



PROCESS DESCRIPTION



8. DISPERGING AND BLEACHING

8.1 Application

The disperger system is used for the treatment of waste paper, finely dispersing waxes, bitumen, other sticky matter as well as ink particles to below the visibility level. This produces a homogeneous fiber stock for the production of paper.

Due to the nature of the contaminants causing the appearance problems (e.g., wax, bitumen), the reduction of the contaminants by screening and cleaning can be achieved but not the total removal. Dispersion of the particles is the most economical and repeatable method to visually eliminate specks from the final product.

Disperging of the waste improves the appearance of the finished product, gives a slight increase in freeness and a significant increase in strength properties of the fiber.

The disperger is also excellent mixing equipment and since the consistency and the temperature are high for disperging, bleaching also takes place in this stage.

8.2 Operation

The disperger and bleaching group comprises of five basic systems:

- a) The Double Wire Press for stock thickening
- b) The first screw system for uniform heating of the stock and the uniform transportation of the stock
- c) The Disperger No. 1 for the dispersion of waxes, bitumen etc. and mixing the first bleach agent to the stock
- d) The second screw system to transport stock from Disperger No. 1 to No. 2 and provide retention time for bleaching
- e) The Disperger No. 2 for mixing the second bleach agent to the stock



PROCESS DESCRIPTION



Double Wire Press

The stock is pumped into the headbox of the double wire press at a controlled consistency and flow to be able to calculate bone dry stock fed to the system. Dewatering of the stock takes place in three stages. The first dewatering stage is a tapering wedge formed between the two plastic wires, the pressure gradually increasing as the gap between the wires narrows. From the wedged zone the stock enters the S-zone where additional surface pressure is applied by the wire being wrapped around rolls in an "S" configuration. The final stage of dewatering takes place at the press zone which has additional linear pressure applied with three pairs of press rolls. The water in the first and second dewatering sections are squeezed through the bottom wire. The water flowing through the bottom wire falls into the filtrate tray. No rewetting takes place as the sheet at this stage is still saturated.

The troughs are fitted across the width of the machine behind the nip of each press. The filtrate entering the trough is directed into the filtrate tray. At the drive rolls the dewatered mat formed between the wires is removed from the top and bottom wires. The main drives are interlocked with wire run out switches and pressure switches monitoring drive tension.

Screw System No. 1

The mat doctored from the wire press falls into a trough containing the breaking-up screw. The breaking-up screw has a double function: to break the fiber mat into smaller pieces and to transport the stock to the next stage. Due to the arrangement of the equipment, it is necessary to lift the stock from the breaking-up screw to the heating screw, which is situated at a higher level, by means of the ascending screw. The ascending screw also has a sealing effect which prevents the steam blowing off through the trough of the breaking-up screw. From the ascending screw the stock falls into the heating chamber where live steam is added to the stock. The heating screw situated in



PROCESS DESCRIPTION



the heating chamber ensures good mixing of the stock for uniform heating (200-208°F) and transports the stock to the disperger feeding screw. The amount of steam fed to the screw is controlled by the temperature measured at the end of the heating screw. Bleach liquor is added to the stock in the chute between the heating and the disperger feed screw.

Disperger No. 1

The stock reaching the feeding screw is transported to the center of the rotating disperger fillings. The stock is then thrown by centrifugal forces against the tooth shaped working elements and is forced through the gaps between the teeth. When passing through the gaps between the teeth of rotor and stator, the stock is alternately accelerated to the rotating speed of the rotor and stopped by the stator. These vigorous changes in speed cause shear forces and friction. Thus visible particles of sticky material, waxes, hot melts and inks are reduced in size and are uniformly distributed in the stock. Remaining fiber flakes are also deflaked forming a more homogeneous slurry. At the same time due to the fiber to fiber friction, a fibrillating effect on the fibers occurs.

Disperging is primarily a function of consistency at a certain bone dry throughput so the specific energy required is adjustable by controlling the consistency. Bone dry throughput is calculated from flow and consistency fed to the double wire press and by making a correction for the wire loss. The retention time in the system is considered and more or less hot water (approximately at stock temperature 200°F) is added in the chute between the heating screw and the feed screw to control the consistency according to the consumed power of the disperger.

Stock is flushed out of the disperger with water added at a spray pipe in the equipment. If the disperger shuts down an automatic filling flush cleans out the teeth to avoid blockage at restart.



PROCESS DESCRIPTION



Screw System No. 2

A transfer screw collects the stock discharged from the first disperger and feeds it to the ascending screw No. 2. This screw lifts the stock to the bleach retention screw to provide enough retention time for the bleaching to take place. From this screw stock discharges into the disperger No.2 feed screw where the second bleach liquor is added.

Disperger No. 2

The second disperger acts as a chemical mixer so no specific power control is required. Only monitoring of the consumed power is done to ensure enough energy is added to mix the stock.

Stock is discharged by adding water in the disperger housing. The stock falls into a bleach tower and stored for bleaching at high consistencies. Bleach tower level is tied into the production control.

All screws with belt and chain drives are interlocked with a zero speed switch to prevent damage to the equipment. The Disperger No. 1 drive is interlocked with high power consumption and the transfer screw. Disperger No. 2 is interlocked with high power consumption.

Each disperger feed screw is interlocked with the disperger drive.

8.3 Starting Sequence of the Group

Bleach tower needs to be filled with water in the dilution zone to obtain a smooth start of the agitator.

- Clear water No. 2 pump ready to start
- Wire press drives ready to start



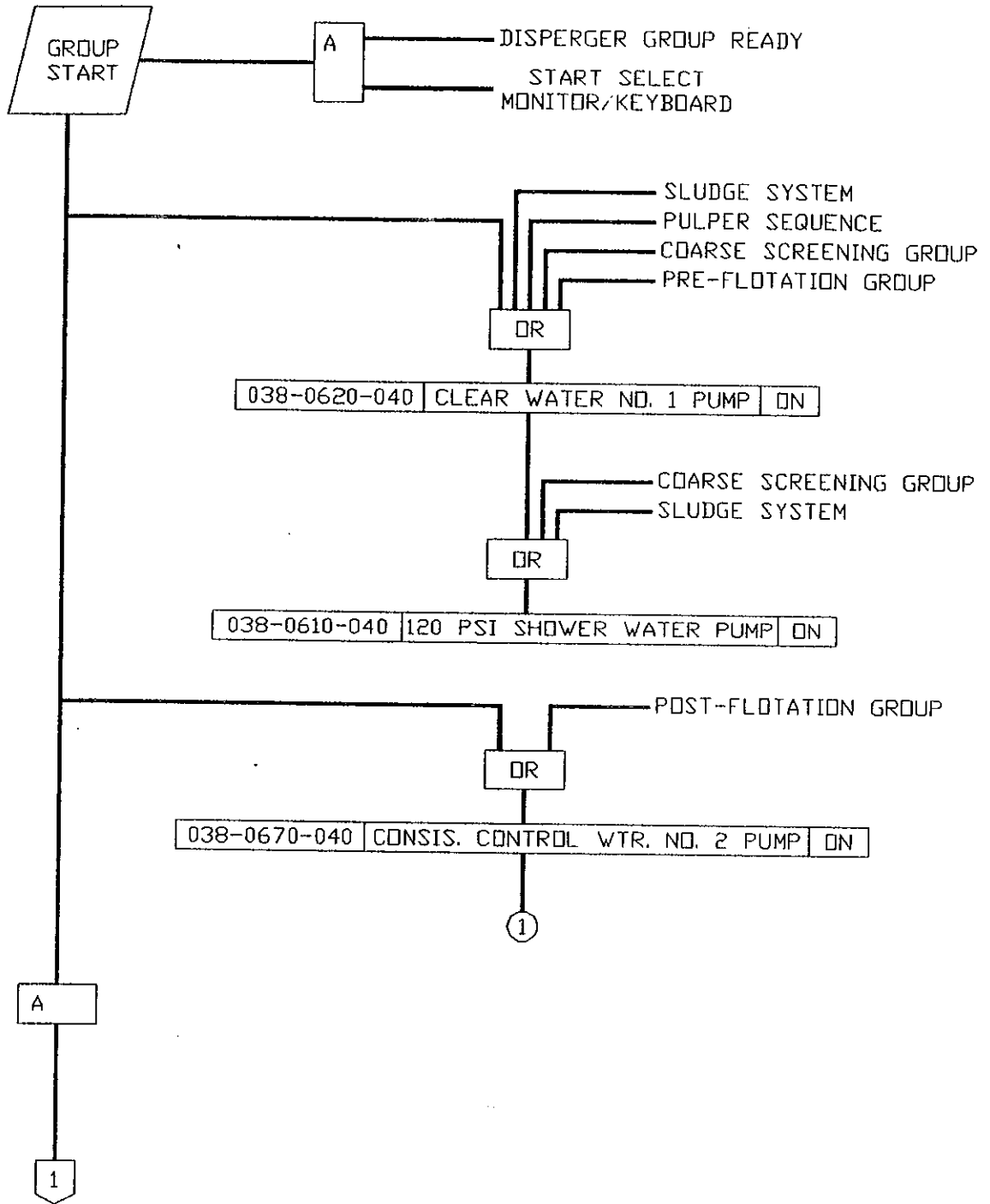
PROCESS DESCRIPTION



- Screw drives ready to start
- Disperger No. 1 and No. 2 drive ready to start
- Steam pressure and temperature available

Find attached start and stop diagrams.

DISPERGER & BLEACHING SYSTEM
GROUP START



1/29/93	CERTIFIED	AC	0
12/21/92	PRELIMINARY	AC	A
DATE	REVISION	NAME	REV
SCALE : NONE	TITLE: DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM		
SHEET 1 OF 4	CHECKED KC	DATE 12/10/92	
DRAWN BY AC			

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LITTLE FALLS, NEW YORK

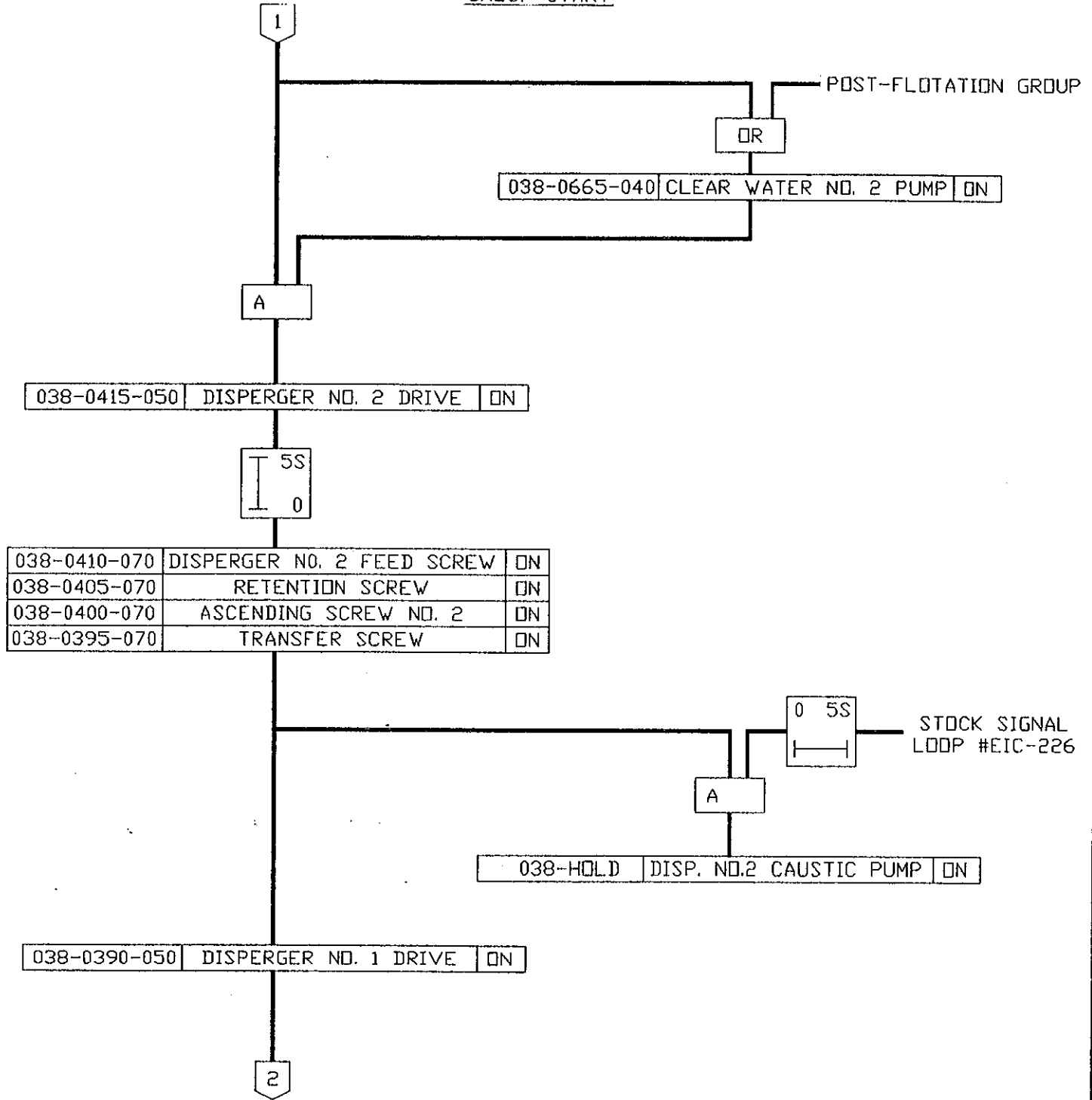
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BEW DWG NO. TPI1-917-00460


BIRD ESCHER WYSS INC.
MANSFIELD, MA

- CAD DRAWING -

DISPERGER & BLEACHING SYSTEM
GROUP START



2/16/93	CERTIFIED	AC	1
1/29/93	CERTIFIED	AC	0
12/21/92	PRELIMINARY	AC	A
DATE	REVISION	NAME	REV
SCALE : NONE	TITLE: DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM		BEW DWG NO. TPI1-917-00460
SHEET 2 OF 4	CHECKED KC	DATE 12/14/92	BIRD ESCHER WYSS INC. MANSFIELD, MA
DRAWN BY AC			

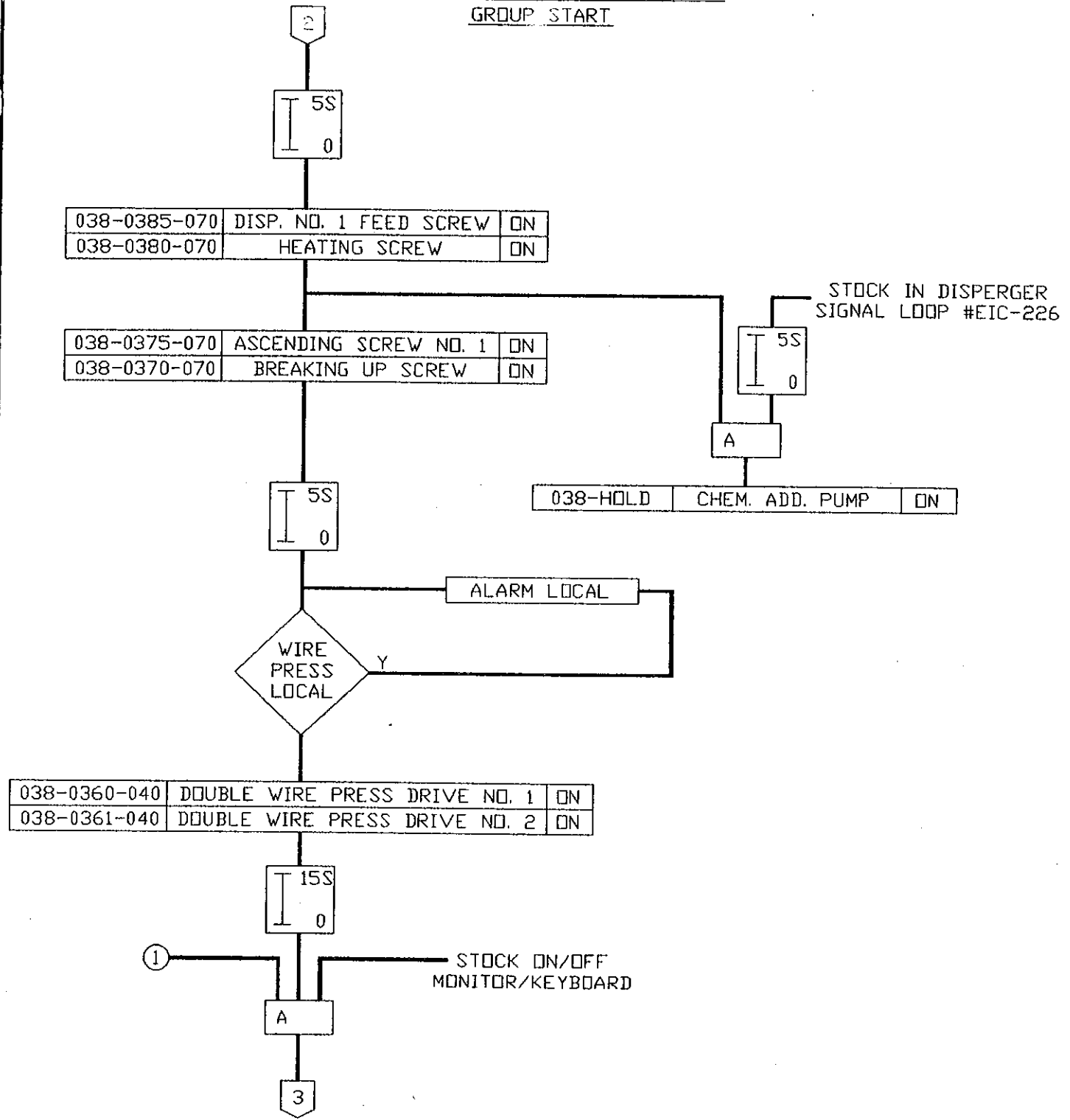


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CLIENT DWG NO. 500-454

- CAD DRAWING -

DISPERGER & BLEACHING SYSTEM
GROUP START



2/16/93	CERTIFIED	AC	1
1/29/93	CERTIFIED	AC	0
12/21/92	PRELIMINARY	AC	A
DATE	REVISION	NAME	REV
SCALE : NONE	TITLE: DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM		BEW DWG NO. TPI1-917-00460
SHEET 3 OF 4	CHECKED KC	DATE 12/14/92	BIRD ESCHER WYSS INC. MANSFIELD, MA
DRAWN BY AC			

 <p align="center">BURROWS PAPER CORPORATION LITTLE FALLS, NEW YORK</p>	CLIENT DWG NO. 500-454
	BEW DWG NO. TPI1-917-00460
	BIRD ESCHER WYSS INC. MANSFIELD, MA


- CAD DRAWING -

DISPERGER & BLEACHING SYSTEM
GROUP START

3

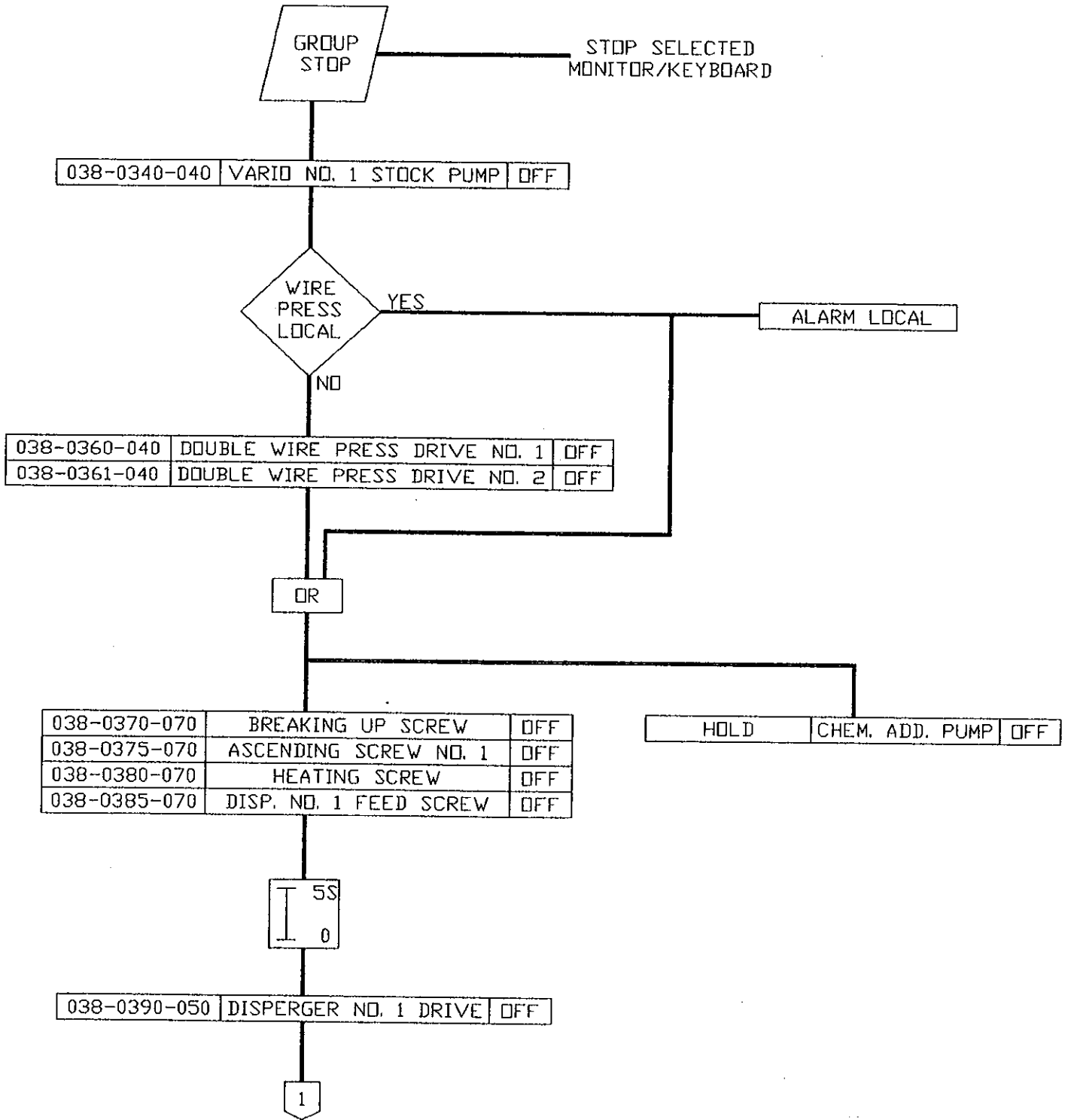
038-0340-040 | VARIO NO. 1 STOCK PUMP | ON


GROUP
RUNNING

				 BURROWS PAPER CORPORATION LITTLE FALLS, NEW YORK
1/29/93	CERTIFIED	AC	0	
12/21/92	PRELIMINARY	AC	A	
DATE	REVISION	NAME	REV	CLIENT DWG NO. 500-454
SCALE : NONE	TITLE:			BEW DWG NO. TPI1-917-00460
SHEET 4 OF 4	DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM			BIRD ESCHER WYSS INC.
DRAWN BY AC	CHECKED KC	DATE 12/14/92		MANSFIELD, MA

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DISPERGER & BLEACHING SYSTEM
GROUP STOP



1/29/93	CERTIFIED	AC	0	 BURROWS PAPER CORPORATION LITTLE FALLS, NEW YORK
12/21/92	PRELIMINARY	AC	A	
DATE	REVISION	NAME	REV	CLIENT DWG NO. 500-455
SCALE : NONE	TITLE:		BEW DWG NO. TP11-917-00470	
SHEET 1 OF 2	DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM		BIRD ESCHER WYSS INC. MANSFIELD, MA	
DRAWN BY AC	CHECKED KC	DATE 12/14/92		

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DISPERGER & BLEACHING SYSTEM
GROUP STOP

1

038-0395-070	TRANSFER SCREW	OFF
038-0400-070	ASCENDING SCREW NO. 2	OFF
038-0405-070	RETENTION SCREW	OFF
038-0410-070	DISP. NO. 2 FEED SCREW	OFF

HOLD CHEM. ADD. PUMP OFF

5S
0

038-0415-050 DISPERGER NO. 2 DRIVE OFF

- SLUDGE SYSTEM
- PULPER SEQUENCE
- COARSE SCREENING GROUP
- PRE-FLOTATION GROUP

A

038-0620-040 CLEAR WATER NO. 1 PUMP OFF

- COARSE SCREENING GROUP
- SLUDGE SYSTEM

A

038-0610-040 120 PSI SHOWER WATER PUMP OFF

- POST-FLOTATION GROUP

A

038-0665-040 CLEAR WATER NO. 2 PUMP OFF


- POST-FLOTATION GROUP

A

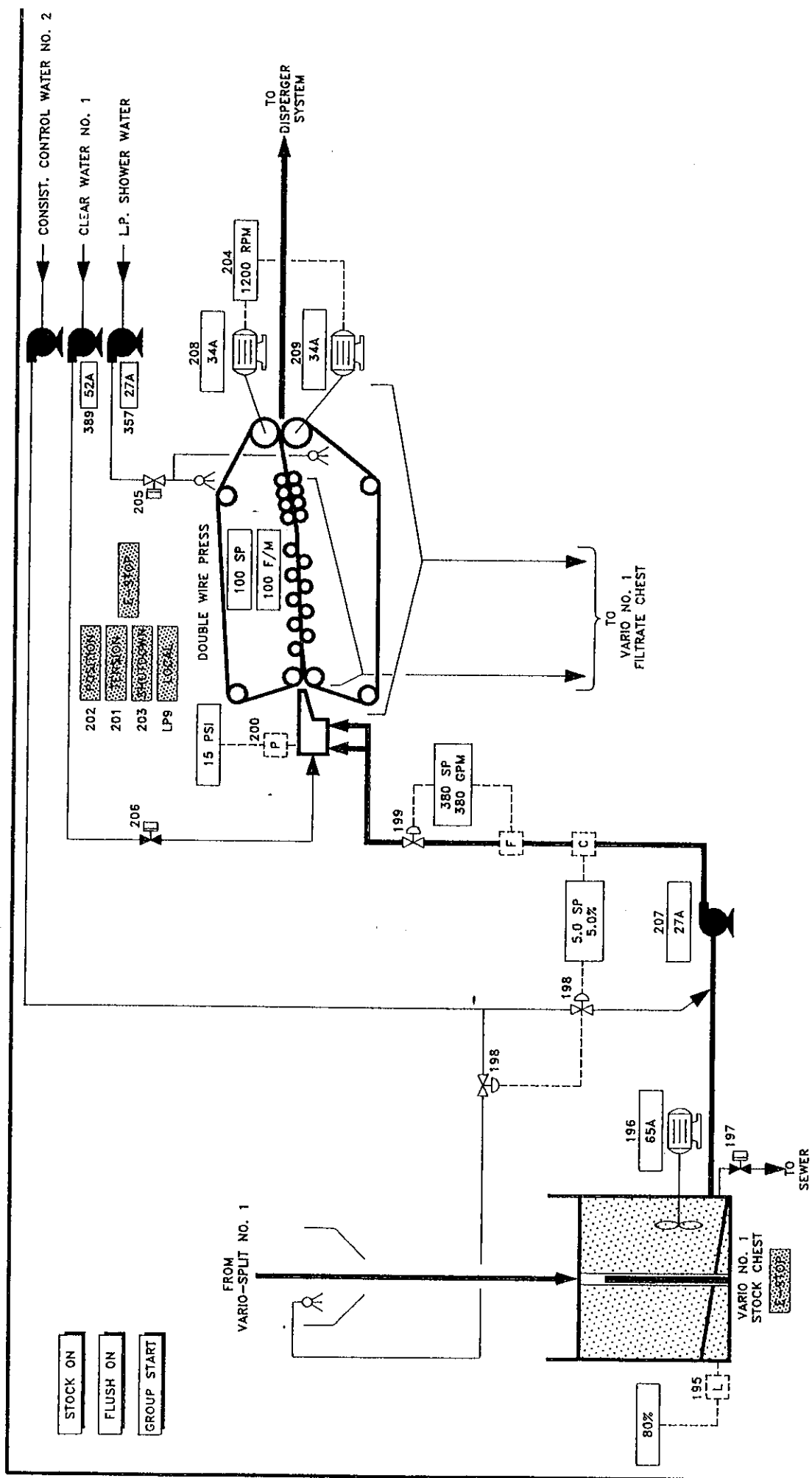
DOUBLE WIRE
PRESS F.B.

GROUP STOPPED

038-0670-040 CONSIG. CONTROL WTR. NO. 2 PUMP OFF

1/29/93	CERTIFIED	AC	0	 BURROWS PAPER CORPORATION LITTLE FALLS, NEW YORK
12/21/92	PRELIMINARY	AC	A	
DATE	REVISION	NAME	REV	CLIENT DWG NO. 500-455
SCALE : NONE	TITLE DISPERGER & BLEACHING SYSTEM START/STOP DIAGRAM			BEW DWG NO. TPI1-917-00470
SHEET 2 OF 2				BIRD ESCHER WYSS INC. MANSFIELD, MA
DRAWN BY AC	CHECKED KC	DATE 12/14/92		

- CAD DRAWING -



REV BY CHKD DATE TIMES

REV A

CHKD DATE TIMES

PROJECT TARGET NO.

SCALE NONE

DISPERGER & BLEACHING SYSTEM

DCS SCREEN LAYOUT

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REV DWG NO. VPI3-917-00.10

CLIENT DWG NO. 500-510

REV A

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