



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 13, 1988

Docket Nos. 50-338
and 50-339

LICENSEE: Virginia Electric and Power Company (VEPCO)
FACILITY: North Anna Power Station, Units No. 1 & No. 2 (NA-1&2)
SUBJECT: SUMMARY OF MEETING WITH VEPCO HELD ON APRIL 8, 1988 REGARDING
VERY LOW-LEVEL RADIOACTIVE CONCENTRATIONS OBSERVED IN THE
REVERSE OSMOSIS SYSTEM USED TO GENERATE MAKEUP WATER AT NA-1&2

A meeting was held in Rockville, Maryland on April 8, 1988 with representatives of VEPCO, Arrowhead Industrial Water, Incorporated (AIWI) and the NRC to discuss the subject as noted above. An attendance list is provided in Enclosure 1.

INTRODUCTION:

VEPCO currently makes use of a reverse osmosis (RO) system to generate makeup water at NA-1&2. The RO system is owned and operated by AIWI. Due to the total organic carbon and colloidal silica in Lake Anna water, purification and makeup is necessary to provide high quality water for use at NA-1&2.

DISCUSSION:

The RO system (see Enclosure 2) makes use of a polymer which is added to water taken from Lake Anna and processed through a sand filter, cation bed, anion bed, activated carbon bed, and a mixed bed prior to reaching the RO membrane. Approximately 1.4 million gallons of Lake Anna water can be processed every three days before resins must be removed offsite in mobile trailers and regenerated by AIWI. A recent radioactive isotopic analysis by VEPCO of samples obtained from the cation and mixed beds, indicated very low-level radioactive concentrations for Mn^{54} , Co^{60} , Sb^{125} , and Cs^{137} ranging from approximately 1.00×10^{-7} to 8.0×10^{-8} microcuries per milliliter. The values, as analyzed, are provided in Enclosure 2.

The location of the RO system falls within the definition of an UNRESTRICTED AREA as specified in the NA-1&2 Technical Specifications 3.4.11. The RO system is within the site boundary, but in an unrestricted area used for industrial purposes. In addition, the RO systems processes water, which is being taken from an unrestricted area, Lake Anna, which is not licensed material.

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CONCLUSION:

The staff notes that the RO system is located in an unrestricted area of NA-1&2 and is owned and operated by AIWI. Also, the AIWI RO system processes water located in an unrestricted area. In addition, the probable source of the very low-level radioactive material is NA-1&2 effluents released to unrestricted areas in accordance with 10 CFR 20.106 and NRC regulations do not require water processors, such as AIWI, to obtain a license for their waste products. Accordingly, the resins used in the AIWI RO system do not require a NRC license.

Original signed by
Leon B. Engle, Project Manager
Project Directorate II-2
Division of Reactor Projects-I/II

Enclosures: As stated

cc w/enclosures:
See next page

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Virginia Electric & Power Company

North Anna Power Station
Units 1 and 2

cc:

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Senior Resident Inspector
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Enclosure 1

LIST OF ATTENDEES

FOR

Meeting on April 8, 1988

NRC

H. Berkow
L. Engle
M. Lamastra
O. Lynch
W. Meinke

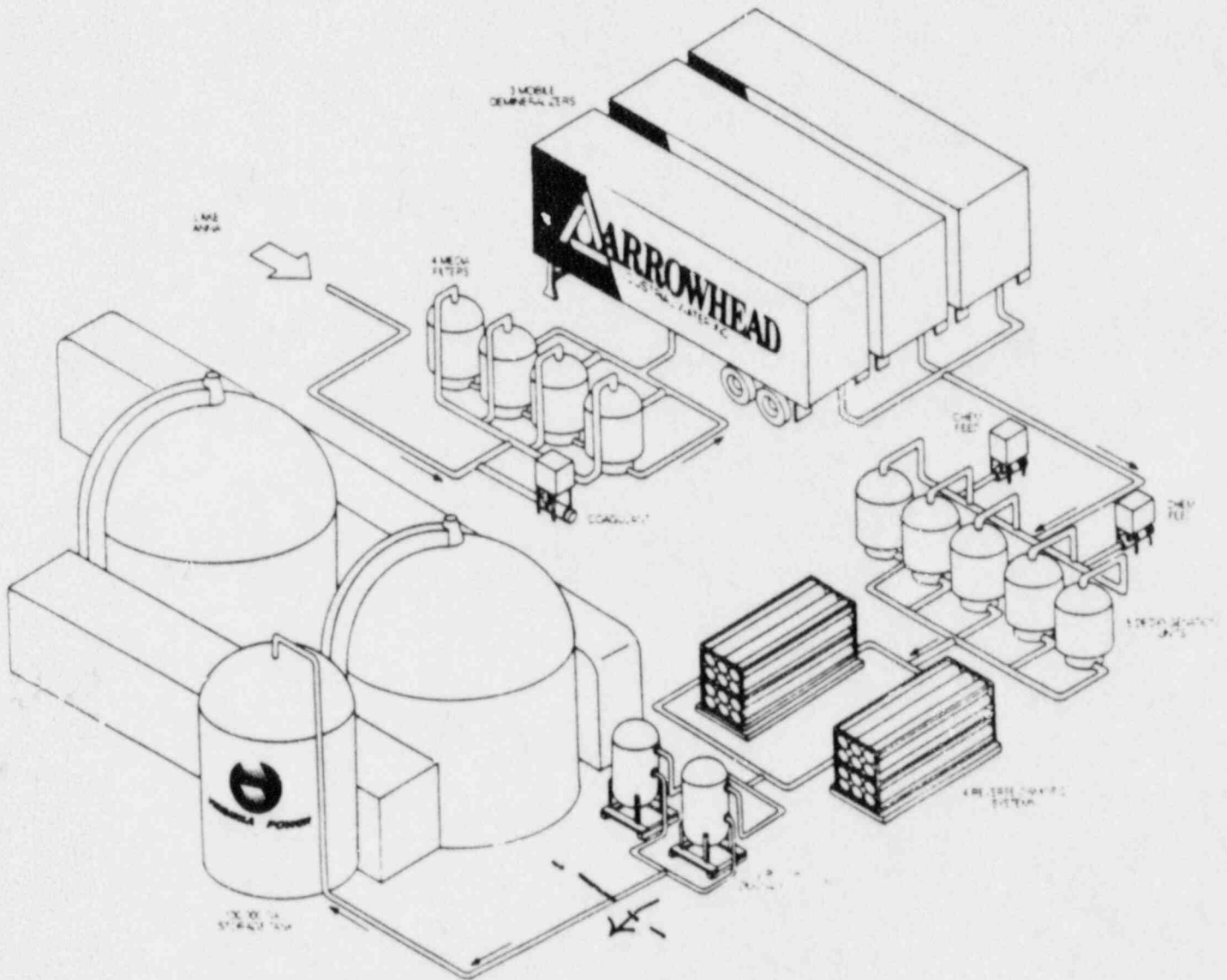
VEPCO

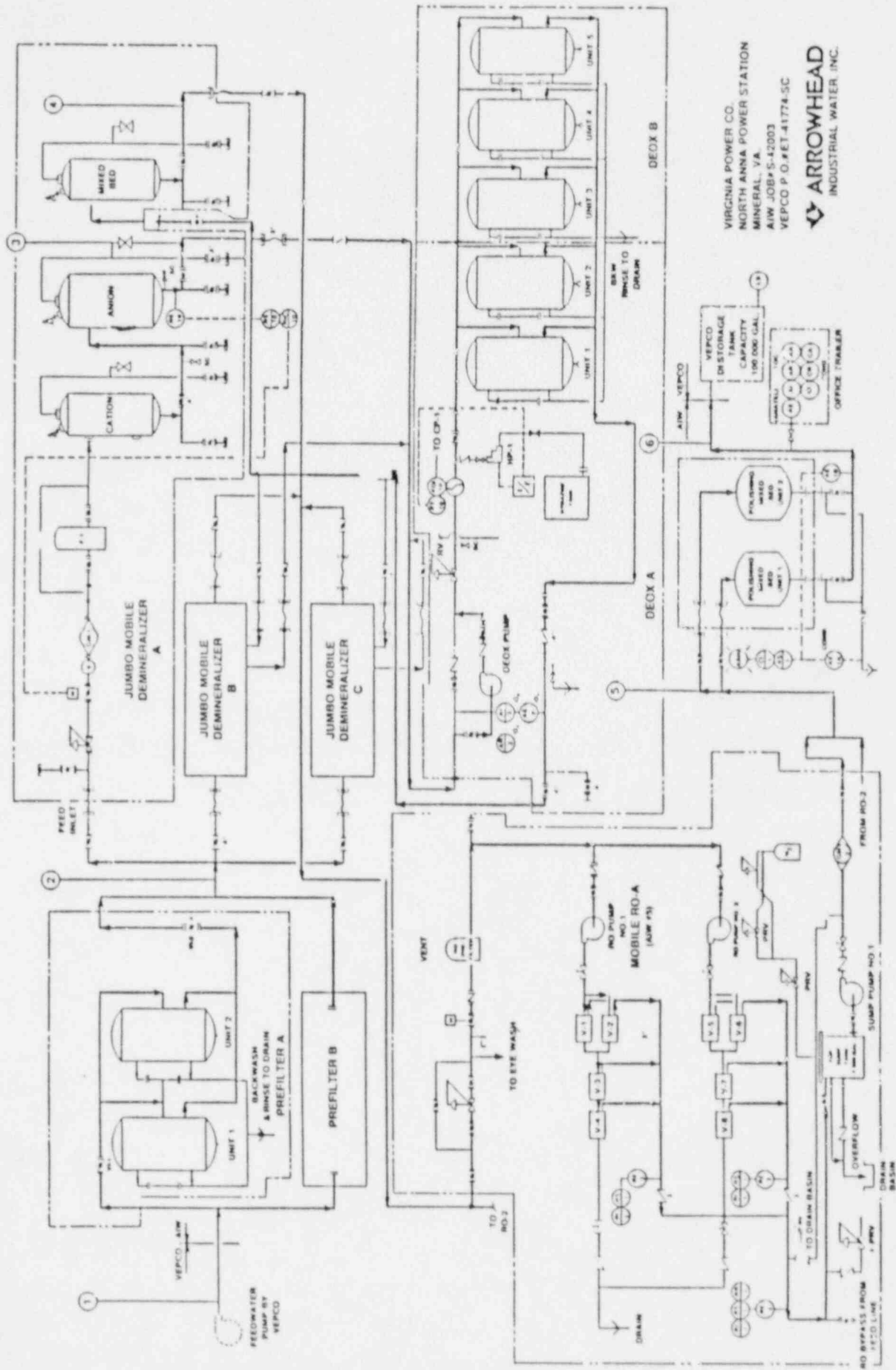
M. Hensley
R. Krich
D. Ross
F. Thomasson
W. Thornton
D. Vanderwalle

ARROWHEAD

J. Bossler
P. Jagiela

ARROWHEAD INDUSTRIAL WATER MAKE UP WATER SYSTEM (System Flow Chart)





VIRGINIA POWER CO.
 NORTH ANNA POWER STATION
 MINERAL, VA
 AIW JOB# S-42003
 VEPCO P.O.#ET-41774-5C



ACTIVITY FOR MOBILE DEMINERALIZER UNIT

UNIT	VOLUME	ACTIVITY uCi/ml	TOTAL ACTIVITY uCi	10CFR30 SCHEDULES	
				A(uCi/ml)	B(uCi)
Cation	110 cu ft	Cs-137 1.28E-7	0.398	*	10
		Mn-54 3.6E-8	0.112	1E-3	10
Anion	140 cu ft	Cs-137 1.47E-7	0.583	*	10
		Sb-125 7.19E-7	2.85	1E-3	10
Mixed Bed	60 cu ft	<LLD			

ACTIVITY FOR MOBILE STATIONARY UNIT

UNIT	VOLUME	ACTIVITY uCi/ml	TOTAL ACTIVITY uCi	10CFR30 SCHEDULES	
				A(uCi/ml)	B(uCi)
Sand Filters	180 cu ft	Co-60 7.2E-8	0.367	1.07E-7	1
		Cs-137 1.29E-7	0.658	*	10
Charcoal Deox Units	70 cu ft	<LLD			
Mixed Bed Polishing Demin.	180 cu ft	<LLD			
R. O. Mechan- ical Filter	--	<LLD			

* No exempt concentration listed in Schedule A.