



HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

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Neutral Beam Injectors Operate on PDX

Two neutral beam lines operational on PDX have been injecting about 2 MW of power into diverted plasmas. Both electron and ion heating occur but still need to be quantitatively assessed. Impurity influxes have been encouragingly small, despite the near perpendicular injection that is used on PDX.

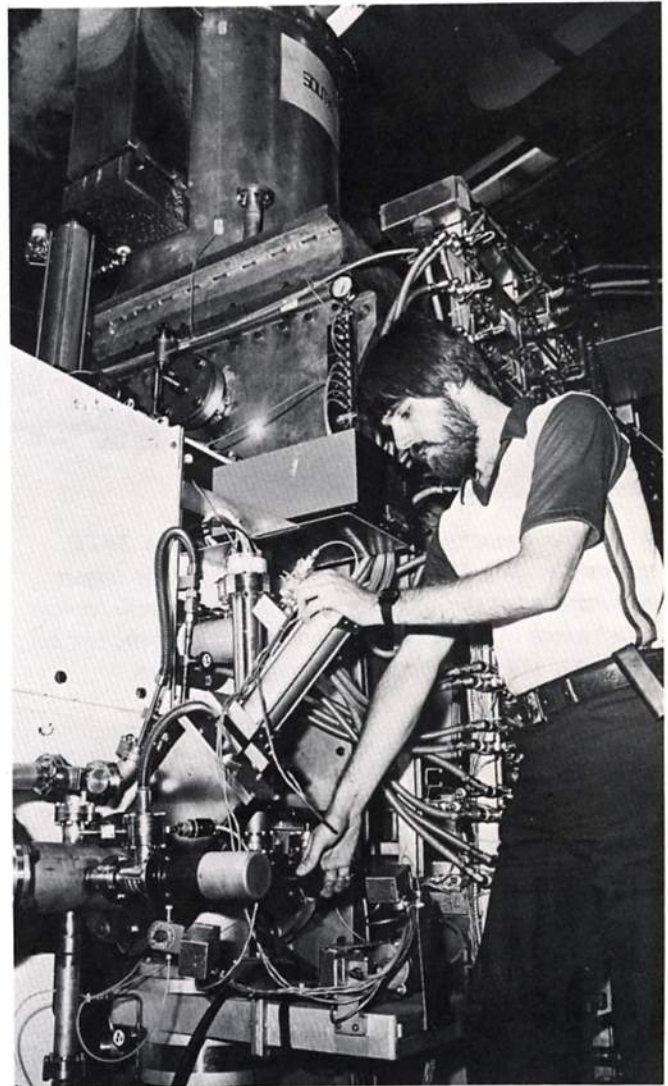
When the neutral beams are activated, there has been a noticeable drop in plasma density. One explanation for this density drop may be the fact that the additional heat in the outer plasmas area causes it to flow more readily around the divertor and onto the neutralizer plates. To counteract this, additional gas is pumped into the vacuum vessel during beam operation.

Experiments over the next few months will continue to center on the PDX goal of defining the effect of the divertors on impurity behavior, but other phenomena are under study as well. A particularly interesting observation is that the outward plasma flow is much greater on the "outboard" side of the plasma than on the "inboard" side.

Plasma magnetohydrodynamic (MHD) properties will be studied using a soft X-ray analysis program developed on PLT. CO₂ laser scattering and TV Thompson scattering diagnostics are being developed that will aid in measuring plasma position, shape, and disruptions. Optics are in place for the Thompson scattering diagnostic, and the programming has just been completed that will enable it to start generating plasma profiles.

Office Relocations

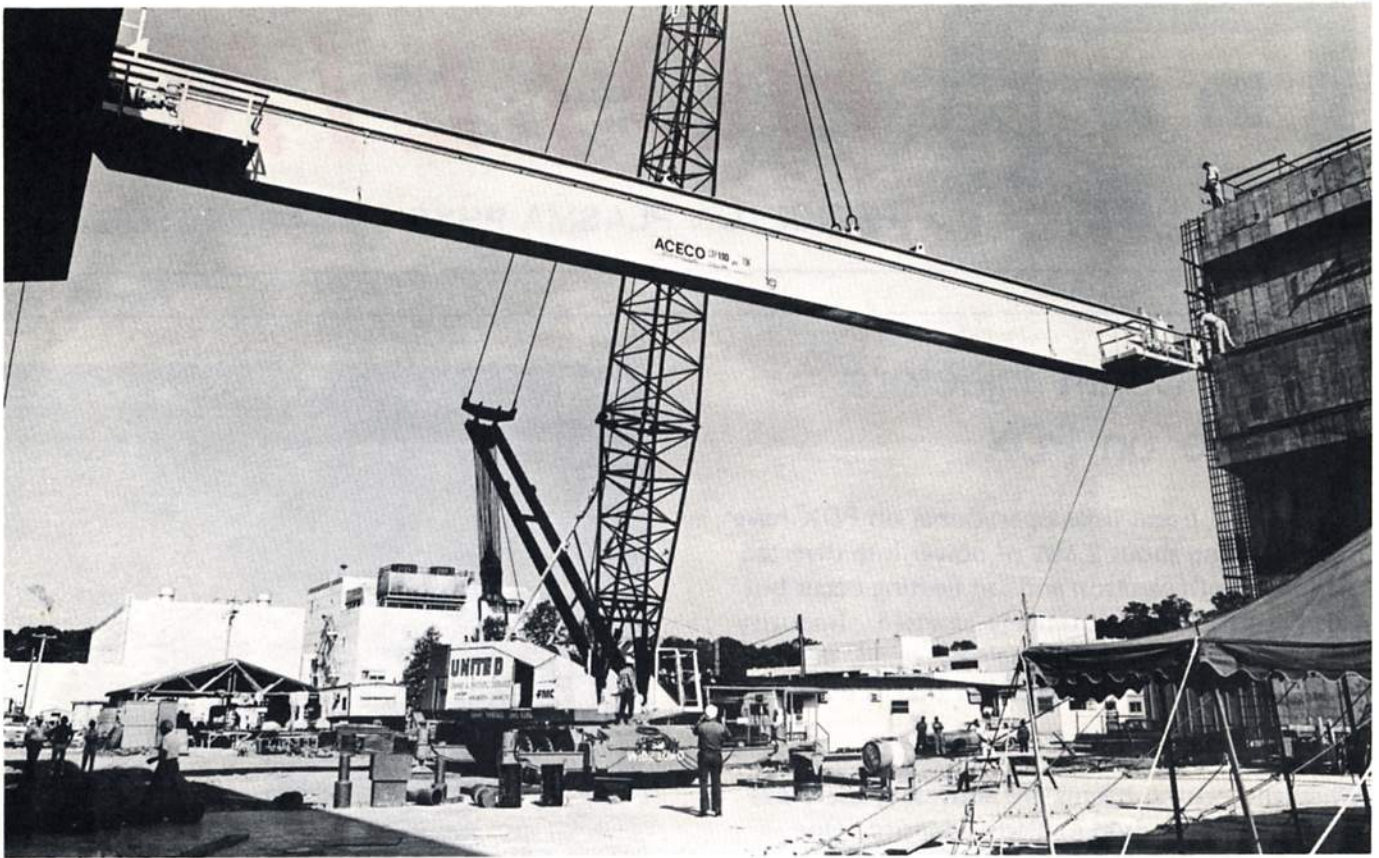
The Finance and Accounting Divisions have moved to the 1-E building on A-Site. The new offices are located in the former ground floor computer center.



Mike Williams adjusts a vacuum valve on PDX's south beam line.

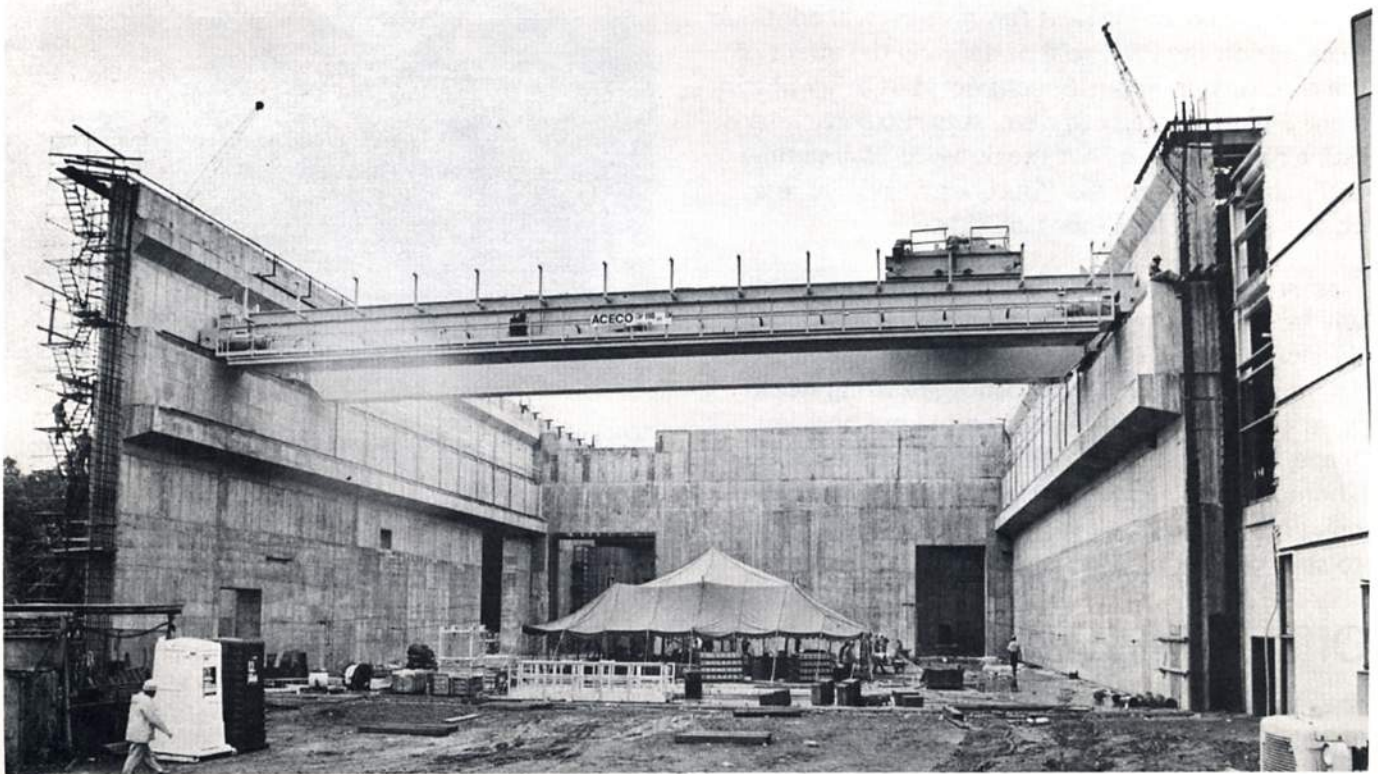
Visual Aid Aid

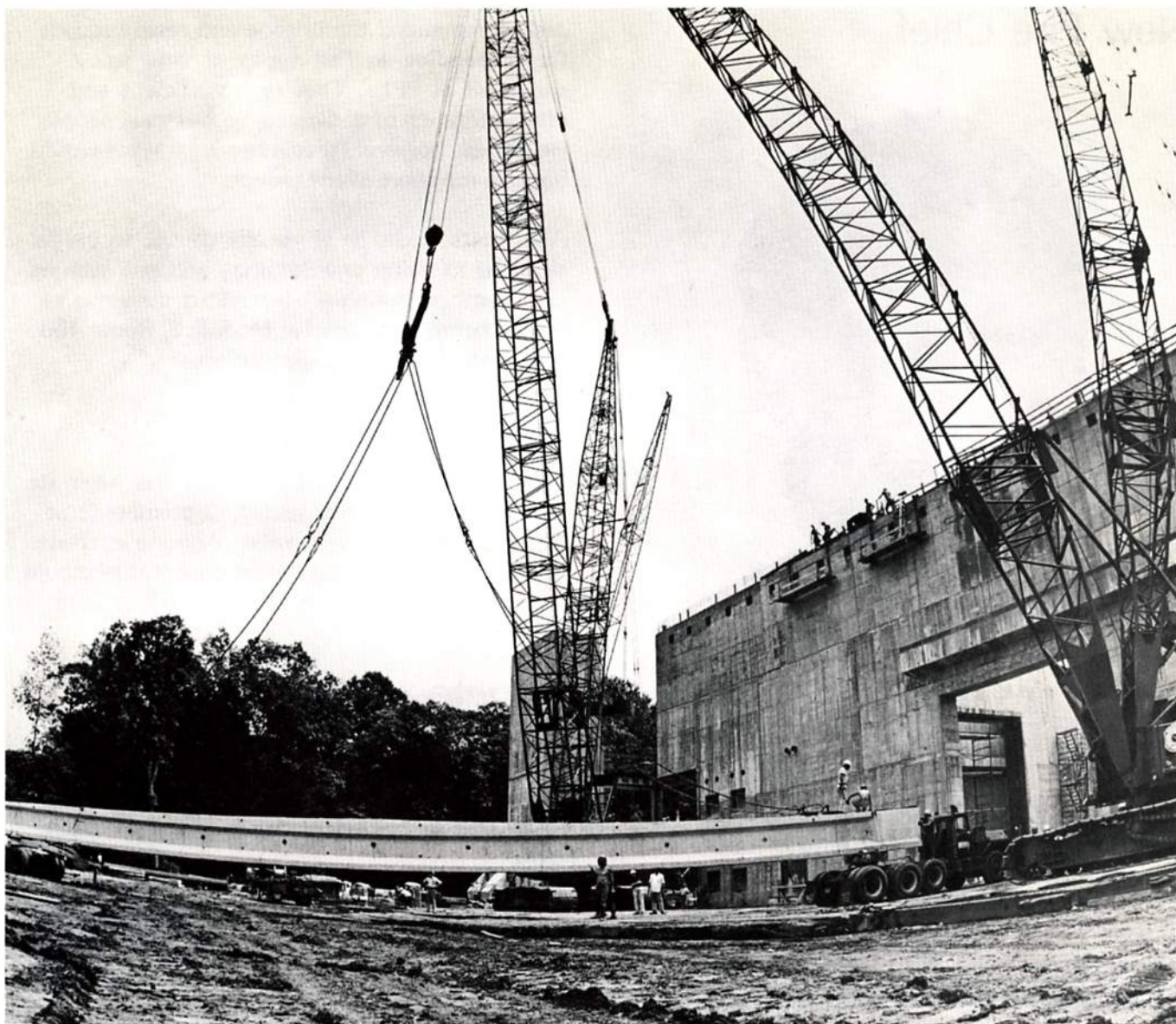
Planning a slide presentation? You can give your slides more impact (and save your audience from eyestrain) by following the tips contained in the Kodak brochure, "Effective Lecture Slides". The pamphlet is available from the Communications Office, ext. 2750.



A 110-ton capacity crane was installed in the TFTR test cell on July 15, 16 and 17. The crane, the largest ever installed at the laboratory, is mounted on rails located on a haunch in the reinforced concrete walls of the test cell. Its span is 114 feet, and the rail length is 150 feet.

The crane will remain permanently in the test cell and will be used to install machine components, including the vacuum vessel, the coils, and the neutral beam injectors. It will also be used for moving parts and equipment during the operating lifetime of TFTR.





Workmen prepare to unload first concrete beam from its delivery truck. The beam supports its own weight while it is on the truck.

Roof Construction Begins

A new phase in the construction of the TFTR test cell was reached on July 30 when the first roof support beam was put in place. There are 69 beams, made of prestressed concrete by Eastern Prestress in Pennsylvania. Each support is 114 feet long and weighs 55 tons. The supports are being shipped to Princeton by a special truck, which has a rear wheel that can be steered by the man in the cab.

Workmen hope to put up at least four supports a day, thus finishing by late August. After this is done, the spaces between the beams will be filled with more concrete. Cables will then be used to tie the supports in the roof together. Finally, the roof will be waterproofed with asphalt.

Pre-stressed concrete is used in many applications including bridges and concrete reactor domes. In the TFTR test cell roof, the beams are also post-tensioned. The supports have a long channel running through them lengthwise. A cable is run through the channel, stretched and then steel plates are attached to the ends of the steel strand. The plates will then be pushing on the ends of the beam, compressing it. If a weight is put on the roof the supports will bow, stretching the bottom of the beam and causing a (outward pulling) tensile stress there. But the beam is already under a compressive stress, so the tension is now merely partially offsetting the already applied compression. In this way, concrete may be used in places previously impossible.

New Fire Chief



PPL welcomed a new fire chief this month, when Jack Anderson took over the reins of the fire brigade, first aid and heavy rescue squads.

Jack, a resident of Bricktown, recently retired after a 20-year stint as a fire marshal/police officer with the Port Authority of New York and New Jersey. Fifteen of those years were spent working at the Newark International Airport.

Jack is a member of the National Fire Protection Association, the International Association of Arson Investigators, and the Fire Marshalls Association of North America. As of July 7, he became chief of PPL's 32-man fire brigade, first aid squad and heavy rescue squad. The groups share two fire pumpers, two chemical trucks and an ambulance.

While administration will be the chief's highest priority, he intends to promote the first aid and fire prevention training for all laboratory employees. Fire safety evaluations of all laboratory structures, reorganization of the brigade and continuing training are also goals for Chief Anderson.

Jack commended the brigade and rescue squads for responding to "all types of emergency situations at PPL. They're a proficient and efficient bunch of dedicated, enthusiastic people." He hoped, however, that more employees would become members of the groups.

Applicants should be physically fit, and would be required to spend one Saturday and one evening per month in training. Interested individuals should contact the chief at Module 2, Room 158 or on ext. 3166 for an application.

Bowling Resumes

The PPL Women's Bowling League will begin its second season on Wednesday, September 3 at Colonial Lanes, Lawrenceville. Anyone interested in joining the league or becoming a substitute should contact Millie Willerton at ext. 3303 or Sara Paterson at ext. 2662.

Volunteers Sought

Mary Ann Brown is asking for volunteers to help make handcrafted items for sale at the Blairstown Potpourri, scheduled for Jadwin Gym in September.

Anyone interested in helping out is invited to join Mary Ann and her crafty cohorts every Thursday from noon to 1 p.m. in the "Commons", located on the second floor of the LOB west wing.

Yarn, remnants of material, thread and polyester filling are also needed for several projects. If you can donate any of these goods, please contact Mary Ann Brown at ext. 2103 or Millie Willerton at ext. 3303.

Chances are also being sold for a raffle to be held during the Potpourri. Chances are available from ticket committee members Edna Willis, Sheryl Robas, Anne Golden, Marilyn Ellner, John Anastasio, James Turley, Lucy Lennon and Athene Kan.

The PPL Hotline is issued by the Princeton University Plasma Physics Laboratory, a research facility supported by the U.S. Department of Energy. Correspondence should be directed to PPL Communications Office, Aero Lab, James Forrestal Campus, ext. 2750.
