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July 19, 1982
NRC/TMI-82-044

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Bernard J. Snyder, Program Director
TMI Program Office

FROM: Lake H. Barrett, Deputy Program Director
TMI Program Office

SUBJECT: NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

Enclosed is the status report for the period of July 11 - 17, 1982. Major items included in this report are:

-- Liquid Effluents

-- EPA and NRC Environmental Data

-- Radioactive Material and Radwaste Shipments

-- Submerged Demineralizer System Status

-- EPICOR II

-- Reactor Coolant System Feed and Bleed

-- Reactor Building Entries (RCS Venting/Depressurization)

-- EPICOR II Prefilter Inerting Tool Status

-- LWR Occupational Dose Data

Original signed by
Lake H. Barrett

Lake H. Barrett
Deputy Program Director
TMI Program Office

Enclosure: As stated

OFFICE ▶							
SURNAME ▶							
DATE ▶							

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OFFICE	TMIPO	TMIPO	TMIPO	TMIPO	TMIPO	TMIPO	
SURNAME	GKalman:ies	[illegible]ene	MShanbaky	AFasano	RBellamy	LBarrett	
DATE	7/19/82	7/19/82	7/19/82	7/19/82	7/19/82	7/19/82	

NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

July 11, 1982 - July 17, 1982

Plant Status

Core Cooling Mode: Heat transfer from the reactor coolant system (RCS) to reactor building ambient.*

Available Core Cooling Modes: Mini Decay Heat Removal (MDHR) system.*

RCS Pressure Control Mode: RCS is vented to the reactor building.*

Major Parameters (as of 0500, July 16, 1982) (approximate values)
Average Incore Thermocouples: 102°F
Maximum Incore Thermocouple: 124°F

RCS Loop Temperatures:

	A	B
Hot Leg	98°F	101°F
Cold Leg (1)	97°F	87°F
(2)	99°F	89°F

Pressure: The reactor coolant system is vented to the reactor building.

Reactor Building: Temperature: 85°F
Pressure: -0.17 psig
Airborne Radionuclide Concentrations:
5.5 E-7 uCi/cc H^3 (sample taken 7/15/82)
9.0 E-6 uCi/cc Kr^{85} (sample taken 7/7/82)
5.0 E-10 Ci/cc particulates (sample taken 7/15/82)

*See Major Activities Section - Reactor Building Entries (RCS Venting/Depressurization)

1. Effluent and Environmental (Radiological) Information

Liquid effluents from the TMI site released to the Susquehanna River after processing, were made within the regulatory limits and in accordance with NRC requirements and City of Lancaster Agreement dated February 27, 1980.

During the period July 9, 1982, through July 15, 1982, the effluents contained no detectable radioactivity at the discharge point although individual effluent sources which originated within Unit 2 contained small amounts of radioactivity. Calculations indicate that less than two-millionths (0.000002) of a curie of cesium and less than three hundred-thousandths (0.00003) of a curie of tritium were discharged.

2. Environmental Protection Agency (EPA) Environmental Data

-- The EPA Middletown Office has not received the environmental Kr-85 analytical results for the samples which were taken June 12, 1982, through July 9, 1982, from the EPA's Counting Laboratory at Las Vegas, Nevada. These results will be included in a subsequent report.

-- No radiation above normally occurring background levels was detected in any of the samples collected from the EPA's air and gamma rate networks during the period from July 7, 1982, through July 15, 1982.

3. NRC Environmental Data

Results from NRC monitoring of the environment around the TMI site were as follows:

-- The following are the NRC air sample analytical results for the onsite continuous air sampler:

Sample	Period	I-131 (uCi/cc)	Cs-137 (uCi/cc)
HP-327	July 7, 1982 - July 14, 1982	<6.5 E-14	<6.5 E-14

4. Licensee Radioactive Material and Radwaste Shipment

-- On Thursday, July 15, 1982, three (3) drums containing Babcock and Wilcox (B&W) tools used for work on the Unit 1 Once Through Steam Generator, were shipped to the B&W Research Center, Lynchburg, Virginia.

Major Activities

1. Submerged Demineralizer System (SDS). The SDS is currently shutdown while RCS drain-down for the "Quick Look" continues. SDS processing will continue after a 50,000 gallon batch of RCS water is collected in Reactor Coolant Bleed Tank "C".

2. EPICOR II. The EPICOR II system is currently shutdown on a standby status.

3. Reactor Coolant System (RCS) Feed and Bleed. The fifth feed and bleed cycle of RCS water began on July 10, 1982 and was completed on July 11, 1982. This batch consisted of approximately 30,000 gallons. To date, 230,000 gallons of RCS water have been bled from the RCS. Two hundred thousand gallons have been processed through SDS (four batches) and returned to the RCS.

4. Reactor Building Entries. During the week of July 11, 1982, three reactor building entries were made to support the closed circuit television inspection of the reactor vessel internals. The closed

circuit television inspection is scheduled for Wednesday, July 21, 1982. On Monday, July 19, 1982, a centrally located control rod drive mechanism will be disassembled, and an attempt will be made to uncouple the leadscrew from the control rod. If the uncoupling is successful, the leadscrew will be removed to make a 1 1/2 inch diameter opening for the television camera. The uncoupling procedure includes the flexibility to disassemble adjacent control rod drives if the initial uncoupling is unsuccessful. Assuming a leadscrew is uncoupled and removed, the camera will be used to inspect and video tape the interior of the control rod guide tube and the tops of at least five fuel assemblies on Wednesday, July 21, 1982.

In preparation for the television inspection, the reactor coolant system was vented and depressurized. During the reactor building entries this week, operators opened vents on the reactor coolant system high points (hot legs, pressurizer, and reactor vessel) to vent trapped gas from the primary system to the reactor building. Nitrogen overpressure was valved to the high point vents and the primary system was drained via the normal letdown system, to a level midway down the control rod drive mechanism. At this level, the fuel assemblies are still 20 feet under cooling water.

Decay heat removal from the core will be affected by the change in the primary system water level. The heat transfer path from the core to the steam generators via the hot legs was eliminated when the water was drained from the top sections of the 36 inch diameter hot leg pipes. It is anticipated that core temperatures will increase slightly due to the reduced heat transfer capability. The present core average temperature is 102°F. Calculations indicate that the core is producing 45 kilowatts of decay heat (equivalent to approximately 40 home toasters). Contingency plans for maintaining core temperatures below boiling include refilling the primary system and using the mini decay heat removal system. As of Monday morning, July 19, 1982, the average core temperature increased to 106°F.

Gas and water samples were taken from the reactor head vent (vent on top of a control rod drive mechanism). Preliminary results indicate that the turbidity of the water sample was 200 NTU*. Previous primary water samples (taken from the let down sample line) indicated a turbidity of approximately 10 NTU. If the 200 NTU sample is representative of the turbidity above the fuel assemblies, the success of the television inspection may be impaired. The analysis of the water sample indicated that the boron concentration was 3820 ppm. The concentration of gross alpha emitters was 8.9×10^{-3} uCi/cc (alpha emitters in samples from the letdown systems were typically in the 10^{-5} uCi/cc range).

The gas sample from the control rod drive mechanism indicated that hydrogen was the predominant gas (63%). The krypton 85 concentration was 1.1 uCi/cc. During the venting, the gases were released to the reactor building and eventually to the environment. Effluent monitors indicated that less than three curies of krypton were released.

Following the reactor vessel inspection, the licensee will evaluate the primary system parameters (temperature stability, water inventory, etc.) to determine whether to refill and repressurize the system.

*Nephelometric Turbidity Units - An empirical measure of turbidity based on measurement of the light-scattering characteristics (Tyndall effect) of the particulate matter in the sample.

5. EPICOR II Prefilter Inerting Tool Status. The first sampling and inerting of an EPICOR II prefilter (PF) is scheduled to begin the week of July 26, 1982. As previously highlighted in the June 7, 1982 Weekly Status report, a remotely operated inerting tool was functionally tested in preparation for shipment of the 49 EPICOR II PF's which are currently stored at the TMI site. This special TV monitored inerting tool, which was provided by the DOE, will be used in conjunction with a 30 ton concrete blockhouse to remotely sample each individual EPICOR liner. (See Attachment 1 for EPICOR PF inerting configuration.)

In the actual EPICOR PF shipment preparations, the licensee plans to perform all inerting operations at the Solid Waste Storage Facility (SWSF). The sequence of operations will include: (1) removal of the existing shield block, (2) installation of the blockhouse and inerting tool, (3) inerting the SWSF cell cavity with nitrogen, (4) lower the vent tool on the liner and leak testing the Unit, (5) remove the PF vent plug and sample the gas environment, (6) purge and inert the PF with nitrogen, and (7) reinstall the vent plug and remove equipment in preparation for shipment. Combustible gas generation rates will be monitored on selectively high curie loaded liners over a 14-day period to demonstrate that gas composition in the vessel will be non-flamable over twice the expected shipment period.

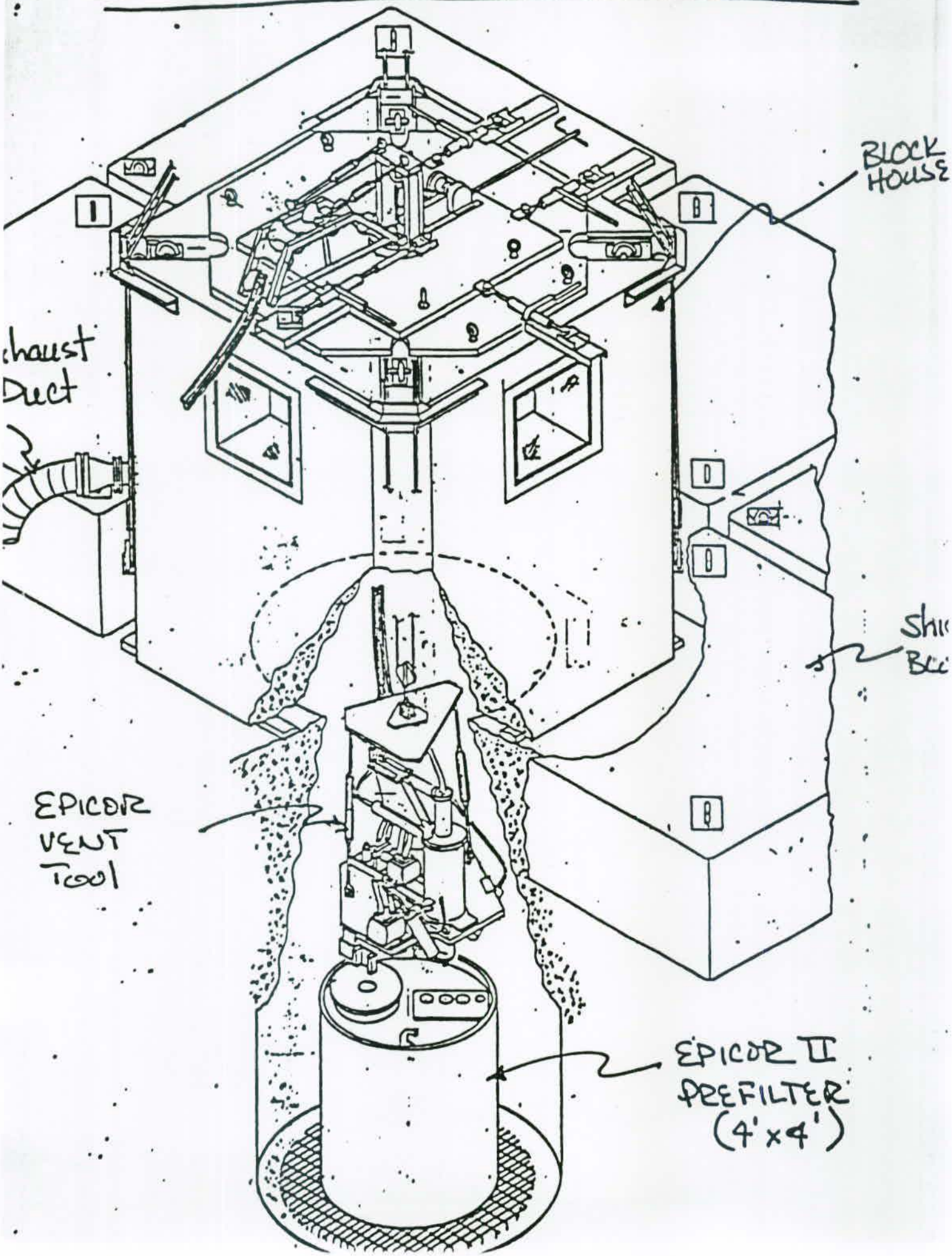
The first EPICOR II PF shipment is scheduled for August 10, 1982.

6. LWR Occupational Dose Data (Preliminary). Based on reports submitted to the NRC in accordance with 10 CFR Part 20.407, from 70 light-water-cooled nuclear reactors, the Radiological Assessment Branch, Division of System Integration, NRR, has prepared a preliminary compilation and analysis of occupational radiation doses for 1981.

The average collective dose, per reactor, was 779 person-rems* (which was slightly lower than the 791 person-rems per reactor reported in 1980). The average collective dose, per pressurized water reactor (PWR) was 656 person-rems (boiling water reactors had an average approximately 50% higher). The total dose for TMI (Units 1 and 2) was 376 person-rems, which is well below the national average.

Attachment II shows the total doses reported for the years 1981, 1980, and 1979 for a selection of PWR sites and includes TMI. The most frequent reasons given by licensees for the dose decreases, for 1981 as compared to 1980, was that their plants did not have major refueling or maintenance outages.

*The average dose per person multiplied by the number of persons. For example, one thousand people, each exposed to one millirem (1/1000 rem) would have a collective dose of one person-rem.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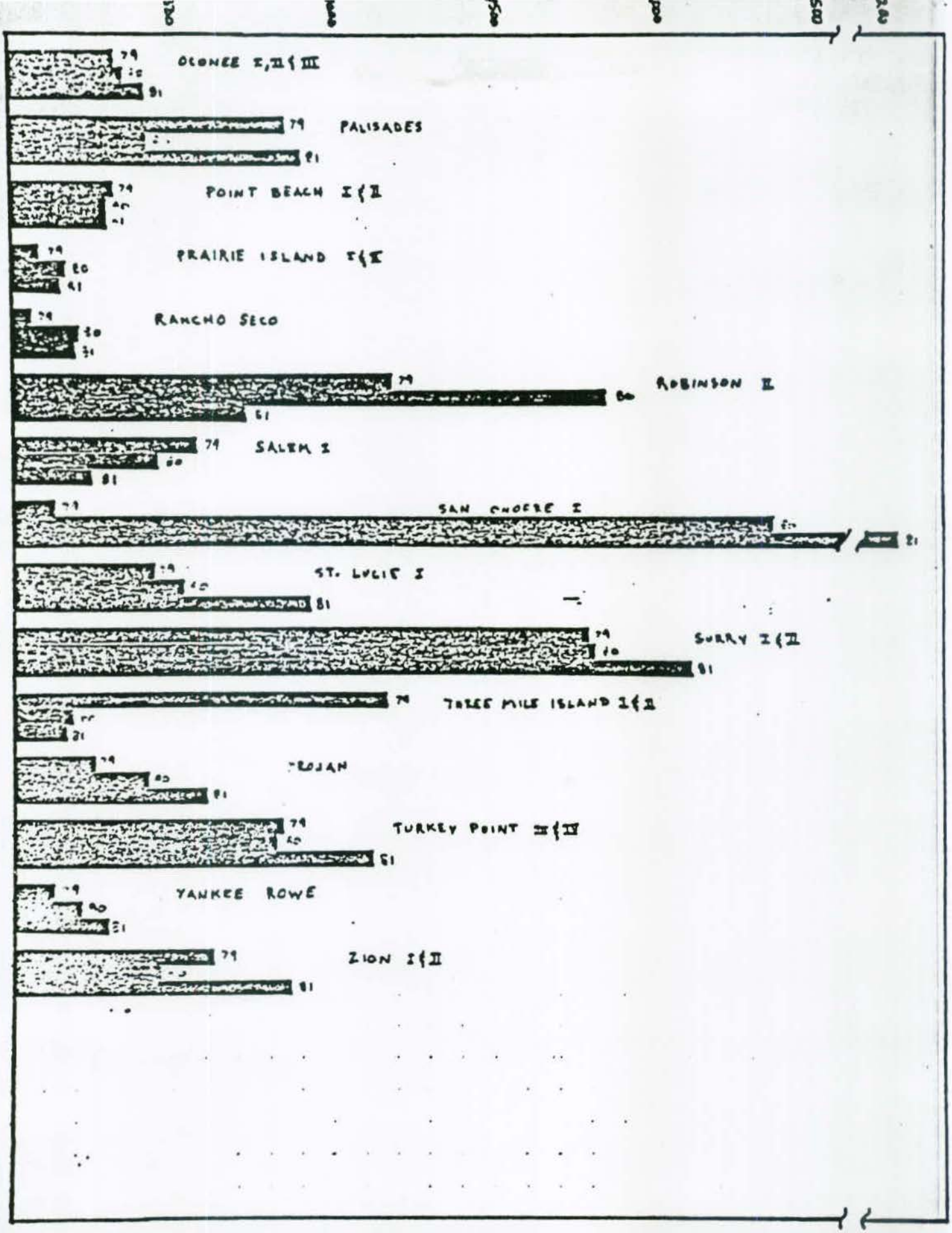
EPICOR II PREFILTER (4'x4')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