

This & That

Stealing away - Writing this column for more than a dozen years has been a little bit like stealing. Some people never get to have this much fun on the job and get paid for it, but I'm in the process of taking on new duties that make it impractical for me to continue writing columns on a regular basis. So, beginning with the next issue, my colleague Howard Kercheval will write in this space.

This doesn't mean you are through with me forever, though. I told Howard and Editor Ken Frazier that I'll try to find time to fill in for Howard some when he is away on one of his gambling junkets, rehabilitation trips, continuing anger-management sessions, or one of the several mysterious trips he takes each year to "visit his niece."

I thought "E" was for Enlightenment - Sandia/California's Steve Hurd (8910) was amused by how a piece of mail was addressed to him in Livermore a while back: "Steve Hurd, Sandia National Laboratories, 7011 East Avenue, U.S. Department of Enemy ..." Steve and I aren't sure whether our DOE friends will be similarly amused, but probably more so than if the "y" in Enemy instead had been an "a."

Mint tea, sí. Mentee, no. - I sure like mint tea, but I just can't swallow the made-up word "mentee" to designate the recipient of mentoring. Russ Walker (2544) says he is hearing more and more Sandians use "mentee." Neither one of us can find it in any of our dictionaries, and we don't need it. There's already a perfectly good word designating a recipient of mentoring: it's protégé.

Big raises make you mad? - Retiree Jack Tischhauser sent a note after reading the "performance review profundities" item in a recent column. A 36-year man who left in 1988, Jack noted some "profound remarks" made long ago by W.C. Scrivner, who retired in 1978 after serving more than 30 years in various technical and administrative positions, including personnel director and computing director. Jack says W.C. was fond of saying if you got a big raise you should be mad, because you haven't been getting paid what you are worth. If you got a small or zero raise, you should be happy, because you have been getting paid what you are worth.

Next issue Jan. 11 - It's that time again when the *Lab News* interrupts its regular biweekly publication schedule to adjust for the end-of-year holiday break. Our next issue will be published Friday, Jan. 11. The deadline for classified ads and news is noon, Jan. 4.

"Feed" Howard - As Howard Kercheval takes on the column-writing duties (see top item), I hope you'll send your amusing stories and column ideas to him, as you have to me. Howard plans to continue having some fun in this space, as I've tried to do over the years. The interesting stories and ideas from readers make for some of the best column items.
- Larry Perrine (845-8511, MS 0165, lgperri@sandia.gov)

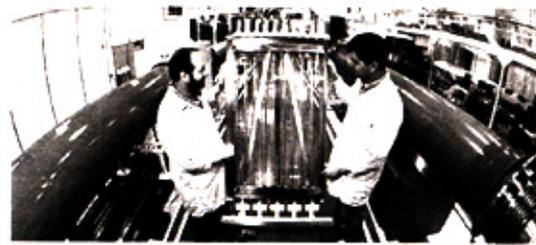
Z-Beamlet laser to be dedicated Dec. 15

By Neal Singer

A celebration of the reconstruction and modernization of the world's third largest laser, Z-Beamlet, will be held Saturday, Dec. 15, from 10 to 11:30 a.m. in Area 4. The laser, by proximity and through dedicated entry channels, has been technologically married to the world's most powerful X-ray facility, Sandia's Z machine, and functions as a major addition to its operations. Expected to attend are Senators Pete Domenici, R-N.M., and Jeff Bingaman, D-N.M., and Rep. Heather Wilson, R-N.M. Z and ZBL facilities (building 983/986 in uncleared part of Area 4) will be open for self-guided tours from 11:30 a.m. to 1 pm following the dedication ceremony. Badged employees are invited to attend.

Not far below the surface of the event are researcher hopes for improvements in stockpile stewardship evaluations and material properties research, as well as progress toward high-yield nuclear fusion. These may be generated by equipment installations expected to begin this fiscal year in both machines.

The Z-Beamlet laser is a reconstructed, upgraded version of Lawrence Livermore National Laboratory's former Beamlet laser. With New Mexican thrift — somehow reminiscent of the tendency of pioneers to save string — Sandia researchers



Z-BEAMLET laser (Photo by Randy Montoya)

teamed with partners from LLNL to haul the disassembled Livermore laser — slated there for the junk pile — to Sandia, where it was re-assembled over a two-year period, says project lead John Porter (1673). Its first outing — as researchers held their breath to see if it would work or implode — made use of the giant laser's superior power and focusing properties to successfully image the symmetrical shrinking of a dummy deuterium pellet under X-rays produced by Sandia's Z machine. The ability to symmetrically shrink a pellet is a necessary precondition in creating a nuclear fusion reaction.

This year, Z-Beamlet, with \$3 million of an expected \$30 million expenditure, will begin the transition to a petawatt laser. A peta is a 1 followed by 15 zeros. This will make the laser three orders of magnitude faster in delivering the same amount of energy, thus boosting its power a thousandfold. The laser then will be able not only to observe but also to act. One function will be to serve as a kind of spark plug, heating a small region of the fuel pre-compressed by Z's X-rays to initiate what eventually may be a nuclear burn.

The Z machine, in addition to providing data for the nuclear stockpile and basic materials research — tasks for which it is currently oversubscribed by researchers from many laboratories — has long been thought to embody a technique that could bring control of high-yield nuclear fusion, with its promise of unlimited energy from sea water. A major change in target configuration six years ago brought the machine's output from 40 terawatts to 230 terawatts — about a quarter the output needed for fusion — in little more than a year.

This year, DOE has allotted \$10 million of a \$60 million expected total to renovate the 15-year-old Z machine with new Marx generators — the giant capacitors that store electricity fired in each shot. The improved capacity is expected to ultimately increase the machine's power output by approximately 50 percent, says Jeff Quintenz (1600), Director of Sandia's Pulsed Power Sciences Center. An added bonus will be the ability of researchers to fire the machine twice as often — 400 times a year instead of 200, says ICF Program Manager Keith Matzen (1670), allowing the machine to better accommodate user requests.

In a fusion process, Z's X-rays act as heat in an oven, in the attempt to "cook" — symmetrically compress — a bb-sized deuterium-tritium pellet to the point at which its atoms fuse and release energy.

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Mike Cieslak named director of Materials & Process Sciences

VP 1000 Al Romig last week announced the selection of Mike Cieslak as Director of Materials & Process Sciences Center 1800, effective Dec. 7.

Mike earned his PhD in Materials Engineering from Rensselaer Polytechnic Institute. He was hired by Sandia in 1983 in the Process Metallurgy Department and is currently the Deputy Director of Operations and Planning Center 1800.

Mike's contributions to Sandia include assignments as a Senior Manager in the Advanced Concepts Group; AAAS Congressional Science Fellow/Legislative Fellow for Sen. Jeff Bingaman; Deputy Director for Long Range Planning for the Materials and Process Sciences Center; Program Manager in the ADAPT (Advanced Design and Production Technologies) Initiative Office; and manager/supervisor of the Direct Fabrication Technologies Department, Physical and Joining Metallurgy Department, and Physical Metallurgy Department.

Still no word on proposed retirement plan changes

As of Wednesday morning, Dec. 12, the Department of Energy had not provided a formal response on Sandia's proposed Retirement Income Plan changes, according to Ralph Bonner, Director of Center 10300. Because this is the last *Lab News* before the holiday break, any related news that becomes available before the break would be announced via Labs-wide voicemail messages and in a *Sandia Daily News* extra. Details would appear in the next *Lab News*.