor materials and configurations, microstrip gas detectors, and other devices under active development. Applications will also be shown of novel gas-filled detectors, liquid and plastic scintillators, position-sensitive detectors, and digital pulse processing techniques.

D-1 & W-4 (Regulatory/D&D)

IMPLEMENTATION OF THE REVISED 10 CFR PART 20 - Donald A. Cool & Charleen T. Raddatz, U.S. Nuclear Regulatory Commission

On May 21, 1991, the U.S. Nuclear Regulatory Commission published the revision to 10 CFR Part 20, "Standards for Protection Against Radiation" in the Federal Register. The rule became effective 30 days later. All NRC and Agreement States licensees implemented the revised rule on January 1, 1994. This course will cover the revised rule and the regulatory guides developed by NRC staff to assist licensees in implementing it. Common questions and implementation issues will be addressed.

E-1 (Medical)

ESTIMATION OF TISSUE DOSES IN DIAGNOSTIC RADIOLOGY - Edward A. Tupin, Food and Drug Administration

The course will show the student how to estimate the doses to various tissues of reference patients undergoing diagnostic x-ray procedures. The course will cover the methodology used in an available computer program for tissue doses in diagnostic radiology, the use of various CDRH Handbooks and other practical approaches found in the literature. Example cases for a variety of x-ray examinations will be worked out, including mammography, computed tomography, upper GI fluoroscopy, and common radiographic projections. This information is useful in answering questions regarding risk to the unborn and of developing cancer which are frequently asked by patients and practitioners. Additionally, it can be used as part of the quality assurance program in the radiology department.

F-1 (Incidents/Accidents)

WHAT CAN GO WRONG AND HOW TO PREVENT IT - Bruce S. Mallett, U.S. Nuclear Regulatory Commission

Each year, the Nuclear Regulatory Commission (NRC) receives information concerning events covering a wide range of health physics problems. Each of these events pose unique health physics challenges to evaluate the information and determine the appropriate response. All health physicists will encounter events such as these and the lessons learned are an important addition to a health physicist's practical experience. This session will acquaint the participant with issues that should be considered when making response decisions and explore how these issues relate to some events to which the NRC has responded over the last few years. Case studies of events will include overexposures of individuals using radiography sources, spread of contamination into unrestricted areas accessible to large numbers of the public, spread of contamination from radioactive sources inadvertently cut open, chemical reactions at fuel facilities, loss of sources, medical radioactive waste sent to landfills and problems with source retrieval in brachytherapy.

G-1 (Management/Evaluation)

RADIOLOGICAL ENGINEERING: DESIGN AND CONSTRUCTION OF NUCLEAR FACILITIES - Bruce J. Dionne, Brookhaven National Laboratory, Steven Masciulli, Vertechs Corporation & John M. Connelly, U.S. Department of Energy

The state of radiological safely technology has advanced significantly in the United States since the early design of medical X-ray facilities in the 1920s, the initial design of the nuclear weapons complex in the 1940s, and the design for the first commercial nuclear power plants in the late 1950s. The design, engineering, and construction processes that have evolved in the medical, government, and industrial sectors are very elaborate - the period from receipt of the construction permit to initial operation of a major nuclear facility can span over a decade. The objective of this course is to briefly review the design and construction process for government and commercial nuclear facilities and to describe how radiological engineers currently integrate radiological safety into these processes.

Topics to be included are: environmental impact statements; Department of Energy and Nuclear Regulatory Commission requirements for radiological safety in facility design; conceptual design criteria; functional design criteria; radiological hazard severity categories; safety analysis reports; dose assessments; shielding codes and other radiological software; ALARA design reviews; optimization; ALARA training of architects, engineers and construction planners; technical safety requirements and technical specifications; and operational readiness reviews and startup testing. Handouts will be provided on some of the applicable references, regulations and standards, as well as a list of computer programs that are typically used by radiological engineers.

H-1 (Communications/Training)

TEACHING RADIATION PROTECTION USING NON-TRADITIONAL TECHNIQUES - J. Ellsworth Weaver III, Pacific Gas & Electric - *Class size is limited to 30 students.*

Radiation protection information is often contained within difficult to read procedures, regulations, regulatory guides, and other documents. Although the information may be difficult to read and understand, it remains vitally important to master. The traditional approach to instruction on this information is the "stand and deliver" lecture. Lectures bore students because they must remain a passive audience. Bored students make for uninformed students. Games and other non-traditional approaches provide a means for helping people learn by getting them involved. Rote memory, scorned by some trainers, can provide a foundation for acquiring higher knowledge and skills. Factual recall can also serve as a source of credibility for subject matter experts. This class explores methods to break through the stifling boredom and to enjoy oneself while learning. This is not a lecture. Students will use copies of A Brief Chronology of Radiation and Protection provided by the instructor to compete for mastery of the history of their science.

I-1 (Non-Ionizing/Industrial Health)

FUNDAMENTALS OF NON-IONIZING RADIATION PROTECTION - John A. Leonowich, Battelle Pacific Northwest Laboratory

No prior knowledge of the field is required. It is clear that the use of non-ionizing radiation (NIR) continues to cause concern to both workers and the general public. Many misconceptions have clouded the appreciation of the actual hazards associated with this type of radiation. This course will review the fundamentals of NIR protection and will provide the basis for the health physicist to pursue further study in this area. Included among the topics to be covered are: radiofrequency and microwave radiation (3 kHz 300 GHz), lasers, optical and ultraviolet sources, and extremely low frequency (ELF) electromagnetic fields (0-3 kHz). 1992 marked the release of extensive revisions to both the ANSI/IEEE Radiofrequency/ Microwave Standard and the ANSI Z136.1 Laser Standard. Both these revisions will be reviewed, as well as the ACGIH recommendations for magnetic fields and non-coherent optical radiation. Detailed outlines of each area discussed will be provided to each participant.

J-1 (ABHP Review/Other Topics)

PREPARATION FOR PART I OF ABHP CERTIFICATION EXAMINATION - Clayton S. French, University of Massachusetts, Lowell
Class size limited to 35 students.

This course is intended for individuals who are planning to take Part 1 of the ABHP certification examination. A brief review will be given of techniques and methods for preparing for the ex-

amination and strategies for taking the examination. Most of the session will be devoted to discussions of questions similar to those on the ABHP examination and to consideration and discussion of specific questions from workshop participants. A handout will include practice questions similar to those on the ABHP examination.

Sunday, June 26, 10:30 am-12:30 pm

A-2 (General)

INTERNAL DOSIMETRY AND 10CFR20 - John W. Poston, Sr., Texas A&M University

The "new" standards for protection against radiation (10CFR20) were implemented effective January 1, 1994 by all NRC and agreement state licensees. These regulations require the addition of external and internal radiation exposure and the controlling of the total effective dose equivalent within a single dose equivalent limit. In addition, the approaches to internal dose assessment, using the ICRP Publication 30 techniques, have changed. For these reasons, internal dose assessment has taken on a new importance. This presentation will address the NRC recommended approaches to internal dose assessment and the documents and other guidance available for use in such assessments. Included in the discussion will be a series of problems to illustrate the use of these important documents.

B-2 (Dosimetry)

INTERNAL DOSIMETRY BY MIRD AND MIRDOSE: BIOKINETIC MODELING - Michael G. Stabin, Radiation Internal Dose Information Center

Often, the most difficult parameter to obtain for solution of the MIRD internal radiation dose equation is the residence time (or cumulated activity), which gives the area under the time activity curve, for an organ, a tissue, the whole body, etc. In an internal dosimetry problem, the kinetics of all source regions must be characterized in order to calculate all contributions to the radiation dose to some target region. After the kinetics are well characterized, the area under the time-activity curves for these source regions must be estimated. This program will demonstrate through description and example several approaches to the characterization of source region kinetics and integration of the time-activity curves. The use of direct integration, least squares, and compartmental modeling techniques will be discussed, and results using the different methods will be compared. Theoretical aspects of the different approaches will be described as time permits. Inclusion of the results of biokinetic modeling into the MIRD (and other) calculational systems will be explained and demonstrated. This session is a companion to the session on the calculational techniques of internal dosimetry by MIRD and MIRDOSE.

C-2 (Measurements)

LOW-LEVEL ENVIRONMENTAL MEASUREMENTS - Carl V. Gogolak, USDOE, New York

Measurements of environmental gamma radiation exposure using both active (e.g. PICs) and passive (e.g. TLDs) methods. Instrument characteristics, calibrations, and considerations specific to environmental deployment. Quality assurance and standards. Background radiation, its components, and how they vary both spatially and temporally. Background subtraction techniques. Interpretation of results.

Radionuclide specific measurements using field spectrometry. Rapid methods for spectrometer calibration. Examples include monitoring near light water reactors during nomal operation, TMI, Chernobyl, and atmospheric weapons fallout episodes.

D-2 (Regulatory/D&D)

A REVIEW OF BASIC AND CURRENT NUCLEAR TRANSPORTATION REGULATIONS - Alfred W. Grella, Locust Grove, VA

This course provides a basic overview of the current regulations in the USA for safe transportation of radioactive materials of all types, including low level waste, industrial and medical materials, fresh fuel and spent nuclear fuel. The international standards basis of the regulations is discussed, followed by a description of regulatory agencies and their interfaces. The system for limiting package activity, radiation and contamination limits, packaging types, and hazardous materials communications requirements are discussed. The new DOT rules for training of hazardous materials employees are also discussed. If the major revisions proposed to DOT/NRC regulations have not yet been finalized, a brief summary of the proposed amendments will also be provided. If the amendments have been finalized, the subjects mentioned above will all be geared to the revised regulations. The short course is geared to

a technical, professional audience, assuming some awareness of radiation protection principles, but generally little awareness of transportation regulations.

E-2 (Medical)

HEALTH PHYSICS CONCERNS IN RADIOLOGY - K. David Steidley, Saint Barnebas Medical Center

Medical diagnostic x-ray units will be discussed with respect to their (a) principles of operation, (b) design features, and (c) characterization as radiation sources. From that understanding we will focus on the science and art of shielding design in the detail as well as the practical aspects of the survey of the environs. Special purpose units such as dental, CT, and fluoroscopic machines will be included. An overview will be given of the measurements of operational parameters such as kilovoltage and tube current. The use of necessary instrumentation will be addressed. There will be a brief discussion of personnel radiation protection and dosimetry. This course is tailored primarily for health physicists who have partial responsibility in the medical health physics area but no prior experience in the area is assumed.

F-2 (Incidents/Accidents)

RADIATION ACCIDENTS - LESSONS LEARNED - Robert C. Ricks, Oak Ridge Institute for Science and Education

The REAC/TS Radiation Accident Registries contain information on more that 365 radiation accidents with significant exposure/contamination using dose criteria established by the U.S. DOE and NRC. Historical review reveals a number of factors contribute to human accidental overexposure. These factors include but are not limited to design failure, improper training, failure to follow established procedures, inadequate supervision, lost or mishandled sources, and human factors.

This presentation will summarize accident statistics and review selected case histories and lessons learned. An update of the Cs-137 accident in Brazil (1987) will be presented as well as information on recent accidents in the Peoples Republic of China and Russia.

G-2 (Management/Evaluation)

A GENERIC APPROACH TO HEALTH PHYSICS PROGRAM APPRAISALS - Larry R. McKay, Jackson, MS

All Health Physics Programs have common elements. This lecture will focus on those elements and discuss methods for conducting beneficial performance-based appraisals, regardless of the type and mission of the particular nuclear installation. Case studies of effective and ineffective Health Physics policies, procedures, and practices; trending of Health Physics data performance indicators; and specific recommendations for planning, conducting, and reporting Health Physics appraisals will be included.

H-2 (Communications/Training)

COMMUNICATION SKILLS FOR HEALTH PHYSICISTS - Joel I. Cehn, Applied Sciences Co. - *Class size limited to 30 students.*

This course will focus on communicating orally with the public, especially about risk. Topics will include preparation (what information to use and how to use it), building trust, non-verbal cues and media interview. The course will review the do's and don'ts to observe during a public meeting, interview or other event. Attendees will actively participate in the session by relating their past experiences, raising questions and issues, and making short presentations. Attendees should prepare a 5-minute presentation on a subject of their own choosing, prior to the session.

I-2 (Non-Ionizing/Industrial Health)

DUTIES OF THE LASER SAFETY OFFICER - Ken Barat, Lawrence Berkeley Laboratory

The laser safety officer (LSO) is the responsible person for laser safety at any facility. The class will review the duties and of a LSO, per ANSI and OSHA laser safety standards and requirements. Laser safety control measures (administrative and engineering) will be discussed, along with current laser safety issues. In addition, a description of the laser hazard classification will be presented.

J-2 (ABHP Review/Other Topics)

PREPARATION FOR PART 2 OF ABHP CERTIFICATION EXAM - George E. Chabot, University of Lowell - *Class size limited to 35 students.*

This course is intended for individuals who are considering or planning to take Part 2 of the ABHP certification examination. Some time will be spent in a quick review of techniques/methods for preparing for the examination and strategies

for taking the examination, but most of the time will be devoted to a review of the concepts and technical approaches involved in the solutions of typical examination questions. Representative questions from past examinations will be reviewed and solutions demonstrated. A handout will include a summary of selected equations and concepts that appear frequently in the solutions to certain categories of questions. Specific questions by course participants will be addressed during the presentation and the instructor will be available to discuss additional questions following the presentation.

Sunday, June 26, 1:30-3:30 pm

A-3 (General)

CONCERNING THE RELATIVE BIOLOGICAL EFFECTIVENESS OF RADIATIONS OF DIFFERENT QUALITY - Otto G. Raabe, University of California

This class will be an overview of information and analyses on the relative biological effectiveness (RBE) of exposures to different types of ionizing radiation based on a review of the scientific literature and some research findings of the instructor. Emphasis will be on RBE values for radiation-induced cancer induction and systemic injury, but a variety of observations will be considered including cytogenetic effects, cellular effects, tissue effects, and organ effects for alpha, beta, gamma, X-rays, protons, heavy ion and neutron irradiation studies. Radiation quality is usually presumed to be the main variable, but the effect of other factors such a dose distribution, exposure timing, and time to effect are considered. The RBE for fission neutrons with respect to gamma rays has been reported to vary from 35 to 53 in cytogenetic studies of human Lymphocytes in culture, from 3 to 80 for DNA cellular transformation studies, from 5 to 70 for genetic endpoints in mammalian systems, from 2 to 100 for genetic endpoints in plant systems, from 10 to 46 for life shortening in the mouse, and from 16 to 59 for tumor induction. Clearly the simplistic concept of having a single quality factor, Q, for each type and energy of radiation for radiation protection purposes is not supportable by these observations. This issue and others concerning the use of RBE and Q in radiation protection and risk assessment are reviewed and discussed.

B-3 (Dosimetry)

EVERYTHING THE OPERATIONAL HEALTH PHYSICIST SHOULD KNOW ABOUT TLD DOSIMETRY, BUT DIDN'T KNOW TO ASK - Paul E. Ruhter & O. Ron Perry, EG&G Idaho, Inc.

Operational Health Physicists are accustomed to receiving periodic radiation exposure reports from their dosimetry vendor indicating the results of the TLD dosimeters worn by the radiation workers. These results are only a superficial display of the considerable amount of information that is available from a multi-element TLD dosimeter. The relative response of the several dosimeter elements can reveal such information as the type of radiation and the energy level of beta and photon radiations, as well as unusual exposure conditions. The significance of Minimum Reporting Level and the response of TLDs to exposures in this range will be discussed. Other topics will include the interpretation of multi-badging results, a recent development in low-dose-rate neutron dosimetry, and records keeping and management.

C-3 (Measurements)

EVERYTHING BUT THE COUNTING STATISTICS: MEASUREMENT ERRORS AND PITFALLS IN RADIOLOGICAL MEASUREMENTS - Ronald L. Kathren, Washington State University at Tri-Cities

This short course will present an overview of common but oft ignored or unrecognized sources of error in radioactivity and dose measurements other than counting statistics. Thus, this is not a course in counting statistics but rather deals with the identification and potential magnitude of other potential sources of error or interferences along with advice on the practical means of avoiding, eliminating or minimizing errors or uncertainties in both laboratory and field determinations of activity and dose. The emphasis is on operational health physics measurements and will include consideration of the following specific topics:

a) The sampling process:

Collection, representativeness, collection and preparation

b) Non-statistical errors of counting

c) Electromechanical, radiological and human factors aspects of operational measurements in the field

d) Abuse and misuse of common measurement terminology

D-3 (Regulatory/D&D)

NEPA COMPLIANCE - Charles D. Massey, Sandia National Laboratories

The National Environmental Policy Act (NEPA) has specific requirements for assessing and documenting potential environmental impacts before a federal agency makes certain decisions. The lecture will be designed to provide basic information on the NEPA process from a preparer's standpoint. The lecture will cover the NEPA document preparation process from initial activities to final document issuance. Primary focus will be placed on preparation of Environmental Assessments (EAs) for Department of Energy (DOE) activities. The content and format of EAs will be discussed, along with tips on what to do and not to do in their preparation. Questions on defining alternatives, determining the affected environment, and how to estimate environmental impacts will be addressed. Experience with several recently issued EAs involving radioactive materials will be drawn upon for many of the "lessons learned". Additionally, the latest trends from incorporating cumulative impacts to environmental equity will be described. At the conclusion of the lecture a participant will be understand the EA process and what makes a good NEPA document.

E-3 (Medical)

HEALTH PHYSICS IN NUCLEAR MEDICINE - Richard J. Vetter, Mayo Clinic

This course will provide an overview of the principles of radiation protection in diagnostic and therapeutic Nuclear Medicine. Subjects will include program management, sources of radiation exposure, facility design (especially shielding and ventilation), personnel and facility monitoring, environmental concerns and the NESHAP, patient and family protection, ALARA, impact of the revised 10 CFR Part 20, assessment and calculation of internal dose including effective dose, response to misadministrations, and emergency response. Sample problems and solutions will be provided.

F-3 & T-1 (Incidents/Accidents)

HISTORY OF RADIATION EXPERIMENTS UTILIZING HUMAN SUBJECTS - Bernard L. Cohen, University of Pittsburgh

There has been wide media publicity recently about numerous radiation experiments utilizing human subjects in 1943-1972. These experiments will be reviewed, discussing their purposes, the radiation doses involved, and the expected radiation health impacts at the time of the experiments and in the light of present knowledge. Issues of secrecy and of informed consent will be addressed. The recent handling of this matter by the media and by DOE will be discussed.

G-3 (Management/Evaluation)

TOTAL QUALITY MANAGEMENT (TQM): THE JOURNEY FROM AWARENESS TO DIAGNOSING PROBLEMATIC ROOT CAUSES; TO THE DECISION TO CHANGE; TO EFFECTIVE IMPLEMENTATION WHILE MINIMIZING BUREAUCRATIC HURDLES - Mary-Michelle A. Khadabux, The Bryce Consortium, Inc.

During recent years, the concepts of TQM have taken a front-row seat at the discussion tables in every office of Corporate, Government and Academic America. Given the press and other communication media coverage not to mention, the political emphasis on the issue, it would be very difficult for anyone to have been able to ignore the fact that "TQM is among us". at this stage in the process, Total Quality Awareness and Acceptance within the various constituencies is not as much of an issue as is the question of how does one practically set in motion a sustained implementation. many have begun the process only to find that they are unable to effectively get beyond identifying the symptoms of the problems and move to identifying the intrinsic root causes - often the diagnosis has been incomplete. A further impact of these implementation programs are the organization structures (Task Force Teams) and the responsibilities of these Teams that are configured to develop solutions and methodologies - often, they get to a roaring start but are stymied by internal politics, lack of time, waning senior management interest and budget constraints.

This interactive session will focus on the ways to use diagnostic tools to optimally identify "root causes" rather than just the symptoms of inefficiency leading to a lack of quality. in the second half, it will focus on the ways to effectively organize TQM Teams as well as the techniques used to motivate individual Team members to bring their best to "the table". Further, we will discuss the ways to avoid some of the bureaucratic hurdles that can be insidiously inherent in the process.

H-3 (Communications/Training)

SOLVING PROBLEMS USING GROUPS - PART 1 - James Tarpinian, Bechtel Construction Company - *Class size limited to 25 students.*

Many times we are called upon to find solutions to problems which may affect many people or cross organizational lines. Generally such solutions require consensus building - a very difficult and time consuming process that sometimes yields results of varying quality. (It has been said that a camel is a horse that was engineered by committee!). This class teaches systematic methods for solving problems using groups. The techniques are drawn from a variety of resources and include brainstorming, building affinity diagrams, consensus voting, and managing effective meetings. These techniques, when properly applied, yield high quality results, build teamwork, and empower individuals. As a special bonus, the participant will learn a proven cure for the writer's block!

This course is of interest to the general audience, health physicists, managers and supervisors. The principles will be explained and immediately reinforced by sample exercises. All the participant needs to bring to the class is an open mind, a positive attitude, and a sincere desire to have FUN! This class is a prerequisite to "Solving Problems Using Groups - Part 2."

I-3 (Non-Ionizing/Industrial Health)

THE IDENTIFICATION AND CONTROL OF NON IONIZING ELECTROMAGNETIC HAZARDS (O - 300 GHz) - John A. Leonowich, Battelle Pacific Northwest Laboratory

Provide practicing health physicists, industrial hygienists, and other occupational health professionals with an in-depth introduction to the physical theory, biological effects. and measurement of electromagnetic fields with frequencies from 0 to 300 GHz (ELF, RF and microwave). Epidemiological and other health studies which apply to occupational exposures to electromagnetic fields will be discussed. Current occupational standards will be reviewed; paying particular attention to those consensus standards widely adopted in the United States such as ANSI/IEEE C95.1 and the ACGIH TLVs. Class participants will be given an insight into calculations required to estimate the hazards associated with electromagnetic fields; as well as proper techniques, documentation, and interpretation of field measurements. The Safety Analysis of Radiating Antenna Hazards (SARAH) computer code will be introduced. Current controversial topics such as cellular phones, police radar, and video display terminals will also be discussed. Upon completion of this PEP course, participants will be introduced to the issues which need to be addressed in order to set up an occupational health program to control the potential hazards associated with electromagnetic fields. It is recommended, though not required, that participants have attended introductory PEP course, Introduction to Non-ionizing Radiation.

J-3 (ABHP Review/Other Topics)

RISK OPTIMIZATION IN THE 21st CENTURY - Charleen T. Raddatz, U.S. Nuclear Regulatory Commission - *Class size limited to 35 students.*

This highly interactive workshop will examine how risk is managed in the United States. We will cover some of the many papers and books on risk and risk management, the ICRP approach to risk management, and an example of NRC's implementation of risk management goals in the form of the Revised Part 20. Then we will together try to develop an ideal model for risk management as well as ideas as to how the U.S. approach could be improved. Don't look for a lot of answers in this course. But, the questions should be interesting.

Sunday, June 26, 4:00-6:00 pm

A-4 (General)

THE NATURAL RADIATION ENVIRONMENT - Richard E. Toohey, Washington State University

This course will present a comprehensive overview and discussion of the natural radiation environment. The components of this environment, namely cosmic rays, and cosmogenic, terrestrial, and internally deposited radionuclides, contribute an average effective dose of 3ámSv annually to every individual. Special emphasis will be placed on the members of the 4n and 4n+2 radioactive decay chains as sources of NORM (naturally occurring radioactive material). Detailed discussions of the distributions and doses resulting from these materials in the contexts of indoor radon, radioactivity in drinking water, and technologically enhanced NORM, such as oil production wastes and uranium and thorium processing wastes, will be included. The current regulatory aspects of NORM will also be described.

B-4 (Dosimetry)

BETA/HOT PARTICLE DOSIMETRY - Sydney W. Porter, Jr., Porter Consultants, Inc.

This class will cover the aspects of beta and hot particle dosimetry. 1) A review of the available detection and survey instruments and their limitations, including a comparison of gamma and beta responses. 2) A discussion of critical organs for beta radiation and the dose to these organs from various beta sources, (including noble gas immersion). 3) A review of the principles of personnel dosimetry (TLD and film) and interpretation of dosimeter readings. The difficulties of measuring the low energy betas from Xe-133 and Co-60 will be discussed in detail. Beta-gamma dosimetry testing standards will also be discussed. 4) The measurement of dose from finite noble gas clouds will be briefly reviewed. The use of survey meters to measure semi-infinite noble gas clouds is well established. What happens when the cloud is finite (smaller than semi-infinite)? 5) Data from nuclear generating stations will be used to take the student through realistic calculations of beta dose from skin contamination incidents, including: a) skin contamination dose from hot particles, and skin contamination dose from distributed sources, and c) rules of thumb for average situations.

C-4 (Measurements)

QUALITY ASSURANCE ON TLD ANALYSIS - Michael W. Lantz, Arizona Public Service Company

A number of quality assurance practices and technical problems discovered during this NIST Technical Expert's Dosimetry NVLAP assessments will be presented. The course objective will be to present the major recurring problems discovered within dosimetry programs and to provide quality assurance processes that can both identify and resolve these problems.

D-4 (Regulatory/D&D)

MEASUREMENT REQUIREMENTS FOR D&D - Edward Walker, Bechtel National Inc.

This session will discuss the measurement requirements for decontamination and decommissioning activities. The discussion will include instrument selection and use for characterization, operational support, and final release surveys. In addition, the discussion will focus on the operating performance characteristics of various instruments to field measurements, and relationships of calibration/check source responses to conditions in the field. Furthermore, the discussion will include references to standards that will assist the instrument user in the conduct of D&D activities. The speaker will present instrument data, including curves and relationships based on analytical, as well as experimental results.

E-4 (Medical)

INTRODUCTION TO THE PHYSICS OF MAMMOGRAPHIC IMAGING AND QUALITY - Charles C. Chamberlain, S.U.N.Y. Health Science Center

Currently, breast cancer is second only to lung cancer in importance as to cause of death by cancer, resulting in 18% of all cancer deaths in women. Early, accurate diagnosis of breast lesions has a potential to significantly reduce mortality from this disease. At the present time, x-ray mammography is the only means available for the earliest detection of breast cancer. The production of a high quality diagnostic mammogram is arguably the most challenging task in radiologic imaging, involving a high degree of expertise on the part of the radiologist who reads the films, the x-ray technologist who positions the patient and makes the exposure and the medical health physicist who must evaluate the proper functioning of the imaging system. A goal of this course is to present the currently accepted testing techniques in mammography for those health physicists who may be anticipating becoming involved in area and to act as a review for the more experienced health physicist. The course will review the physics of mammography as a basis for understanding the design of contemporary mammographic x-ray units and test procedures. Discussion will then cover the selection and use of test equipment and testing techniques for collimation, focal spot size, x-ray tube potential, beam quality, automatic exposure control, breast entrance exposure, average glandular dose, image quality and artifact evaluation. Data analysis and acceptance limits will be covered as will the role of the medical health physicist in assessment of the mammography site's overall quality control program. Discussion will include implications of the Mammography Quality Standards Act of 1992, as time permits.

F-4 (Incidents/Accidents)

RADIATION INJURY: HOW WILL IT BE HANDLED IN OUR COURTS? - David S. Gooden, St. Francis Hospital

We appear to be entering a period of increased litigation for alleged radiation injury. This professional enrichment program seeks to give the health physics professional a brief refresher in radiation injury and an introduction to the litigation of radiation injury. Both acute radiation injury and late radiation injury (i.e., cancer) will be discussed. How radiation injury will likely be handled by our legal system, and the health physics professional as a legal expert, will be the primary focus of the presentation.

Specific topics will include:

General:

Acute and late radiation injuries; Radiation damage to the cell; Bodily injury due to radiation; Sources of scientific data; and Mathematical models.

Legal:

Jurisdiction; Negligence (duty, breach of duty, causation, & injury); Strict liability; Evidence considerations; and Defense considerations.

G-4 (Management/Evaluation)

RADIATION SAFETY INFORMATION MANAGEMENT - W. Williams Schadt, Radiation Technology, Inc.

The course is intended for persons who manage operational radiation safety programs at research institutions, universities, DOE laboratories, and pharmaceutical companies. Students will be presented with a detailed analysis of managing a radiation safety program using CHAMMP, a comprehensive and fully integrated PC LAN based information system incorporating license management, inventory control, waste management, dosimetry, training, inspections, equipment, sealed sources, transfers, calibrations, scheduling, cost tracking, and audits.

The design is based on the work of the RIM (Radiation Information Management) Task Force of the Campus Radiation Safety Officers and incorporates the recommendations of NCRP Report No. 114 and the most recent requirements of 10 CFR Part 20.

Computer demonstration disks will be available for attendees. Also, you may want to bring a portable, battery-powered DOS computer that uses 3.5" disks and work along with the instructor. However, a computer is not required.

H-4 (Communications/Training)

SOLVING PROBLEMS USING GROUPS - PART 2 - James Tarpinian, Bechtel Construction Company - *Class size limited to 25 students.*

This class is a continuation of "Solving Problems Using Groups - Part 1". Class participants must register for Parts 1 and 2 together.

I-4 (Non-Ionizing/Industrial Health)

INDUSTRIAL HYGIENE FOR HEALTH PHYSICISTS - Ross Grayson, University of California

This course will provide instruction and information on the fundamental principles and practices associated with Industrial Hygiene. Topics will include health hazards, laws and standards; sampling and analysis methods; engineering controls and protective equipment; and workplace exposure assessment, modeling and evaluation.

J-4 (ABHP Review/Other Topics)

ENVIRONMENTAL DOSE RECONSTRUCTION - Paul G. Voilleque, MJP Risk Assessment, Inc.

Environmental dose reconstruction activities are currently underway at a number of sites in the United States that were active in the development of nuclear weapons and other national defense work in the 1940s and later years. This course describes essential elements of such projects, including: document searches, identification of the most important effluent discharges, evaluation of historic release data, estimating releases that were not measured, evaluating a variety of historic environmental monitoring data, developing models of environmental transport suitable to the site being studied, estimating doses that were received by nearby residents, and two-way communication with individual members of the public and public interest groups. The course is intended for to be suitable for any HPS member with an interest in the subject.

Monday, June 27, 12:15-2:15 pm

M-1

BASIC RADIOLOGICAL PROTECTION FOR TRITIUM FACILITIES - Douglas G. Draper, EG&G Mound Applied Technologies

This course will generally consider the physical properties of tritium, the radiological hazards associated with exposure to common (and also some of the not-so-common) chemical forms of

tritium, and some of the applications of tritium in the commercial world. Broad overview discussions will include containment principles, facility design considerations, detection and measurement instrumentation, airborne radioactivity and contamination monitoring, protective clothing considerations, dose calculations, ALARA principles and emergency response. The focus of the presentation is toward the Health Physicist who is assigned to a tritium facility or who is responsible for the planning, oversight, or monitoring of processes involving tritium. The remainder of the class will focus on some of the current trends and special problems encountered in tritium handling.

M-2

CURRENT APPROACHES TO REGULATING PUBLIC EXPOSURES TO RADIONUCLIDES AND HAZARDOUS CHEMICALS - David C. Kocher, Oak Ridge National Laboratory

Under current law and regulations, two different regulatory approaches are used to limit exposures of the public to carcinogens in the environment. The different regulatory approaches apply to (1) radionuclides only as regulated under authority of the Atomic Energy Act - i.e., to source, special nuclear, and byproduct materials associated with the nuclear fuel cycle, and (2) radionuclides and chemical carcinogens or chemical carcinogens only as regulated under authority of other laws (e.g., the Safe Drinking Water Act and Clean Air Act). This course discusses the two different regulatory approaches, the resulting inconsistencies in lifetime cancer risks that are regarded as "unacceptable", and the potentially adverse impacts of the current regulatory approach for chemical carcinogens on the traditional approach to regulating radiation exposures of the public. A proposed regulatory framework is discussed that would provide more consistent regulation of public exposures to all carcinogens, regardless of their source. The basic elements of the proposed regulatory framework include (1) a de manifestis risk, above which regulatory action to reduce risk would be taken regardless of cost, (2) a de minimis risk, below which regulatory action to reduce risk would be unwarranted, and (3) reduction of risks above de minimis levels as low as reasonably achievable (ALARA), taking into account cost and societal concerns. The proposed regulatory framework is shown to be consistent with all current regulations and guidances for limiting risks to the public from routine and accidental exposures to radionuclides and chemical carcinogens, provided the notion of an "unacceptable" risk is interpreted properly.

M-3

INDOOR RADON: SOURCES AND SOLUTIONS - Ronald B. Mosley, U.S. Environmental Protection Agency

This course will present an overview of the indoor radon phenomena including the sources and some solutions. Its production and transport in soil as well as the mechanisms for entry into buildings will be discussed. Methods for measuring indoor radon will be presented. A number of mitigation strategies will be discussed. Issues that influence the selection and design of mitigation approaches will be presented. Details of implementing the design of particular radon reduction methods will also be presented. Many of the results of EPA's Radon Research/Development/Demonstration Program will be integrated into the course. While the course will be oriented toward those with limited or no experience in radon measurements and mitigation, some of the details will be of interest to experienced radon mitigators.

M-4

RECENT TRENDS IN RADIATION DETECTORS - Glenn F. Knoll, University of Michigan

SEE PEP C-1 WRITE-UP

M-5

SKIN DOSIMETRY AND VARSKIN 2 - James S. Durham, Battelle Pacific Northwest Laboratory

As the nuclear industry in the United States moves from production to remediation, particularly in the Department of Energy, the potential for and incidence of skin contamination will increase. This course will present the basic fundamentals of skin dosimetry and provide a detailed discussion of VARSKIN 2, a powerful computer code used to estimate skin dose. Both uniform and particulate skin contaminations will be discussed. The biology of skin will be presented, followed by national and international recommendations and regulations for skin dose. Finally, the computer code package VARSKIN 2 will be discussed and demonstrated. Because the issues in skin dosimetry are reflected in VARSKIN 2, the

computer code will be used as a vehicle for detailed discussions of the important considerations in skin dosimetry. Operation of the code will be demonstrated.

Tuesday, June 28, 12:15-2:15 pm

T-1

HISTORY OF RADIATION EXPERIMENTS UTILIZING HUMAN SUBJECTS - Bernard L. Cohen, University of Pittsburgh

SEE PEP F-3 WRITE-UP

T-2

DOE's 10 CFR PART 834, RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT; STATUS AND DIRECTION - Andrew Wallo III and Harold T. Peterson, Jr., U.S. Department of Energy

On March 25, 1993, the Department of Energy issued for public comment proposed standards for protection of the general public and the environment from radiation and radioactive materials released from DOE facilities. This course will describe the contents of that rule, outline the public comments received in response to the notice and highlight some of the major issues that are being resolved. The course is intended for DOE headquarters and field personnel and contractors involved in the operation or remediation of DOE facilities. Future plans including the estimated schedule and planned supplementary guidance will also be discussed.

T-3

AUDITING TECHNIQUES FOR THE HEALTH PHYSICIST - Christopher Martel, Arthur D. Little, Inc.

This course is designed for the professional who is knowledgeable of health physics principles and applicable NRC and DOE regulations, and desires to complement his or her skills with the ability to conduct effective, comprehensive audits. This course will provide the professional with information on the type of audits that can be conducted, an approach to selecting the appropriate audit type, and detailed instructions on implementing an audit. A description of skills and techniques that have proven to be the most effective in conducting audits of DOE and NRC-licensed facilities will also be provided.

T-4

CURRENT ISSUES IN RADIATION LITIGATION - David J. Wiedis, Jose & Wiedis

This lecture will begin with a discussion of basic legal concepts which are fundamental to understanding radiation litigation. Among the topics covered will be how lawyers investigate a radiation case, how the case proceeds from the incident through the discovery process, the role of the health physicist in investigation and trial, preparation for trial, and trial. Practical examples from cases will include strategy developed from depositions and trial. We will also examine issues currently being litigated in this field. These include: the role of the federal dose standards, ALARA, "junk science", the Supreme Court's recent Daubert decision, what constitutes compensable injury, what is adequate proof of causation, and probability of causation. Emphasis will be placed on how to avoid litigation and what to do in the event you are sued.

T-5

ISSUES AND REGULATIONS REGARDING VERY LOW LEVEL RADIOACTIVE WASTE -Michael Phillips, BDM Federal, Inc.

The gray area between levels of naturally occurring radioactive material (NORM) and those of low level waste (LLW) is becoming blurred. this previously unregulated area, also known as very low level waste (VLLW), is being targeted by both activists and regulators as the newest realm of the unseen threat of radioactivity to the general population. This class will take a close look at the data, conclusions, and the regulations regarding VLLW.

Wednesday, June 29, 12:15-2:15 pm

W-1

HEALTH PHYSICS ACTIVITIES AT LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITIES - Steve Adams, EG&G Mound Applied Technology

This course will review the health physics activities at Low-Level Radioactive Waste Disposal Facilities (LLRWDF). The requirements and guidance found in US NRC NUREGs 1999 and 1200 and the US NRC Low-Level Licensing Branch Technical Positions on Waste Form and Radioactive Waste Classification will be reviewed.

These reviews will include site characterization, operational health physics, environmental monitoring, waste inspection, and decontamination and decommissioning. The status of the LLRWDF compact sites will be discussed.

W-2

SIMILARITIES AND DIFFERENCES BETWEEN DOE AND NRC BASIC STANDARDS FOR OCCUPATIONAL RADIATION PROTECTION - C. Rick Jones, U.S. Department of Energy

A significant consideration in the recent development of the Department of Energy (DOE) standard for occupational radiation protection (10 CFR 835) was to increase consistency with the Nuclear Regulatory Commission (NRC) standard for occupational radiation protection (10 CFR 20). This course is intended to point out those areas in which DOE and NRC standards are essentially the same and areas in which DOE and NRC standards remain different. The impact on DOE operations of the changes that enhance consistency between DOE and NRC standards as well as the significance of the areas in which differences remain will be discussed.

W-3

WASTE MANAGEMENT AT DECOMMISSIONING PROJECTS - Wayne C. Gaul, Chemical Waste Management, Inc.

Wastes generated during a decontamination and decommissioning (D&D) project may require treatment to meet the disposal requirements mandated by Federal and State regulations, disposal site specific requirements, and cost constraints. Selection of an appropriate treatment methodology is critical to the successful completion of the D&D project. If the wrong treatment method is employed, treatment and disposal costs may be unnecessarily high and the waste may not be acceptable for disposal. Proper selection requires knowledge of the available treatment processes, their costs, and the requirements for disposal of the wastes. Examples of decontamination techniques and their applicability will be given. Since treatment costs are so highly dependent on site and waste characteristics, the costs will be discussed on a general basis.

Because the treatment and disposal of mixed waste presents a number of unique problems compared to low-level waste, each will be discussed separately. A discussion will be given on different treatment options for mixed waste.

Soil presents a tremendous challenge for waste management and is very site specific due to the large diversity of soil types. Soil washing will be discussed in relation to the separation of the contaminated fraction for volume reduction.

W-4

IMPLEMENTATION OF THE REVISED 10 CFR PART 20 - Donald A. Cool & Charleen T. Raddatz, U.S. Nuclear Regulatory Commission

SEE PEP D-1 FOR WRITE-UP.

W-5

LOWER LIMITS OF DETECTION - Thomas B. Borak, Colorado State University

Judgments on whether or not a sample contains radioactivity must often be based on the stochastic nature of radioactive decay and sample processing. In many instances, formulas can be applied to assess the "lower limit of detection" or "minimum detectable activity" of a certain methodology. This lecture will review the underlying assumptions involved in the derivation of several popular formulas. Information will be presented to indicate how the results are effected when the assumptions in the derivation are not satisfied. Examples of alternative computational methods will be presented and applied to real data. Registrants for this lecture are encouraged to submit questions or concerns in advance in order to focus the presentation on the needs of the participants.

The Health Physics Society would like to Thank the 1994 Exhibitors for Their Support

HEALTH PHYSICS SOCIETY EXHIBITORS 1994

ADCO SERVICES, INC. *318*
Radioactive waste broker

ALOKA *605, 607*

ALPHA SPECTRA *514*
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AMERSHAM CORPORATION *701, 703*
Radiation sources for instrument calibration, gauging, radiography and medicine.

ANALYTICAL TECHNOLOGIES, INC. *612*
As a full-service environmental testing laboratory, Analytical Technologies, Inc., is dedicated fully to the analysis of radioactive, hazardous and mixed waste. The primary emphasis of ATL's service is quality data and timely response.

ANALYTICS, INC. *616*
Analytics provides NIST - traceable, custom Radionuclide sources, cross check and performance evaluation samples for Radiochemical analysis of effluent and environmental samples.

APFEL ENTERPRISES INC. *211*
Superheated drop (bubble) detectors for neutrons. Dosimeters, survey and Area Monitoring, Spectrometry.

APPLIED ELECTRON CORP, QUANTRAD SENSOR DIVISION *213*
Radiation detectors and instruments for alpha, Beta and Gamma Radiation. Portable "Palmtop" 256 Channel MCA.

APPLIED RADIOLOGICAL CONTROL, INC. *812*
ARC provides a wide variety of state-of-the-art services and products including radiation protec tion, decontamination, decommissioning, strippable coating environmental restoration and mobile analytical laboratories.

APTEC NUCLEAR INC. *311, 313*
Aptec is a leading manufacturer of Gamma Spectroscopy Analytical Systems and Surface Con tamination Body Monitors, Survey Probes and other Health Physics Monitors. Portable MCAs and new Hand, Cuff and Foot Monitors are ready for you to try in our booth.

ARTHUR D. LITTLE, INC. *317*
Arthur D. Little's Radiation Technology and Policy Unit provides a full range of Radiation Protec tion Services for government and commercial organizations. Our services include: D&D Plan ning, HP Support, Facility/Program Audits, Specialized Studies, Training, etc.

BATTELLE PACIFIC NORTHWEST LABS *705*
The Health Protection Department at BNW has over 100 professional staff with expertise in: inter nal and external dosimetry, instrument calibration and accreditation, dosimeter accreditation, dosi metric modeling, industrial hygiene, radiation measurements & operational health physics.

BECTON DICKINSON DIAGNOSTIC INSTRUMENT SYSTEMS *408*
Featured will be the newly upgraded, solid state Tritium and Beta Gas Monitors, along with pro grams to upgrade current units in the field. Training programs and warranty programs are also available.

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Radiation dosimetry systems and instruments for health physics applications.

BIONOMICS, INC. *813*
Waste disposal services; radioactive, mixed sealed sources. Decontamination, incineration, health physics.

CANBERRA INDUSTRIES *702, 704, 706, 708, 801, 803, 805, 807*

CARETAKER COMMUNICATIONS *614*
Publishers of the internationally distributed journal, Radioactivity & Radio-Chemistry. R & R fo cuses on the practical aspects of Radioactivity measurement, publishing papers and articles rel evant to real-world applications and solutions.

CHEMCHEK INSTRUMENTS, INC. *707*
Kinetic phosphorescence analyzer for ultra trace analysis of uranium in urine, soils, water, bioas say, environmental samples, air & liquids. Easy, precise, sensitive, computerized manual, auto matic and continuous sampling system.

CHEMRAD TENNESSEE CORPORATION *810*
Ultrasonic ranging and data system for automated exterior and interior surveys.

CONSULTEC SCIENTIFIC, INC. *917*
Consultec Scientific, Inc. offers short courses in health physics training. SimRad^{TM} Surveyor, our health physics instrument simulator, allows training without radiation sources. SimRad^{TM} is a Windows 3.1 program for the IBM PC.

CONTROLS FOR ENVIRONMENTAL POLLUTION, INC. *206*
Sophisticated analytical instrumentation and experienced chemists provide complete radiochemi cal, organic, inorganic and geotechnical analyses on hazardous and mixed waste. CEP also per forms testing for minerals, trace metals, nutrients, and physical and demand analysis.

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D. A. presents a complete line of disposable and reusable Protective Clothing and Radiological Control Supplies designed with Rad-Waste Volume Reduction in mind. Also featuring Barrier Panels, Gloves Boxes & Bags, and Shield Systems.

DOSIMETER CORPORATION *414*
Dosimeter Corporation is a manufacturer of radiation detection and personnel protection products. We can provide a wide range of products to meet a variety of needs, such as OF Dosimeters and Chargers, Electronic Dosimeters, and survey instruments and probes.

EBERLINE INSTRUMENTS *107, 109*
Eberline Instruments provides radiation measuring & monitoring equipment.

EG&G NUCLEAR INSTRUMENTS *102, 104, 106, 201, 203, 205*
EG&G Nuclear Instruments (Ortec-Berthold-BAI) Health Physics, Environmental Monitoring, Waste Management, Alpha-Beta Counting, Contamination Monitoring, Air and Water Monitor ing/Sampling, In-situ Gamma Spectroscopy, Stack Monitoring Automatic Sample Changer.

ELSEVIER SCIENCE *409*

EUCLID GARMENT MANUFACTURING CO. *403, 405*
Euclid Garment Manufacturing will display a complete line of protective apparel, coveralls, headwear, footwear and gloves, plus additional items such as tape, water resistant rainwear and disposable products.

F & J SPECIALTY PRODUCTS, INC. *713*

Radiation Protection equipment and supplies applicable to airborne monitoring of particulates and radioiodine contaminants.

FEMTO TECH INC. *814*

Tritium monitors, continuous radon monitors.

GAMMA PRODUCTS, INC. *204*

Gamma Products, Inc. manufactures automated Gamma Counting Systems for Marinelli beakers and other samples, and manual and automated alpha/beta counting systems. Also specializes in low level shielding.

GE REUTER-STOKES. *806*

Environmental gamma radiation monitors utilizing a high-pressure ion chamber. Portable and fixed placement models available with: solar power, wired & RF communications and central, computer-based control for up to 32 remote stations.

GTS DURATEK *101*

Health Physics training, professional staff augmentation, 10 CFR 20 and DOE RADCON Manual compliance assessments, temporary Health Physics Technical Support, Radioactive Waste Treat ment Technologies.

HELGESON SCIENTIFIC SERVICES *609*

HSS provides the most complete range of state-of-the-art personnel and waste monitoring equip ment and complementary health physics services available to the industry. All systems can be customized to client specs.

HI-Q ENVIRONMENTAL PRODUCTS CO. *505, 507*

Air sampling equipment and supplies, low and high volume air samplers, stack monitoring systems (radioiodine) brushless, particulate samplers, air flow measurement devices and accessories.

HOLADAY INDUSTRIES, INC. *407*

Non-Ionizing electromagnetic field instrumentation (DC - 40 GHZ).

HP INSTRUMENTS *401*

ICN DOSIMETRY SERVICE *214*

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INDUSTRIAL AND ENVIROMNENTAL ANALYSTS, INC. (IEA) *503*

IEA provides a full range of environmental analytical capabilities on hazardous waste, soil, water and low level radiological samples, as well as, asbestos testing services

INTERNATIONAL TECHNOLOGY CORPORATION (IT) *406*

Turnkey environmental management services.

IPPC NUCLEAR SYSTEMS DIVISION *611*

Computerized radiological posting system allows companies to generate on-site, on-demand DOE/ ANSI compliant radiation warning signs. This system provides instant regulatory compliance, waste minimization and significant cost saving.

ISOTOPE PRODUCTS LABORATORIES *304, 306*

Radiation standards, sources and nuclides including gas and counting room standards.

LANCS INDUSTRIES INC. *302*

Complete range of Health Physics Radiological Control of Rad-Waste items. Protective clothing, tents, containments, lead wool blankets, filters and accessories, frisker booths, lead blanket racks, air fed hoods - misc.

LANDAUER, INC. **602,** ***604***

Personnel radiation monitoring services.

LND INC. *113*

Nuclear Radiation Detectors - GM Tubes, Proportional Counters, Ionization Chambers, Gas Sam pling, BF_3HE^3, Fission Chambers, LND will design and manufacture to your specifications.

LUDLUM MEASUREMENTS, INC. *615, 617*

Ludlum Measurements, Inc. will be displaying instrumentation used to detect and measure nuclear radiation.

MERLIN GERIN, INC. *316*

Electronic Dosimetry, Access Control Systems, Portable Survey Instruments, Continuous Air Monitors, Radiation Measurement Systems, Portable Spectroscopy Systems.

MJW CORPORATION INC. *610*

MJW Corporation provides Radiological and Environmental consulting, and Multimedia software development services. The following Multimedia software applications will be on display: Video Tour System, Graphical Electronic Dosimetry Display System, Health Physics Fundamentals Train ing, and General Employee Training.

MSA *303, 305*

MSA will display a full line of personal protective equipment featuring products for respiratory protection and environmental monitoring.

NATIONAL NUCLEAR CORPORATION *115*

NNC will present their line of contamination monitors, handheld radiation monitors as well as their sister companies dosimeters (Xetex) and radiation shielding materials (Reactor Experiments, Inc).

NES/IES *315*

A comprehensive engineering consulting firm providing radiological and environmental regula tory compliance, program reviews and audits, site characterizations/assessments, remediation and decontamination and decommissioning services to private industry and government.

NE TECHNOLOGY, INC. *513, 515*

NE Technology offers a wide range of Health Physics equipment for the detection of contamina tion and ionizing radiations. Come and see how we measure up!

NFS *716, 718*

NON-DESTRUCTIVE CLEANING, INC. *404*

NDC provides patented decontamination facilities and services to the nuclear industry using CO_2 as the cleaning medium. NDC's patiented mobile facility is a self-contained stand-alone decon tamination facility that only requires electric power to be functional.

NSS NUMANCO, INC. *709, 711*

NSS Numanco, Inc., the preferred supplier of quality programs, services and products to the power and industrial community, will have information on the products and services available. These include but are not limited to, project management, radiation protection, decontamination, mainte nance instrument and electrical, teleflex operators, and work management programs.

NUCLEAR RESEARCH CORPORATION *208, 210*

NRC provides wide range (IuR/h-10,000R/h) multifunction analog/digital health physics radiation detection instrumentation and is introducing new pancake & frisker GM tubes, portable CAMS, infrared wireless teletectors, underwater detectors, Mobile environmental monitoring HP van, and Global area radiotransmitted detection system among others.

NUS *212*

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION (ORISE) *411*

Photographic display and slide presentation of class activities in the training classes offered.

ORDELA, INC. *103*

OXFORD INSTRUMENTS, INC. *715, 717*

Oxford Instruments, Inc., Nuclear Measurements Group is a manufacturer of nuclear counting sys tems. Product lines include gamma and alpha spectroscopy systems, low level alpha and beta counting systems, NIM, and educational counters.

PANASONIC INDUSTRIAL COMPANY *202*

TLD Systems, Pocket Dosimeter.

PRINCETON GAMMA-TECH, INC. *312, 314*

Lab coolers, intrinsic germanium detectors and gamma spectrometers.

PROTEAN INSTRUMENT CORPORATION *410, 412*

Automatic Window/Windowless Alpha/Beta Low Background Planchet Counter; Manual Win dow/Windowless Alpha/Beta Low Background Plancet Counter.

PYLON ELECTRONICS INC. *307*

RADON Monitoring and Measuring Instrumentation, Sources and Accessories.

RADCAL CORPORATION *518*

Radcal will be presenting a wide variety of different ionization chamber based radiation monitors. Applications include, but are not limited to medical physics, health physics and industrial X-ray.

RAD ELEC, INC. *310*

Rad Elec offers the E-PERM® System - passive radiation monitors known for their accuracy and cost-effective versatility. E-PERMs can monitor radon in air, soil, water, radon decay products, environmental gamma, surface contamination, thoron and tritium.

RADIATION DETECTION CO. *818*

RADIATION MEASUREMENT SYSTEMS INC. *808*

Ludlum Survey instruments and data logger and Windows software (TM) for data logger. Health Physics Instruments digital survey instrument and software. Panasonic dosimeters. Portable MCA.

RADIATION SAFETY ASSOCIATES, INC. *308*

Training courses, consulting, publications, respiratory protection, decontamination services, radioanalytical services, calibration and repair services.

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RADOS TECHNOLOGY, INC. *517*

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RIS *215*

SAIC/RADeCO *413, 415, 417*

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S&G ENTERPRISES, INC. *402*

Volume reduction requipment for hazardous and lo-rad waste. Products featured include: Ram Flat® Compactor, Pak-More® hold down disk, and Vyleater® vial crusher.

SCINTREX LTD. *418*

S. E. INTERNATIONAL, INC. *606*

Handheld radiation detection equipment.

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Calibration and Dosimetry equipment

SIEMENS DOSIMETRY SERVICE *501*

Siemens Dosimetry Service exhibits a complete line of film badges, TLD badges, track etch dosim eters, electronic alarming dosimeters and fast neutron bubble detectors.

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Custom designed ratiation monitoring systems for nuclear power plants - class 1E and non1E Area, Gas, Liquid, and Wide-Range Gas Monitors; N-16 Monitors; N-16 Monitors; and Data Acquisition Systems.

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TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES *714*

TLD Systems, TLD Badge Service, NaI Scintillation Detectors, Radiological Services.

TMA\EBERLINE *112*

TMA\Eberline provides radiation safety services including TLD Dosimetry, Radiochemistry, Health Physics, and soil decontamination.

US ECOLOGY, INC. *217*

VICTOREEN/NUCLEAR ASSOCIATES *502, 504, 506, 508*

Victoreen manufactures & services nuclear radiation detectors instrument and systems. Products include micro processor-based survey meters of the GM ion chamber and scintillation types, reac tor & lab monitoring systems, TLD Dosimeter and readers, chips and quartz fibre dosimeters and medical beam analyzers.

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CALIBRATION PROBLEMS AND SOLUTIONS IN ENVIRONMENTAL LABORATORIES

This complimentary workshop is sponsored by Amersham Corporation and EG&G/Berthold. It will be held on Wednesday, June 29, 1994 from 6:00 -9:00 pm with a limit of 100 attendees. If interested, please check the appropriate box on the registration form (registration will be on a first-come/first-served basis).

Speakers:

Recent Developments in Large Area Alpha and Beta Source Calibrations; *M. P. Unterweger, NIST*

Calibration Considerations for Alpha and Beta Counting; *C. Van Cleef, ATI*

Calculations of Absorbtion Correction Factors for Environmental Samples in Marinelli Beakers using Proven Proprietary Software; *H. Dornhofer, Amersham/Buchler*

Two more speakers and topics will be announced at a later date.

TRAVEL ARRANGEMENTS

AIRLINE INFORMATION

Both American and Continental airlines are providing U.S. and Canadian attendees a 5% discount off the lowest applicable fares for the HPS meeting. American offers 10% off regular coach fares; Continental offers 45% off first class and coach fares. Applicable restrictions must be met and seats are limited. Call (or have your travel agent call):

American: 1-800-433-1790 - HPS Star File #3664FS

Continental: 1-800-468-7022 - HPS Reference Code JSM88P

CAR RENTAL INFORMATION

Alamo is providing meeting attendees with discounted rates for attendees.

Special group rates:

	Per day	*Per week*
Economy	$24	$115
Compact	$29	$129
Midsize	$31	$159
Full size	$36	$189
Luxury	$38	$209

These rates are in effect one week prior and one week after the meeting and include unlimited free mileage, automatic transmission, air conditioning and radio.

Note that you may rent a car at the San Francisco airport OR at the downtown location, 687 Folsom Street. There is shuttle service provided between the Hilton and this location if you call the Folsom Street office.

To book a car call Alamo at **1-800-732-3232** and refer to **Group ID #77743** and the **Rate Code GR.**

Forms

San Francisco

INSTRUCTIONS FOR FILLING OUT THE RESUME FORM

Lets face it, everyone is looking for a job at one time or another. But during the Health Physics Meeting, the job placement center might not be the best way to advertise your resume, especially if your supervisor is attending the meeting. Also, not all members can make it to the meeting to post their resume. Therefore, for those of you interested in seeking employment during the meeting, but not brave enough to post your resume, this form is for you! You don't even have to be present at the meeting to participate.

Every member, who is interested in seeking employment (and who doesn't want to take advantage of the prepared resume form), is encouraged to bring his or her resume to the Placement Center. However, please don't use your own resume and a completed resume form. Revised instructions on posting your own resume will appear in a future issue of the Health Physics Newsletter.

If you cannot make it to San Francisco, you can still send me either your resume form or your personal resume, and I will post it for you. Your resume form should be properly labeled that you are not at the meeting, so if a company is interested in you, they will then call the Chairperson of the Placement Committee, and the Chairperson will then contact you. If you are interested in the company, it will then be up to you to contact the company. In addition to the resume form, you can always place an advertisement in the Newsletter under the Health Physicists Seeking Employment section.

On the adjacent page is the 1994 Annual Meeting Resume Form. Please fill out both sides of the form completely. **Do not enter in a number after it states, "Resume Number;" that will be done by the Placement Committee.** Since a photocopy of side one will be posted at the meeting, be sure to either type or write legible with a dark pen. No spelling or grammatical corrections will be made. Once you have completed both sides of the form (except for entering in a resume number) please mail the form to:

Kathryn Pryor
Placement Committee Chair
Battelle PNL
PO Box 999, Mail Stop P-7-78
Richland, WA 99352

These forms must be mailed to the above address no later than **May 27, 1994**. Once these forms are received, a resume number will be issued and inserted on side one and two. By June 13, 1994, a resume number will be assigned to all resume forms and a photocopy of side two (with the resume number) will be mailed back to you. Please remember what resume number has been assigned to you. A photocopy of side one will be posted at the meeting. The original resume form will be kept in a book, strictly confidential, by the Chairperson of the Placement Committee for six months after the meeting and then destroyed. If a company expresses an interest in a person's resume who is not at the meeting, that company can contact the Chairperson of the Placement Committee after the meeting, and the Chairperson will inform that individual that a company is interested in that person.

All completed resume forms (side one) will be posted at the same time and will be up for the duration of the meeting. After the meeting, copies of the resume forms will be kept by the Chairperson of the Placement Committee if there are any future inquiries. If an interested company wants more information, in the way of a resume or an on-site interview, they will write a note on the message board in the placement center room. An example would be: "Resume Numbers 12, 17 and 56 please leave your resume at the Hotel front desk to the attention of D.A. Smith, XYZ Company," or "Company QRS would like to interview Resume Numbers 19 and 23, please call J.D. Jones to set up appointment during meeting."

If you have any questions concerning the form, please contact Kathryn Pryor, (509) 376-0812.

1994 ANNUAL MEETING RESUME FORM

EDUCATION

School:

Degrees and Dates:

(if student, expected graduation date and degree)

JOB DESIRED

Position Desired:

Date Available:

Any Travel or Relocation Limitations:

Citizenship:

Any Active Government Clearances:

JOB DESCRIPTION

Present Job Title:

Describe Present Duties (do not list company):

EXPERIENCE

Briefly describe the various experiences you have had in the health physics field (Do not list company):

RESUME # _____ At Meeting? ❑Yes ❑No

All replies to side two of this form will be kept strictly confidential. This side will not be posted at the meeting. A one sided photocopy of side one will be posted at the Health Physics Meeting. The original (side one and two) will be kept completely confidential by the Placement Committee. Side two will allow the Placement Committee to mail you back your resume number in time for the Health Physics Meeting. Also, it will be kept for six months after the Health Physics Meeting, in case a company couldn't get in contact with you at the meeting or if you were not present at the meeting.

Full Name:

Mailing address (where you want to receive your resume number):

Mailing address and phone number where you want to be contacted if a company expresses an interest in your resume (for up to six months after the meeting). If the address is the same as above, leave blank, but please give a daytime phone number:

Your Resume Number is:_____

HEALTH PHYSICS SUMMER SCHOOL

A five-day course covering basic and advanced topics of internal radiation dosimetry

JUNE 20-24, 1994
UNIVERSITY OF CALIFORNIA, DAVIS

Dean: Otto G. Raabe, PhD, CHP

DOSIMETRY

Introduction to Internal Radiation Dosimetry.
Otto G. Raabe, University of California, Davis.

Physical and Chemical Interactions of Radiation with Living Tissues.
Wesley E. Bolch, Texas A&M University.

From Macro to Micro Internal Dosimetry.
Darrell R. Fisher, Battelle Pacific Northwest Laboratory.

Statistical Aspects of Internal Dose Estimation and Monte Carlo Calculations of Organ Dose.
Paul S. Stansbury, Battelle Pacific Northwest Laboratory.

Use of Multi-compartmental Models & Calculation of Internal Dose Intakes from Bioassay Data.
Kenneth W. Skrable, University of Lowell.

Reference Man Anatomical Model.
Mark Cristy, Oak Ridge National Laboratory.

Dosimetric Methodology of the ICRP.
Keith F. Eckerman, Oak Ridge National Laboratory.

Characterization of Radioactive Airborne Particles.
Otto G. Raabe, University of California, Davis.

Dosimetric Applications of the New ICRP Lung Model & Dosimetry for Inhaled Radon Decay Products.
Anthony C. James, Battelle Pacific Northwest Laboratory.

Biokinetics of Inhaled Radionuclides --- Morris B. Snipes, Inhalation Toxicology Research Institute.

Biokinetics of Bone-Seeking Radionuclides --- Richard E. Toohey, Washington State University.

The Internal Dosimetry Aspects of the New 10CFR20 Regulations --- John W. Poston, Texas A & M.

The MIRD Internal Dose Methodology --- Evelyn E. Watson, Oak Ridge Associated Universities.

Patient Dose from Diagnostic and Therapeutic Radiopharmaceuticals.
Michael G. Stabin, Oak Ridge Associated Universities.

Analytical Methods for In Vitro Bioassay of Radionuclides --- Narayani P. Singh, University of Utah.

Evaluation of Historical Urinalysis Data --- Henry B. Spitz, University of Cincinnati.

Dose Reconstruction from Bioassay Measurements of Long-Lived Residual Activity.
McDonald E. Wrenn, University of Utah.

In Vivo Measurements --- David P. Hickman, Lawrence Livermore National Laboratory.

The Perfect Internal Dosimetry Code; Internal Dosimetry Under Chelation Therapy.
Tom Labone, Savannah River Laboratories.

Quality Assurance in Internal Dosimetry Programs --- Carol D. Berger, IT Corporation.

Applications for Internal Dose Calculations --- Eugene H. Carbaugh, Battelle Pacific Northwest Laboratories.

Programmatic Aspects of Internal Dosimetry --- Daniel J. Strom, Battelle Pacific Northwest Laboratories.

Post-Mortem Verification of Internal Dose --- Ronald L. Kathren, Washington State University.

Medical Management of Internal Contamination Accidents.
George L. Voelz, Los Alamos Scientific Laboratory, and Jerrold T. Bushberg, University of California, Davis.

Biological Effects of Internally Deposited Radionuclides --- William A. Mills, Oak Ridge Associated Univ.

EVENING PROBLEM SESSION: ***Selected Problems in Internal Radiation Dosimetry***
Kenneth W. Skrable, University of Lowell.

EVENING WORKSHOP: ***Demonstrations of Computer Codes Used for Internal Radiation Dosimetry*** --- Faculty.

UNIVERSITY OF CALIFORNIA, DAVIS

The University of California at Davis is the agricultural campus of the UC system. It is the largest of the nine campuses in area (6,000 acres), second largest in budget, and third largest in enrollment (23,000).

Undergraduate and Graduate Studies
- **Agricultural Sciences**
- **Environmental Sciences**
- **Biological Sciences**
- **Engineering**
- **Letters and Science**

Professional Schools
- **Law - Business Management**
- **Medicine - Veterinary Medicine**

In Davis, the Bicycle is the major form of transportation.

99.3 % of Davisites own bikes ! There are 30 + miles of bike lanes.

LODGING: Accommodations will be each student's responsibility. The Ramada Inn, which is within walking distance to class, has been reserved. Call (916) 753-3600 by June 6, 1994 to make reservations. The summer school rate for the Ramada will be $54 single and $59 double occupancy.
Additional nearby lodging : Aggie Inn --- (916) 756-0352
University Lodge --- (916) 756-7890
Econo Lodge --- (916) 756-1040
Davis Motel --- (916) 756-0910

TRAVEL: Air travel arrival via Sacramento Metro Airport; Departure after HPS Annual Meeting may be via San Francisco International Airport. Details of the shuttle service and a map of the area will be included in the confirmation packet that will be sent to each student.

GUESTS: Additional seating is available at the barbecue and the banquet. Davis area things to do: tour of UCD campus by tram car, tour of newly renovated state capitol building, Sacramento Old Town, Railroad Museum, Sutter's Fort, Crocker Art Museum.

Special Events!!

Welcome reception ✒ Banquet @ University Club
Computer code workshop session ✒ Barbecue / swim night
Discussion and problems session

Up to 32 ABHP Continuing Education Credits are anticipated for completing course

Attendees will receive a special, bound edition of " Internal Radiation Dosimetry" compiled by the presenters of the health physics summer school .

REGISTRATION FORM

Health Physics Society 17th Annual Summer School

Internal Radiation Dosimetry

June 20-24, 1994

Please type or print. One form per registrant.

Name: _____

Work Affiliation: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____

Arrival Date: _____ Arrival Time: _____

REGISTRATION DEADLINE: May 31 - Seating will be limited to the first 150 students.

CANCELLATION POLICY: Request for refunds will be honored if received in writing by May 30; a $30 processing fee will be charged. May 31 or after will be subject to a $100 processing fee.

FEES:

HPS Summer School Tuition $575.00

PAYMENT METHOD: **Total Enclosed:** _____

❑ Enclosed is a check payable to the Health Physics Society

❑ Payment by Purchase Order, PO # _____

Billing address for PO _____

_____

❑ Charge my ❑ VISA ❑ MasterCard

Card # _____ Exp. Date _____

Cardholder Name _____ Signature _____

Return payment and this form by May 31, 1994 to:

Health Physics Society
8000 Westpark Drive
Suite 130
McLean, VA 22102
(703) 790-1745
FAX: (703) 790-9063

CURRENT EVENTS/WORKS-IN-PROGRESS ABSTRACT FORM

HEALTH PHYSICS SOCIETY ANNUAL MEETING
SAN FRANCISCO, CA - June 26-30, 1994

PRESENTING AUTHOR:

_____

AFFILIATION: _____

MAILING ADDRESS: _____

_____

_____ ZIP _____

PHONE: _____

FAX: _____

IMPORTANT: Is presenting an HPS member? ❑ Yes ❑ No. If presenting author is not a member, the signature of a sponsor is required (see below).

(Print) _____

(Sign) _____

ABSTRACT FORM: MINIMUM LENGTH 150 WORDS

NOTE: All presentations will be in poster format and will be presented Thursday, June 30 from 8:30-11:30 am in the Yosemite Room.

ABSTRACTS, orginal plus 1 copy, must be received by **May 13, 1994.**

Poster Set-up: 7:30-8:30 am, June 30

Removal: 5:00-6:00 pm, June 30

Special Needs (electricity, VCR, etc.): _____

_____

Mail to: Carl Gogolak
8000 Westpark Dr.
Suite 130
McLean, VA 22102
FAX: (703) 790-9063

State justification for inclusion in Works-In-Progress Session: _____

_____

INSTRUCTIONS FOR CURRENT EVENTS/WORKS-IN-PROGRESS

AUTHOR ELIGIBILITY - Any Society member may submit an abstract for the Current Events/ Works-in-Progress Session. Non-members require sponsorship by a member. Sponsors must endorse the abstract form in the designated space. A person may present only one Current Events/Works-in-Progress paper. A member may sponsor only one non-member as a presenter of a Current Events/ Works-in Progress paper.

ABSTRACT - The entire abstract, including title, author(s), address(es), text, references, credit lines and footnotes must fit in the space allocated. Please note the format of the abstract denoted below. Please ensure that the indicated format is followed. Minimum abstract length is 150 words.

> THE TITLE IS CAPITALIZED. *P.C. Computer[1], I.M. Presenter[2] and W.C. Backplane[1] ([1]Radiation Inc., 1234 Anywhere Street, Moon Valley, VA 22961; [2]Special Company USA, 4567 Nowhere Street, Star City, CA 95103)
>
> This is the beginning of the paper's text. Please use the following instructions to format your paper.
>
> Leave a line between paragraphs. Fill line from left margin and fully justify, if possible. Maximum text space is obtained by using a single paragraph with references enclosed in parentheses and embedded in the text while the credits are placed at the end of the abstract. *(Work supported by the Contamination Unlimited under Contract UL-5653-289)

Notification of acceptance willl be sent to the presenting author in the middle of June.

READY ROOM

A Ready Room will be provided at the San Francisco, CA meeting. All presenters must check in at the Ready Room from 1:00 - 3:30 pm on Wednesday, June 29. All posters will be reviewed by a Program Committee member during set-up from 7:30 - 8:30 am on Thursday. All speakers are required to check in during the specified hours at the Ready Room.

BEFORE YOU MAIL YOUR ABSTRACT, HAVE YOU DONE THE FOLLOWING?

1. Included original plus 1 copy of abstract **in proper form?**
2. Obtained management approval for meeting attendance to make presentation?

YOU MAY COPY THE FORM OR ADDITIONAL FORMS CAN BE OBTAINED FROM:

Health Physics Society
8000 Westpark Drive
Suite 130
McLean, VA 22102
(703) 790-1745
FAX: (703) 790-9063

San Francisco Hilton and Towers Welcomes HPS
June 26-30, 1994
333 O'Farrell Street • San Francisco, CA 94102
(415) 771-1400; Reservations FAX: (415) 923-5075

Please Complete Form and Mail or FAX to Above Address

Please print or type all information

Last Name: _____ First Name: _____

Last Name: _____ First Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ FAX: _____

NOTE: Reservations received after June 3, 1994 are on a space and rate available basis

Accommodations Desired:	Standard	Superior	Deluxe	Towers
Single	❑$108.00	❑$119.00	❑$135.00	❑$155.00
Double	❑$128.00	❑$139.00	❑$155.00	❑$175.00

Extra Person: $25.00

Arrival Date/Time: _____ Departure Date/Time _____

Check-in time: 2:00 PM • Check-out time: Noon

❑ **Government Rate:** $96.00 Single or Double Occupancy

NOTE: A limited number of government rooms are available on a first-come, first-served basis. Reservation must be requested using this form.

Room rates are subject to combined taxes currently at 12%. Room rates available up to three (3) days before and after conference dates, subject to availability. Up to 2 children, regardless of age, may stay free in parents' room.

Disabilities:

A limited number of wheelchair accessible rooms available upon request. Please include any special requests here: _____

Cancellation Policy:

Cancellations must be received by the hotel at least 48 hours prior to arrival date.

Payment:

• All reservations at the Hilton require deposit or credit card guarantee:

(A) Enclosed is check or money order for $_____

(B) CREDIT CARD: ❑ American Express ❑ Carte Blanche ❑ Diners ❑ VISA
❑ MasterCard ❑ Air Canada ❑ Interbank ❑ Discover

Credit Card #: _____ Exp. Date: _____

Name: _____ Signature: _____

For HHonors Members only: HHonors # _____

Are you requesting zip-in check-in? ❑ Yes ❑ No, If yes, please indicate arrival time: _____

Registration - Health Physics Society - 39th Annual Meeting
June 26-30, 1994, San Francisco, California

HPS Member Number: hps _____

Name for badge: (Last) _____ (First) _____ (Nickname) _____

Affiliation (for badge)(limit to 18 characters and spaces): _____

Address (for confirmation): _____

City: _____ State: _____ Zip/Postal Code: _____

Business Phone: _____ FAX: _____

If Registering - Companion Name: _____

Preregistration Deadline is June 3, 1994

REGISTRATION FEES: (Mark Appropriate Boxes)	**Preregistration Fees**	**On-Site Fees**
❑ HPS Member (Sun/Mon Receptions, Thursday Awards Luncheon)	$140.00	$190.00
❑ Non-Member (Sun/Mon Receptions, Thursday Awards Luncheon)	$195.00*	$245.00*
❑ Student (Sun/Mon/Student Receptions, Thursday Awards Luncheon)	$ 40.00	$ 40.00
❑ Companion (Sunday/Monday Receptions, Monday Hospitality Mixer Breakfast)	$ 35.00	$ 35.00
❑ Exhibition **ONLY** (Monday Reception, Exhibit Hall Badge)	$ 20.00	$ 20.00
❑ Exhibitor (Five Per Booth)	No Fee	No Fee
❑ Additional Thursday Luncheon Ticket(s) # of Tickets _____	$ 30.00	$ 30.00
❑ Instrument Calibration Workshop (Wednesday, 6/29)	No Fee	No Fee

***$55.00 of fee applicable towards NEW HPS Membership if completed application submitted by September 2, 1994.**

SOCIAL PROGRAM:	**Preregistration Fees**	**On-Site Fees**	**Total**
❑ San Francisco Highlights (Sunday, 6/26)	# of Tickets ____ X $20	# of Tickets ____ X $25	_____
❑ California Wine Country Tour (Sunday, 6/26)	# of Tickets ____ X $38	# of Tickets ____ X $45	_____
❑ Alcatraz Tour (Monday, 6/27) ❑ 10:15 AM ❑ 2:15 PM	# of Tickets ____ X $11	# of Tickets ____ X $15	_____
❑ 5K Run/2K Walk (Tuesday, 6/28)	# of Tickets ____ X $15	# of Tickets ____ X $15	_____
❑ Muir Woods & Sausalito Tour (Tuesday, 6/28)	# of Tickets ____ X $25	# of Tickets ____ X $30	_____
❑ Night Out (Tuesday, 6/28)	# of Tickets ____ X $25/$10	# of Tickets ____ X $25/$10	_____
❑ Monterey/Carmel/17 Mile Drive (Wednesday, 6/29)	# of Tickets ____ X $51	# of Tickets ____ X $60	_____
❑ Beach Blanket Babylon (Wednesday, 6/29)	# of Tickets ____ X $34	# of Tickets ____ X $40	_____
❑ Chinatown Walking Tour (Thursday, 6/30)	# of Tickets ____ X $27	# of Tickets ____ X $35	_____
❑ LBL Technical Tour (Thursday, 6/30)	# of Tickets ____ X $25	# of Tickets ____ X $30	_____
❑ California Wine Country Tour (Friday, 7/1)	# of Tickets ____ X $38	# of Tickets ____ X $45	_____
❑ SLAC & NASA Ames Technical Tour (Friday, 7/1)	# of Tickets ____ X $25	# of Tickets ____ X $25	_____
❑ Yosemite Post Conference Tour (Friday-Sunday, 7/1-3) Prices Vary See Tour Write-Up - Not Available On-Site			_____

FOR RUNNERS ONLY: T-Shirt Size - ❑ Small ❑ Medium ❑ Large ❑ X-Large

PAYMENT INFORMATION - ***Purchase Orders NOT Accepted for PEP Registration***

If paying by check make payable and forward to: **Health Physics Society**, 8000 Westpark Drive, Suite 130, McLean, VA 22102

❑ VISA ❑ MasterCard Card Number: _____ Exp. Date: _____

Cardholder Name: _____ Signature: _____

If FAXing registration form, **(703) 790-9063**
please do not mail the original.

Registration Section Total	$_____
Social Program Total	$_____
PEP Total (From Back of Form)	$_____
TOTAL FEES ENCLOSED	$ _____

Unless appropriate check/charge information accompanies this form you will **NOT** be considered preregistered.

REFUND POLICY: Request for refunds will be honored **if received in writing by June 3.** All refunds will be issued **AFTER** the meeting and will be subject to a **$35.00 processing fee.** NO REFUNDS WILL BE ISSUED AT THE MEETING.

Please see reverse side of form for PEP Registration, Child Care Information and Disabilities Information

Name:_____

YOUR HOUSING WHILE IN SAN FRANCISCO: _____

CHILD CARE:

I would be interested in child care for the: ❑ Exhibitor's Reception ❑ Opening Reception Number of children _____ Ages____

DISABILITIES:

The Annual Meeting is accessible to persons with disabilities. Please specify adaptions and/or assistance required and a HPS representative will contact you. _____

AAHP COURSES: Saturday, 6/25 - 8:00 AM-5:00 PM - Each course is worth 16 Continuing Education Credits

❑ Course 1 - Radiation Litigation; D. Wiedis	$120.00
❑ Course 2 - A Comprehensive Review of the Basic Regulations for Transportation of Nuclear Materials; A. W. Grella	$120.00
❑ Course 3 - Low Level Radioactive Waste Management: Past, Present and Future; F.X. Masse	$120.00

PROFESSIONAL ENRICHMENT PROGRAM: Each PEP is worth 4 Continuing Education Credits

SUNDAY 6/26	**8:00-10:00 AM**	**Course Selection (Use Course Numbers)**
A-1	Risk and "Dose" in Health Physics (Strom)	
B-1	Internal Dosimetry by MIRD and MIRDOSE: Theory, etc. (Bolch)	
C-1	Recent Trends in Radiation Detectors (Knoll)	
D-1	Implementation of the Revised 10 CFR Part 20 (Cool/Raddatz)	
E-1	Estimation of Tissue Doses in Diagnostic Radiology (Tupin)	
F-1	What Can go Wrong and How to Prevent it (Mallett)	
G-1	Radiological Engineering: Design, etc. (Dionne/Masciulli/Connelly)	
H-1	Teaching Radiation Protection Using Non-traditional Techniques (Weaver)	
I-1	Fundamentals of Non-ionizing Radiation Protection (Leonowich)	
J-1	Preparation for Part I of ABHP Certification Examination (French)	
SUNDAY 6/26	**10:30 AM-12:30 PM**	
A-2	Internal Dosimetry and 10 CFR20 (Poston)	
B-2	Internal Dosimetry by MIRD and MIRDOSE: Biokinetic Modeling (Stabin)	
C-2	Low-level Environmental Measurements (Gogolak)	
D-2	A Review of Basic and Current Nuclear Transportation Regulations (Grella)	
E-2	Health Physics Concerns in Radiology (Steidley)	
F-2	Radiation Accidents - Lessons Learned (Ricks)	
G-2	A Generic Approach to Health Physics Program Appraisals (McKay)	
H-2	Communication Skills for Health Physicists (Cehn)	
I-2	Duties of the Laser Safety Officer (Barat)	
J-2	Preparation for Part II of ABHP Certification Exam (Chabot)	
SUNDAY 6/26	**1:30-3:30 PM**	
A-3	Concerning the Relative Biological Effectiveness of Radiations, etc. (Raabe)	
B-3	Everything the Operational Health Physicist Should Know, etc. (Ruhter/Perry)	
C-3	Everything but the Counting Statistics: Measurement, etc. (Kathren)	
D-3	NEPA Compliance (Massey)	
E-3	Health Physics in Nuclear Medicine (Vetter)	
F-3	History of Radiation Experiments Utilizing Human Subjects (Cohen)	
G-3	Total Quality Management (TQM): The Journey From, etc. (Khadabux)	
H-3	Solving Problems Using Groups - Part I (Tarpinian)	
I-3	The Identification and Control of Non-ionizing Electro., etc. (Leonowich)	
J-3	Risk Optimization in the 21st Century (Raddatz)	
SUNDAY 6/26	**4:00-6:00 PM**	
A-4	The Natural Radiation Environment (Toohey)	
B-4	Beta/Hot Particle Dosimetry (Porter)	
C-4	Quality Assurance on TLD Analysis (Lantz)	
D-4	Measurement Requirements for D&D (Walker)	
E-4	Introduction to the Physics of Mammographic Imaging, etc. (Chamberlain)	
F-4	Radiation Injury: How will it be Handled in our Courts? (Gooden)	
G-4	Radiation Safety Information Management (Schadt)	
H-4	Solving Problems Using Groups - Part II (Tarpinian)	
I-4	Industrial Hygiene for Health Physicists (Grayson)	
J-4	Environmental Dose Reconstruction (Volleque)	
MONDAY 6/27	**12:15-2:15 PM**	
M-1	Basic Radiological Protection for Tritium Facilities (Draper)	
M-2	Current Approaches to Regulating Public Exposures to, etc. (Kocher)	
M-3	Indoor Radon: Sources and Solutions (Mosley)	
M-4	Recent Trends in Radiation Detectors (Knoll)	
M-5	Skin Dosimetry and VARSKIN 2 (Durham)	
TUESDAY 6/28	**12:15-2:15 PM**	
T-1	History of Radiation Experiments Utilizing Human Subjects (Cohen)	
T-2	DOE's 10 CFR Part 834, Radiation Protection of the, etc. (Wallo/Peterson)	
T-3	Auditing Techniques for the Health Physicist (Martel)	
T-4	Current Issues in Radiation Litigation (Wiedis)	
T-5	Issues and Regulations Regarding Very Low-level, etc. (Phillips)	
WEDNESDAY 6/29	**12:15-2:15 PM**	
W-1	Health Physics Activities at Low-level Radioactive Waste, etc. (Adams)	
W-2	Similarities and Differences Between DOE and NRC Basic, etc. (Jones)	
W-3	Waste Management at Decommissioning Projects (Gaul)	
W-4	Implementation of the Revised 10 CFR20 (Cool/Raddatz)	
W-5	Lower Limits of Detection (Borak)	

8:00-10:00 AM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

10:30 AM-12:30 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

1:30-3:30 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

4:00-6:00 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

Monday
12:15-2:15 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

Tuesday
12:15-2:15 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

Wednesday
12:15-2:15 PM
___/___/___ = $30.00
1st 2nd 3rd
❑ Yes, stand by list

ABHP & PEP TOTAL $ _____

Transfer Total to Front of Form

Health Physics Society
8000 Westpark Dr.
Suite 130
McLean, VA 22102