

TMI's next problem: How to get rid of its accident water

By PATRICE FLINCHBAUGH

Of the Daily Record

Three Mile Island officials will soon grapple with water that's up to 300 million times more radioactive than federal drinking water standards. The water would fill two Olympic-sized swimming pools.

The task is technically hard and politically delicate since no one has ruled out eventual release of treated water into the Susquehanna River.

A lawyer for one Lancaster anti-nuclear group categorized TMI accident water as the most hazardous cleanup issue so far — including

krypton venting. Brookhaven Laboratory in Long Island, N.Y., sees the water's apparently high cesium-137 content, at least, as that hazardous.

One Metropolitan Edison Co. spokesman illustrated the company's problem: a TMI worker could stand before the 670,000-gallon pool of water for less than two minutes before receiving his quarterly allowable dose of radiation.

But Met-Ed says water must be removed soon to avert disaster inside the containment building.

Rising water threatens to over-

take key equipment and control valves, according to TMI spokesmen. From 200 to 400 gallons a day have been seeping from cooling systems to join the water released in the containment basement during the March 1979 accident.

Skeptics say Met-Ed is just using scare tactics to push through SDS; a new water cleaning system with a solid-waste end product that is too radioactive to handle, in their opinion.

The Nuclear Regulatory Commission is deciding right now how to classify the contaminated water.

Met-Ed says low-level, anti-nuclear citizens say high-level.

There are disposal problems in either case. A commercial burial site must be picked for the mud-like sludge plus spent filters and liners used in the process. Overtures have been made to Gov. Dixie Lee Ray for burial in Richland, Wash., the utility's prime choice of three available sites.

If she refuses to accept the waste, utility officials must bargain elsewhere. Met-Ed and the NRC do not intend to convert the island into a long-term radioactive dump site, spokesmen for both

groups say.

Met-Ed has constructed interim storage facilities for the wastes. But that capacity assumes the utility will be allowed to ship the radioactive solids offsite within a few years. Utility spokesmen say little more than they'd have a storage problem should shipping be blocked.

The NRC, which approves the site, says selection will be tricky, because commercial plants have little experience dealing with such high concentrations of radioactive solid waste.

The utility disagrees, citing

numerous research facilities which commonly handle levels of radioactivity present in a single shipping cask of solid waste.

Met-Ed's real problem with the cleaner, called SDS, is solidifying the radioactive end product to meet federal standards for burial.

The favored method — mixing with cement — doesn't seem to work, according to recent laboratory research reports.

Richard McGoey, TMI waste water project director, said Hittman Inc., maker of SDS (submerged demineralization system), is in

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the second phase of a test to decide how well cement contains cesium. Met-Ed has only four samples of the water and all show large quantities of cesium are present.

Preliminary studies by Brookhaven laboratory indicate cesium leaches out of cement within a few hundred days, according to Brookhaven technician Jim Lease.

But until conclusive evidence is found, McGoey says Met-Ed will proceed with what it feels is the safest way to treat the accident water.

Anti-nuclear groups disagree. They would prefer evaporating the water.

McGoey said evaporation and SDS were given equal consideration last spring, but the former was

rejected as too complex.

Apparently, an operator must maintain numerous critical water levels in an evaporator, he said. In SDS, it's just one flow line.

Met-Ed has been working on plans to treat and dump the water in the Susquehanna since December 1979. SDS is expected to be ready by November, but it cannot be used until it's approved by the NRC.

Contrary to anti-nuclear group's assertions, NRC has said it will not automatically approve SDS.

Bill Traverse, NRC technician, said the regulators won't be bullied: Met-Ed is proceeding with SDS at its own financial risk.

The NRC will judge SDS in the context of a comprehensive review of the cleanup's impact on the

area's environment. Some attention will be given to cost, Traverse said.

That environmental impact statement will be presented to the commission next Thursday in Washington. Even so, SDS won't be reviewed immediately, said Traverse.

The EPICOR II system, scheduled to finish treating the moderately-contaminated half of TMI accident water by Monday, cost roughly \$2.5 million, said McGoey.

Should the NRC deny use of the more expensive SDS, McGoey said the project will have to be scrapped. In his mind, the biggest impact would be lost time and the danger of a prolonged cleanup.

"We're talking two to three years

in the present regulatory environment before SDS solidification equipment will be working.

"Any unnecessary delays would be critical. We're about eight to 12 inches from two valves that control a core cooling system. We want to be able to use that system eventually instead of the fans now in operation," he said.

McGoey said the water is rising about one inch each month.

But Traverse said the NRC won't be pushed into a corner. The environmental impact statement comes first.

Traverse confirmed that the Lancaster-based, anti-nuclear Susquehanna Valley Alliance (SVA) forced the NRC to await the environmental impact statement.

SVA's push for an impact statement was prompted by concern for effects of TMI's cleanup on the Susquehanna River. (Lancaster city, Wrightsville, Columbia and Safe Harbor all draw drinking water from the river downstream of TMI, according to the state Department of Environmental Resources.)

SVA says any attempt to evaluate SDS or its predecessor, EPICOR II is illegal without considering what all clean-up steps mean, including krypton venting

we sat back and waited for the NRC to approve something, it would be irresponsible.

"I know there are groups, who if they had the time and same resources to do the types of evaluations we've done, would also conclude SDS is the best route to take," he said.

SDS works like a water softener by exchanging ions — in TMI's case, radioactive for non-radioactive ones.

The system is to be placed under water in the 440,000-gallon spent fuel pool of Unit 2's reactor building.

The dirty water will pass through a collection of filters and resin beds, all designed to collect radioactivity. From there, it will go to two 500,000-gallon holding tanks, just recently constructed on the island.

A court injunction now bars Met-Ed from releasing any accident-related water into the Susquehanna. But public documents indicate it is the company's plan to release the water as early as January 1981. Utility spokesmen say a final decision has not been made yet.

SVA is concerned about any release because SDS does not remove radioactive tritium from water. Tritium is not known to con-

tritium will be monitored in any planned releases.

What remains of the SDS process besides water are the 4x4 feet and 6x6 feet filters, liners and resin beds that contain concentrated radioactivity.

Those must be individually packaged by remote control in steel and lead-encased casks, if for transport, or in concrete vaults, if for temporary storage on the island.

McGoey said it takes days to ready a shipment of casks for transport — a round of inspections is done by at least four groups.

Theoretically, SDS wastes will be buried in a commercial site which is licensed to handle up to 15,000 curies per load.

McGoey said such sites are chosen for their impermeable clay-like ground and absence of groundwater. He said the site assumes any buried container will eventually decay, so the ground itself must be considered the permanent container.

At least that's the case for low-level radioactive wastes. Should the SDS byproducts be considered high-level, a different tack may be necessary, although TMI officials aren't certain.

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Met-Ed's NRC technician, spokesman, regulators won't be satisfied with Met-Ed's proceeding with SDS on its own financial risk.

Met-Ed will judge SDS in the light of a comprehensive review of the cleanup's impact on the

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SVA says any attempt to evaluate SDS or its predecessor EPICOR II is illegal without considering what all clean-up steps mean, including krypton venting and possible releases into the river.

SVA has filed a lawsuit to that effect, which should reach federal court by October, says SVA attorney Jean Kohr.

The group charges Met-Ed has divided the cleanup into small segments to facilitate incremental approval of quick, inexpensive methods at the expense of public safety.

"I can assure you that public safety is of ultimate concern," said McGoey, who helped choose SDS.

"Our responsibility is to minimize danger to the public. If

we sat back and waited for the NRC to approve something, it would be irresponsible.

"I know there are groups, who if they had the time and same resources to do the types of evaluations we've done, would also conclude SDS is the best route to take," he said.

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SVA is concerned about any release because SDS does not remove radioactive tritium from water. Tritium is not known to concentrate in any one human organ. Instead it spreads uniformly, being a hydrogen isotope and closely related to body water.

NRC's Traverse said tritium is one of a normally operating nuclear plant's permitted emissions into rivers. Up to 1,200 curies a year can be dumped, he said.

TMI's one million gallons of accident water contain about 2,800 curies of tritium, according to a February 1980 letter from R.F. Wilson of TMI to John Collins of the NRC.

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tritium will be monitored in any planned releases.

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The federal government is in a state of what Jean Kohr calls institutional paralysis over deciding what to do with high-level radioactive wastes.

When nuclear reactors were first designed, engineers figured the government would devise a disposal plan for spent fuel rods and cores quickly. Reports now say it may be 25 years before such a plan is devised.

In any case, NRC and Met-Ed officials repeat they do not intend to convert Three Mile Island into a permanent radioactive waste storage facility.