AR 13.1

May 10, 1977

CC
135236

ARSANILIC ACID STARTUP FACT SHEET

1. What Is Being Produced?

The major portion of the equipment is devoted to the manufacture of crude arsanilic acid (TA). The crude product is then coverted into Carbarsone or purified arsanilic acid (AA-100).

2. Raw Materials

Aniline (AN)

A colorless oily liquid - virtually insoluble in water.

Arsenic Acid

A colorless dense liquid.

Perchloroethylene (PCE)

A clear water-white liquid commonly used for dry cleaning - insoluble in water.

Caustic (25%)

A strongly alkaline liquid.

Hydrochloric Acid (HCl)

A strongly acidic liquid - water-white.

Nuchar SN

A black powder used to purify and decolorize.

Solka Floc and Diasbestos

Powdery solids used as filter aids.

3. Special Nomenclature and Abbreviations

AA - Arsanilic Acid
TA - Crude AA (Technical Arsanilic Acid)
AN - Aniline
PCE - Perchloroethylene
AW - Aniline Water (water with 2% aniline)
ML - Mother Liquors - the liquid recovered from a filtration.

ARSANILIC ACID STARTUP FACT SHEET (CONT'D)

4. Process Operations

Reaction - chemical combining of two or more compounds to form a new compound or compounds.

Extraction- the separation of two miscible liquids by the use of a solvent which preferentially dissolves one of them.

Hydrolysis- a reaction with water ("hydro").

Stripping - the separation of a component from a mixture by boiling it away with the help of another solvent.

Filtration- (Centri-fugation) removal of a solid from a slurry (liquid and solid mix).

Crystallization - formation of a slurry (solid) by cooling a saturated solution.

Concentration - reduction in the volume of a solution by evaporation of some of the excess solvent.

Distillation - the separation of compounds by utilization of the difference in boiling points (volatility).

5. Basic Chemistry

(a) Aniline & Arsenic Acid $\xrightarrow{140^{o}C}$ Arsanilic Acid

(b) Arsanilic Acid & Aniline $\longrightarrow$ DDAA & Water (by-product)

(c) DDAA & Water $\xrightarrow{125^{o}C}$ Arsanilic Acid & Aniline

Reactions (a) and (b) take place in the reactors in the presence of excess aniline.

Reaction (c) is the reverse of (b) and takes place in the hydrolysis tank in the presence of excess water.

ARSANILIC ACID STARTUP FACT SHEET (CONT'D)

6. Labor Assignments (Subject to Change)

		A	B	C
Shift Leader		Hank Kreiser	John Hunsicker	Russell Sc
A Operators -	Reactors Water Extraction Stills	Tom Boltz	Jerry Guindon	Luther Umbenhaue
A Operators -	PCE Extraction Stills Tank Farm	Greg Kirst	Dennis Shumaker	Mike Kling
B Operators -	Hydrolysis Strip Crystallization ML Concentration	Frank Yocum	Charles Moll	Tom McDowell
B Operators -	Carbarsone AA-100 Dryers Waste Evaporation	Pat Dawson	Marcia Spitler	Barry Prir
C Operators -	Centrifuges Filter Press Waste Evaporation Waste Salts	Thinh Van Nguyen Woody Arnold	Don Peiffer Fred Peters	Al Bucks

7. Shift Schedule

Starting week of 5/16/77 and rotating thereafter.

12 - 8 C-Shift

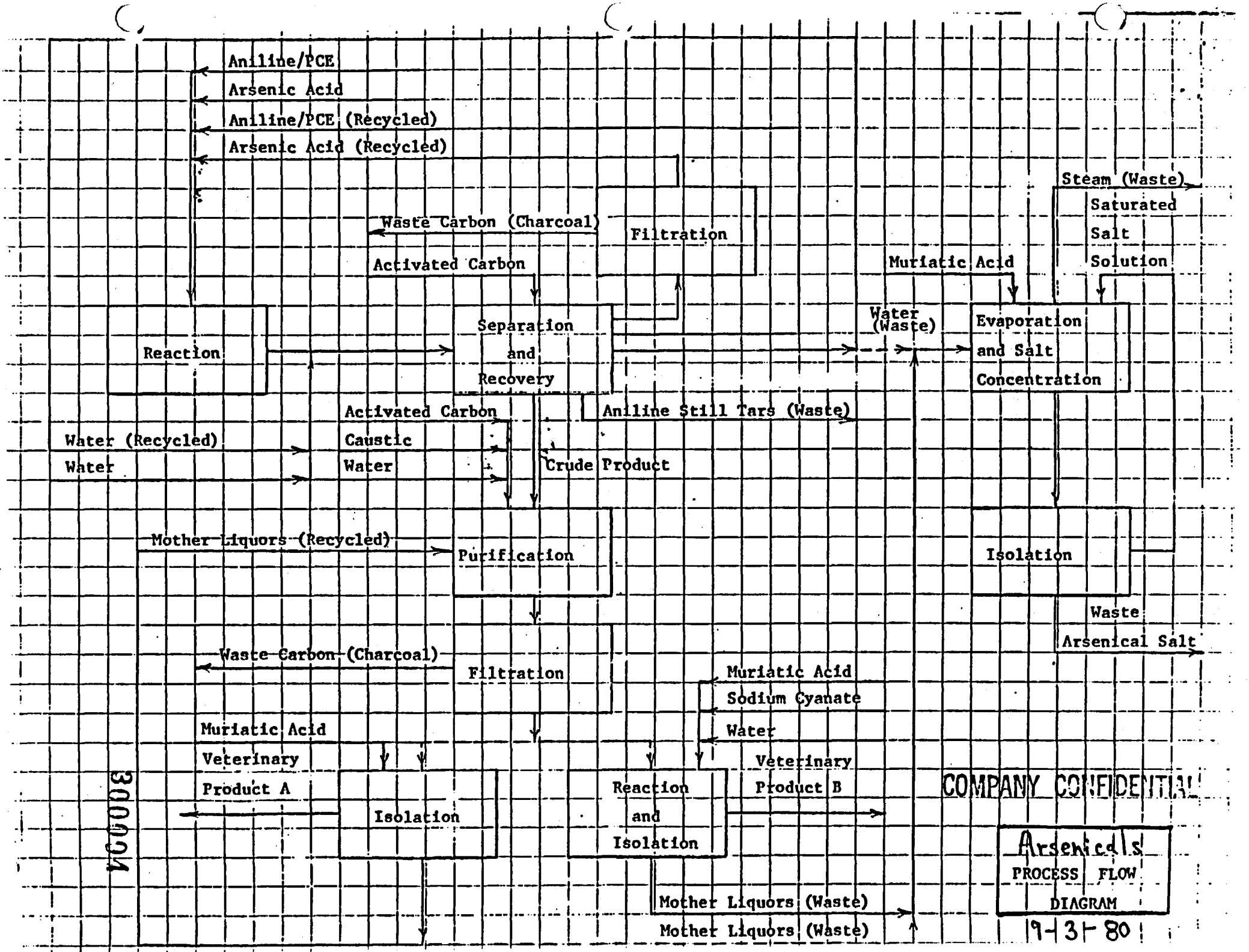
8- 4 A-Shift

4 - 12 B-Shift

8. Plant Organization

Plant Manager	Harold M. Huffman
Chemical Area Manager	Joseph Gallagher
Arsenical Department Manager	Richard Cortellini
Safety Director	Frantz Dengler

cc: R. Cortellini, H. Kreiser, R. Bright, H. Mann, J. Hunsicker, R. Schott


Aniline/PCE
Arsenic Acid
Aniline/PCE (Recycled)
Arsenic Acid (Recycled)
Steam (Waste)
Saturated
Salt
Solution
Waste Carbon (Charcoal)
Filtration
Activated Carbon
Muriatic Acid
Water
(Waste)
Separation
and
Recovery
Reaction
Evaporation
and Salt
Concentration
Activated Carbon
Aniline Still Tars (Waste)
Water (Recycled)
Caustic
Water
Water
Crude Product
Mother Liquors (Recycled)
Purification
Isolation
Waste
Arsenical Salt
Waste Carbon (Charcoal)
Filtration
Muriatic Acid
Sodium Cyanate
Water
Muriatic Acid
Veterinary
Product A
Veterinary
Product B
Isolation
Reaction
and
Isolation
Mother Liquors (Waste)
Mother Liquors (Waste)
COMPANY CONFIDENTIAL
Arsenicals
PROCESS FLOW
DIAGRAM
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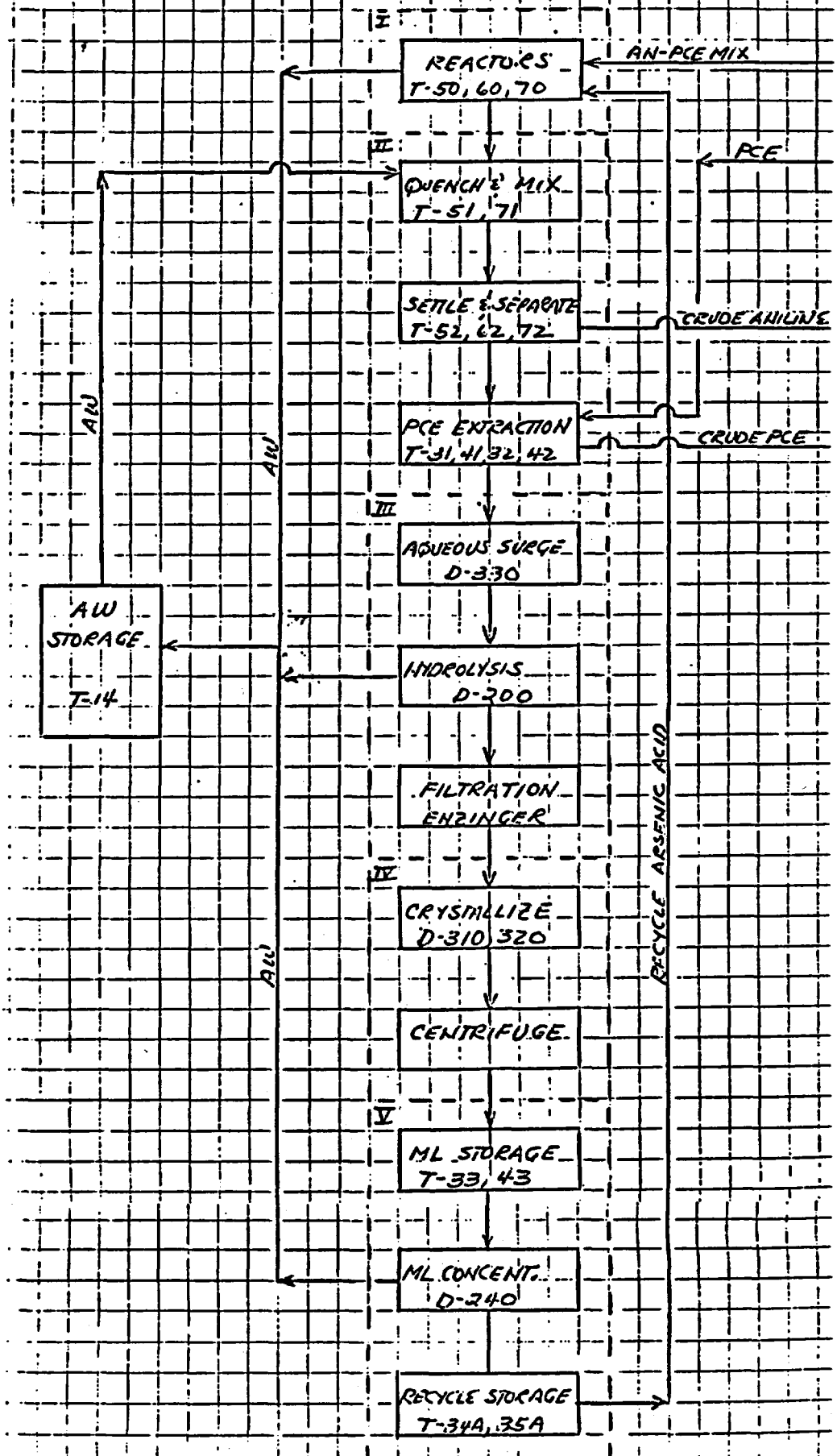
SIMPLIFIED FLOW DIAGRAM



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