

VTRS QUALITY ASSURANCE PROGRAM FOR IRRADIATED FUEL TRANSFER

The Virginia Tech Reactor Facility (VTRS) has operated since 1959. During this time, procedures have been developed which have allowed the facility to operate safely under terms of its license and Technical Specifications. These procedures already cover the normal processes of transferring fuel into and out of the core and the dismantling of an individual fuel assembly for the purpose of changing the fuel configuration of the assembly. However, it has never been necessary to ship irradiated fuel away from the facility. It has now been decided to go into a possession without utilization status for the reactor license and, as a result, the fuel is to be completely removed from the facility.

An engineering firm, Proto Power/Bisco Nuclear, Inc. (PPB), has been retained to manage the transfer of irradiated fuel from the facility, with the assistance of our own personnel. A GE model 700 fuel transfer cask will be used. The fuel will be carried on a carrier operated by the Tri-State Trucking Company, operating under the auspices of the Department of Energy. However, the fuel will remain the responsibility of Virginia Tech as the shipper until it reaches its destination, the Savannah River Project. All required notifications, approvals, security safeguards and permits necessary for the movement of the fuel from Virginia Tech to its destination will be effected.

There will be two new procedures required in the fuel transfer process, both of which are straightforward extensions of existing procedures. The first of these is a procedure covering the dismantling of the existing fuel assemblies and reassembling them into a new configuration which will fit into the basket in the GE 700 cask. It is also necessary to disassemble the existing assemblies in order to remove stainless steel structural components holding the assemblies together. The second new procedure differs only slightly in the existing procedure for transferring fuel from the fuel storage pit into the core. In the new procedure, the fuel will be transferred from the fuel storage pit into the GE 700 cask. The most significant difference is that a mobile crane will be required to lift the VTRS fuel transfer cask into position to download the fuel into the GE cask, since the GE cask will be too large to bring inside the reactor facility. One other difference in the second procedure is that it will not be carried out wholly within the reactor cell but will include an area normally accessible to the public. The safety and security of the operation will be maintained by defining a temporary exclusion area which will be maintained by Virginia Tech Police forces.

Both new procedures and this document will be reviewed by the University Reactor Safety Committee, which has that responsibility under the terms of the VTRS Technical Specifications. Both procedures will be practiced beforehand using dummy fuel assemblies to assure proficiency on the part of all participants.

The work will be performed by the current reactor staff, University Health Physics personnel, and personnel from PPB. The credentials of all of these personnel, with the exception of those from PPB, and those of the Reactor Safety Committee have been previously provided to the NRC as part of the normal maintenance of the VTRS operating license. The qualifications of PPB and of Mr. William D. Love, Project Director for PPB, have been provided to the University as part of their bid.

All records of the fuel transfer will be maintained, along with all other records of the VTRS, by the Department of Health and Safety to which the responsibility for the reactor facility has been transferred.

It is anticipated that, for the time being, no fuel will be kept at the VTRS so that this procedure will not be repeated, unless at some future date, the decision is made to request operational status for the VTRS.

DOCKET NO. 71-5942
CONTROL NO. 26042
DATE OF DOC. 11/13/85
DATE RCVD. 11/15/85
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