MONSANTO COMPANY
ANNISTON PLANT

STANDARD OPERATING INSTRUCTIONS
FOR
DRUMMING AND FLAKING

October 1969

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MONSANTO COMPANY
ANNISTON, ALABAMA

STANDARD OPERATING INSTRUCTIONS

FOR

DRUMMING AND FLAKING

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STANDARD OPERATING INSTRUCTIONS

FOR

DRUMMING AND FLAKING

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STANDARD OPERATING INSTRUCTIONS

FOR

DRUMMING AND FLAKING

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SYNOPSIS OF

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STANDARD OPERATING INSTRUCTIONS
FOR
DRUMMING AND FLAKING

A. SYNOPSIS OF PROCESS

The Aroclor Packaging and Drumming Department consists of facilities for drumming of Aroclors, Aroclor Blends, and HB-40; and for flaking, bagging and drumming of Biphenyl and solid Aroclor 5460.

The drumming can be done manually (as is the case for Aroclor 4465, HB-40 and certain other blends and viscous Aroclors). However, the major portion of the drumming is accomplished automatically on a twin lanced, Toledo system. A pallet of four empty drums is conveyed under the filling system after being inspected, stencilled and positioned. The four drums are filled alternately and automatically. They are then secured and taken on to storage via forklift.

Biphenyl is flaked on a chrome-plated Goslin water cooled drum and bagged automatically in a St. Regis bagging system. The molten Biphenyl is pumped from a feed tank to the flaker pan at about 80-90°C. Part of the Biphenyl adheres to and solidifies on the rotating flaker drum and is scraped off the drum by a knife and drops through a chute into the bagger hopper. The excess Biphenyl in the pan overflows back to the feed tank. The bagger automatically feeds a 50 pound charge of flaked Biphenyl into a bag which is hand mounted on the bagger spout. The filled bag is conveyed automatically through a bag flattener, is automatically stencilled, and is check weighed and palletized at the end of the conveyor by a laborer.

Aroclor 5460 is flaked on a stainless steel Goslin water cooled drum and is also bagged in a St. Regis bagger. The molten 5460 is pumped from a feed tank at about 240°C. Part of the 5460 adheres to and solidifies on the rotating drum and is scrapped off the drum by a knife. The flaked material then goes through a breaker and is conveyed via an air vibrated conveyor to the bagger hopper. The excess 5460 in the pan overflows to the feed tank. The bagger automatically feeds in 50 pound charge of material into a bag mounted on the bagger spout. The filled bag then goes through the same flattner and stenciler as the Biphenyl bag went through and is palletized at the end of the conveyor by the laborer alternately with the Biphenyl.

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The Shipping Department carries off filled pallets of Biphenyl and Aroclor bags to warehouse storage.

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SAFETY AND
HOUSEKEEPING

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STANDARD OPERATING INSTRUCTIONS
FOR
AROCLORS

B. SAFETY AND HOUSEKEEPING

Safety of operations in the Aroclor Plant depends on the individual operator. Materials being handled and operations must be observed closely to guard against the following:

Cause and Action to Prevent

1. Chlorine Gas

Chlorine gas is a very toxic corrosive gas. Leaks or high pressure can occur to liberate it.

Action to Prevent

a. Report Chlorine gas exposure immediately for treatment with Antidote. Milk may be used in mild cases to relieve throat irritation. Oxygen from the resuscitator in the Dispensary is available.

b. Keep gas mask in good condition. Keep a good canister in the mask. Use these type masks only in chlorine concentrations to 2-3% chlorine in air.

c. Use a Scott Air Pak in concentrations of chlorine gas above 3% in air. Three units are available in the Aroclor-Biphenyl Department.

d. If caught in chlorine gas without a mask, hold your breath and go cross wind until you are out of range of the gas. Place a handkerchief over your nose in small quantities of chlorine.

e. Report all chlorine leaks for repair immediately. Make temporary repairs with tape if possible.

f. In case of a major chlorine leak, the source of chlorine gas must be stopped.

Cut off chlorine from cars.

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Cause and Action to Prevent

2. Thermal Burns

Contact with hot uninsulated product lines at the chlorinators and still areas.

Contact with uninsulated steam lines and open steam.

Contact with hot Aroclors from broken lines or leaks.

Contact with open flames at stills or from heating lines in the department.

Action to Prevent

a. Know that contact with equipment and product will cause a thermal burn due to the high temperatures. Make changes in operations with this hazard in mind.

b. Know the first aid treatment for burns. Cold Water Treatment (See Appendix A - Emergency Section).

c. Wear gloves and long sleeve shirts with the sleeves rolled down when operating. Gloves and clothing can make the difference between first and second degree burns.

d. Report uninsulated lines for repair of insulation.

e. Use only steam lines with hose and hose clamps in good condition.

f. The following operations are hazardous and should be done with care:

   (1) Catching samples at the Aroclor chlorinator circulating lines.

   (2) Sampling the Solid Aroclor still receiver.

   (3) Drawing bottoms on the Aroclor stills.

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Cause and Action to Prevent

3. Explosion

An explosion could occur in the chlorinators by slugging liquid chlorine to the distributor. Slugs of liquid chlorine could react fast enough to cause excessive pressure in the vessel. A rupture of the chlorinator could occur.

Action to Prevent

a. Observe operation of the chlorine vaporizer and do not let liquid chlorine get into the rotameters. Pipe lines will be frosted.

b. In case chlorine feed lines are frosted, close liquid chlorine feed valve to the vaporizer. Check steam addition to the vaporizer. Do not start up until source of trouble has been located.

c. Do not close valve in water discharge line from the chlorinator coil.

d. Observe temperature of the chlorinator periodically and be sure it is not too hot (180°C. maximum).

4. Falls

Slipping on cement floors, stairs, Aroclor on floor, ice conditions; tripping over objects (hose, pipe, valve handles, etc.); or losing footing on ladders, etc., can cause falls.

Action to Prevent

a. The majority of minor, serious, and near-miss injuries in the Aroclor Dept. are the result of falls. Prevention is always within the ability of the operator by use of expert operating practices.

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Cause and Action to Prevent

4. Falls (Contd.)

b. The following items should be done:

(1) Return hose to rack after using.

(2) Keep operating areas clean of all foreign objects.

(3) Return ladders to racks when not in use.

(4) Keep gloves on and hands out of pockets, especially going up and down stairs.

(5) Place guards around any area that presents a hazard that should be guarded.

c. Poor lighting due to burned out bulbs should be corrected at once. Poor lighting due to inadequate facilities should be reported.

d. Spills must be cleaned up immediately following their occurrence. Report any spill that cannot be cleaned up within the shift to the Chief Operator. Spills are to be reported in the log book.

5. Fires

Fires can occur by:

Biphenyl, Santowax R, or Santowax C ignition.

Chlorine problems in the vaporizer allowing reaction with steam to release hydrogen.

Furnace burner backfire.

Wood, rags, or paper on hot lines.

Sparks from welding apparatus of open flames.

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Cause and Action to Prevent

5. Fires (Contd.) Action to Prevent

a. Area must be clear of trash or flammable materials. Use trash skips and cans.

b. Smoke only in areas so designated.

c. Use spark producing equipment only with a fire permit and proper inspection.

d. Use care in lighting gas torch or the still furnaces.

e. Fire fighting equipment includes:

(1) Two wheeled dry powder units.

(2) Hose house with 200 ft. of hose.

(3) Two dry powder hand extinguishers, One CO_2 hand extinguisher.

(4) Two 3/4" water hoses.

(5) Hose connection north of Santowax.

(6) Scott Air Paks.

(7) Fire truck in fire house.

f. Observe visitors in the plant and be sure they observe safety rules.

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6. The following is a list of chemicals handled in the Aroclor Plant operations and the precautions to be taken during their handling:

a. Chlorine Gas

This is a corrosive gas which is toxic. Leaks or back pressure can occur and liberate chlorine gas in the area. Operators should have their cartridge type respirators handy at all times while in the area. Use of gas masks is explained in Section B.1.

If you are caught without a gas mask, and large amounts of chlorine gas are liberated, hold your breath and go cross wind until you are out of range of the gas. Once out of the area, obtain an emergency gas mask and return to the area and correct the trouble.

A victim of chlorine gas fumes must be removed as quickly as possible from the gaseous area. Place patient on his back with head and back elevated. Milk may be used in mild cases as a relief from throat irritation. If the patient has stopped breathing, start artificial respiration immediately.

b. Biphenyl

Biphenyl is a flammable material which will burn. Burning should not be done in the presence of Biphenyl or Biphenyl vapors. The melting point is 68.7°C., and the auto ignition temperature is 258°C. Inhalation of Biphenyl fumes is not recommended, since it can cause a drugged effect on the person.

c. Santowax R

Santowax R is a flammable material which will burn. It is relatively non-toxic to human beings. However, the vapors of Santowax R are irritating to the mucous membranes and bronichial tract. Prolonged breathing of the vapors should be avoided. The melting point is 140°C.

d. Santowax C

Same as Santowax R, since it is the crude material prior to distillation.

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6. (Continued)

e. Ferric Chloride	Ferric Chloride is a black-brown solid. It causes only slightly irritating effects on the skin or mucous membranes. When heated it will decompose and release toxic fumes of chlorine. It will react with water to produce toxic and corrosive HCl fumes.
f. Attapulgus Earth	This material is a dried earth. No danger in handling. Wash off with water to clean.
g. Hydrated Lime	No particular hazard in handling this material. The dust is irritating to the eyes and skin, and should be washed off with water.
h. Crude Aroclors	Crude Aroclors are hot, since all are handled in steam traced or jacketed lines. They can easily cause thermal burns in contact with the skin. Prior to air blowing, the material has HCl fumes entrained in it which are irritating to the skin or mucous membranes.
i. Hydrogen Chlorine Gas	This is a corrosive gas which is toxic. It is irritating to the mucous membranes, to the eyes, and to the respiratory tract. It will react with water to form Hydrochloric Acid.
j. Still Bottoms or Residue	Fumes from still bottoms are toxic. They are extremely irritating to the mucous membranes, to the eyes, and respiratory tract.

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HOUSEKEEPING

The Aroclor chlorinator and still operators are responsible for housekeeping during their shift. Good housekeeping is the mark of good operations, safety practices, quality, and costs.

Housekeeping duties are equal in importance with all other operating duties.

Poor Practices	Action to Prevent
1. Hoses, valve handles, dip sticks, rags, and other material on ground or floor.	a. Replace after use. b. Have place to store all necessary operating aids. c. Report needs to supervision.
2. Product Leaks.	a. Tighten valve packing glands and flange bolts. b. Report leaks to Chief Operator for maintenance alteration.
3. Trash and Crude Drums.	a. Contact Chief to have drums moved from area. b. Use trash skip in area.
4. Product spills or clean out messes.	a. Prevent necessity of clean-out by keeping tracing, insulation, or jacket in good repair by getting items turned in for maintenance work. b. Spills must be cleaned up when they are made. Clean up will continue through the following shifts to finish the job.

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DETAILED
INSTRUCTIONS

DSW 542941

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DRUMMING INSTRUCTIONS

PREPARATIONS FOR DRUMMING

1. Empty drums will be stored on pallets. (Drums will be palletized when received.)

2. Shipping will place pallets of empty drums on the conveyor and also remove pallets of full drums from the conveyor.

3. Pallets of empty drums will gravity roll down to a "stop".

4. At the "stop" the bungs are removed, the drum is stenciled and inspected, and the drums are properly aligned for filling by "pilots" mounted over the drums.

5. Air pressure must be a minimum of 60 pounds gage for the lances to function.

6. All Liquid Aroclors are automatically filled (through the lance system). HB-40 and Aroclor 4465 is manually filled using a gasoline filling nozzle. Two hoses are provided - one is for Aroclors and the other is for HB-40.

7. After placing drum bung in proper position, release pallet of drums by hand switch at left lance control box.

8. Push pallet onto 90° conveyor turn. (Be sure pallet lift is lowered.)

9. Raise left and right lance.

10. Start drum conveyor by pressing "FOR" pushbutton. Hold button in and raise pallet lift. Release "FOR" pushbutton when bungs are under lances.

CONSOLE PANEL LAYOUT (See Print Attached)

Upper Row

Upper row consists of six (6) indicating lights. The white lights at each end of the upper row indicate which lance is cycling in automatic operation. If the unit is in manual operation the green light next to the right end will burn.

The red pilot light next to the end from the left burns if the weight on the scale passes the over weight photo head setting.

The green pilot light (3rd from left) lights when power is applied to the system.

The white pilot light (3rd from right) lights at the end of the weigh cycle.

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Middle Row

1. From left to right, the first switch is used for manually filling the left lance. The selector switch is spring return to the center. The selector switch allows "Slow" or "Fast" manual drum filling.

2. The second switch is used to select either manual or automatic filling. Except for HB-40 and 4465, all filling should be done in automatic.

3. The third switch is used to apply power to the system.

4. The fourth switch is for holding the system after each tare by placing in the "Check" position. Normal operation will be in the "Run" position.

5. The black push button is used to tare the scale in manual operation.

6. The switch on the extreme right of the middle row is used for manually filling the right lance. The selector switch is spring return to the center. The selector switch allows "Slow" or "Fast" manual filling.

Bottom Row

1. From left to right, the first switch is used to by-pass the left lance in the automatic cycle by placing the switch in the "Out" position. In the "In" position, the lance will operate when called for in the automatic cycle.

2. The second switch is used for selecting the left lance stop position for either large or small drums. In the "Small" position, five (5) gallon drums may be filled. In the "Large" position, 42 and 55 gallon drums may be filled.

3. The red push button is used to stop the weigh cycle. When the weigh cycle stops, lances will raise.

4. The fourth switch is used for selecting the right lance stop position for either large or small drums.

5. The far right switch is used to by-pass the right lance in the automatic cycle by placing the switch in the "Out" position.

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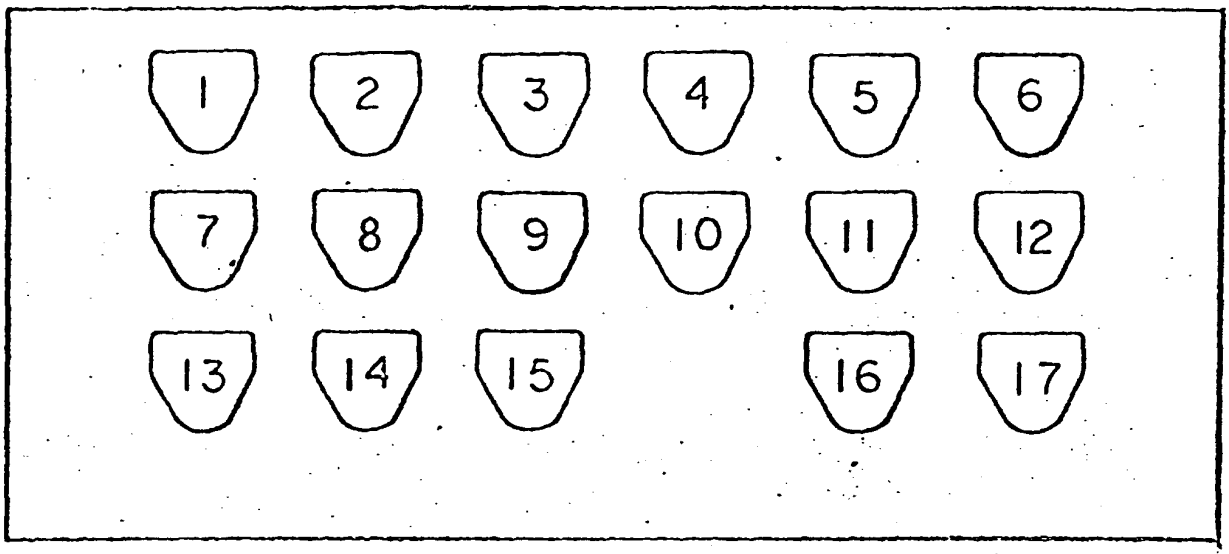
TOLEDO SYSTEMS
TOLEDO SCALE COMPANY
Division of Reliance Electric
Toledo, Ohio



1. Left Cycling - White Pilotlight - lights while the left lance controls are operating.
2. Overload - Red Pilotlight - lights when the weight on the scale passes the Over photohead setting.
3. Power On - Green Pilotlight - lights when power is applied to the system.
4. Cycle Complete - White Pilotlight - lights at the end of the weigh cycle.
5. Manual On - Green Pilotlight - lights when in manual operation.
6. Right Cycling - white Pilotlight - lights while the right lance controls are operating.
7. Left Manual Feed - Fast-Auto-Slow - selector switch spring return to center. Selects rate of feed in manual operation.
8. Cycle Manual - Auto - Selector Switch - selects mode of operation.
9. Power Off On - Selector Switch - used to apply power to system.
10. Cycle Check - Run - Selector Switch - in the Run position, the system operates normally. In the Check position, the system will hold after each tare operation.
11. Manual Tare - Black Pushbutton - used to tare the scale in manual operation.
12. Right Manual Feed - Fast-Auto-Slow - selector switch spring return to the center. Selects rate of feed in manual operation.
13. Left Lance Out-In - Selector Switch - in the Out position, the automatic cycle will bypass the left lance operation. In the In position, the lance will operate when called for in the automatic cycle.
14. Left Drum Small-Large - Selector Switch - in the Small position, 5 gallon drums may be filled. In the Large position, 42 and 55 gallon drums may be filled.
15. Stop - Red Pushbutton - used to stop weigh cycle. When the weigh cycle stops, lances will raise.
16. Right Drum Small-Large - Selector Switch - same as 14.
17. Right Lance Out-In - Selector Switch - same as 13.

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CONTROL LAYOUT

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AUTOMATIC OPERATION (For all Liquid Aroclors in 55 Gallon Drums)

1. Place the POWER OFF-ON selector switch to ON. The Green POWER ON pilot light lights. Place the PRINTER OFF-ON switch (located on the Printer housing) to ON. (Printer should always be left in ON position.)

2. Place the CYCLE MANUAL-AUTO selector switch to AUTO.

3. Place the LEFT and RIGHT DRUM SMALL-LARGE selector switch in the LARGE position. SMALL position will not be used, as all five (5) gallon cans will be filled direct from flexible hose through gasoline nozzle.

4. Set photocell to cut off at the correct value. Red marker should be set at proper weight.

5. Place pallet of drums on the weigh section. Line the lances with the bung holes.

6. Verify the LEFT and RIGHT LANCE IN-OUT selector switches are in the IN position. (Note: When switch is in the OUT position, that portion of the automatic cycle will be by-passed.)

7. Lower both lances, using the LEFT LOWER and RIGHT LOWER LANCE push buttons (mounted on the lance assemblies). Both left and right are located on the left lance assembly control box. Right lower lance is located on the right lance assembly control box also. The lance must not touch the drums. Lower lance buttons must be pressed during the entire descent of the lance.

   Note: Do not damage lance by hitting drum with lance.

   Drive conveyor is interlocked and will not move unless lances are in fully raised position.

8. With both lances lowered, press start push button (mounted on the lance assembly). The following occurs automatically:

   The CYCLE COMPLETE pilot light goes out and LEFT CYCLING pilot light lights. The scale will tare and the indicator will go to zero. The lance will begin to slowly raise. If the photocell is not cut off and the correct size drum is in place, the material will begin to feed at a fast rate. The lance will raise as the drum is filled. As the desired weight is approached, the feed will stop, the printer will cycle, and the lance will begin to raise at a fast rate. When the lance is at its highest point, the drip cup extends below the foot valve on the lance. The printer will print the weight value, the LEFT CYCLING pilot light will go out, and the RIGHT CYCLING pilot light will light. The above will repeat for the Right Lance. When the right drum has filled, the cycle will stop and the CYCLE COMPLETE pilot light comes ON.

9. Move drive conveyor to second row of drums and repeat steps 7 and 8. (Place bung in drum before moving drive conveyor.)

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MANUAL OPERATION (All Liquid Aroclors in 55 Gallon Drums)

Manual operation should not be used except to verify drum will hold contents of weight at storage tank temperature.

A safety hazard exists in Manual operation. The lance will raise above the drum spraying hot Aroclor. This can be avoided by lowering the lance into the drum about three (3) inches. Do not raise lance. If lance begins to raise, momemtarily push lower lance button.

1. Place the POWER OFF-ON selector switch to ON. The POWER ON pilot light lights.

2. Place the CYCLE MANUAL-AUTO selector switch to MANUAL. The MANUAL ON pilot light lights.

3. Place the drums to be filled on the weigh section. Line the lances up with the bung holes.

4. Use the LOWER LEFT LANCE push button (mounted on the left lance assembly) or the LOWER RIGHT LANCE push button (mounted on the right lance assembly) to lower the appropriate lance into the drum.

5. Press either MANUAL TARE push button or the push button mounted on the left or right lance assembly. The scale indicator will go to zero.

6. Use the appropriate LEFT or RIGHT MANUAL FEED selector switch to weigh fast or slow.

7. When the first drum is filled, the MANUAL TARE push button or the one mounted on the left or right lance assembly should be pressed. The indicator will return to zero.

8. Fill the next drum as in Steps 3 through 6.

Note: A nozzle is provided for manually filling the 5-gallon Aroclor and 55 gallon HB-40 and 4465 drums. The operator should stand on the weigh section with the drum and press the MANUAL TARE push button on the lance assembly. When the indicator is at zero, the operator fills the drum while he remains on the weigh section. After filling the drum, press manual print button to record weight. Repeat cycle.

Asbestos gloves must be worn while filling 4465.

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SPECIAL NOTES

1. Reset Scale Cut-Off - loosen knob and slide to desired cut-off weight. Relocate overload cut-off immediately above desired weight.

2. Do not wet load cell during clean-up.

3. Drive conveyor will not move unless lances are fully raised.

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PACKAGING INSTRUCTIONS
UTILITY SYSTEMS

In addition to the Tank Farm and Blending, Project 1430 includes facilities for Flaking Solid Aroclor 5460 and Drumming Aroclor Blends, HB-40, and Liquid Aroclors. These facilities are located in the South end of the new Warehouse. Operation of these facilities will be one shift per day.

Drumming will be done on a high-speed Toledo Scale system. Design rate is four 55-gallon drums per five (5) minutes.

The new Solid Aroclor flaker is located on the upper level of the new warehouse. Facing South, the Aroclor flaker is located on the left. (The Biphenyl flaker is on the right.)

A surge tank for Solid Aroclor storage has been added for storage if the flaker feed tank is full. Solid Aroclor will be transferred from the No. 4 still receiver to the flaker feed tank or the surge tank.

Instrument Air System

System consists of a 100 SCFM Joy Air Compressor and an operating pressure of 80 psig. This system supplies air for the bagger, tank farm and packaging instruments. Drying system is a Trinity heatless dryer.

A Twist air compressor with integral surge tank has been installed to provide air for the drumming system as well as to air vibrators or Aroclor flaking system. It is tied in to main instrument air system for use in emergencies only. There is no drier on this system, therefore, continuous use as a source of instrument air should be avoided. Unit should be operated on continuous (cont.) while operating rather than auto to avoid damage to unit.

Operating Instructions for Instrument Air System

1. Before starting the compressor, be sure city water is flowing to the compressor jacket.

2. "Toggle Switch" on control panel of compressor must be in an unload position. This is the "Right" position.

3. Be sure oil level shows in sight glass.

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4. Open drain on receiver to be sure moisture has not accumulated.

5. Press start button and continue to hold it for 10 seconds.

6. Move toggle switch to "Left" or load position.

Regular checks of following should be made by Chief:

1. Oil level.

2. Water temperature of about 100°F.

3. Receiver drain for moisture.

4. Hand feel compressor head to verify unit is not over heating.

Therminol

Therminol will be used to heat the Solid Aroclor. A new heater and pump are provided to supply Therminol for jacketed pipe from tank 810 to tank 811, panel coils for 810, flaker feed lines, and flaker pan. New pump will supply 60 GPM at 60 psig. Total heat output of new heater is 300,000 BTU per hour. The pump and motor are mounted on the heater platform. Expansion tank (125 Gal.) is mounted in Penthouse of Warehouse and independent of the heater assembly.

1. Operation of Therminol heater requires that the pump be running and fluid is positively circulating before heaters can be turned on.

2. Expansion tank is designed to be 25% full with 50°F. cold fluid and 75% full with 550°F. fluid.

3. Operate two heaters on "swing" for thermostat control. Other two heaters should be in "base" for continuous heating.

4. Set point is 500°F.

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OPERATING INSTRUCTIONS

5460 AROCLOR FLAKING

Flaking of 5460 is accomplished on a Goslin-Birmingham flaker drum located in the penthouse (upper level) at the south end of the new warehouse. Aroclor is transferred to the flaker feed tank from either the #4 still receiver or a new surge tank located north of Building 27.

The flaker feed pump transfers 5460 to the flaker pan. Flaked 5460 passes through a breaker to a vibrating conveyor. By gravity the flakes then feed a St. Regis bagger. Unflaked 5460 overflows from the pan to the flaker feed tank. Design rate is 6,900 lbs/hr.

A. Transfers to Flaker Feed Tank

1. Piping is arranged to allow transfer from #4 still receiver to either the surge tank (810) or the flaker feed tank (811). Off-grade material can be returned to the #2 blow tank from either 811 or 810.

2. Normal procedure will be to transfer direct to the flaker feed tank from the still receiver between 3:00 P.M. and 3:00 A.M.

3. Between 3:00 A.M. and 3:00 P.M. batches of 5460 will be accumulated in tank 810 for transfer shortly after 3:00 P.M. (Transfers during flaking could change softening point and require a change of lot number.)
4. Transfers into 811 should be made through the basket located beneath the domed cover on the east end of the tank.

5. Level in 811 is detected by visual inspection of a Jorgusen sight glass. Never fill to less than 6" of overflow pipe as an allowance for thermal expansion.

6. Transfer pump (Item 837) for tank 810 has a local only start/stop station..

NOTE: Therminol (heat source) and electricity in warehouse are are required to make a Solid Aroclor transfer.

Therminol - Required to keep 5460 molten. If flow stops, alarm sounds in Aroclor Control room.

Electricity - Will shutdown therminol. Same indicators as above.

B. Preparation for Flaking

1. Open valve on suction side of flaker feed pump. Open valve on top of tank 811 to allow circulation of 5460 through basket located beneath domed cover of east end of the tank.

2. Start pump. Switch located on column at Aroclor pum

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3. Adjust temperature controller to maintain 240°C.

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4. Before each start-up, clean knife as follows:

   a. Wipe knife clean with cloth. Use acetone soaked cloth if necessary.

   b. Start breaker and drum. Engage clean knife against drum.

   c. With knife engaged, wipe clean again. Repeat until drum is clean.

   d. If a knife should need replacement, follow this procedure:

      (1) Remove cotter pin from each end of knife holder.

      (2) Slide knife from holder.

      (3) Clean knife slot of holder.

      (4) Insert new blade. Slide blade to and fro to be sure slot is clean and knife is in proper position.

      (5) Insert cotter pins.

      (6) Engage knife (with drum rotating) at minimum pressure, less than two pounds.

      (7) Adjust Allen screws in knife holder to attain an even pressure on the drum.

5. Start drum at lowest speed (with knife withdrawn).

6. Engage knife and leave knife handle engaged to prevent possible back-off of knife.

7. Adjust knife pressure to minimum setting required to clean flaker drum. Never exceed 30 pounds.

8. Set water flow through the drum at 100-125 GPM. Rotameter located at drive end is used to measure flow.

9. To maximize heat transfer, water level in the drum is minimized by a siphon dip pipe. Water is removed from the drum by maintaining an air pad on the water layer. Optimum conditions are maintained by adjusting the air pressure until an occasional air bubble is observed in the sight glass of the drum water discharge.

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C. 5460 Aroclor Flaking

1. Start vibrating conveyor.
2. Set diverter gate above hopper for drumming.
3. Open air valves for flaker pan vibrators. Forty (40) pounds minimum air pressure necessary for desired flaking.
4. Start breaker, start drum. (Drum is interlocked with breaker and will not rotate unless breaker is rotating.)
5. Engage knife.
6. Install overflow standpipe in flaker pan.
7. Slowly open feed valve.
8. Observe overflow pipe to be sure return line to flaker feed tank is not plugged.
9. Adjust feed flow to barely maintain drum coverage.
10. Verify Aroclor flakes are reaching drum.
11. Start bagger blower.
12. Switch diverter gate to bagging position.
13. Drum speed will be dictated by:
    a. Aroclor feed temperature.
    b. Drum water.
    c. Dryness of flake.
    d. Condition of knife.

    Normal drum setting will be 1.0 on speed reducer. This corresponds to design rate of 6,900 lbs/hour.

D. Shutdown of Aroclor Flaker

1. Stop flaker feed pump.
2. Shutdown pan vibrators.

WATER_PCB-SD0000051731

3. After drum ceases to pick up 5460, pull overflow standpipe.

4. Close flaker feed valve.

5. Retract knife.

6. Leave drum and breaker rotating. This is recommended by Goslin-Birmingham because cold drum is only 1/4" from a 250°C. pan.

DSW 542953

WATER_PCB-SD0000051732

OPERATING INSTRUCTIONS

BIPHENYL FLAKING

Flaking of Biphenyl is accomplished on a chrome plated Goslin-Birmingham drum located in the penthouse at the south end of the new warehouse. Biphenyl is transferred from existing storage tanks to a flaker feed tank. The flaker feed pump transfers Biphenyl to the flaker pan. Flaked Biphenyl gravity feeds a St. Regis bagger. Unflaked Biphenyl overflows from the pan to the flaker feed tank. Design rate is 5,000 lbs/hour.

A. Transfers from Storage to Flaker Feed Tank

1. Piping to the flaker feed tank is an extension of existing line to Aroclor.

2. Transfers for flaking may be made from either day tank or the large storage tank.

3. Transfers may be made at any time:

   a. Simultaneous with a transfer to Aroclor. Flow meters for measuring Biphenyl have proven to be very accurate, eliminating the need for separating feed tanks for inventory purposes.

   b. During flaking operation, if additional Biphenyl is needed.

4. To make a transfer the following valves must be open:

   a. Manual valves to flaking area at flow meter, located above west handrail near Aroclor control room entrance.

   b. Bettis operated valve above flaker feed tank. To open valve push "Reset" button on LV 304. Controls for LV 304 valve operator is mounted at eye level on column north of Biphenyl flaker feed tank.

5. Start transfer pump.

6. Alarm in Biphenyl control room is set to sound at 80% level in flaker feed tank.

7. Automatic valve LV 304 is set to close at 85%.

8. Transfer pump must be stopped manually upon signal or upon time lapse in excess of normal transfer.

9. Close manual valve in transfer line to flaking area.

10. Check level in flaker feed tank.

DSW 542954

WATER_PCB-SD0000051733

NOTE: Steam and instrument air are required to make a Biphenyl transfer.

Steam - Required to keep Biphenyl molten. Heat input to jacketed Biphenyl transfer line is adjusted by steam pressure regulation at three (3) pounds for each of three sections of pipe. Pressure regulators are located at N.W. corner of Aroclor building south end of catwalk over Fifth Street, and west end of pipe (immediately south of stairs from catwalk to upper level of small mix tank.

Instrument Air - Required for level measurement of flaker feed tank. Also LV 304 is an air-to-open, fail close valve.

B. Preparation for Flaking

1. Open valve on suction side of flaker feed pump. Open valve on top of tank 815 to allow circulation of Biphenyl through basket located beneath domed cover on west end of tank.

2. Start pump. Switch located on column at Aroclor pump.

3. Adjust temperature controller to maintain 85°C. Controller adjusts steam flow to 1 of 3 panel coils. Water can be put on one of the other coils and Therminol to the other coil.

   A Therminol system complete with circulating pump and surge tank was added to maintain optimum flaking temperatures. The Therminol is controlled at 80°C. by water jacketed and steam jacketed circulating piping. A TIC controls steam and water flow to piping to maintain this temperature. The Therminol is left circulating at all times.

4. Before each start-up, clean knife as follows:

   a. With drum stopped, engage knife.

   b. Sweep knife and holder clean.

   c. Retract knife and wipe surface clean. Check blade for any "nicks" or "burrs."

WATER_PCB-SD0000051734

d. If a "burr" exists, replace blade by:

(1) Remove cotter pin from each end of knife holder.

(2) Slide knife from holder.

(3) Clean knife slot of holder.

(4) Insert new blade. Slide blade to and fro to be sure slot is clean and knife is in proper position.

(5) Insert cotter pins.

(6) Engage knife at minimum pressure, less than two pounds.

(7) Adjust Allen screws in knife holder to attain an even pressure on the drum.

5. Start drum at lowest speed with knife withdrawn. Control button at west (drive) end of flaker.

6. Engage knife and clean drum. Leave knife handle engaged to prevent possible back-off of knife.

7. Adjust knife pressure to minimum setting required to clean drum. Never exceed 20 pounds.

8. Set water flow through the drum at 75-100 GPM. Rotameter located at drive end is used to measure flow.

9. To maximize heat transfer, water level in the drum is minimized by a siphon dip leg. Water is removed from the drum by maintaining an air pad on the water layer. Optimum conditions are maintained by adjusting the air pressure until an occasional air bubble is observed in the sight glass of the drum water discharge.

C. Biphenyl Flaking

1. Be sure Therminol is on feed and overflow lines.

2. Steam or water can be used on the jacketed flaker pan as temperature in the pan varies. Do not close discharge valve of pan jacket.

WATER_PCB-SD0000051735

C. 3. Set diverter gate above hopper for drumming.

4. Start drum and engage knife.

5. Slowly open feed valve.

6. Observe overflow pipe to be sure return line to feed tank is not plugged.

7. Insert overflow standpipe.

8. Adjust feed flow to maintain drum coverage but not to exceed 3/4" drum immersion.

9. Verify ducts are not plugged by Biphenyl reaching the drum.

10. Start bagger blower.

11. Switch diverter gate to bagging position.

12. Drum speed will be dictated by:

a. Flake size.

b. Condition of knife.

c. Drum water temperature.

d. Biphenyl feed.

Normal drum setting will be 3 - 3.5 setting on speed reducer. This corresponds to design rate of 5,000 lbs./hr.

D. Shutdown of Biphenyl Flaker

1. Stop flaker feed pump.

2. Remove flaker pan overflow standpipe to drain pan.

3. Close feed valve at flaker.

4. Retract knife.

5. Stop drum.

6. Leave Therminol system circulating.

7. Leave water and air settings status quo.

WATER_PCB-SD0000051736

E. Abnormal Situations

1. Loss of instrument air:

Symptoms

a. Alarms in Aroclor control room.

b. Bagger won't function.

c. Flaker drum fills with water.

d. Knife is backed away from drum.

Action

a. Shutdown flaker feed pump.

b. Close water feed and discharge valves to flaker drum.

2. Loss of Tower Water

Symptoms

a. Alarm sounds in Aroclor control room.

b. Lose heat transfer, Biphenyl comes over molten.

Action

a. Shutdown flaker feed pump.

b. Remove overflow standpipe.

c. Retract knife.

d. Stop drum.

3. Loss of City Water

Symptoms

a. Air compressor shutdowns automatically from high temperature.

Action

Same as for Instrument Air.

DSW 542958

WATER_PCB-SD0000051737

4. Loss of Steam

Symptom

a. Biphenyl lines freeze.

Action

a. Shutdown flaker feed pump.

5. Loss of Electricity

Symptom

a. All equipment stops.

Action

a. Wait.

WATER_PCB-SD0000051738

LABORING INSTRUCTIONS FOR BAGGING SYSTEM

New facilities include a new Solid Aroclor Flaker, a new Biphenyl Flaker, a bagger and a new drumming facility.

In order for the bagger to function high pressure air of 80 pounds must always be available for the start and stop functions. This is supplied by the instrument air compressor located by south wall of building.

Biphenyl and Aroclor is flaked and bagged at the same time. Looking at the bagger the Biphenyl will be bagged from the right spout and Solid Aroclor from the left spout.

The flakers are located on the upper level. The flakes fall to a hopper and are collected in a hopper. The bagger is only required to put an empty bag on the filling tube and press the BLACK start button above the filling tube. The bagger automatically fills the bag to a pre-set weight of 50 lbs. and shuts the automatic valve. The bag is then dropped onto the conveyor, travels through a bag flattener, down a conveyor to the palletizer.

Bags will be discharged with Aroclor and Biphenyl alternately. Two conveyors, one each for Aroclor and Biphenyl, are provided with automatic palletizers.

Shipping fork lift will be responsible for filling the pallet dispenser with empty pallets and removing full pallets of bags from the conveyors.

BAGGER

General

1. Prepare automatic stencil for the bags with lot number. Get bags ready for use. Stack on shelf of chair. This is an automatic bagger. The bag laborer must put an empty bag on the filler spout. Aroclor bags are on a shelf on the left side of the bagger chair. Biphenyl bags are on the right.

2. Press black start button.

3. After bag fills and weighs automatically, bag chair tilts full bag to bag rest.

4. Tuck valve in bag sleeve.

5. Press bag rest release button on arm of bagger chair.

6. Bag rest retracts to drop bag to bag conveyor.

7. Place empty bag on spout.
8. While this bag is filling, remove filled bag from other side.
9. Repeat cycle above.
10. Cycle for each side is about 30 seconds per bag or two bags per minute. Total for both sides is about four bags per minute.
11. Occasionally remove a small amount from a bag to collect a sample.

DSW 542960

WATER_PCB-SD0000051739

Unusual Conditions

A. Loss of Instrument Air

1. Bagger won't operate.
2. Stop flaker feed pumps.
3. Call Chief to report problem.

B. Loss of Blowers

1. Will cause material to stick to hopper and bagger.
2. Turn on vibrator on side of hopper.
3. Notify Chief Operator.
4. If system plugs, make an emergency stop of flaker feed pump(s).

C. No Material in Bag

1. Turn on vibrator on side of vendor.
2. If no material is observed through sight glass of bagger, press RED stop button.
3. If no material is observed through glass, press BLACK start button.
4. Notify Chief Operator of problem.

D. Fire

1. If time permits, dial 211 and report fire. Use red phone mounted on column at main aisle.
2. After reporting fire, portable extinguishers are mounted in the area.
3. If time permits, cut off Biphenyl flaker feed pump.
4. Area is equipped with an automatic sprinkler system.

E. Bag Caught in Flattener

1. Emergency stop button in front of bagger's chair mounted on bagger.

WATER_PCB-SD0000051740

Details of Bagger Stop

1. Chamber recharging, bag removed. "Stop" is initiated when the scale beam contacts the bleeder valve cutoff or the "Stop" button is pressed. Intake gate closes.
2. Pinch tube closes.
3. Bag seal deflates.
4. Bag chair tilts to discharge bag.
5. Feed gate valve below hopper opens.
6. Exhaust valve opens for a pre-set time, then closes automatically.

Details of Bagger Start

1. Bag clamp closes.
2. Pinch tube opens.
3. Bag seal inflates to seal bag valve.
4. Bag chair returns to filling position.
5. Feed gate valve below hopper closes.
6. Exhaust valve is closed during filling operation.
7. Air intake gate opens.

WATER_PCB-SD0000051741

PALLETIZER

1. Be sure empty pallets are available and automatic pallet dispensers are filled. Dispensers hold 12 pallets.

2. To start pallet dispenser push "Start" cycle button. This will raise pallets. The pallets will then lower and bottom pallet will deposit on chain conveyor which started running when cycle was started.

3. Chain conveyor will run until the pallet is discharged onto the connecting gravity conveyor. Now ready to repeat the cycle.

4. The above operation can be stopped at any time by pushing the "Stop Cycle" button.

5. After stopping the cycle the lift can then be lowered by pushing the "Lift Down" button.

6. The cycle may be restarted by depressing the "Start-Cycle" button.

7. Check weigh the first bag on each pallet of Aroclor and each bag of Biphenyl.

WATER_PCB-SD0000051742

AROCLOR 5460

ITEM 810

% Scale	Gal.	Inch.	% Scale	Gal.	Inch.	% Scale	Gal.	Inch.
0	480	9	35	1889	49	70	3298	90
1	520	10	36	1929	50	71	3338	91
2	561	11	37	1969	52	72	3378	92
3	601	12	38	2010	53	73	3418	93
4	641	14	39	2050	54	74	3459	94
5	681	15	40	2090	55	75	3499	95
6	722	16	41	2130	56	76	3539	96
7	762	17	42	2171	57	77	3579	98
8	802	18	43	2211	58	78	3620	99
9	842	19	44	2251	60	79	3660	100
10	883	21	45	2291	61	80	3700	101
11	923	22	46	2332	62	81	3740	102
12	963	23	47	2372	63	82	3781	103
13	1003	24	48	2412	64	83	3821	104
14	1044	25	49	2452	65	84	3861	106
15	1084	26	50	2493	67	85	3901	107
16	1124	27	51	2533	68	86	3942	108
17	1164	29	52	2573	69	87	3982	109
18	1205	30	53	2613	70	88	4022	110
19	1245	31	54	2654	71	89	4062	111
20	1285	32	55	2694	72	90	4103	113
21	1325	33	56	2734	73	91	4143	114
22	1366	34	57	2774	75	92	4183	115
23	1406	35	58	2815	76	93	4223	116
24	1446	37	59	2855	77	94	4264	117
25	1486	38	60	2895	78	95	4304	118
26	1527	39	61	2935	79	96	4344	119
27	1567	40	62	2976	80	97	4384	121
28	1607	41	63	3016	81	98	4425	122
29	1647	42	64	3056	83	99	4465	123
30	1688	44	65	3096	84	100	4505	124
31	1728	45	66	3137	85			
32	1768	46	67	3177	86			
33	1808	47	68	3217	87			
34	1849	48	69	3257	88			

Range - 0-172" W.C.

Sp.Gr. 1.49
For 5460 @ 240°C

DSW 542964

WATER_PCB-SD0000051743

SOLID AROCLOR FLAKER FEED TANK

ITEM 811

Inches	Gallons	Inches	Gallons	Inches	Gallons
1	8	36	1715	71	4138
2	23	37	1783	72	4196
3	40	38	1853	73	4260
4	64	39	1928	74	4323
5	90	40	1994	75	4385
6	119	41	2060	76	4444
7	152	42	2128	77	4502
8	187	43	2198	78	4563
9	223	44	2266	79	4620
10	262	45	2342	80	4678
11	302	46	2408	81	4734
12	345	47	2478	82	4789
13	389	48	2545	83	4841
14	433	49	2621	84	4894
15	480	50	2695	85	4945
16	528	51	2762	86	4995
17	578	52	2829	87	5043
18	629	53	2903	88	5090
19	682	54	2979	89	5134
20	735	55	3046	90	5178
21	790	56	3116	91	5221
22	846	57	3182	92	5261
23	904	58	3258	93	5300
24	961	59	3326		
25	1022	60	3396		
26	1080	61	3464		
27	1139	62	3530		
28	1201	63	3596		
29	1264	64	3671		
30	1328	65	3741		
31	1386	66	3809		
32	1454	67	3874		
33	1521	68	3938		
34	1586	69	4003		
35	1650	70	4070		

Sp. Gr. 1.49

For 5460 @ 240°C

DSW 542965

WATER_PCB-SD0000051744

BIPHENYL FLAKER FEED TANK

ITEM 815

%	Gal.	Inch.	%	Gal.	Inch.	%	Gal.	Inch.
0	729	21	35	1971	42.9	70	3252	64.8
1	760	21.6	36	2005	43.5	71	3288	65.4
2	790	22.2	37	2040	44.1	72	3323	66.0
3	825	22.9	38	2075	44.8	73	3355	66.6
4	858	23.5	39	2110	45.4	74	3387	67.2
5	892	24.1	40	2160	46.0	75	3419	67.9
6	920	24.8	41	2197	46.6	76	3451	68.5
7	958	25.4	42	2235	47.2	77	3483	69.1
8	993	26.0	43	2272	47.9	78	3515	69.8
9	1026	26.6	44	2310	48.5	79	3547	70.4
10	1059	27.2	45	2347	49.1	80	3578	71.0
11	1100	27.9	46	2385	49.8	81	3609	71.6
12	1132	28.5	47	2419	50.4	82	3639	72.2
13	1166	29.1	48	2460	51.0	83	3669	72.9
14	1200	29.8	49	2493	51.6	84	3700	73.5
15	1239	30.4	50	2530	52.2	85	3730	74.1
16	1274	31.0	51	2567	52.9	86	3759	74.8
17	1315	31.6	52	2604	53.5	87	3788	75.4
18	1344	32.2	53	2641	54.1	88	3817	76.0
19	1380	32.9	54	2678	54.8	89	3840	76.6
20	1420	33.5	55	2715	55.4	90	3863	77.2
21	1457	34.1	56	2754	56.0	91	3889	77.9
22	1494	34.8	57	2795	56.6	92	3909	78.5
23	1531	35.4	58	2831	57.2	93	3932	79.1
24	1568	36.0	59	2867	57.9	94	3955	79.8
25	1605	36.6	60	2903	58.5	95	3978	80.4
26	1642	37.2	61	2939	59.1	96	4000	81.0
27	1679	37.9	62	2975	59.8	97	4023	81.6
28	1716	38.5	63	3011	60.4	98	4044	82.2
29	1754	39.1	64	3048	61.0	99	4063	82.9
30	1792	39.8	65	3082	61.6	100	4081	83.5
31	1830	40.4	66	3116	62.2			
32	1869	41.0	67	3150	62.9			
33	1903	41.6	68	3184	63.5			
34	1937	42.2	69	3218	64.1			

Range 0-63 W.C.

Sp.Gr. 1.000

Alarm 80%

Auto Valve Closes 85%

DSW 542966

WATER_PCB-SD0000051745

PROCEDURE

DSW 542967

D. EMERGENCY PROCEDURES

This is the plan for departmental action in the event a hazardous situation or injuries warrant emergency action either in the Aroclor Department or within the Anniston Plant.

1. Hazardous Situations Which Might Occur Are:

   a. Operational Accidents or difficulties, such as explosions, fires, release of toxic fumes, etc.

   b. Forces of Nature - hurricanes, tornadoes, floods, lightning, etc.

   c. Deliberate Damage - malicious actions, sabotage, direct enemy action.

2. The primary considerations in the event of a disaster are:

   a. The care of injured individuals and evacuation of personnel to safe areas.

   b. Measures to prevent any, or further, property or equipment damage.

   c. Measures to provide accurate and thorough information so that other plant personnel and the community can be informed, if necessary.

   d. Prompt restoration of affected facilities and resumption of uninterrupted operations.

3. Responsibility

   The areas of responsibility and overall department organization for disaster control are as follows:

   a. Chief Operator:

      Responsible for continuing or closing down production facilities as conditions permit; for directing fire fighting and damage control activities in the department area; keeping department supervision fully informed of conditions within the department.

WATER_PCB-SD0000051747

3. b. Operators:

Responsible for evacuation of all personnel from danger area; for directing and assisting in first aid and rescue missions; reporting to and keeping Chief Operator informed of conditions within his area of responsibility.

NOTE: All actions of the Fire Brigade are coordinated with the Chief Operator.

4. Details of Plan:

a. In the event of an emergency, personnel must be accounted for. The first assembly area for the department is the open area south of the HB-40 Plant near the ladder rack, the second or alternate assembly area is East of the Aroclor-Biphenyl building in the road.

It is very important to know where people are in an emergency or before action is taken to correct an emergency. If the alternate area has to be used, take whatever safety equipment you can from the department to the assembly area.

b. If assistance is needed, pertinent phone numbers of plant personnel to be contacted are as follows:

T. E. Lackey	358-4284	Munford
M. J. Williams	237-1952	
R. A. Haydel	831-4924	
H. L. Williams	236-3835	
W. B. Papageorge	237-7974	
C. K. Eastman	236-3025	
J. C. Landwehr	237-0546	
J. G. Thorne	237-7652	
T. D. Tucker	237-3927	
P. K. Ward	831-4189	
Dr. J. C. Francis	237-5612	(Home)
	237-3831	(Office)
Main Gate	236-2961	(308 or 317)

c. In the event of a plant disaster, the Plant Manager's office is the Control Center. The alternate Control Center is the Guard Room at the Service Building. The Medical Center is the Plant Dispensary. The alternate Medical Center is the Service Building.

DSW 542969

WATER_PCB-SD0000051748

4. d. If the emergency of disaster occurs before of after the day shift, or on a weekend, the department Chief Operator shall notify the Guard on duty and the Guard will be responsible for notifying plant supervision.

e. Immediately upon discovering a fire, or a current or imminent disaster condition, turn in an alarm. Dial 211 and tell where and what the emergency is.

f. On day shift, Monday through Friday, dial Operator - state location and type emergency and need for outside help.

g. On "off-shifts," contact Guard.

h. If the Guard cannot be contacted and the local Fire Department is needed, call them at 237-3541, giving them location, material burning, size of area involved, etc. Then call the department supervision.

NOTE: Chief Operator may designate this job to one of the operators.

i. The Plant Primary Assembly Area, should the emergency be so widespread that the major portion of the plant is affected, is West of HCl Neutralization Pit (Secondary is Guard Gate No. 4 West of Niran).

j. The Off-Site Primary Assembly Area, should complete plant evacuation be necessary, is REA Terminal, Highway 202 (Secondary is Rescue Squad Headquarters, 1313 Walnut Avenue, South side of Building). To signify complete evacuation, the plant fire alarm will be activated and the sound repeated two-second blasts at one-second intervals - for several minutes. At this signal, leave the plant by the most expedious means and route available and reassemble at the off-site assembly point and report to the Personnel Superintendent for head count.

5. Emergency Situations:

The following emergencies are possible at the Aroclor Department:

	Emergency	Action
a.	Fire Handling Biphenyl	a. Turn in alarm - Dial 211. b. Remove injured from fire area - take care of them.

WATER_PCB-SD0000051749

5. (Continued):

Emergency	Action
	c. Proceed under Chief Operator to extinguish the fire: (1) Dry powder extinguisher. (2) Fire truck, dry powder and water. (3) Water.
	d. Pull power on all motors.
	e. Cut off gas to Aroclor and Biphenyl stills at main cut-off at northwest corner of blowing tank area.
	f. Shutdown Department.
b. Chlorine Release	a. Obtain help and turn in alarm if necessary-Notify Chief Opr.
	b. Obtain gas mask or Scott Air Pak.
	c. Shut off source of Chlorine.
	d. Disconnect Cl_2 connection at car if necessary.
	e. If vaporizer is full of liquid chlorine, vent to the chlorine car, then shut off car.
	f. Notify Department Supervision as soon as possible.
c. HCl Release	a. Obtain help and turn in alarm if necessary-Notify Chief Opr.
	b. Obtain gas mask or Scott Air Pak.
	c. Shut off source of HCl gas.
	d. Notify Department Supervision as soon as possible.
d. Fire or explosion at HB-40, Santowax, or Biphenyl Depts.	a. Turn in alarm, shutdown Aroclor Department. Obtain gas mask, go to an assembly point, be prepared to assist in stopping the fire as directed by Chief Operator.
e. Emergency in the Plant	a. Prepare to shutdown on orders.
f. Equipment failure creating hazard.	a. Notify Chief Operator or Department Supervision.
	b. Take appropriate action.

DSW 542971

WATER_PCB-SD0000051750

Emergency Situations (Continued):

g. Injuries and Treatment

a. Obtain help.

b. Prevent further injuries to person involved.

c. Make comfortable.

d. Know your first aid:

(1) Mouth-to-mouth resuscitation.

(2) How to use a resuscitator.

(3) How to remove from Electrical contact.

(4) Action for a heat stroke.

(5) Chest massage for heart failure.

(6) Emergency action in case of burns.

(7) Location of stretcher, blanket and oxygen.

(8) Know equipment available from the dispensary.

e. Contact Plant Physician as soon as possible, if necessary. Make contact through Plant Guard or Department Supervision.

WATER_PCB-SD0000051751

ALARM METHODS

To Activate Plant Disaster System

1. Dial 211 - State location and type emergency (alternate method - sound signal 1-2 on alarm button at tubular unit).

2. On-Shifts- Dial "O" - State location and type emergency and need for outside aid.

   Off Shifts- Dial 317 - State location and type emergency and need for outside aid.

3. If 317 does not answer - Get outside aid directly.

Signal for Complete Plant Evacuation to "Off-Site" Assembly Area

Plant fire alarm will sound two-second blasts at one-second intervals for several minutes.

ASSEMBLY AREAS

1. Department

   a. Primary - Open area South of HB-40 Plant.

   b. Secondary - Road East of Biphenyl-Aroclor Building.

2. Plant

   a. Primary - West of HCl Neutralization Pit.

   b. Secondary - Guard Gate No. 4 (West of Niran).

3. Off-Site

   a. Primary - REA Terminal - Highway 202.

   b. Secondary - Rescue Squad Hdq., 1313 Walnut Avenue (South side of Building).

PRIORITY OF ACTIONS

1. Care for Injured.

2. Account for all personnel.

3. Property Safety.

DSW 542973

WATER_PCB-SD0000051752

LOCATION OF EMERGENCY EQUIPMENT:

1. Stretcher - In Biphenyl-Aroclor Building North of old Biphenyl Control Room.

2. Blankets - In Tubular Unit Control Room.

3. Burn Treatment Equipment - Box north of old Santowax R Plant.

4. Gas Masks - East and West wall outside Aroclor Control Room.

5. Scott Air Paks - South of Air Blowers in Aroclor and old Biphenyl Control Room and on Southeast and Southwest walls of new Warehouse on ground floor.

6. Emerson Resuscitator - In Dispensary.

7. Emergency Oxygen - In old Biphenyl Control Room.

WATER_PCB-SD0000051753

APPENDIX A
EMERGENCY PROCEDURE

COLD WATER TREATMENT OF BURNS
(Thermal and Chemical)

Thermal Burn - The type of burn you would get by:

1. Direct exposure to flame.
2. Skin - - contact with hot surface.
3. Hot materials, such as molten Santowax, solidify when it touches the skin, thereby holding the heat in the skin.

Chemical Burn - The type of burn you would get by:

1. Contact with Muriatic or Sulfuric Acid.
2. Contact with Potassium or Sodium Hydroxide.
3. Contact with any acid or strong alkali material.

Treatment - Thermal Burns

If possible, submerge burn area in container of cold water ($50^{o}F$). The container may be a drum, water pail, wash basin - anything that will hold the water. Follow these steps:

1. Put water in container to desired depth.
2. Try to obtain a water temperature of $50^{o}F$. by adding ice cubes.
3. Submerge burn area below the surface of the water.
4. Transport injured person to the doctor, keeping burned surface submerged in water.

If burn is in area that cannot be submerged in water, it is a good practice to take the cleanest cloth or toweling that you can obtain, soak it in cold water (wringing out excess water), and place on the burned area. This would be an area such as the back, shoulders, or stomach. UNDER NO CIRCUMSTANCES SHOULD A PERSON SUFFERING FROM THERMAL BURNS BE PLACED UNDER RUNNING WATER. There is a danger of the small droplets of water striking the burned area, causing pain to such an extent as to result in shock.

Treatment - Chemical Burns

1. Place injured person under safety shower or some other method of washing with large amounts of water.
2. Remove contaminated clothing while under the shower.
3. If goggles are worn, keep in place until all the chemical has been washed from the body.

General

In our dispensary, we have an ointment labeled Sulfathiozole. This material is used in the treatment of burns, both thermal and chemical. It allows an injury to heal from the inside out, which is usually the situation with a burn injury DSW 542975