COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD
2111 Hamilton Street

R. V. Davis
Executive Secretary

Post Office Box 11143
Richmond, Virginia 23230
(804) 257-0056

July 5, 1979

IN REPLY
REFER TO: 2-55

Mr. Harold Denton
Director
Office of Nuclear Reactor Regulations
Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

We have received the attached request from the Babcox and Wilcox Company, and in accordance with our Memorandum of Agreement, we seek your help in the review of this facility. The request is for tax exemption based on the fact that the facilities being installed will remove pollutants which otherwise would reach State waters.

Our review for this type of request consists of two parts. First, we must determine if the equipment or facility will abate pollution. In this case, by its removal of uranium particles, I believe that this criterion is satisfied. The second question which we must ascertain is whether the facility is being installed for the primary purpose of abating pollution. This is the primary area in which we need your help. We need to know if in your opinion the facility is being installed primarily to remove pollutants or primarily to recover uranium, which otherwise would be wasted.

On another note, we would like your determination of how serious a problem the uranium particles which heretofore were being discharged, present or presented. Thank you for your cooperation.

Yours sincerely,

J. R. Bell, Jr.
Pollution Control Specialist
Division of Technical Services
Bureau of Applied Technology

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/rs

Attachments

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Babcock & Wilcox

May 9, 1979

Mr. R. L. Cannaday
State Water Control Board
West Central Regional Office
P. O. Box 7017
Roanoke, Virginia 24019

RE: My memo of 4-26-79, relative to a Tax Exemption Certificate

Dear Mr. Cannaday:

In response to your letter of 5-3-79, the information you requested is submitted below:

(1) Owner of Facilities

Babcock & Wilcox Company
Nuclear Materials Division
Commercial Nuclear Fuel Plant
P. O. Box 1260
Lynchburg, Virginia 24505

(2) Project Number: 78-127/9986

(3) Project Completion Date: May, 1979

(4) Description of the equipment is attached. This equipment will be used to remove uranium particulate from water.

As I mentioned in my letter of 4-26-79, I would like to also request exemption status for various filters used in the subject filtration device.

If you have any questions or need additional information, please let me know.

Sincerely,

THE BABCOCK & WILCOX COMPANY

Donald R. Cox, Plant Controller
Commercial Nuclear Fuel Plant

DRC:sbd
Attachment

Romicon HF1S Pilot Plant System

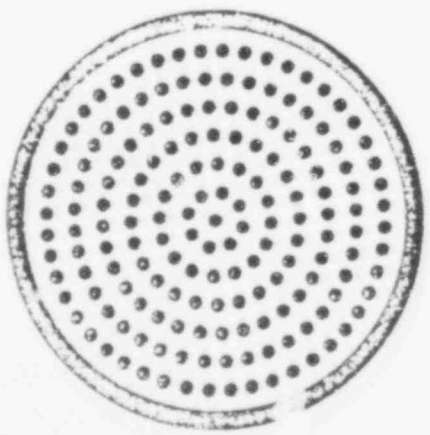
For processing up to 40 gallons of fluid per hour.

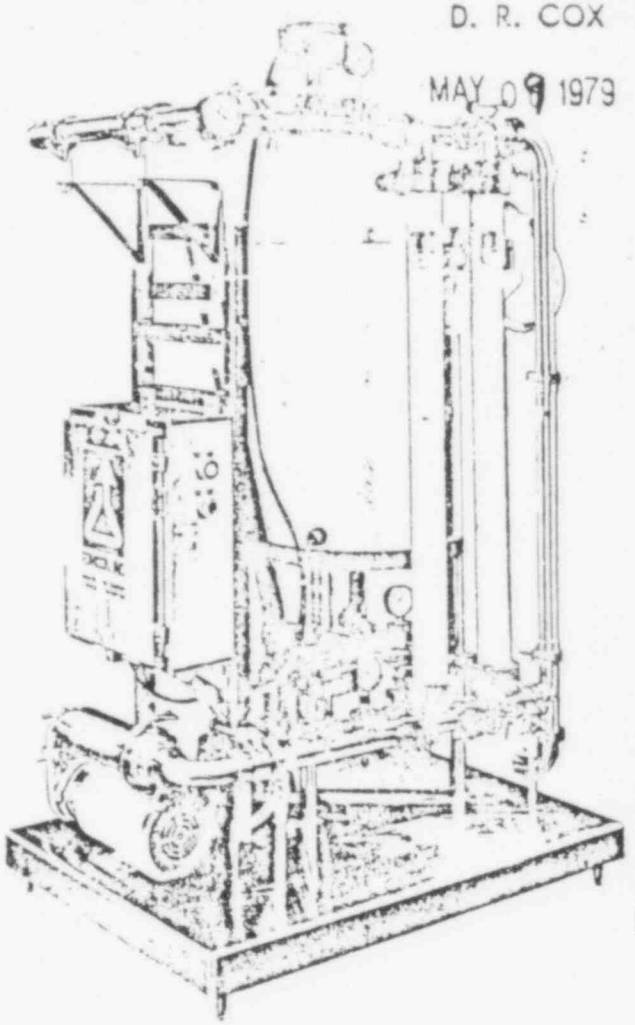
A compact, portable pilot system, the HF1S allows engineers to evaluate hollow fiber ultrafiltration with standard industrial cartridges. Romicon offers the HF1S with either a centrifugal or positive displacement pump. The positive displacement pump enables the user to process even the most labile of species.

The process solution is pumped at pressures up to 25 psi through the lumens of the fibers becoming progressively dewatered downstream. Ultrafiltrate permeates the hollow fibers and is collected in the plastic sleeve. The ultrafiltrate is then ducted to a permeate storage tank from which it overflows.

The ability to utilize the unique backflushing capability of Romicon hollow fiber ultrafiltration cartridges is built into the HF1S. A small centrifugal pump withdraws stored permeate and forces it, under pressure, through the backside of the hollow fibers, dislodging to drain any debris that accumulates on the membrane.

The HF1S is ideal for process development studies or as a small production unit. The system can be used effectively for scale-up information where the effects of concentration, pressure, temperature, and flow rate on ultrafiltration flux can be measured.





Applications

Romicon hollow fiber ultrafiltration can be used by companies where macromolecules in solution, colloids or suspensions need to be concentrated, purified or fractionated. Applications include:

Biological Processing

- ☐ Concentration of blood fractions, to produce albumin concentration to upwards of 25-30%
- ☐ Purification by diafiltration (dialysis by ultrafiltration) of crude enzymes to decrease ash content
- ☐ Removal of small amounts of protein from antibiotics, thereby eliminating factors causing allergic reactions

Chemical Processing

- ☐ Recovery of paint solids and maintenance of tank balance in electrocoating operations
- ☐ Concentration of polymer emulsions
- ☐ Purification of emulsions to remove salts, residual monomer and low molecular weight organics

Food Processing

- ☐ Recovery of milk proteins from cheese whey to produce 35-80% protein products
- ☐ Recovery of citrus sugars from citrus press liquor
- ☐ Concentration and desalting of gelatine to supplement or replace first stage evaporation and ion exchange
- ☐ Clarification of tea and coffee to replace centrifugation

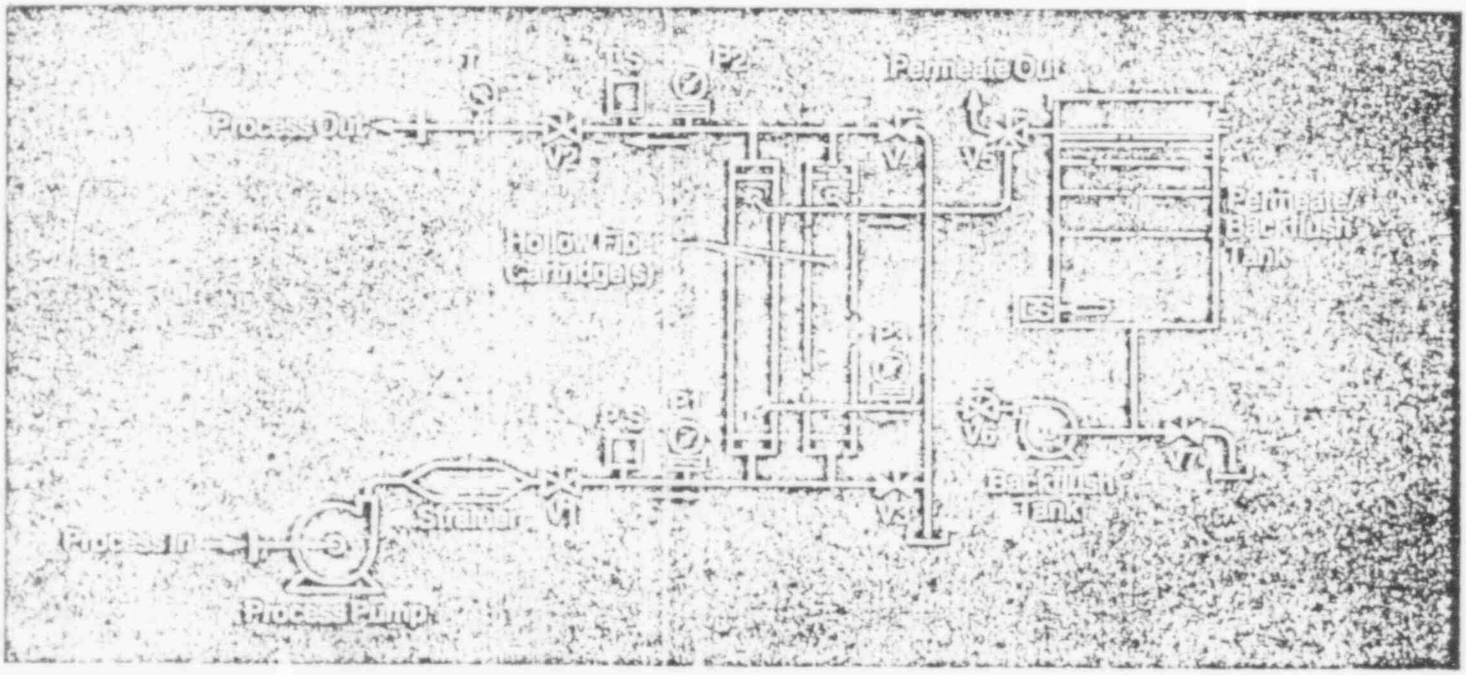
Process Water Treatment

- ☐ Removal of virtually all suspended solids, bacteria and viruses from pre- and post-deionized water
- ☐ Removal of silica from boiler feed water

Waste Water Treatment

- ☐ Removal of emulsified oils from metal stamping, cutting and finishing wastes
- ☐ Recovery of polymer emulsions from kettle washdowns
- ☐ Reduction of TSS, BOD and COD from laundry and shower waters

Process Schematic For Hollow Fiber Pilot System



HF1S Specifications

Operating pressure	25 psi max.
Recirculation rate	35 gpm max.
Operating temperatures	120°F max.
Wetted materials, process	Stainless Steel
Circulation pump	Ladish C114-4
Circulation pump motor	2 HP, 3500 rpm, TEFC
Backwash pump	Corcoran 2000E
Backwash pump motor	¾ HP, 3500 rpm, TEFC
Dimensions – height	67 in.
width	44 in.
depth	32 in.
Electrical requirements	
230 V-3Ø-60 Hz	6.8A
460 V-3Ø-60 Hz	3.4A

POOR ORIGINAL

ROMICON, INC.

ROHM AND HAAS COMPANY
& AMICON CORPORATION

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