

EQUIPMENT CLEARING RECORD SYSTEM

The purpose of the Equipment Clearing Record System is to satisfy several needs. This includes:

1. To provide a permanent record that PPG is complying with the IPEL OSHA standards for personnel exposure to certain chemicals in the complex.
2. To provide a database so that the time required for clearing by the various techniques can be measured and optimized.
3. To provide a means of communicating to the personnel that the equipment is suitably cleared or that the proper personnel protective equipment (PPE) has been provided.
4. Determines the frequency in which personnel protective equipment (PPE) is required. It is the intent of this program to minimize the use of personnel protective equipment and to maximize the use of engineering controls to reduce personnel exposure.

The Equipment Clearing Record System consist of three elements: the field equipment clearing record form, a database system, and communication requirements. The equipment clearing record form is to be completed with each clearing operation. Similar to other permits it will be posted with the job. Each control room is implement the database system to record the results of every clearing operations. The communications requirements include posting of the record at the job site, and copying on a monthly basis the database to both the Derivatives' Process Engineering Group and the Complex Industrial Hygienist.

EQUIPMENT CLEARING RECORD FORM

This is a description and explanation of the various sections of the form attached. Sections 1, 2, 3, and 4 are self-evident and need no discussion.

Section 5 "Clearing Techniques Used" consists of six known methods for clearing. It should be understood that, most likely, no single technique can achieve the desired results. The techniques will be used in various combinations. All the techniques rely on the equipment having been initially drained as completely as possible. On the form the various techniques used will be checked.

Section 6 "Performance", is the heart of the form. The completion of this section holds many benefits for every user. The techniques and the combination of techniques provided in section 5 have been limited in use to date and have not been optimized. In the past clearing data has not been recorded or analyzed. To collect the required data for this section several tools will be required. For concentrations above 2000 ppm a carbon tube or Dragger sample will be used. For concentrations below 2000 ppm a HNU meter will be used. The technique as numbered in section 5 will be recorded. The time interval to be recorded is the duration of the technique in hours. The concentration recorded will be the value recorded at the end of the technique duration. See attached sample completed form. Observations as to why techniques were changed or modified should be noted and communicated to supervision.

Section 7 contains information about the field portable analyzer equipment. For making field measurements of concentrations of less than 2000 ppm, a HNU meter will be used. (The operation and calibration of the device is covered in a separate document.) Each meter has a SAC number attached. The law requires that each meter be calibrated daily before use.

The lead operator of each unit is responsible for verifying that the equipment has been cleared to the best achievable level of concentration. His signature of acceptance of the clearing operation is required. The lead operator can delegate the work required to do the clearing techniques. The maintenance foreman shall review the record form for completeness and will also sign prior to hanging any tags.

Section 9 has two purposes. First to provide an easy reference for exposure limits and a record of what personnel protective equipment was required for the job. The question will be checked as required, and the required PPE will be circled. If the equipment being cleared requires personnel protective equipment the job site must be barricaded to prevent inadvertent entry to the site.

The form will be multi-parted. One copy will be posted at the job site. The other copy will be given to the designated unit supervisor.

FIELD DATABASE PROGRAM

The information collected on the equipment clearing record form is to be transferred to a field database program. The purpose of the database is to provide, first, means of establishing fixed time frames for clearing any piece of equipment. Secondly, it will provide the data required to optimize the clearing techniques used in the clearing operation. The database will also result in a record of when personnel protective equipment is used, the frequency of use, and the types of devices used.

COMMUNICATIONS

The information collected using the equipment clearing record form will be distributed in the following manner.

1. A copy of the record form will posted at each job site.
2. A copy of the record form will be given to the designated operations supervisor.
3. On a monthly basis a copy of the database will forwarded to the Chief Process Engineer. The Process group will combine the data from the various areas for evaluation of techniques employed, adjust SOP's as required, and determine common problems. The applications of PPE's will be analyzed to determine if engineering controls need to be modified. Summary reports will be issued by the Process group of all results.
4. On a monthly basis a copy of the database will be forwarded to the Complex Industrial Hygienist. The data will be used to meet the need for OSHA reporting of compliance to the laws.

EQUIPMENT CLEARING RECORD

① UNIT _____ ② DATE _____

③ EQUIPMENT TO BE CLEARED _____

④ COMPOUND(S) TO BE CLEARED _____

⑤ CLEARING TECHNIQUES USED: (Check all techniques used)

_____ 1. COLD NITROGEN	_____ 4. WATER WASH
_____ 2. HOT NITROGEN	_____ 5. STEAM
_____ 3. PIGGING	_____ 6. VACUUM
	_____ 7. OTHER _____

PERFORMANCE:

	<u>TIME</u>	<u>CONCENTRATION (PPM)</u>
⑥ 1. CONCENTRATION PRIOR TO CLEARING	_____	_____
2. CONCENTRATION AFTER TECHNIQUE # _____	_____	_____
3. CONCENTRATION AFTER TECHNIQUE # _____	_____	_____
4. CONCENTRATION AFTER TECHNIQUE # _____	_____	_____
5. CONCENTRATION AFTER TECHNIQUE # _____	_____	_____

FINAL CONCENTRATION ACHIEVED _____ HOURS REQUIRED FOR CLEARING _____

COMMENTS: _____

⑦ HNU MACHINE# _____ DATE CALIBRATED _____ BY _____

ACCEPTANCE:

⑧ OPERATIONS LEAD OPERATOR _____ MAINTENANCE FOREMAN _____

⑨ PERSONNEL EXPOSURE LIMITS:	TRICHLOROETHYLENE (TRI)	50 PPM	(AT OR BELOW)
	PERCHLOROETHYLENE (PER)	25 PPM	
	ETHYL CHLORIDE (EC)	200 PPM	
	ETHYLENE DICHLORIDE (EDC)	1 PPM	
	METHYLCHLOROFORM (MC)	350 PPM	
	VINYLDENE CHLORIDE (VDC)	1 PPM	
	1,1 DICHLOROETHANE (DCE)	10 PPM	
	VINYL CHLORIDE (VCM)	1 PPM	
PERSONNEL PROTECTIVE EQUIPMENT REQUIRED? YES _____ NO _____			
TYPE OF PERSONNEL PROTECTIVE EQUIPMENT USED: (circle one)			
COMFO-II-w/DUAL CARTRIDGE FULL FACE MASK w/ DUAL CARTRIDGE			
AIR LINE MASK SELF-CONTAINED BREATHING APPARATUS			

THIS IS NOT A PERMIT FOR ENTRY
ALL DATA TO BE TRANSFERRED TO DATABASE

SL 072092

EQUIPMENT CLEARING RECORD

UNIT EDC

DATE 8-13-53

EQUIPMENT TO BE CLEARED EDC Hvy STILL REFLUX DRUM

COMPOUND(S) TO BE CLEARED EDC

CLEARING TECHNIQUES USED: (Check all techniques used)

<u>X</u>	1. COLD NITROGEN	<u>X</u>	4. WATER WASH
<u>X</u>	2. HOT NITROGEN		5. STEAM
	3. PIGGING		6. VACUUM
			7. OTHER

PERFORMANCE:

	TIME	CONCENTRATION (PPM)
1. CONCENTRATION PRIOR TO CLEARING	<u>12:00pm</u>	<u>2%</u>
2. CONCENTRATION AFTER TECHNIQUE # <u>4</u>	<u>3 Hrs</u>	<u>1800</u>
3. CONCENTRATION AFTER TECHNIQUE # <u>1</u>	<u>2 Hrs</u>	<u>500</u>
4. CONCENTRATION AFTER TECHNIQUE # <u>2</u>	<u>4</u>	<u><1</u>
5. CONCENTRATION AFTER TECHNIQUE #		

FINAL CONCENTRATION ACHIEVED <1

HOURS REQUIRED FOR CLEARING 9 Hrs

COMMENTS: _____

HNU MACHINE# 81-444 DATE CALIBRATED 8-13-53 BY John Deaux

ACCEPTANCE:

OPERATIONS LEAD OPERATOR I. M. Lead MAINTENANCE FOREMAN Joe Smith

PERSONNEL EXPOSURE LIMITS:	TRICHLOROETHYLENE (TRI)	50 PPM	(AT OR BELOW)
	PERCHLOROETHYLENE (PER)	25 PPM	
	ETHYL CHLORIDE (EC)	200 PPM	
	ETHYLENE DICHLORIDE (EDC)	1 PPM	
	METHYLCHLOROFORM (MC)	350 PPM	
	VINYLDENE CHLORIDE (VDC)	1 PPM	
	1,1 DICHLOROETHANE (DCE)	10 PPM	
	VINYL CHLORIDE (VCM)	1 PPM	
PERSONNEL PROTECTIVE EQUIPMENT REQUIRED? YES _____ NO <u>X</u>			
TYPE OF PERSONNEL PROTECTIVE EQUIPMENT USED: (circle one)			
COMFO-II W/DUAL CARTRIDGE		FULL FACE MASK W/ DUAL CARTRIDGE	
AIR LINE MASK		SELF-CONTAINED BREATHING APPARATUS	

THIS IS NOT A PERMIT FOR ENTRY
ALL DATA TO BE TRANSFERRED TO DATABASE

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