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C-A OPERATIONS PROCEDURES MANUAL

15.3.5.7 Procedure for Dumping Electrolyte Solution

(Booster/AGS Ring Power Supply Systems Group Procedure EPS-W-007)

Note: This document was formerly a C-A Group Procedure. The content of the group procedure was reviewed by the Technical Supervisor. All approvals and/or issue dates of the original group procedure are maintained for present use.

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: *Signature on File*
 Collider-Accelerator Department Chairman Date

M. Bannon

Booster/AGS Ring Power Supply Systems
Group Procedure EPS-W-007
Revision 00

15.3.5.7 Procedure for Dumping Electrolyte Solution from Liquid Rheostat in Westinghouse MG Room.

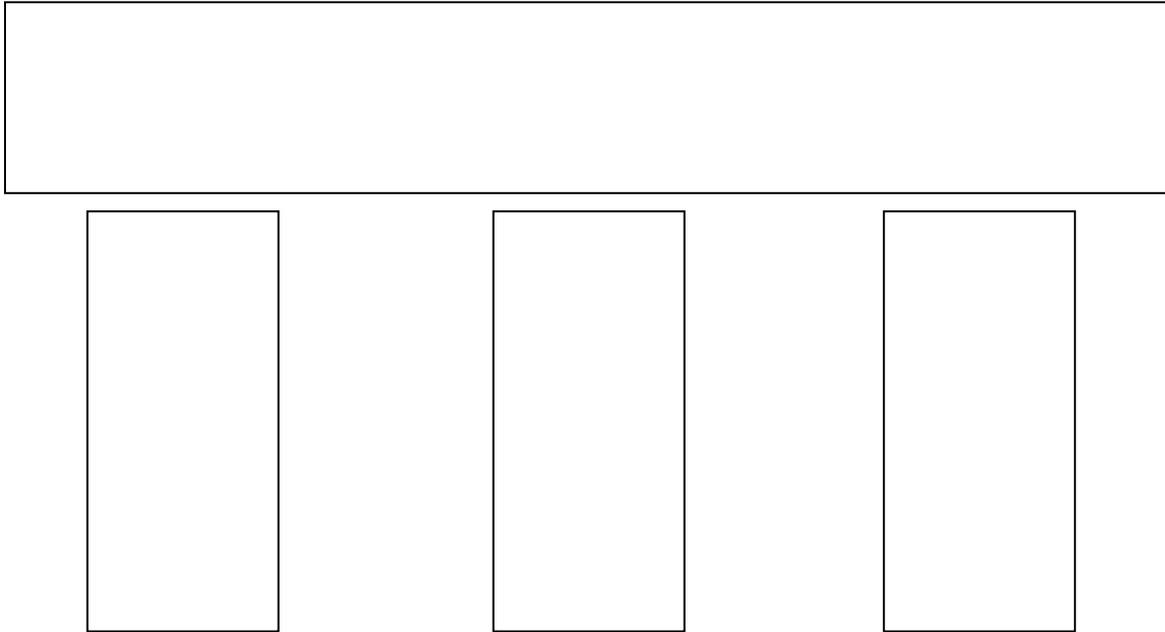
1. Solution must go to sanitary. (*Bathroom Sink.*)
2. Have the PH Level tested (*Note: ES&H-Joel Scott will do test*)
3. No radiological hazard can exist in water (*None exist in this solution*)
4. Get a document from ES&H Coordinator (Joel Scott) stating permission to dump into sanitary system and the conditions to be followed
5. Check the specific gravity of solution before dumping and record

Specific Gravity Reads: _____

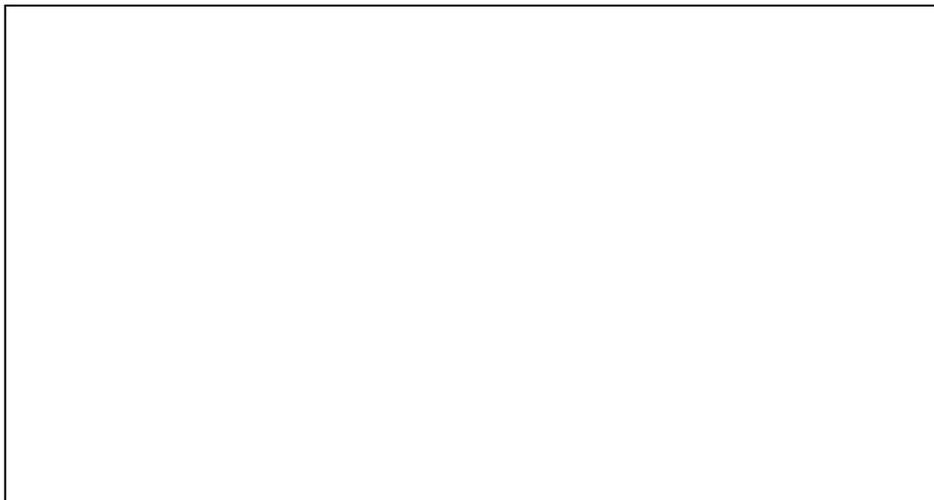
Note:

Approx. 4.5 (1 lb coffee can) per 55 gallon drum will be a specific gravity of 1.017

Liquid rheostat top basin measures = 28.5" x 6.5" x 103.5" full of water when circulating pump is "ON".



Each of the three electrode tubes hold approximately 150 gallons each for a total of 450 gallons in the tubes.



The water pit is filled with water in an area = 126" X 68" X 42"

Formulas:

28.5" X 6.5" X 103.5" = 19,173 cubic inches of area

126" X 68" X 42" = 59,856 cubic inches area

Total Area = 379,029 cubic inches

Converted to cubic feet = $379.029 / 1728 = 219.3$ cubic feet (1 cubic foot = 1728 cubic inches)

Convert cubic feet into gallons

1 decaliter = .35 cubic feet

1 decaliter = 2.64 gallons

1 cubic feet = $1 / .35 \times 2.64 = 7.54$ gallons

219.3 cubic feet X 7.54 gallons. = 1653 gallons

So approximately 1653 gallons in the two basins plus 450 gallons in the three electrode tubes comes to a total of 2103 gallons in the system when it is running.

Electrolyte Solution Mixture

1 gallon of water = 8.33 pounds

We want our specific gravity to be 1.017 %

Therefore,

NA₂CO₃ (Soda Ash –Sodium Carbonate) = 1.017 %

H₂O = 98.983 % = 8.33 pounds

$8.33 \text{ pounds} / .98983 = X / .001017$ solve for X $(8.33 \times .001017) / .98983 = X$

$(.00847161) / .98983 = X = .0855$ pounds of NA₂CO₃ per gallon of water.

At 2100 gallon system and a specific gravity requirement of 1.017 %

Then multiple .0855 pounds X 2100 gallons = 179 pounds of NA₂CO₃ (Sodium Carbonate)