LONG ISLAND LIGHTING COMPANY
175 EAST OLD COUNTRY ROAD · HICKSVILLE, NEW YORK 11801

MILLARD S. POLLOCK
VICE PRESIDENT-NUCLEAR

July 7, 1981

SNRC-590

Mr. Boyce Grier, Director
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
King of Prussia, Pa 19406

I & E Bulletin 81-03
Long Island Lighting Company
SHOREHAM NUCLEAR POWER STATION - UNIT 1
Docket No. 50-322

Dear Mr. Grier:

I & E Bulletin 81-03 requested certain information pertaining to Corbicula and Mytilus fouling and clogging in salt service water systems supplying safety related systems. The following is our response to this Bulletin, arranged generally along the lines of the questions asked of Construction Permit holders.

1. Existence of Mytilus

The blue mussel Mytilus edulis is present in both adult and larval stages throughout Long Island Sound which is the cooling water source for Shoreham's service water system. Its presence has been documented at the Shoreham site in numerous studies, the most recent of which is the ongoing preoperational Aquatic Ecology Monitoring Program. The preoperational study monitors seasonality and abundance of Mytilus larvae, which, of course, are the precursors of any fouling/clogging problems which may occur. Figure 1, attached, depicts larval abundance over the past 4 years. Our assessment of and experience with potential fouling/clogging problems is also aided by our extensive experience with Mytilus control at our 3 operating fossil stations which also utilize Long Island Sound for cooling water.

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2. Determination of Infestation

At the present time, construction of the plant is approximately 88% complete. All service water and circulating water systems are installed and are presently undergoing intermittent start-up testing. As such, various portions have been in and out of use at varying frequencies; some sections have been subject to dismantling for necessary checking and modification of valving and other details.

During these checking/modification procedures, only one instance of Mytilus fouling was noted. This occurred in the 24" supply pipe to the non-safety related Turbine Building Closed Loop Cooling Water System heat exchangers. It was found to be approximately 90% clogged with Mytilus shells and debris. Some additional Mytilus shells and debris were found in the heat exchanger inlet water boxes. The presence of the Mytilus was not unexpected since cooling requirements were low and this system had been operating at much lower than normal flows, on an intermittent basis. Consequently, the chlorine system could not be used consistently in the designed manner. Conditions were thus optimal for Mytilus attachment and growth. The partially clogged line was subsequently cleaned and flushed with a high pressure water spray.

No other infestations have been noted.

3. Corrective and Preventive Actions

During normal operation of the plant, the attachment and growth of biofouling organisms in the salt service water systems serving the plant will be controlled by application of hypochlorite at the maximum rates allowed by the U.S. Environmental Protection Agency. In addition, flows will generally be maintained at velocities above 4fps and any stagnant sections will be flushed out on a schedule coincident with times of maximum chorination. While we are confident that these planned measures will be sufficient to provide adequate fouling protection to safety related systems, we continually investigate implementation of other or additional control methods which may show potential operating or safety benefits.

We estimate the manpower expended in the conduct of the above review and preparation of this response as required by I & E Bulletin 81-03 was approximately 160 hours.

We trust that the above explanation has been responsive to your request. If you have any additional information requirements, please do not hesitate to contact us.

Very truly yours,

M. S. Pollock

M. S. Pollock
Vice President - Nuclear

ACG/pd

cc: J. Higgins

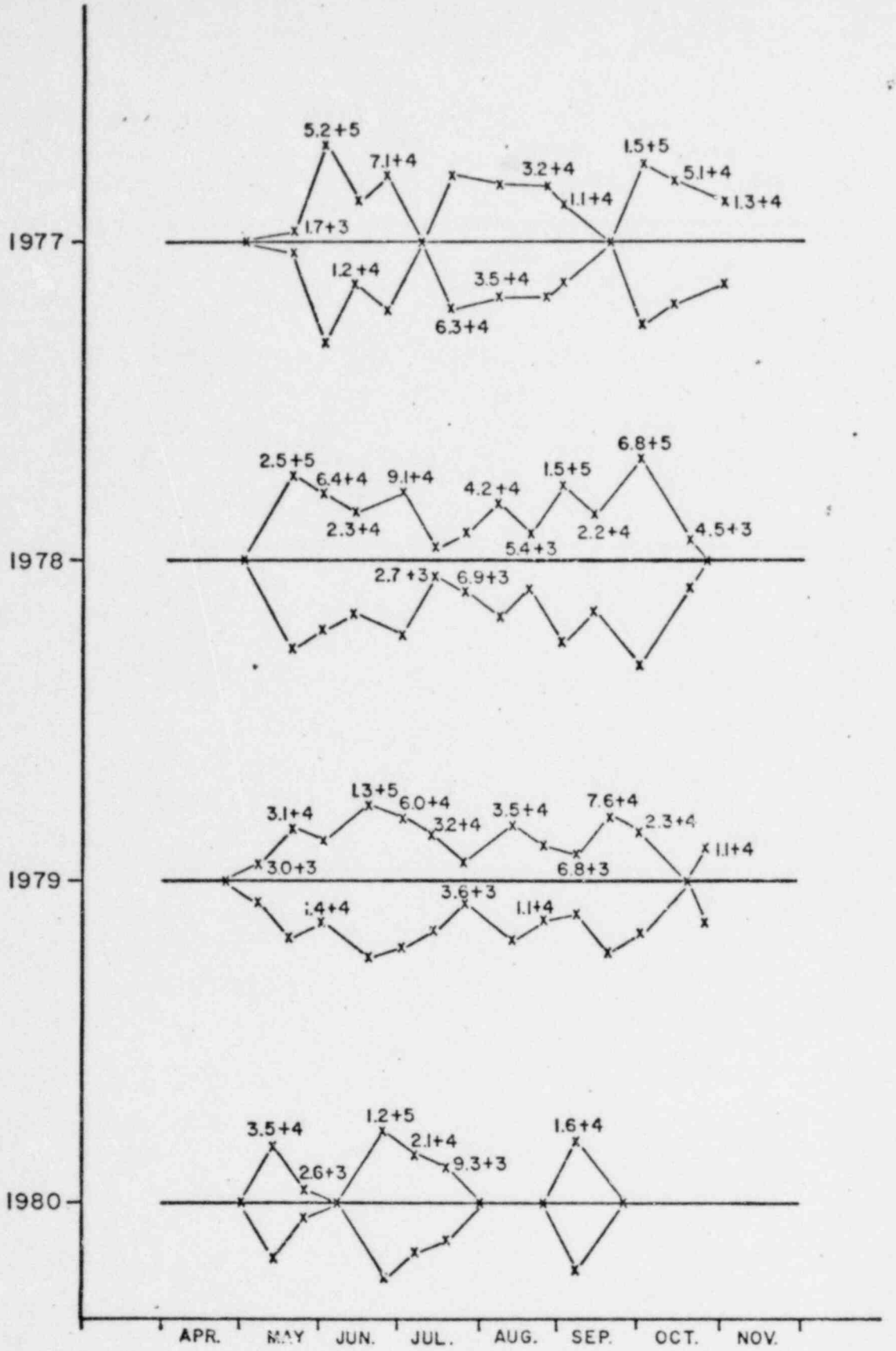

FIGURE 1. SEASONAL ABUNDANCE OF MYTILUS EDULIS LARVAE AT THE SHOREHAM SITE; ABUNDANCE PER 1000 m^3, SCIENTIFIC NOTATION. (DATA FROM PRE-OPERATIONAL AQUATIC ECOLOGY STUDIES 1977–80, SHOREHAM NUCLEAR POWER STATION – UNIT 1.)