

19

PPG INDUSTRIES, INC.

CHEMICAL DIVISION - U.S.

LAKE CHARLES, LA

TRAINING MANUAL FOR THE POSITION OF

"D" OPERATOR IN PLANT B-II

EDC/VDCM COMPLEX

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011205

OBJECTIVE

UPON COMPLETION OF THE TRAINING AS SPECIFIED IN THIS MANUAL, THE TRAINEE WILL HAVE THE KNOWLEDGE, SKILLS AND ABILITIES NECESSARY TO PERFORM AS A PROFESSIONAL OPERATOR IN PLANT B-II.

CONFIDENTIAL

PROPERTY OF PPG INDUSTRIES, INC.

This document includes proprietary and confidential information which is to be maintained in strict confidence. Reproduction, use or disclosure without express authorization is prohibited.

SL 011206

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

PREFACE

PPG - Lake Charles utilizes on-the-job training for operators. This training manual is provided for use in conjunction with the on-the-job program. The content of the manual was compiled with cooperation and assistance from operators and unit supervisors. It is intended to be used as a guide in learning the general skills associated with the job.

The training technique used in the manual is a step-by-step building block approach. The building blocks are training modules which contain the tasks that must be learned to perform the job safely and efficiently. Although the modules are arranged in logical sequence for learning, the order may be changed depending on operating conditions.

Each module contains a learning exercise in the following form:

OBJECTIVE - A statement outlining the intended results of the module.

RATIONALE - An introductory section explaining why you need to learn each task and how the task applies to the job.

LEARNING ACTIVITIES - Exercises that tell what to do in order to learn that part of the job. They include information that must be read and learned.

TASK DETAILING - A reference list of the subtasks necessary to perform the tasks in the module.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011207

YOUR ON-THE-JOB TRAINER, LEAD OPERATOR AND SUPERVISOR WILL ASSIST YOU DURING YOUR TRAINING PERIOD. HOWEVER, YOU ARE THE PERSON MOST RESPONSIBLE FOR YOUR LEARNING.

Read the Objective and Rationale. If you have any questions about the task or why it is done, ask your on-the-job trainer or supervisor. Once the task and the reasons you perform it are clear to you, go on to the learning activities.

The first part of the Learning Activities will provide you with or refer you to information that must be learned in order to correctly and safely perform the task. Your on-the-job trainer will help you with the second part which is the practical application of the information to the job.

Qualification Standards for this job are listed in the last section of the training manual. Your job performance will be measured using these standards as a guide. You must meet these standards to qualify for this job.

The final evaluation of your performance will include several items, the most important of which will be your performance on the test given at the completion of your training.

THIS MANUAL IS NOT INTENDED TO COVER EACH AND EVERY ASPECT OF THE JOB. IT CONTAINS THE BASICS OF THE JOB AND WILL BE MODIFIED AS NECESSARY.

SL 011208

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

Listed below is the suggested timetable for the completion of this manual. This schedule need not be strictly followed, but is furnished as a guide.

MODULE	COMPLETION TIME IN WORKING DAYS
#1	2
#2	1
#3	3
#4	1
#5	1
#6	1
#7	1
#8	1
#9	1
<u>#10</u>	<u>1</u>
10 Modules	13 Working Days

There is a reminder of the estimated completion time at the beginning of each module.

NOTE:

The generic pronoun "he" is used throughout this manual for the sake of convenience. There is no intent to discriminate by sex.

SL 011209

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

CONCERNS FOR YOUR FUTURE

Three important concerns for your future are Safety, Environmental Control and Energy Conservation. How you handle them directly effects PPG's profitability.

SAFETY is the personal responsibility of each employee. He has a responsibility to his family, to his fellow workers, and to his employer by whom he is paid to work safely. In the performance of his duties, he will be expected to observe safe practice rules as well as instructions relating to the efficient handling of his work. There must be 100% compliance with safety rules and regulations.

ENVIRONMENTAL CONTROL is both an important national consideration and a serious concern of PPG Industries. In order to maintain an environment that is healthy and in compliance with government requirements, all PPG employees must assume a personal responsibility for preventing spills, which would contaminate the environment.

ENERGY is not only an exhaustable natural resource, it is a major and ever-increasing expense to PPG. It increases in cost with consumption such that each unit of energy used increases the cost of all our energy. All employees are expected to recognize and take steps to eliminate waste and use efficiently that energy necessary to properly and efficiently complete his assigned task.

SL 011210

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

These concerns can be managed successfully with the full cooperation of every employee.

SL 011211

CONFIDENTIAL:
Subj ct to Protective Order
f 14th Judicial District Court
No. 91-1145

CONTENTS

	Page
1. Plant History	1
2. Introduction to Major Job Responsibilities	6
3. Training Modules including Task Detailing:	
3.1 Module #1: Equipment Layout.	13
3.2 Module #2: Sampling	15
3.3 Module #3: Lab Analysis	20
3.4 Module #4: Running Sample on a Gas Chromatograph	28
3.5 Module #5: Changing Septums.	35
3.6 Module #6: Switching Carrier Gas Cylinders.	40
3.7 Module #7: Tar Buggies	43
3.8 Module #8: Cooling Tower Duties.	44
3.9 Module #9: Transfer Product.	47
3.10 Module #10: Recharging the HQMME Tank.	49
4. Glossary of Terms	54
5. Task List	77
6. Qualification Standards.	79

SL 011212

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

PLANT HISTORY

The PPG Industries, Inc. Industrial Chemicals Division Plant in Lake Charles was constructed by the U.S. Government during World War II for the purpose of manufacturing magnesium. It was originally operated by Mathieson Alkali Works (Olin Chemical Corporation) for the Defense Plant Corporation.

In 1945 Southern Alkali Corporation, a jointly owned subsidiary of Pittsburgh Plate Glass Company and American Cyanamid Company, acquired the Lake Charles Plant for the purpose of converting the plant for the manufacture of chlorine and caustic soda. The first of four electrolytic chlorine cell circuits was put into operation on October 7, 1947. In 1951 PPG bought the minority interest held by American Cyanamid and changed our name to Columbia-Southern Chemical Corporation. Columbia-Southern became the Chemical Division of Pittsburgh Plate Glass Company in 1961 and on April 1, 1968. the name was again changed, this time to PPG Industries, Inc., Chemical Division, U.S.

The Lake Charles Plant started with chlorine/caustic and has grown into a major producer of industrial chemicals. Vinyl chloride monomer, ethyl chloride, chlorinated solvents and silica products are among these chemicals.

Two major chlorine/caustic/power expansions have taken place since the seventh diaphragm cell circuit was completed in 1955. PPG became the

CONFIDENTIAL:

Subj ct to Protective Order
f 14th Judicial District Court
No. 91-1145

SL 011213

first company to market caustic in pellet form in 1968 with the start-up of the caustic prill unit (PELS). In 1969 a major expansion in chlorine and caustic production was made with the Mercury Cell Unit. This type unit was built to help utilize the surplus salt from the Diaphragm Cell area. The Mercury Cell area differs in that it produces a low salt, saleable strength caustic soda. There is no additional expense involved in processing the caustic soda. From time to time there have been modifications made in the original Diaphragm Cells to increase their capacity.

The products of Plant A are Chlorine, which is used as feedstock for other units, a bleach, and swimming pool water treatment to name a few and Caustic Soda, used in the paper industry and as a granular substance to uplug sink drains in homes. The third product of Plant A is hydrogen. This H_2 is compressed and sold to Gulf Oxygen and to Jupiter Chemicals. Some of the H_2 is used to fire the boilers at Powerhouse "C" in Plant C.

In 1968, the Silicas Products plant was started up. This was the first of its kind to be constructed in the South. The Silicas plant was the first unit built in Plant C, which in 1977-78 underwent an expansion with the construction of Chlorine, Caustic and Power units. This expansion was a 1500 ton per day Cl_2 expansion. A prototype of the Plant C cell was operated in Plant A before the Cl_2 area of Plant C was built. As a result of the Cl_2 expansion in Plant C, Liquefaction was expanded. Another expansion of Plant C was started up in 1980. To help

SL 011214

CONFIDENTIAL;
Subject to Protective Order
2 of 14th Judicial District Court
No. 91-1145

handle the increased Cl_2 production, North Liquefaction was built in Plant A.

With the purchase of the Alkali Plant from the government, PPG also purchased Power Plant A. The Riverside Power Plant was purchased from the government by Gulf States Utilities. Riverside Power Plant was expanded in 1950 to meet the growing demand for electrical energy on the Gulf Coast.

The 1955 Chlorine/Caustic expansion brought about the expansion of Power Plant A. Another boiler and turbine was added. In 1965, PPG purchased Riverside from G.S.U. This was in preparation for the Mercury Cell Unit that came on stream in 1969. Riverside was expanded from 85 megawatts to 165 megawatts. The name was changed to Power Plant "B".

Power Plant "C" was built in Plant C to help meet the energy demands there. This Power Plant incorporated the latest technology and design in modern power plants. It utilizes a gas turbine to generate electricity and the waste heat is used in a Heat Recovery Steam Generator. This steam in turn is used to generate electricity.

At the present, the energy capabilities are: Power Plant A is 96 megawatts and 1,575,000#/hour of steam, Power Plant B which has 165 megawatts and 1,570,000#/hour of steam and Power Plant C with 156 megawatts and 1,350,000#/hour of steam.

SL 011215

CONFIDENTIAL
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145
3

The expansion in Plant B is a complex, intertwined affair. The names of the process units and the chemicals used and produced are alien to the majority of new operators. Through related use, you will become familiar with the chemicals regardless of how strange the names may sound.

The Lake Charles Plant entered the organics market in 1960 with the construction of an Ethyl Dichloride Unit (EDC). This EDC unit was to prove to be a feedstock for several units to be built later. After the success of the EDC unit a Methyl Chloroform (MC) and Hydrogen Chloride (HCl) units were built. The MC is an electrical cleaner. This is also sold by other companies as a liquid to unplug kitchen sink drains. The HCl was sold to Continental Oil Company and also used as a feedstock in the MC unit.

Next in the growth of the organics units was the construction of Perchloroethylene and Trichloroethylene unit (Per-Tri). The primary use is as a degreaser. Women use it to remove grease spot by spraying it on the clothes before washing them. Dry cleaners use Per because it is also a dry cleaning agent. Tri is used by the auto manufacturers and space industry as a degreaser.

After Per-Tri came on stream a Vinyl chloride monomer (VCM) and Ethyl Chloride (EC) unit was built. VCM is used in the manufacture of plastic pipe and furniture covering. EC is used as a refrigerant and in the manufacture of tetraethyllead for gasoline. In the VCM process; HCl is produced and sold as a feedstock and muriatic acid.

To help utilize the HCl produced by the VCM unit an Oxyhydrochlorination unit (OHC) was built. The OHC unit manufactures EDC which serves as a feedstock for the VCM unit and Tetrachloroethane units.

Modifications were made to the old MC unit to convert it to an EDC unit. A new MC unit was built. It was named TE-II after the registered trade name of Tri-ethane.

After the construction of the TE II unit, Plant B was divided into B-I and B-II. In B-I the units are Perchloroethylene-Trichloroethylene, Ethyl Chloride, Vinyl Chloride Monomer, Tetrachloroethane, Waste-Treatment, Hydrogen Chloride, and Oxyhydrochlorination. B-II is comprised of the Ethylene Dichloride, Methyl Chloroform, Oxyhydrochlorination and Vinyl II units.

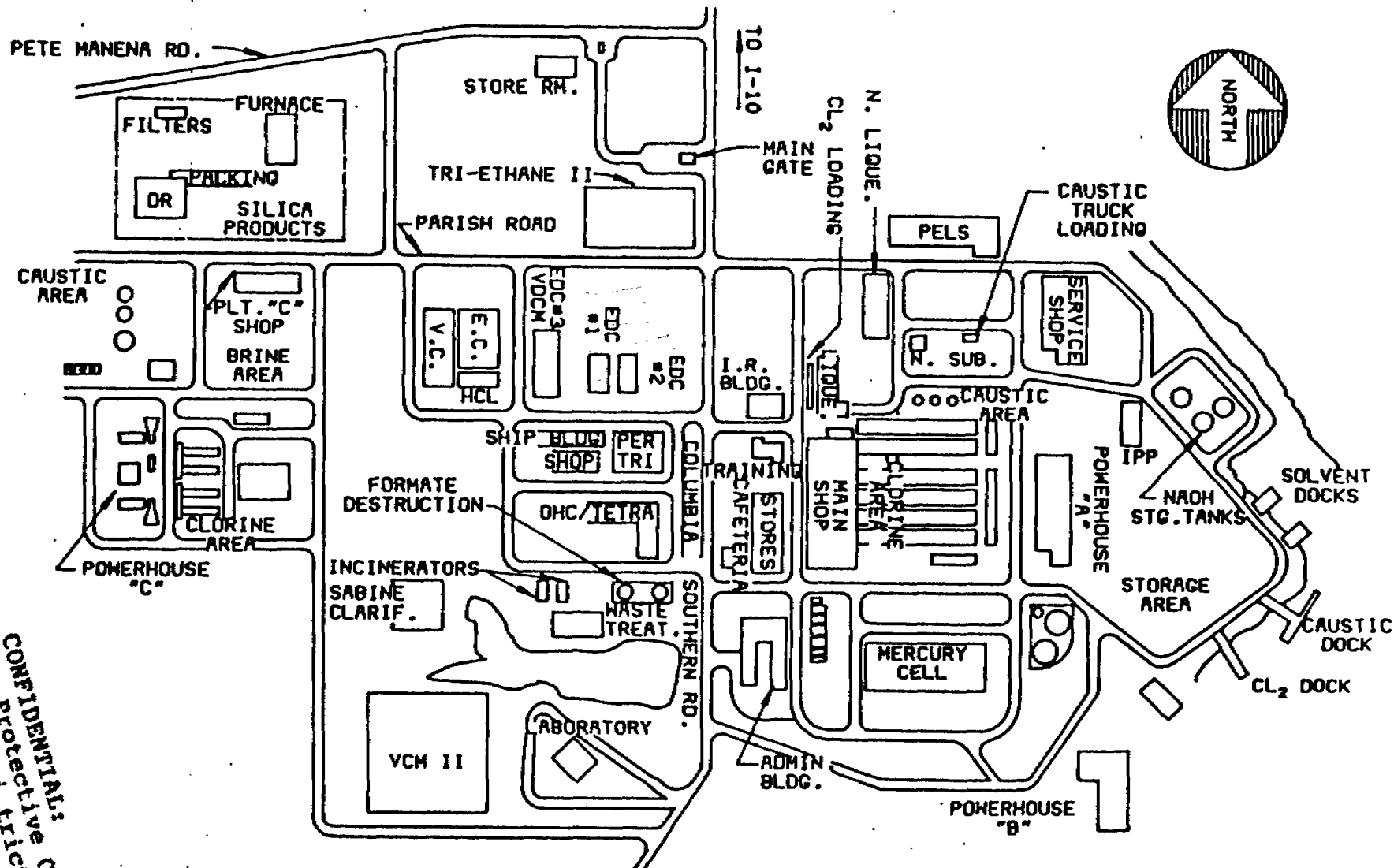
As can be seen, there has been a tremendous amount of growth at the PPG Lake Charles complex. Most of these units produce saleable products. In order to move these products from the complex to the customer, the Shipping Department was created. This department has been expanded over the years to keep pace with the complex expansions. The Shipping Department started with a Chlorine and Caustic barge loading facility. Now there are Chlorine, Caustic, and Organics barge loading facilities. In addition to the barges, ships are loaded at the dock facilities. Now the Shipping Department loads barges, ships, drums, railcars, and trucks. The history of the Shipping Department is like the rest of the complex, one of growth.

SL 011217

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145
5

SL 011218

CONFIDENTIAL: Order
Subject to Protective Di
of 14th Judicial No. 91-1145



PLOT PLAN - LAKE CHARLES PLANT

INTRODUCTION TO MAJOR RESPONSIBILITIES

The EDC/VDCM "D" Operator has responsibilities in four (4) operating units. These units are EDC #1, EDC #2, and VDCM. Don't let the large area of responsibility scare you, some of your duties are the same in all four units. We will discuss the operation of these units and give your responsibility areas.

Thus far we have talked about some strange things called EDC and VDCM. What are these things? EDC is the abbreviation for ethylene dichloride and is used basically as a feedstock. VDCM is vinylidene chloride monomer and is used to make a type of plastic, the most common being Saran.

The EDC #1 and EDC #2 units are operated basically in the same manner therefore, these two units will be discussed together. Feeds for the EDC reactors are chlorine (Cl_2) and ethylene (C_2H_4). These feeds combine in the presence of liquid EDC, in the reactor, to form EDC. The liquid EDC is in the reactor to help provide a better medium in which the reaction can occur.

The EDC leaves the reactor as a gas and goes into the reactor condenser. In the condenser, the EDC vapors are condensed to a liquid. Some of the EDC is returned to the reactor and the rest goes to the stripper.

In the stripper, the HCl is removed from the EDC crude. After being processed through the stripper, the EDC goes to the heavies still for a

SL 011219

6 **CONFIDENTIAL:**
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

final cleanup. This clean EDC is then stored in storage tanks for sale or use as a feedstock.

Your third major area of responsibility is the VDCM unit. This unit is divided into two basic parts. These parts are the TCE purification unit and the VDCM unit.

The TCE purification unit processes the TCE feedstock through a heavies still to remove the heavy compounds and then through a stripper to remove the trichloroethylene. After the trichloroethylene is removed, the purified TCE is sent to a storage tank until needed as feed for the VDC reactor.

The second unit is the VDCM section. This unit takes the TCE and mixes it with cell liquor (NaOH). The TCE-NaOH mixture is pumped into the VDC reactor. Steam is injected into the bottom of the reactor to drive the organics (mainly VDC) out the top. The organics, with some water, goes out the top and is condensed to a liquid. Some of this liquid is pumped back to the reactor as reflux with the remainder going to the VDC DH still for drying.

The VDC DH still performs a dual function of drying the VDC and removing an impurity known as MCA. Dry VDC is pumped to the VDC still for removal of heavier impurities. A VDCM grade product goes overhead out the top of the VDC still and is stored.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011220

The preceding is a brief and very basic description of the EDC #1, EDC #2, and VDCM units. As time progresses, you will become more familiar with the operation of the units. You are encouraged to learn more about these units as time permits.

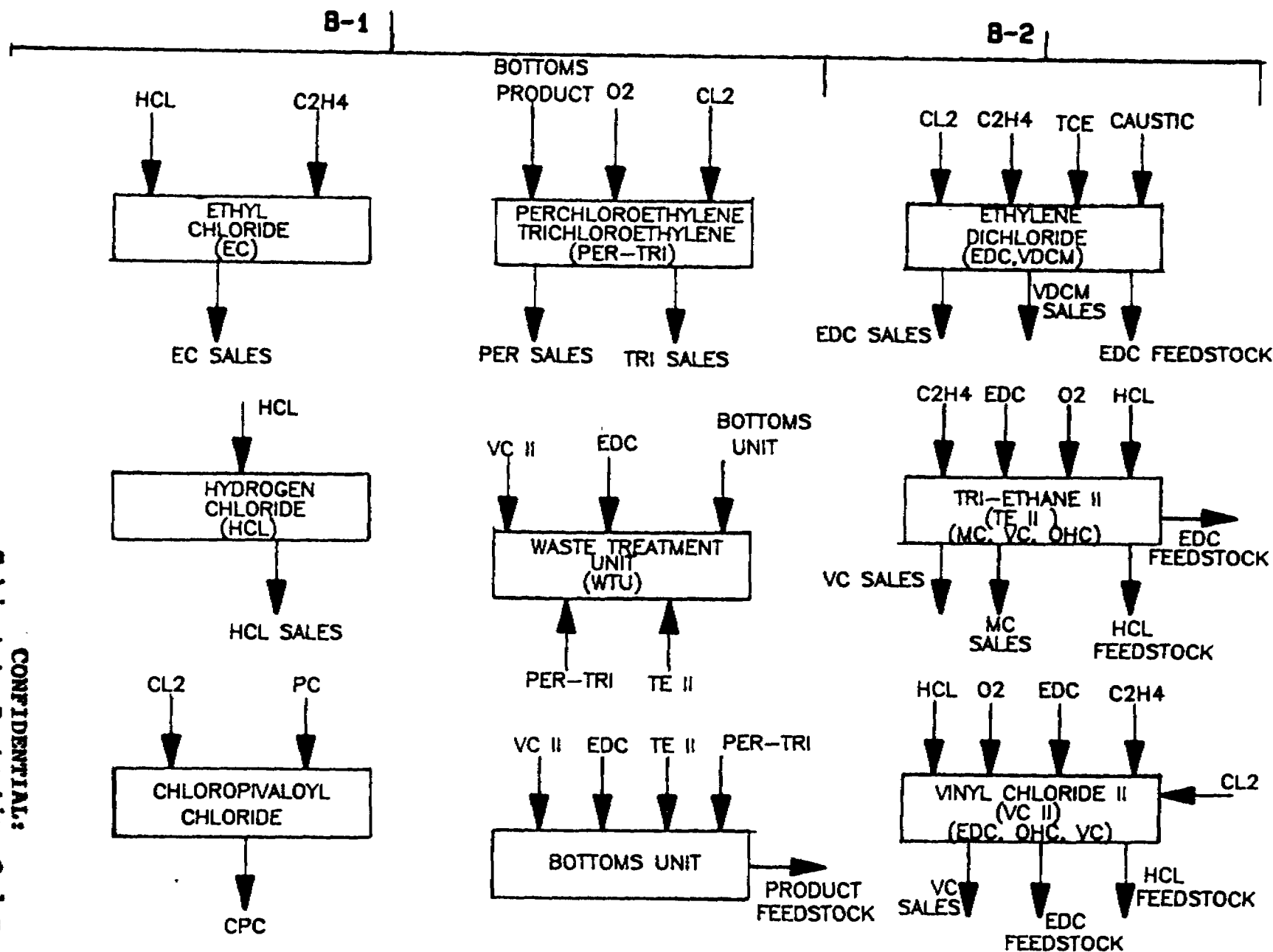
The job of EDC/VDCM Auxiliary Operator is an entry level job but it is a very important one. Your duties vary from analyzing samples to doing housekeeping in the units. Because of your varied duties you will cover a great deal of the units. This makes you the eyes and ears of the "A, B, and C" operators. You will see leaks that may occur or hear pumps that are noisy. When you see or hear an abnormal condition you should report it to the Lead Operator or the operator in charge of the unit. The quicker these abnormal conditions are corrected, the less chance there is of damaging equipment or someone getting hurt.

SL 011221

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011222

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

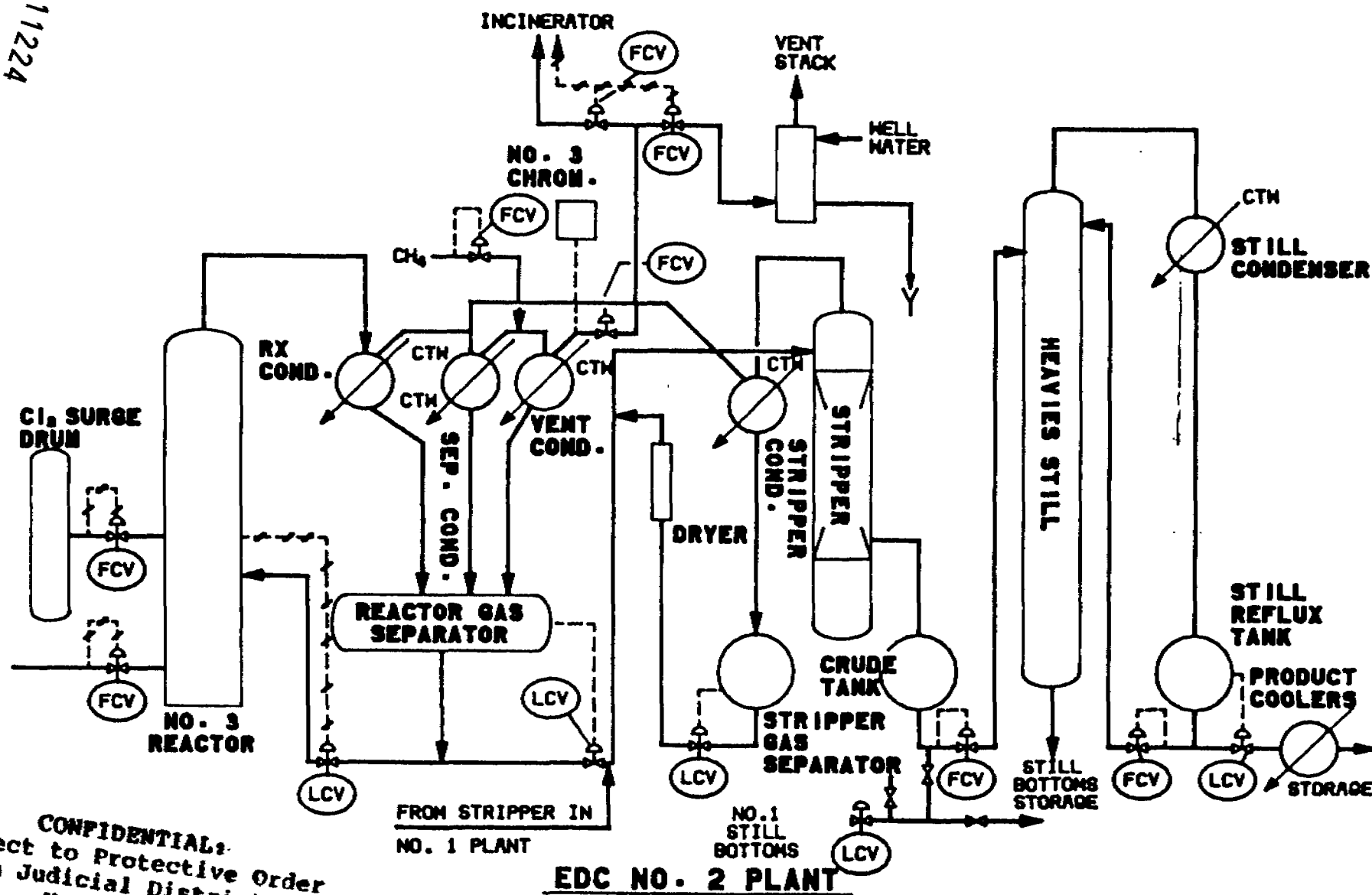


PLANT "B" DISTRIBUTION

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

EDC NO.1 PLANT

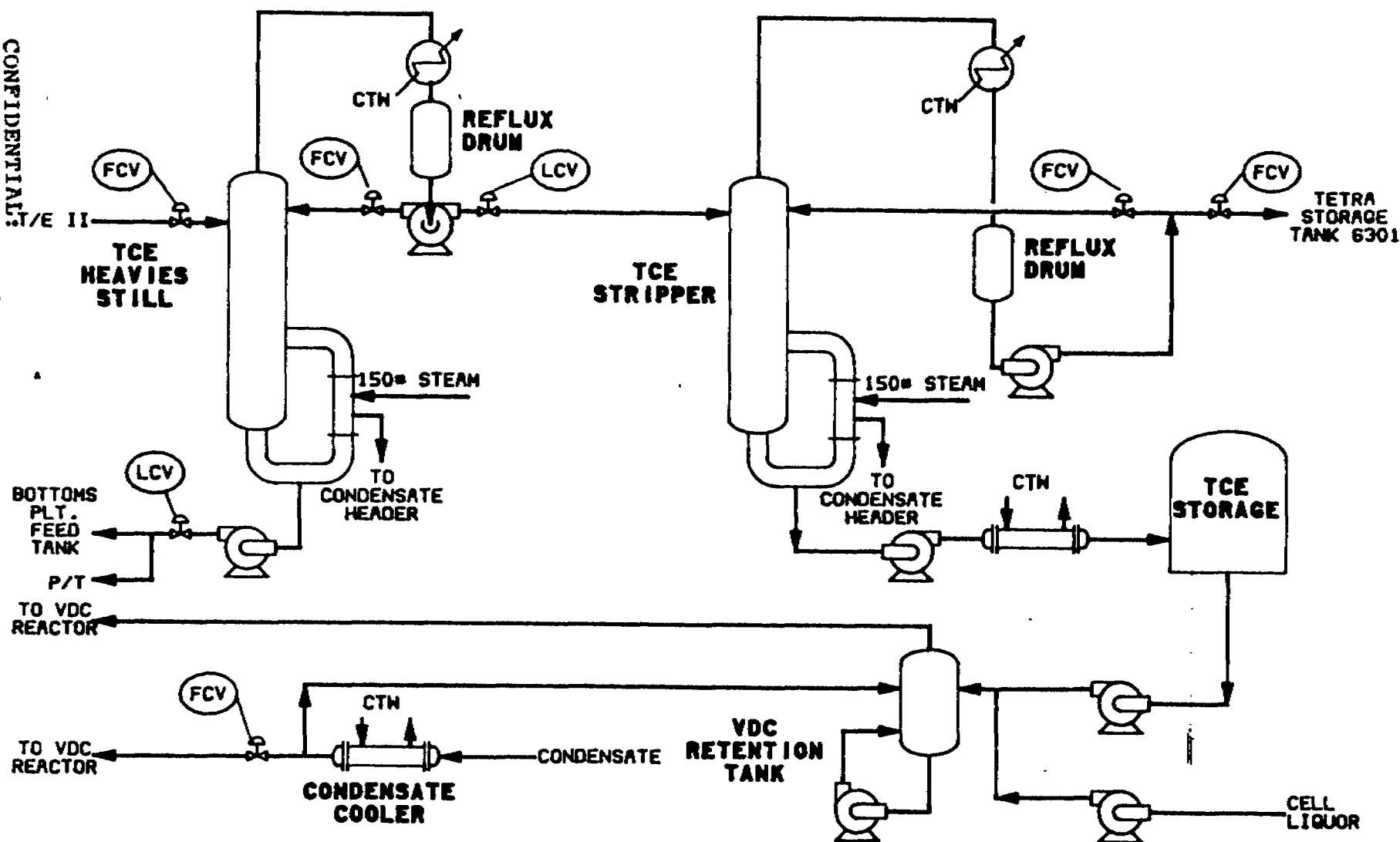
SL
011224



CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

011225 TS

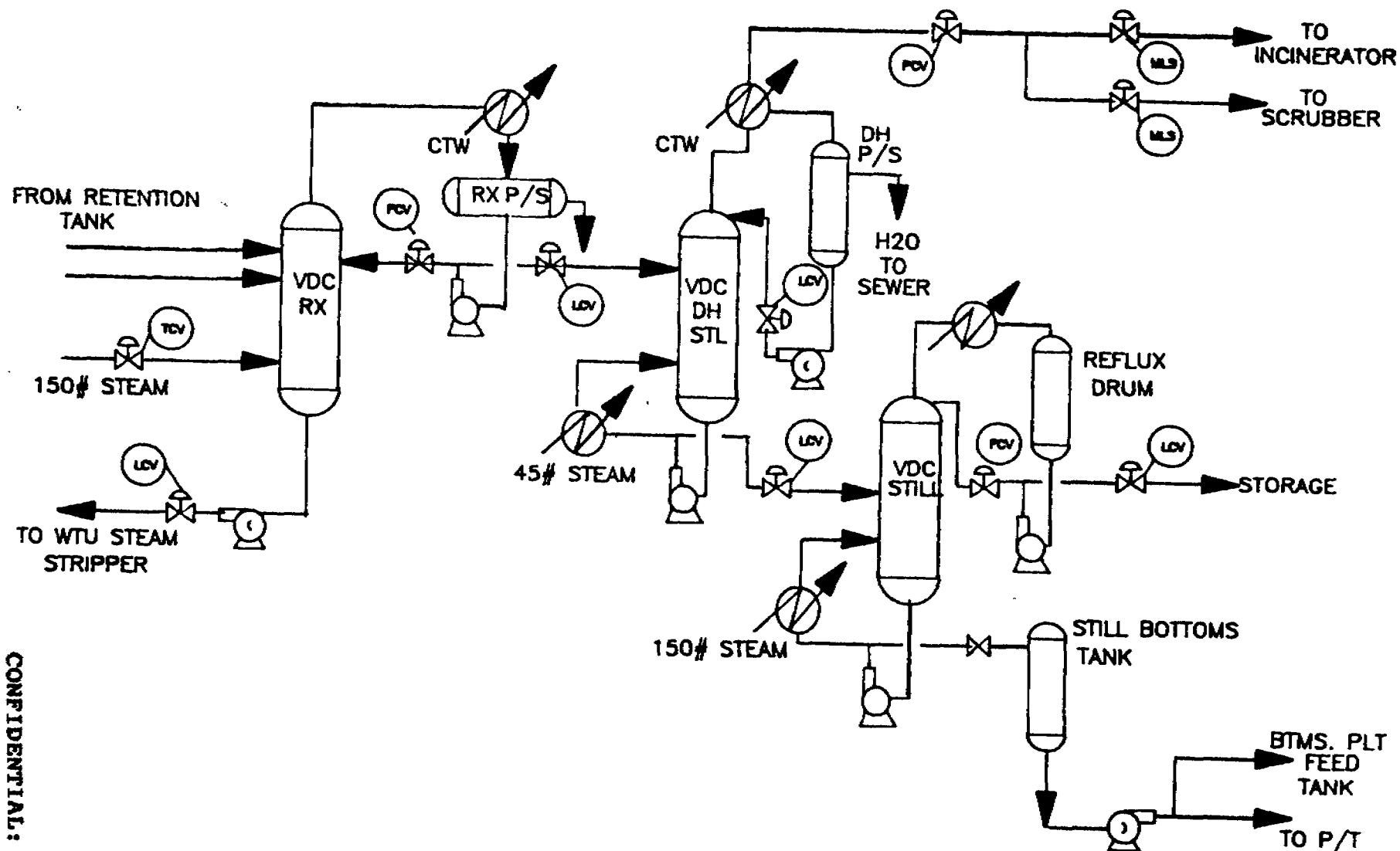
CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145



TCE SECTION

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011226



VDC SECTION

CONFIDENTIAL:
 Subject to Protective Order
 of 14th Judicial District Court
 No. 91-1145

SAMPLING

One of your major functions at the EDC/VDCM Complex will be catching and analyzing samples. This is a very important job. The operators make adjustments based on the results of your lab analysis. As you catch and analyze samples, care should be taken not to contaminate the sample. A contaminated sample could give a wrong analysis. This wrong analysis could result in the wrong adjustment being made by an operator. When you analyze a sample and get an out-of-spec result, you should notify the Lead Operator or the operator in charge of the unit. An abnormal result can be an indication of trouble in the unit. The sooner corrective action can be taken, the less damage to the equipment. If the operator asks for a resample you should get one to determine whether there is an abnormal condition or not. You are responsible for catching and analyzing samples in the EDC/VDCM Complex. Along with the catching and analyzing samples comes the responsibility of reporting abnormal sample results.

After you have performed the sample analyses you will be responsible for logging the results in the appropriate place. These lab sheets are used by the unit operator for reference to see if a trend is occurring or problems that may have occurred on the other shifts. This lab sheet will also be helpful to you to see if there have been any abnormal sample results.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL
011227

ABNORMALITIES

These operating units are like all other pieces of equipment, they have failures. When a unit shuts down or has to be started up you may have to assist. You may be required to open and close valves or check levels in vessels by reading a sight glass. A sight glass is a glass tube that allows the reading of the level in a vessel. The start-up and shutdown is a good opportunity to learn the workings of equipment and the operating unit. During the start-up and shutdown, keep in mind that it must be done as safely as possible.

You are subordinate to the Lead Operator. He can give you a great deal of help and advice with problems that you might encounter on your job. The Lead Operator will sometimes assign jobs that are not a part of your regular job. These jobs are necessary for the safe and efficient operation of the operating units. He may also assign duties such as cleaning up the units. Keeping the units clean of trash and scattered hoses will make for a safer working area.

You should keep in mind that your job is important to the safe and efficient operation of the EDC/VDCM complex. It is imperative that you perform your duties well. Your responsibilities are not to be taken lightly. If you are confronted with problems or situations you are not familiar with, do not hesitate to consult the Lead Operator.

How well you perform in your job will help determine the efficiency of the operating units. A good performance will also make your job more

SL 011228

CONFIDENTIAL:
Subject to Protective Order
10 of 14th Judicial District Court
No. 91-1145

enjoyable and easier. If you encounter any problems on your job, please consult the Lead Operator, operator in charge of the unit or one of the supervisors. Log abnormalities in the proper log book. A set of diagrams for Plant B-I, B-II, EDC I, EDC II, and VDCM are on the following pages.

SL 011229

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

TRAINING MODULES

The following pages are a series of modules designed to aid you in learning your job. These modules are arranged in a logical order to help you learn. There will be occasions when, because of varying operating conditions, you will want to change the sequence of the modules. In the event these conditions occur, it may be beneficial to go to the module that pertains to the situation. If this becomes the case, please do so.

SL 011230

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #1
EQUIPMENT LAYOUT

Time required to complete this module should be approximately two days.

OBJECTIVE

Upon completion of this module, you will be able to locate the major pieces of equipment in the EDC/VDCM Complex.

RATIONALE

Now that you have been assigned to the EDC/VDCM Complex, one of your responsibilities will be to become familiar with the area. Your primary duties will be in these areas. In order to function as an operations personnel in the EDC/VDCM Complex, you will need to be able to locate some of the pieces of equipment.

A knowledge of the work area will be useful to make your job easier. It will be necessary that you learn the location of the equipment in order to perform. You will need to know the unit to catch samples, make rounds and operate the unit. In an emergency, a good knowledge of equipment location is vital. If you see or hear something unusual, such as a leak or noisy pump, you can tell the Lead Operator the location.

Much of the equipment will be alien to you when you first enter the EDC/VDCM Complex. After working here for a short time the equipment

SL 011231

will become familiar to you. Because of the size and shape of some of the equipment, you may be overwhelmed. Time will bring familiarity and you will be more at ease.

LEARNING ACTIVITIES

1. Study the flow diagrams in the introduction of this manual. Note the major pieces of equipment such as furnace stills and tanks.
2. Make a list, from the flow diagrams, of the major equipment in EDC I, EDC II, and VDCM.
3. Follow the trainer on a sample round.
4. Ask the trainer to point out the major pieces of equipment such as the reactors, stills and strippers.

SL 011232

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #2

SAMPLING

Time required to complete this module, should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to catch representative samples in the EDC/VDCM Complex.

RATIONALE

The bulk of your work will be concerned with samples and sampling of the different process streams in the EDC/VDCM Complex. These samples are very important to the control of the different processes. From your sample analyses, data is gathered on which decisions are made in the control of the operating units. It is important that you use caution in catching your samples. A contaminated sample will give an incorrect indication of the process. This can lead to incorrect adjustments in the operating unit by the operators. These incorrect adjustments can lead to a great deal of expense in bad product or damaged equipment.

The sampling process is very simple. You catch some of your samples in bottles with screw caps. You will have to also catch pressurized samples. These samples have a special apparatus called a "coil" to catch the sample. The coil is used to catch samples containing VDC. Since VDC is a carcinogen (cancer causing), exposure should be kept to a

minimum. Coils allow for an enclosed sampling system with low to zero exposure. These coils are not in use now but will be later.

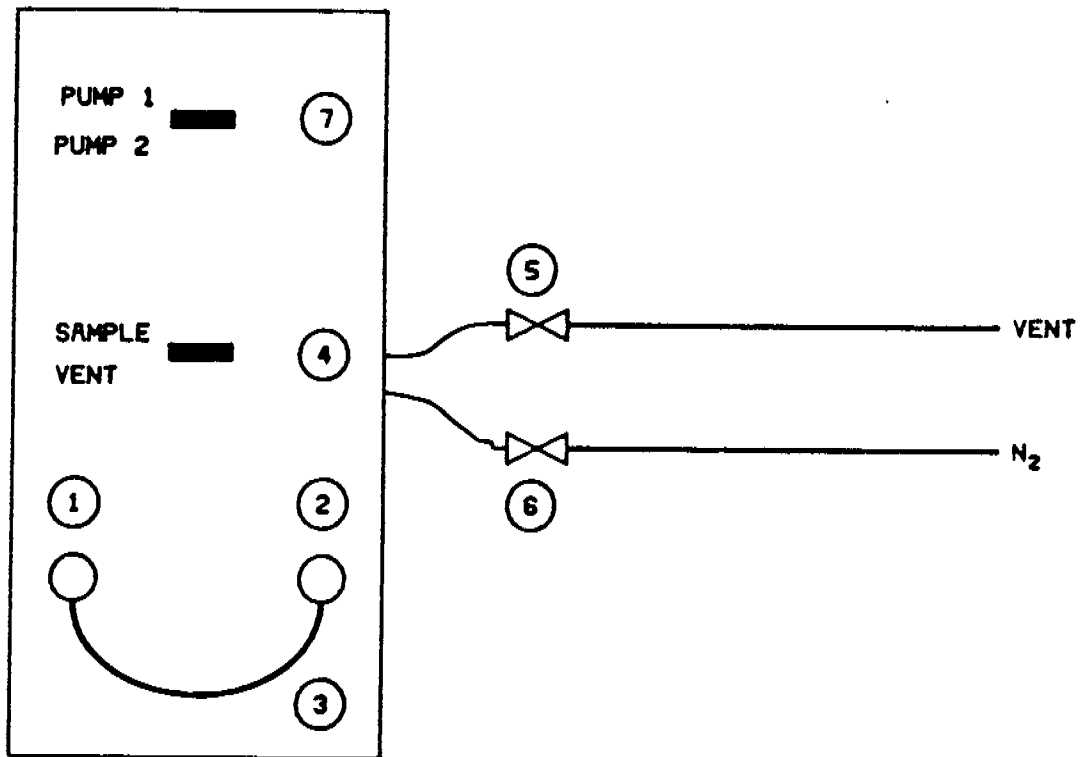
The EDC/VDCM Units have a vapor detector system in them. This consists of a mechanism that will detect combustible vapors. Care should be exercised while catching samples or blowing lines clear. The vapors from a sample could activate the vapor detectors. These vapor detectors are tied into the sprinkler system. To avoid unnecessary tripping of the sprinklers or shutdown systems, care should be taken while catching samples. It would be advisable to become aware of the vapor detector locations. Knowledge of the vapor detector locations and wind direction could avoid tripping the sprinklers.

LEARNING ACTIVITIES

1. Follow the trainer as he catches samples.
2. Observe the procedure for catching samples.
3. Observe the location of the sample points.
4. Catch the samples with the trainer observing. Ask the trainer to demonstrate the procedure for catching a representative sample.
5. Read the Task Detailing in this module for Coil Samples.

SL 011234

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145



CONFIDENTIAL:
 Subject to Protective Order
 of 14th Judicial District Court
 No. 91-1145

SL 011235

COIL SAMPLE BOARD

TASK DETAILING

Using a Sample Coil

1. Obtain a sample coil from the process lab and take it to the sample point you wish to sample.
2. Some of the sample boards have a switch that will allow you to sample two different pumps. Turn the switch (7) to the pump you wish to sample.
3. Turn the switch (4) to the vent position.
4. Unblock the vent line (5) if it is blocked.
5. Unblock the N₂ line (6) if it is blocked.
6. Allow the sample point to N₂ purge for a minimum of one minute.
7. Block the N₂ line (6) and vent line (5).
8. Using the quick-connect fitting (2), disconnect the flexible line (3).
9. Switch the valve on the sample coil to the vent position. The vent position will be the side with the quick-connect fitting.

SL 011236

CONFIDENTIAL:
Subject to Protective Order
17 of 14th Judicial District Court
No. 91-1145

10. Using the quick-connect fitting on the sample coil, disconnect the flexible line on the sample coil.
11. Connect the sample coil to the flexible line (3) on the board.
12. Connect the flexible line on the coil to the quick-connect fitting (2) on the board.
13. Switch the valve on the sample coil to the sample position. The sample position is the side with the flexible line screwed into it.
14. Switch the valve (4) on the board to the sample position.
15. Allow the sample to circulate for a minimum of fifteen (15) minutes.
16. After the sample has circulated and you are ready to remove the sample coil, switch the valve (4) on the board to vent and the valve on the sample coil to vent.
17. Unblock the N₂ line (6) and the vent line (5) and allow to N₂ purge for a minimum of one minute.
18. Block the N₂ line (6) and the vent line (5).
19. Remove the sample coil by disconnecting the quick-connect fittings.

SL 011237

CONFIDENTIAL:
Subject to Protective Order
18 of 14th Judicial District Court
No. 91-1145

20. Connect the flexible line (3) on the board to the quick-connect fitting (2).
21. Turn the valve (4) on the board to the sample position and leave in this position. This will allow flow to circulate through the sample point and thus reduce plugging of the sample point.
22. If you have difficulty catching a coil sample, consult the Lead Operator or the EDC/VDCM "B" Operator.

SL 011238

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #3
LAB ANALYSIS

Time required to complete this module should be approximately three days.

OBJECTIVE

Upon completion of this module, you will be able to safely and efficiently perform lab analyses such as G.C., pH, and moisture content in the EDC/VDCM process lab.

RATIONALE

A large part of your job will be analyzing samples. This is also a critical part of your job. Error in analysis may result in wrong adjustments being made to the operating units. An error in analyses may also result in your having to catch extra samples to see if a problem exists. You should be as careful and accurate as possible in your lab analyses.

While performing lab analyses, you should wear safety glasses or goggles. There is always the potential for eye injury from splashing chemicals. The number of cases of lab eye injury is small compared to the potential. There is also the hazard of cuts since most of the lab equipment is made of glass. Take care when handling the glassware.

SL 011239

CONFIDENTIAL;
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145
20

Before performing lab analysis you should verify that your containers are clean by washing them with water or acetone. If a sample is to be checked for water, the apparatus should be cleaned with acetone. If a pH is to be checked, water will be sufficient as a washing agent. Contamination of lab equipment or samples can give a wrong result. Care should be taken to avoid contamination of the sample and lab equipment. While working in the lab, you should also keep safety in mind.

To assist you in performing lab duties, a lab procedure manual is provided. This procedure manual, combined with the on-the-job trainer will help you learn the sample procedures. Repeated running of samples will improve your techniques and abilities in the lab.

LEARNING ACTIVITIES

1. Observe the trainer performing lab analyses and note the procedures.
2. Become familiar with the Lab Procedure Manual. Make a notebook from the Lab Procedure Manual of the samples you must run.
3. Perform one each of the lab analyses with the trainer observing.
4. Read the procedure for operation of Mitsubishi moisture meter Model CA-05.

SL 011240

CONFIDENTIAL;
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

5. Ask the operator to show you the procedure for operation of the Mitsubishi moisture meter Model CA-05.

SL 011241

CONFIDENTIAL;
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

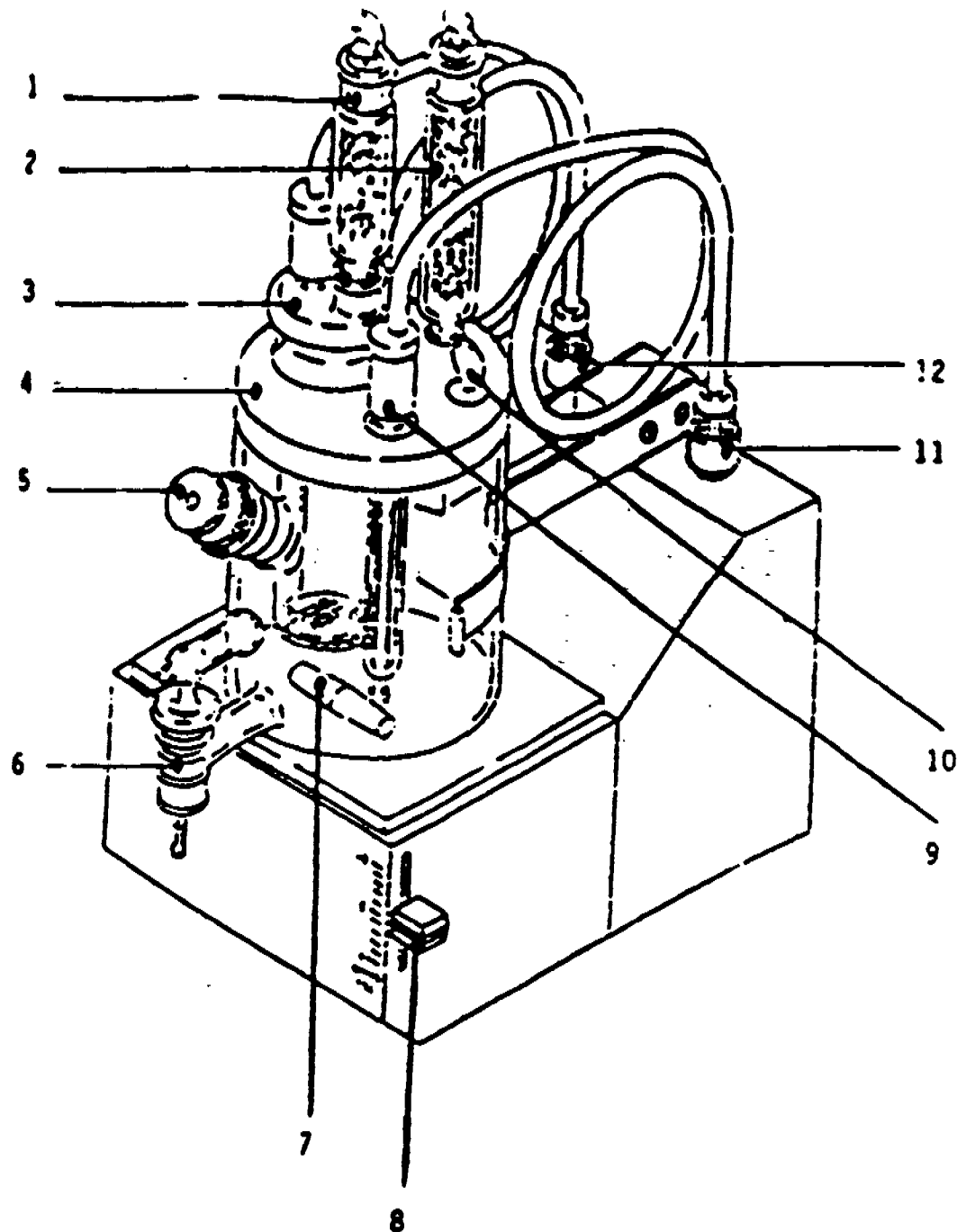


Fig. 3 Cell Unit

- 1-drying tube
- 2-drying tube
- 3-cathode solution cell
- 4-titration cell assembly
- 5-sample injection port
- 6-drain port
- 7-stirring bar
- 8-speed control for stirrer
- 9-electrode
- 10-blind plug

SL 011242

CONFIDENTIAL
 Subject to Protective Order
 of 14th Judicial District Court
 No. 91-1145

OPERATION OF MITSUBISHI MOISTURE METER MODEL CA-05

Starting Condition:

1. Turn power switch on left side of instrument to the on position.
2. Move Speed Adjust control to 6 on stirrer.
3. If titration speed (on left side of the display) indicates a negative number, inject 1/4 mL of the check solution or 1 mL of the sample and depress the titration button. The titration will begin indicating wait. After it has corrected the negative number, an electronic buzzer will sound and the display will display "END". After this, depress the CL button and you are now ready to go to step 4.
4. At this point, depress the Sample button and then the ENT button until a V appears on the display. Then on the keyboard enter the size sample you intend to use (1 mL) and depress ENT again. This will cause SG to come up on the display which stands for specific gravity. Enter the desired specific gravity on the keyboard and press ENT again. At this point depress the CL button and display will indicate RDY.

Titration of Sample:

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011243

1. Rinse the syringe supplied with sample 4-5 times before drawing up the proper amount of sample to be injected into the titration flask.
2. Before injecting the sample into the titration flask, make sure the RDY is displayed on the display. If so, depress the Start button and "Add Sample" will come up on the display. At this point inject the sample into the titration flask. It will automatically start to count out the ug of H_2O . When the buzzer sounds, it will display ug of H_2O and also print out ppm H_2O .

Changing Solutions:

1. Changing C Solution:
 - a. Move speed control (#8) to zero and allow stirring bar (#7) to come to a complete stop.
 - b. Removing drying tube (#1) from cathode solution cell (#3).
Using a Dropper Pipette draw out all of the solution in the cathode solution cell (#3).
 - c. Using a funnel inserted into the hold for the drying tube (#1) on the cathode solution cell (#3), pour the contents of one ampule of Aquamicron C.
 - d. Replace drying tube (#1) back into cathode solution cell.
(Make sure drying tube has fresh Drierite in it.)
 - e. Move speed control knob on stirrer back to 6 on scale.

SL 011244

24 **CONFIDENTIAL:**
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

- f. Depress titration button. The titration will begin indicating wait. After it has dried out the new solution, the buzzer will sound and the display will display end. After this, depress the CL button and you are now ready to go to step 1 of "Titration of Sample".

2. Changing A Solution:

- a. Move speed control (#8) to zero and allow stirring bar (#7) to come to complete stop.
- b. Open drain port (#6) and allow all of the solution to drain out.
- c. Close drain port (#6).
- d. Remove blind plug (#10) from top of titration cell assembly (#4). Using a funnel, add all of the contents from a Generator Solution A (Anode) bottle to the titration cell assembly (#4) and replace the blind plug (#10).
- e. Be sure to keep fresh Drierite in drying tube #2.
- f. Move speed control knob on stirrer back to 6 on scale.
- g. Depress the titration button. The titration will begin indicating Wait. After it has dried out the new solution, the buzzer will sound and the display will display END. After this depress the CL button and you are now ready to go to step 1 of "Titration of Sample".

Troubleshooting:

1. Open detector indicated.

CONFIDENTIAL;
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

- a. Unplug and plug back pin jacks (11, 12).
 - b. Turn power off and back on at Power Switch.
 - c. Depress formula key (F), then depress 0 on the keyboard and then enter. (This will clear out any error in the calculation formula.)
 - d. Depress formula key (F) again, then depress 5 on the keyboard and then enter. (The correct formula is now in the instrument.)
 - e. Depress print key, then depress 3 on the keyboard and then enter.
 - f. You are now ready to go to step 4 on starting conditions.
2. No end point or stops titrating.
 - a. Change solution A and C as described in "Changing Solutions".

SPECIFIC GRAVITY
FOR H₂O TITRATIONS

<u>Sample</u>	<u>Specific Gravity</u>
TBL	0.781
NPL	0.806
BLM	0.831
DME	0.861
EC	0.924
VCM	0.969
VDCM	1.212
EDC	1.262
Furnace Feed	1.262
MC -314	1.326
-324	1.310
-343	1.326
-348	1.308
-366	1.310
-368	1.320
PER -232	1.625
-208	1.625
-229	1.625
-230	1.625

SL 011246

TRI	-113	1.468
	-127	1.468
	-138	1.462
	-143	1.465
	-145	1.465
	-147	1.460
McCl ₂		1.321
Mix		
	DOL/SBL/Dox	0.930
	NRE/MC	1.124
	366/208	1.385
	366/230	1.460

SL 011247

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #4

RUNNING SAMPLE ON A GAS CHROMATOGRAPH

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to perform Gas Chromatograph analyses by following the procedure on the front of the G.C.

RATIONALE

As the "D" Operator you will be required to analyze some samples with a Gas Chromatograph (G.C.). This is a machine that analyzes a gas or liquid as to components and records the analysis.

The G.C. appears to be a complex machine but the principle is fairly simple. A sample is injected through a rubber barrier called the septum. The septum is located on the injection port. Vaporization of the sample occurs in the injection port. After the sample is vaporized, it is moved by a carrier gas into the separating column. The principle behind a separating column is similar to allowing materials to separate by settling. Inside the separating column, which is a coil of tubing, the gases are separated as to molecular weights. The lighter or smaller molecules, the faster they will go through the separating column. Heavier or larger molecules go through the separating column at a slower speed. This would be similar to water going through a filter faster

CONFIDENTIAL:

28 Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011248

than oil. When the sample leaves the separating column it passes over a detector. This detector analyzes the sample that passes it. Information of the analysis is picked up by the integrator which calculates and records the sample. The G.C. is useful in determining the composition of product and control streams. Using these results, the "B" and "C" Operators can determine the needed changes in their process unit. These G.C. analyses are also used to determine if a reactor or still has the proper feed ratio or temperature.

As with most machinery there are some do's and don'ts. The first to remember is DO NOT attempt to take short cuts. These could damage the G.C. or give the wrong analysis. Clean syringes help insure an accurate analysis. The syringe should be cleaned with acetone. Do not clean the syringe with a sample. There should not be a barb on the needle. This will damage the septum. Another item on the list will be the use of the proper amount of sample. This will be written on the front of the G.C. In the event a sample is injected into the wrong column, allow the sample to go through. If another sample is injected too soon you could get a composite of the two samples. The final basic rules are very common sense but sometimes overlooked. Simply put, they are to read the instructions and if you have problems to check the Troubleshooting Guide that is provided in this module.

LEARNING ACTIVITIES

1. Get your trainer to demonstrate the procedure for injecting a sample into the G.C.

SL 011249

29 **CONFIDENTIAL:**
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

2. Study the Troubleshooting Guide.
3. Read the Task Detailing for Running Sample On Gas Chromato graph.
4. Run a G.C. sample while your trainer observes.
5. Make a list of the things that will help guarantee a good representative sample.

SL 011250

CONFIDENTIAL:
Subject to Protective Order
30 of 14th Judicial District Court
No. 91-1145

TASK DETAILING

RUNNING SAMPLE ON A GAS CHROMATOGRAPH

1. Read the card on front of the G.C. to determine the machine settings and proper sample.
2. Check box on side of G.C. for "ready" and "run" lights. Set numbers on box for respective sample.
3. From the card determine the proper column. This will be either "A" or "B" column. You do not have to select the column on the new G.C., only the old one.
4. Double check card and lights to verify machine is ready for your sample.
5. Remove syringe from the holder.
6. Open sample bottle and insert needle into the sample.
7. Pull the syringe plunger back and forth two or three times to clear the air from the syringe.
8. Use the prescribed amount of sample in the syringe.

SL 011251

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

9. Push the needle through the septum. Hold your finger on the end of the plunger to prevent pressure in the G.C. from blowing the plunger out.
10. Press the plunger into the syringe.
11. After the sample is injected into the G.C., remove the syringe from the septum.
12. Push the "START" button on the front of the G.C.
13. Write the name of the sample on the G.C. readout paper.
14. If problems develop, refer to the Troubleshooting Guide.

r.
inder.

roup.

/ and

'g

y

ptum
sam-

ELY
d.
t

ess-

d
m-

ed
old
t be

was
r
was

ip
ely

SL
011252

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

C. UNEXPECTED PEAK

- | | |
|------------------------|--|
| 1. Wrong file selected | 1. Select proper file for sample. |
| 2. Dirty syringe | 2. Clean syringe well and rinse with sample. |
| 3. Dirty sample bottle | 3. Clean sample bottle or use new one. |
| 4. Wrong sample | 4. Draw correct sample |

III. NO SMALL PEAKS

- | | |
|--------------------------------|---|
| 1. Very small sample injection | 1. a)Change septum
b)Use new syringe |
| 2. Baseline below zero | 2. Set baseline before injection. |

SL 011253

CONFIDENTIAL:
Subject to Protective Order
34 of 14th Judicial District Court
No. 91-1145

MODULE #5
CHANGING SEPTUMS

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to change septums in the G.C. without damaging the G.C.

RATIONALE

One of the instruments used in your sample analysis is a Gas Chromatograph (G.C.). This machine separates a sample into its components and analyzes the amount of each component. After performing this analysis, the G.C. then records the amounts on a piece of paper.

The G.C. depends on a gas flow to serve as a carrier for the sample. This carrier gas goes past the injection port. To prevent the carrier gas from escaping to the atmosphere while a sample is being injected, a septum is provided. A septum is a rubber disc that covers the injection port and is held in place by the septum holder. The sample is injected through the septum with a syringe. As samples are injected, the holes in the septum made by the syringe needle become bigger and more numerous, allowing the carrier gas to escape. Changing the septum at the beginning of each shift will prevent escaping carrier gas. This escaping gas will cause a reduction in the carrier gas flow rate. The flow rate of the carrier gas is critical to the separation of sample

components. If the flow rate is altered, it could cause the G.C. to misidentify. Another reason the septum should be changed is that you can lose your sample through a bad septum.

Excessive damage to a septum takes place when the needle point has a burr on it or is bent. Do not throw away the bad syringe. Place them in a box to be repaired.

Changing the septum is important in that it will aid in the proper operation of the G.C. and correct sample analysis. Changing the septums at the first of your shift eliminates the possibility of incorrect sample analyses. It takes about 5-10 minutes for the G.C. to be ready after a septum is changed. This is a short time to wait when you consider the improved quality of your sample analysis.

When changing a G.C. septum, you should be careful that you do not get burned. The septum holder and ceramic cover are HOT. These should be removed carefully to prevent burns. Included in this module is the procedure for changing the G.C. septum.

Proper care of the G.C. will lead to more reliability and longer operating life of the instrument. Also, following the proper procedures for changing the septum will help insure a more accurate sample analyses. The G.C.'s cost a great deal of money and the "B" and "C" Operators depend on your correct analyses. so give the proper required care to these machines.

SL 011255

LEARNING ACTIVITIES

1. Observe your trainer changing septums.
2. Read the Task Detailing for changing septums.
3. You change the septum on the G.C. explaining the steps to your trainer before doing them.

SL 011256

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

TASK DETAILING

CHANGING SEPTUMS IN G.C.

1. Verify the machine is not in use by checking the lights on the front of the machine. When there is only a green light, this means the machine is ready for a sample. A red light means the machine is in use. You should have a green light before changing septums.
2. On the front of the machine near the bottom is an "OFF" switch.
3. CAUTION: The septum holder and ceramic cover are hot.
4. Use a paper towel or glove to remove ceramic cover from septum holder.
5. Unscrew septum holder.
6. Old septum is located inside the septum holder.
7. Take some type of rod and remove the old septum.
8. Place new septum into the septum holder.
9. Screw septum holder back onto the G.C.

SL 011257

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 21-1145

10. Place the ceramic covers back in place.
11. Check pressure gauge on front of the new machine. Pressure should be up when machine is ready. It should take 5-10 minutes before machine is ready.

SL 011258

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #6

SWITCHING CARRIER GAS CYLINDERS

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to switch carrier gas cylinders.

RATIONALE

The Gas Chromatograph (G.C.) depends on a gas to carry the sample through it. This gas is called the carrier gas. The carrier gas comes in cylinders with up to 2500 pounds of pressure in them. When this pressure gets low (around 500 pounds), the cylinders should be switched. To avoid low carrier gas pressure, the pressure should be checked at the beginning of each shift.

The G.C. has a part in it called the detector. If gas flow past the detector were interrupted, it could burn it out. A setup has been provided to allow switching of the carrier gas cylinders without interrupting the gas flow. Protection of the detector is one reason for switching gas cylinders at around 500 psi. The other reason is to avoid contamination of the gas cylinder.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011259

When handling gas cylinders, care should be taken. Do not beat on them or allow one to fall over. If the valve on the end of the cylinder is broken off, the cylinder becomes an uncontrollable missile. There have been cases of cylinders going through brick walls when the valve was broken off. When a cylinder is being moved, the cap should be on. This will protect the valve in the event the cylinder falls.

Proper switching of the cylinders will help prolong the life of the G.C. Safe handling of the cylinders should be kept in mind.

LEARNING ACTIVITIES

1. Read the Task Detailing in this module for Switching Carrier Gas Cylinders.
2. Go to the carrier gas cylinders and become familiar with the valving.
3. Ask the trainer to explain the procedure for switching carrier gas cylinders.
4. Switch carrier gas cylinders while the trainer observes.
5. Observe the position of the valve handles when they are in the proper position.

SL 011260

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

TASK DETAILING

Switching Carrier Gas Cylinders

1. Check pressure gauge on cylinder. If 500 to 400 psi, you will need to switch cylinders.
2. Close valve on top of the empty cylinder.
3. Using a wrench, loosen connection on hose to empty cylinder. This connection is screwed into the valve on top of the cylinder.
4. After the connection is loosened, shake the hose to allow pressure to bleed out the hose before disconnecting it.
5. Open the valve on top of the full cylinder connected to the carrier gas header.
6. Place cap on the empty cylinder.
7. Place the empty cylinder in the "empty cylinder rack".
8. Get a full cylinder from the "full" rack.
9. Place the cylinder in the area vacated by the empty cylinder.
10. Note in the logbook that you changed a cylinder.

SL 011261

CONFIDENTIAL:
Subject to Protective Order
42 of 14th Judicial District Court
No. 91-1145

MODULE #7

TAR BUGGIES

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to safely pull the EDC tar buggy to their prescribed area and safely empty the tar buggy into the classifiers.

RATIONALE

The EDC units have waste products that are disposed of in a portable tank called a tar buggy. This means of disposal is used because of the nature of the waste material.

On evening and graveyards shifts, you may be required to pull these tar buggies to the Waste Treatment Unit for disposal of the waste material. This material is considered hazardous and must be handled safely.

LEARNING ACTIVITIES

1. Ask the trainer to go to the field and explain the method for hooking up to the tar buggy and its destination.

SL 011262

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #8
COOLING TOWER DUTIES

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to monitor the cooling tower, adjust chemical feed and clean the screens.

RATIONALE

The cooling tower is an important piece of equipment to a process unit. Cooling towers provide cooling water for heat exchangers in the process unit. Your job is to assure a constant supply of treated water from the cooling tower. You must operate the cooling tower such that the water is properly treated to avoid damage to the heat exchangers.

LEARNING ACTIVITIES

1. Read the following on cooling towers.

COOLING TOWER

The EDC/VDCM cooling tower cools water by evaporation. As water evaporates, the water left behind is cooled because liquids absorb heat when they evaporate. The tower aids in evaporation by providing a place

SL 011263

44

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

for air to contact the water. This is called a closed circulation system.

The cooling water is pumped from the tower, through the cooling equipment in the field, then back to the tower. As the heated water returns, it covers the top of the tower and flows down through a network of slats. Because the water is dispersed as it falls, the surface area available for contact with air is increased. Exhaust fans on top of the tower pull air through the curtain of falling water on each side and out the top. This type of cooling tower is called a cross-flow type because the air flows horizontally across the water. The exhaust fans pull in a great volume of air which increases efficiency. The water that falls into the tower basin is cooled and is ready to be pumped back to the field.

As pure water evaporates, it leaves impurities behind. This evaporation causes impurities to concentrate in the cooling water. Impurities can cause deposits which hamper the heat transfer qualities of operating equipment or plug it. Impurities can also erode the cooling equipment. Blowdown of the cooling tower helps remove these impurities. Make up water is added to the tower to replace the loss from evaporation and blowdown. Makeup and blowdown must be balanced to prevent the tower from emptying or running over.

As blowdown and makeup water are adjusted, the treatment chemical amount in the cooling tower is lessened. You must adjust these chemicals to maintain proper treatment levels. Some of these chemicals are hazardous

SL 011264

45

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

and must be handled as such. You should wear rubber gloves, face shield and rain suit top when it becomes necessary to batch feed the cooling tower.

Proper operation of the EDC/VDCM cooling tower is essential to better operations in the EDC/VDCM complex.

2. Observe as the trainer collects and analyzes samples of the cooling tower.
3. Ask the trainer to explain the importance of the samples and the adjustments that need to be made.
4. Observe while the trainer makes adjustments to the cooling tower.
5. Ask the trainer to explain the procedure for cleaning the screens.

SL 011265

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #9

TRANSFER PRODUCT

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to safely and properly transfer VDC product to storage.

RATIONALE

Product transfers are made for two major reasons. One reason is to make room for more production and the other is to make material available for shipment.

In making transfers, care should be taken to assure that the correct valves are operated. Opening the wrong valve can result in the wrong product being transferred or good product being contaminated. Another possible error could be in transferring into a tank that is full. Transferring into a full tank could result in spillage and tank damage. The end result of the spillage would be wasted product and/or pollution.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011266

LEARNING ACTIVITIES

1. Ask the trainer to show you how to line up transfers to the VDCM Storage Tanks.
2. Show the trainer how to line up transfers to the VDCM Storage.

SL 011267

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

MODULE #10

RECHARGING THE HQMME TANK

Time required to complete this module should be approximately one day.

OBJECTIVE

Upon completion of this module, you will be able to safely recharge the HQMME Tank.

RATIONALE

HQMME is an additive used in the VDCM process. This additive acts as an oxygen scavenger and to prevent reaction of VDC with itself to form solid polymer. The polymer would cause plugging in the vessels and piping.

It is important that an adequate amount of HQMME is in the VDC streams. Your responsibility will be keeping the HQMME Tank charged.

LEARNING ACTIVITIES

1. Ask the trainer to show you the HQMME Tank.
2. Read the procedure, in this module, for charging the HQMME Tank.

SL 011268

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

3. Ask the trainer to demonstrate the procedure for charging the HQMME Tank.
4. You explain to the trainer the procedure for charging the HQMME Tank.
5. Demonstrate your ability to charge the HQMME Tank while the trainer observes. This can be a mock demonstraton.

SL 011269

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

TASK DETAILING

Recharging the HQMME Tank

1. Check the level (7) in the HQMME Tank. If the level is 20% or less, the tank should be recharged.
2. Shut off the HQMME flow from the tank by closing the valve (1) at ground level.
3. Block the steam tracing (8). This will help cool the tank and thus help reduce the pressure in the tank.
4. Open the vent valve (6) on top of the tank.
5. While the tank is venting, get two drums of HQMME. Lay the drums on their side and beat with a piece of pipe to break the HQMME into chunks.
6. Place the drums in the hoist.
7. Go to the first level on the tank and check the pressure (1). The pressure should read "0". If the pressure is not "0", check the N₂ valves (2) to verify they are blocked. If the N₂ is blocked and you still cannot bleed the pressure off, notify the Lead Operator.
8. After the pressure is "0", open the large valve (9) on top of the HQMME Tank.

SL 011270

CONFIDENTIAL:
Subject to Protective Order
51 of 14th Judicial District Court
No. 91-1145

9. Go to the second level (top) of the tank, operate the hoist to take the drums to the top of the tank.
10. Place the drums on the platform.
11. Take the lid off of the funnel (10).
12. Check the grinder (12) to verify it is clear. You check the grinder (12) by looking into the funnel (10). If the grinder is clear, start the grinder by pressing the start button (5). If not clear, notify the Lead Operator.
13. Open the drums of HQMME and slowly pour into the funnel (10). If HQMME chunks become lodged in grinder, stop grinder, before breaking chunks with a rod or similar object.
14. After the drums are emptied, stop the grinder by pressing the stop button (5).
15. Place the lid back on the funnel (10).
16. Using the hoist, lower the empty HQMME drums to the ground.
17. Fill the tank with VDC by opening the valves (3 & 4) on top of the tank.
18. After the tank is full (7), close the valve (9) on top of the tank.

SL 011271

52 **CONFIDENTIAL:**
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

19. Close the bleed valve (6).
20. Pressurize the tank to 35# (11) by opening the N₂ valves (2).
21. After the tank is pressurized to 35#, close the N₂ valves (2).
22. Take the empty drums to the trash dumpster.
23. Unblock the HQMME flow valve (1) at the ground level.
24. Inquire of the EDC/VDCM "B" Operator as to whether the steam tracing (8) should be unblocked.
25. Make a final check of the tank pressure (11) to verify it is about 35#.
26. Note in the logbook that you recharged the HQMME Tank.

SL 011272

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

GLOSSARY

ABSORBER Equipment in which a gas is absorbed by contact with a liquid.

Tetra: Absorbs in EDC feed to the reactor, the HCl in the lights still vent.

VC: Vinyl chloride is absorbed in EDC and fed to the stripper. The overhead stream of the absorber is clean HCl.

HCl: HCl gas is absorbed in a weak muriatic acid solution to form a strong muriatic solution.

TE-II: Removes the DCE-MC from the HCl off of the MC reactor by contacting it with TCE/Tetra (Product still bottoms).

PER-TRI: Absorbs in well water, the HCl in the reactor vent after it passes through the primary and secondary condensers.

AMBIENT TEMPERATURE The temperature of the atmosphere.

ANALYZER An instrument that determines the composition of the material being fed to it.

ANTI-BACK UP VALVE A valve set up such that it will not permit a backwards flow.

AQUEOUS A solution of water with HCl gas absorbed in it.

BACK-PRESSURE CONTROL VALVE A valve that will open when the

SL 011273

54 CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

pressure in the line reaches a preset value. In the Tetra unit this valve relieves to the scrubber when the HCl pressure gets too high.

BALL VALVE A valve in which the flow is regulated by a ball that is turned by the handle on the valve.

BAYONET TUBE A dual-tube apparatus with heating fluid (steam) flowing into the inner tube and out of the annular space between the inner and outer tubes. Example: Chlorine vaporizer.

BICARB A solution used in the OHC units to neutralize HCl in the recycle stream. It is formed by caustic (NaOH) combining carbon dioxide (CO₂). The formula for bicarb is NaHCO₃.

BIG THREE A company that is one of the suppliers of N₂ and O₂ to PPG.

BLOWDOWN A purge taken off of the bottom of a vessel such as a kettle; the removing of catalyst from the centrifix or cyclone. Purge steam from cooling towers.

PER-TRI: Purge off of bottom of organic vaporizers and also removing of catalyst from the centrifixes.

OHC: Removing catalyst from the centrifixes or cyclones.

SL 011274

CONFIDENTIAL:
Subject to Protective Order
55 of 14th Judicial District Court
1145

BOTTOMS The heavy chlorinated organics waste in a unit. In the Bottoms Unit, bottoms can refer to the kettle feed or the waste off the bottom of the kettle.

BRINE A liquid used in a refrigeration system, usually a solution of water and calcium chloride, which is cooled by contact with the evaporator surface and then goes to the vessel to be refrigerated. Also, brine is salt water.

BUBBLE CAP A metal cup covering a hole in a plate within a distillation tower; designed to permit vapors to rise from below the plate, pass through the cap, and make contact with liquid on the plate.

BURNING

OHC: Reacting O_2 with ethylene (C_2H_4) to form CO_2 and water without the C_2H_4 being utilized to form EDC.

PER-TRI: A desirable reaction in the Per-Tri reactors, when controlled, that is necessary for the formation of perchloroethylene and trichloroethylene.

BUTTERFLY VALVE A valve that utilizes a turnable disk element to regulate flow.

CATALYST A substance that promotes or retards a reaction.

SL 011275

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

CAUSTIC Sodium hydroxide; a basic (nonacid) substance composed of sodium hydroxide. It can exist as a liquid when dissolved in water or as a white, brittle substance when dry. It can cause chemical burns. Some of its uses are acid neutralization, bleach and chloral destruction

CELL LIQUOR A weak solution of caustic and water.

CENTRIFIX A piece of equipment used to remove the catalyst carry-over from the Per-Tri and OHC reactors.

CHECK VALVE A device for automatically limiting flow in a piping system to a single direction.

CHEST PRESSURE The pressure of the steam on a vessel needed to heat it to the desired temperature. Example; reboilers and heaters.

CHROMATOGRAPH An instrument used to determine the composition of a gas or liquid by separating the elements in the gas or liquid.

CHLORINATION Reacting with chlorine; an excess of unreacted chlorine.

COMPRESSOR A machine used for increasing the pressure of a gas.

SL 011276

CONFIDENTIAL:
Subject to Protective Order
57 of 14th Judicial District Court
No. 01-11276

CONCENTRATION The amount of a substance in a solute in proportion to the total amount.

CONDENSATE The liquid product of a condenser; the water from cooled steam.

CONDENSER A heat-transfer device that changes a gas to a liquid by cooling the gas.

CONVERSION To change from one isometric form to another.

VC: Percent EDC that is converted to vinyl in the crackers.

OHC: Percent of ethylene converted to EDC.

COUPLING An apparatus used to connect the motor and pump. It is designed to allow some flexing between the motor and pump shaft.

CRACKING To break up chemical compounds into different compounds by heat.

CTW Abbreviation for cooling tower water.

CYCLONE A piece of equipment that removes particles from a vapor or liquid by centrifugal action. Used in OHC to remove the catalyst from the reactor vapors.

DEFLUIDIZE To loose or cause the loss of fluidization.

DEGASSER A vessel in which dissolved gases are removed from a liquid.

DEMISTER A packing like material in a vessel whose purpose is to remove entrained liquid from a gas. Also called a mist eliminator.

DESUPERHEATER A device that is used to cool steam by water injection into the steam.

DEVIATE When a control instrument indication is not aligned with the set value.

DH Abbreviation for dehydration.

DIAPHRAGM VALVE A valve in which the open-close element is a flexible diaphragm.

DISTANCE PIECE An area in a positive displacement, reciprocating compressor where the drive rod is located.

DISTILLATION The process of producing a gas or vapor from a liquid by heat.

DISTRIBUTOR An apparatus usually in a packed column, such as a scrubber, that causes the liquid coming into the top to be distributed over the area of the packing.

SL 011278

DOUBLE BLOCK AND BLEED An arrangement of valves consisting of two block valves with a bleed valve located between them.

D.P. CELL Differential pressure cell; A transmitter that reads a pressure difference to determine a level or flow.

DUMPING A term used usually to indicate an uncontrollable emptying of a distillation column; a term meaning the emptying of a dopp kettle.

ECONOMIZER A forced-flow, once through heat exchanger that usually uses a process flow on the tube and shell side. It is used to heat up one stream while cooling another.

ENDOTHERMIC A reaction which absorbs heat.

END POINT That stage in the titration at which an effect, such as a color change occurs, indicating that a desired point in the titration has been reached.

ENTRAIN To have a fluid, in the form of a fog or mist, carried by a vapor.

ENTRAINMENT SEPARATOR A vessel whose function is to remove a mist from a vapor.

SL 011279

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

EXOTHERMIC A reaction that produces heat.

EXPANSION BOTTLE An apparatus used in a pipe line to allow for expansion of the fluid or gas, also used to take some of the surge out of a flow when it is not a smooth flow.

FCV Abbreviation for flow control valve.

FINES The spent catalyst, from a Per-Tri or OHC reactor, that is blown out of the centrifix or cyclone.

FLASH The rapid conversion of a liquid into a vapor.

FLASHER A vessel used for the rapid conversion of a liquid into a vapor.

FLOAT CHAMBER A vessel containing a float that indicates a liquid level.

FLOODED Distillation term meaning too high of a level in a reboiler or tray; to have too high of a level.

FLUIDIZED BED REACTOR A reactor in which the catalyst, such as Per-Tri or OHC, is suspended by the incoming gases. The catalyst has a boiling appearance.

SL 011280

CONFIDENTIAL:
Subject to Protective Order
61 of 14th Judicial District Court
No. 91-1145

FREE RADICAL INITIATOR The catalyst in the Tetra and TE-II unit
that prevents unreacted Cl_2 from being excessive.

FREEZE PRECAUTION A water purge taken on water lines and showers to
prevent freezing.

FURAN The trade name for a plastic-like material. There are pipe
and vessels constructed of this at PPG.

FURNACE An apparatus in which heat is liberated and transferred
directly or indirectly to a liquid for the purpose of
effecting a physical change. These are used at VC to
crack EDC and at Per-Tri and OHC to heat Dowtherm.

GATE VALVE A valve with a disc-shaped closing element that fits
tightly over an opening through which a fluid passes.

GC-GAS CHROMATOGRAPH An instrument used to determine the composition
of a gas or liquid by separating the elements
in the gas or liquid.

GLOBE VALVE A device for regulating flow in a pipeline, consisting of
a movable disc-type element and a stationary ring seat in
a generally spherical body.

SL 011281

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

H.A.D. - HEAT ACTIVATED DEVICES A device used to trip the sprinkler system when there is a sudden increase in temperature.

HAVEG The trade name for a type of material that has the appearance of being epoxy and clay mixed. It is used to make piping and vessels.

HEADER A pipe or conduit which distributes fluid or gas from a series of smaller pipes or conduits.

HEAD TANK A tank that is elevated above a piping system. The function of the tank is to allow fluid to flow into the system to assure that the piping system is full at all times. Examples of these are in the brine system and Dowtherm system.

HEAVIES In the organic area, these are defined as material that is chlorinated too much for use in a unit. The particular unit may not have the facilities to clean up this material.

BOTTOMS PLANT: This term can be the feed to the Bottoms unit or can be the waste of the Bottoms unit.

INTERFACE The boundary between any two phases: generally a term used to define the separation between two liquids such as organics and water.

SL 011282

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

JACKETED Having an outer cover or casing through which steam or a coolant flows around a vessel.

KARBATE The brand name for an impervious graphite material used in heat exchangers. This is an acid resistant material.

KYNAR The brand name for a plastic like material from which valves and piping are made. This is an acid resistant material.

LCV: LEVEL CONTROL VALVE A device (valve) which is able to maintain, raise, or lower the level in a vessel or processing system as desired.

LIGHTS The lesser chlorinated organics in a unit. These are usually EDC or lighter, depending on the operating unit.

LIQUID AIR The name of one of the two companies that supply PPG with O_2 and N_2 .

LIQUID BED REACTOR The process vessel in which the reaction of the reactants takes place in liquid.

MAKE-UP WATER Water feed needed to replace that which is lost by evaporation or leakage in a closed-circuit, recycle operation. Primarily used with cooling towers and steam generators.

SL 011283

CONFIDENTIAL:
Subject to Protective Order
64 of 14th Judicial District Court
No. 91-1145

MANIFOLD A piping arrangement through which a flow or flows can be diverted to several outlets.

MANUAL

1. Any processing operation performed by hand.
2. Controls arranged for their operation by hand.

MECHANICAL SEAL Mechanical assembly that forms a leakproof seal between flat, rotating surfaces to prevent highpressure leakage.

MFH: MIXED FEED HEADER A pipe that allows a mixture of the organic feeds before they enter the reactor.

MIXED FEED NOZZLES The small openings through which the mixed organic feeds are fed to a reactor.

MLS: MANUAL LOADING STATION A valve that is operated by a signal sent to it by a human operator and not an automatic controller.

NEUTRALIZE To make a solution neutral (neither acidic or basic, pH of 7) by adding a base to an acidic solution, or an acid to a basic solution. Usually at PPG we use a neutralizer to remove acid from a stream by adding a basic solution.

OPTIMIZE Adjusting a unit or piece of equipment to run as efficiently as possible at a desired rate.

SL 011284

65

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

ORGANICS Of chemical compounds, based on carbon chains or carbon rings and also containing hydrogen with or without oxygen, nitrogen, or other elements.

ORIFICE PLATE A disk, with a measured hole, placed into a pipeline to measure flow.

ORIFICE RUN A piece of pipe containing an orifice to measure a flow.

O₂ RISER A piece of pipe on a reactor head through which the O₂ is fed into a reactor. The end rises above the head to insure the reaction does not take place at the reactor head.

PACKED COLUMN A column, usually a distillation column, designed to increase contact between liquid and phases.

PACKING A material (can be steel rings, gravel, ceramic saddles or rings, or Kynar rings or saddles) used to increase surface contact between a liquid and gas.

PAD SYSTEM An arrangement of piping and valves that allows a layer of inert gas, into a process vessel, to serve as a cushion or for protection.

SL 011285

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

PCV: PRESSURE CONTROL VALVE A device (valve) which is able to maintain, raise, or lower the pressure in a vessel or processing system as desired.

PH A scale from 0 to 14 measuring the acidity or alkalinity of a solution.

PHASE SEPARATOR A vessel used to separate liquids of different density by having a reduced flow rate that allow the heavier liquid to settle.

PLUG COCK VALVE A valve fitted with a plug that has a hole through which fluid flows and that is rotatable through 90° for operation in the open or closed position. Also known as a plug cock.

PLUGGING 1. The formation of a barrier (plug) of solid material in a process flow system, such as a pipe or reactor. 2. A term used in P/T and OHC to refer to the restriction of feed through the reactor heads.

PNEUMATIC Pertaining to or operated by air or other gas.

POSITIVE DISPLACEMENT A term used in reference to pumps and compressors. In the pump or compressor a piston displaces the material in the cylinder.

SL 011286

67 **CONFIDENTIAL;**
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

PSIG: POUNDS PER SQUARE INCH GUAGE The guage pressure,
measured by the number of pounds-force exerted on an area
of 1 square inch. The guage has been calibrated to take
atmospheric pressure into consideration.

PSIA: POUNDS PER SQUARE INCH ABSOLUTE The absolute, thermo-
dynamic pressure, measured by the number of pounds-force
exerted on an area of 1 square inch. This means that an
adjustment for atmospheric pressure has not been made.

QUICK CONNECT A hose fitting that has two handles to latch it to
another fitting.

RAM VALVE A special valve that has a sliding plug to clear valve
when it is opened.

RATIO The relationship in quantity, amount or size between two or
more things.

REACTION The action of molecules that act upon one another to produce a
new set of molecules (products).

REACTOR A device or process vessel in which chemical reaction
(catalyzed or noncatalyzed) take place during a chemical
conversion type of process.

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SL 011287

REACTOR HOT SPOT The level at which the major reactions occur in the reactor.

REBOILER A heating unit for a distillation column designed to supply heat to the lower portion of the column.

RECIRCULATION Taking stream from a vessel and returning it. The purpose of this stream is usually for cooling, drying or mixing of the vessel contents.

RECYCLE That portion of a product stream that has passed thru a processing unit and is recirculated (recycled) back through the process. The purpose of recycle is usually to recover some usable material in the stream.

REFLUX In a chemical process, that part of the product stream that may be returned to the process to assist in giving increased conversion or recovery, as in distillation. Taking part of the product stream and returning it to the process vessel for the purpose of cooling and or purification of a product.

REWORK To send an out-of-spec stream back through the process in order to get it in spec.

ROTAMETER A rate-of-flow volume meter in which the fluid or gas flows upward through a tapered tube, lifting a shaped weight to a

SL 011288

CONFIDENTIAL;
Subject to Protective Order
69 of 14th Judicial District Court
No. 91-1145

position where upward fluid or gas force just balances its weight.

R/D: RUPTURE DISK A disk designed to burst at a predetermined pressure differential; sometimes used as a safety valve. Protects a process vessel or line from over-pressurization.

SADDLES A term for U-shaped material used for packing in process equipment. They are commonly made of ceramic, PVC, or Kynar.

SATURATED STEAM: DESUPERHEATED STEAM Steam that has had condensate added so that the steam temperature equals the temperature of boiling at the pressure existing on it.

SCFH: STANDARD CUBIC FOOT PER HOUR A flow measurement of gases or steam.

SCRUBBER A device for the removal, or washing out, of entrained liquid droplets, or for the removal of an undesired gas component from process gas streams.

SEAL LOOP A loop in a line that will relieve pressure. These are used at home as sink traps. They also stop the escape of vapors.

SL 011289

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SEAL POT A container on a line or tank to act as a relief point. These are low pressure applications. Usually they are filled with a liquid. The liquid blows out to avoid over-pressurization.

SEPARATOR A process vessel used for separating liquids of different specific gravity; phase separator separates water and organics.

SET POINT The value selected to be maintained by an automatic controller.

SIDE-ARM COOLER A heat exchanger (cooler) that is located on the side of a process vessel for cooling the liquid in the vessel.

TETRA: Reactor side-arm cooler; used to cool the reactor liquor.

SIGHTGLASS A glass tube or a glass-faced section on a process line or vessel; used for visual reading of liquid levels or of manometer pressures.

SNUFFING STEAM The steam used to avoid or to put out fires on the vent stacks. Also, the steam that could be turned on into the VC and Dowtherm furnaces if a tube rupture occurs causing a fire.

SL 011290

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

SOP: STANDARD OPERATIONS PROCEDURES A reference that is used to list the specifications for an operating unit that the operators use in producing a product.

SPARGER: PERFORATED-PIPE DISTRIBUTOR A device that distributes liquid or gas in a vessel. It usually consists of a length of pipe or tubing with holes at spaced intervals along the length; used in the liquid-bed reactors and scrubbers.

SPEC Abbreviation of specification.

SPIRAL EXCHANGER: SPIRAL-TUBE HEAT EXCHANGER A countercurrent heat exchange device made of a group of concentric spirally wound coils.

SRV: SAFETY RELIEF VALVE A spring-loaded, pressure-actuated valve that allows a gas or liquid to escape from a vessel at a pressure slightly above the safe working pressure of the vessel.

STABILIZER An ingredient added to a product so that it can be handled or stored with less change in composition.

STEAM TRAP A device which drains and removes condensate automatically from steam lines or reboilers.

STILL: DISTILLATION COLUMN A vessel used in the process of producing a gas or vapor from a liquid by heating the liquid in the column and collecting and condensing the vapors into liquids.

SL 011291

STRAP A procedure in which storage tanks are measured thru their top with steel measuring tapes to calculate the volumetric capacity of the tank for increments of height.

STRIPPER An evaporative device for the removal of vapors from liquids; can be in a bubble-tray distillation tower, a vacuum vessel, or an evaporator; if it is a part of a distillation column below the feed tray, it is called the stripping section.

SUPER VALVE The inlet valve on a Quench Tower. Called this because of the difficulty to operate the valves.

TARS A viscous material composed of complex, high molecular weight compounds derived from the distillation of organics.

BOTTOMS PLANT: The heavy material that is burned in the incinerators.

TCV: TEMPERATURE CONTROL VALVE An automatic valve used to maintain the temperature of a process vessel within desired limits.

THERMOCOUPLE A device consisting basically of two dissimilar conductors joined together at their ends; the thermoelectric voltage developed between the two junctions is proportional to the temperature difference between the junctions, so the device can be used to measure the temperature of one of the junctions when the

other is held at a fixed, known temperature, or to convert radiant energy into electric energy.

THERMOSYPHON REBOILER A liquid reheater (as for distillation tower bottoms) in which natural circulation of the boiling liquid is obtained by maintaining a sufficient liquid head. The circulation is from the bottom to the top of the reboiler.

THERMOWELL A receptacle for holding thermocouples or thermometers. Another function of the thermowell is to enable the reading of a liquid or gas temperature while it is contained in a pipe or vessel. It also protects the thermocouple or thermometer from the process.

TI: TEMPERATURE INDICATOR Thermometer.

TRAY A metal sheet in a distillation column that provides intimate contact between the falling liquid and rising vapor.

TUBES A long cylindrical body with a hollow center used especially to convey fluid.

TUBESHEET A mounting plate for elements of a larger item of equipment; for example tubes for heat exchangers or coolers.

SL 011293

CONFIDENTIAL:
Subject to Protective Order
of 14th Judicial District Court
No. 21

VAPORIZER A process vessel in which a liquid is indirectly heated with steam until it vaporizes.

Cl₂ VAPORIZER: Liquid Cl₂ is heated until it vaporizes.

PER-TRI ORGANIC VAPORIZER: Organics are heated until they are vaporized.

VAPOR SPACE The area within a vessel that does not contain liquid.

VELOCITY The speed at which the gas flows through a Per-Tri or OHC reactor.

VENT An opening provided for the discharge of pressure or the release of pressure from tanks, vessels, reactors, processing equipment, etc. The gases that are discharged from the processing equipment are called the vent.

WATER HAMMER A pressure rise in a pipeline caused by a sudden change in the rate of flow or stoppage of flow in the line. At times, a very loud noise is caused by this pressure rise when opening into a steam line too fast.

WEIR A device over which a fluid flows that serves to regulate fluid level or measure flow.

W.W. Abbreviation for well water.

SL 011294

ZERO ADJUSTMENT Setting the pointer position of an instrument or
meter to read zero when the measured quantity is zero.

SL 011295

CONFIDENTIAL:
Subject to Protective Ord f
of 14th Judicial District Court
No. 91-1145

EDC/VDCM "D" OPERATOR
MAJOR TASK LIST

=====

LAB RELATED DUTIES

1. Catch samples in the EDC I, EDC II, and VDCM units as part of routine duties.
2. Analyze the samples from the units.
3. Notify the operators of abnormal sample results.
4. Record sample analyses on lab sheet in their proper place.
5. Prepare sample bottles for first (graveyard) shift on third (evening) shift.
6. Catch samples for main lab per schedule.
7. Change septums on G.C. every shift.
8. Fill out lab supply list.
9. Change G.C. carrier gas cylinders when the pressure approaches 500#.

MISCELLANEOUS DUTIES

10. Recharge the HQMME Tank when the level approaches 20%.
11. Line up tanks (South terminal #1 and #2, EDC Dock and EDC million gallon tank) for the EDC Operator product transfers.

SL 011296

CONFIDENTIAL
Subj ct to Protective Order
of 14th Judicial District Court
No. 91-1145

EDC/VDCM "D" OPERATOR
MAJOR TASK LIST

-
12. Transfer from the VDC Day Tank to VDCM storage.
 13. Report abnormal conditions to the Lead Operator.
 14. Report spills to the Lead Operator.
 15. Record operations difficulties in the logbook.
 16. Read the logbook.
 17. Assist during start-up and shutdown.
 18. Perform general housekeeping in the EDC I, EDC II,
EDC III and VDCM units.
 19. Perform housekeeping in the lab and truck.
 20. Take electrical readings and outlying tank readings
on first (graveyard) shift.
-

SL 011297

CONFIDENTIAL
Subject to Protective Order
of 14th Judicial District Court
Subject to Protective Order
of 14th Judicial District Court
No. 91-1145

QUALIFICATION STANDARDS

1. Wears proper safety and personal protection equipment and follows safety rules at all times. Contributes to overall safety program by reporting or correcting unsafe conditions.
2. Accurately runs and records necessary laboratory analysis.
3. Obtains current knowledge of unit by reading logs and talking with others in the unit.
4. Keeps others informed of the condition of the operations of the area by making necessary entries in logs and talking with the Lead Operator and other operators.
5. Protects the environment.
6. Reports all spills immediately to the Lead Operator.
7. Follows written and oral instructions of Lead Operator and Supervisors.
8. Maintain area in a safe, efficient and orderly condition by performing housekeeping duties.
9. Safely recharges the HQMME Tank when the level reaches 20%.

SL 011298

10. Properly lines up EDC million gallon tank for the EDC Operator.
11. Properly transfers from the VDCM Day tank to VDCM Storage.
12. Assists during start-up and shutdown.
13. Safely catches and properly analyzes samples on the recovery still.
14. Safely catches and properly analyzes samples on the EDC Neutralizers.
15. Properly analyzes samples for moisture.

SL 011299

CONFIDENTIAL
Subject to Protective Order
of 14th Judicial District Court
of 14th Judicial District Court
No. 91-1145