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Date submitted to ChemRisk/Shonka and DOE 6/20/95

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ChemRisk Document No. 2106

PLANT ACCIDENT EXPERIENCE

December, 1953

The 4 major injuries which were experienced included an abdominal bruise, multiple face and arm burns, and 2 cases involving partial finger amputations; these brought the total of such injuries for the year to 36 as compared with the 26 noted during 1952. The number of minor injuries remained the same, the total for the year being nearly 10% under the corresponding 1952 figure. The 11 over-P.A.L. hand contamination conditions and 3 over-P.A.L. exposures to penetrating radiation which were recorded did not indicate significant hazards or changes in conditions.

Property damages were confined to motor vehicles, the 7 such accidents reported resulting in $550 damage. No fires occurred.

A slight increase in both the plant contamination and radiation indices was noted, but there were no significant releases of radioactive materials. The results of other plant environmental monitoring did not indicate any significant problems or changes in conditions.

HFH:bjn
1-6-54

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
R. D. McGaughey Jr. 6/15/95
Technical Information Officer, Oak Ridge K-25 Site
Date

[illegible]

[illegible] Post Office [illegible]

TO: [illegible] Henry
[illegible] Building

DATE: January 5, 1954

CC: [illegible] W. L. Richardson
File

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for December 1953

I. [illegible] Experience

Personal Injury Experience	This Month Estimated	Last Month	This Year To Date	Last Year 4 Period
No. of Major Injuries	4	1	36	26
No. of Non-Tab Major Injuries	1	8	36	28
No. of Sub-Major Injuries	0	2	17	27
No. of Non-Tab Sub-Major Injuries	0	0	3	1
No. of Significant Minor Injuries	0	0	6	5
No. of Minor Injuries	300	251	4,087	4,432

Comparative Frequency and Severity Rates:

	BASE PERIOD 1948 High	1952 Low	1952 Cum.	PREVIOUS SIX MONTHS June High	June Low	November Cum.	Last Month Actual	Current Month (Est	Year Date (Est
Frequency	12.39	0.00	2.87	3.76	0.90	2.70	1.04	3.87	2.83
Severity	6.78	0.00	0.38	0.19	0.004	0.10	0.19	0.15	0.13
Minor Injury Frequency (Estimated)				360.	260.	301.	260.	290.	321.

Last Major Injury Occurred December 15, 1953 Man hours and days accumulated since last Major Injury 505,077 Hours 16 Days.

Major- and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Amputation; distal end, index finger, left hand	12-3-53	-	60
	Amputation; distal phalanx, index finger, left hand	12-4-53	-	75
	Contusion of abdomen	12-11-53	-	4
	Burns of the face, neck, and fingers of right hand	12-15-53	-	13

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	7	2	37	53
Estimated Damage	$550	$57	3,006	4,079
Estimated Frequency Rate	2.55	0.73	1.13	1.75

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	0	0	4	17
Fire Loss (Estimated)	0	0	$570	$1,957
Fire Loss Rate (Estimated)	0.00	0.00	0.08	0.04

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	0	2	24	9
Estimated Damage	$0	$48	$53,862	$11,161

CURRENT ACCIDENTS

Date	Location	Type	Description
12-1-53	5th Street at Portal #2	Motor Vehicle Accident	As a panel truck started through a motor-operated gate, the gate closed against the left rear fender, denting it.
12-2-53	Parking Lot; East Side of K-1036	Motor Vehicle Accident	The driver of a pick-up truck was backing from a parked position and struck a post, causing damage to the right rear fender.
12-6-53	K-1413 Parking Lot	Motor Vehicle Accident	Federal driver backed a Carryall from a parked position and struck a post with the right running board; damage to the running board only.
12-11-53	K-1515	Motor Vehicle Accident	A pick-up truck driver, attempting to stop preparatory to parking, found that the brake pedal could not be depressed because of an obstruction; the truck rammed into the concrete steps in front of the building, damaging the front end.
12-11-53	Avenue "G" South of 12th Street	Motor Vehicle Accident	When the driver of a Carryall applied brakes to stop behind a vehicle, the brakes failed, and the driver swung right into a gate to avoid a collision with the other vehicle; the right side of vehicle was damaged.

Date	Location	Type	Description
12-27-53	K-1004-L	Motor Vehicle Accident	The driver of a Panel Truck swung too wide onto Avenue "D" and struck a parked pick-up truck. Damage was confined to the grille and radiator of the Panel Truck.
12-29-53	Power House Patrol Road	Motor Vehicle Accident	While backing a Carryall to turn around, a federal driver allowed the right rear wheel to drop off an embankment causing the retaining wall to strike and damage the gas tank.

Remarks

Most of the plant conditions and experiences that reflect any important changes remained about average for the year. Property damage type of accidents in the form of motor vehicle accidents doubled the plant monthly average; one over-P.A.L. film badge of 32 rep and a property damage transformer failure stood out for the month. Other conditions are noted below:

1. The 4 major injuries reflect average monthly experience; however, 2 finger amputations were included.
2. Contamination leveled off.
3. No fires were reported.
4. Minor Injuries were up some.
5. There were no non-tabulatable injuries.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

The "cold areas" of contamination were surveyed to establish their conditions in order to determine their relative problems. Prints on additional K-1420 equipment were reviewed. Study of HF air contamination problem with reference to a method of removing it from the air was made.

1. Change in Plant Conditions

a. ____X____ No Change _____ Improved _____ Retrogress

Remarks

The conditions and incidents that stood out did not indicate an appreciable change in the plant conditions.

2. Significant Types of Items Resulting From Inspections

a. The decayed wooden rails at building entrances of K-1004-A have been replaced with iron pipe railings.

b. The Conditioning Laboratory in K-1004-D is now using paper to catch uranium powders to prevent spread of material. They have been reluctant to do this in the past.

2. Significant Types of Items Resulting From Inspections (Cont'd)

c. Irregularities continue to be noted in the calibration figures on hand count data sheets in K-1401 Valve Shop.

d. The wall receptacles and other electrical equipment for the new Vacuum Pump Shop were installed according to plant standards.

e. On exceptionally cold nights, the stairways to the cooling towers freeze over making climbing dangerous. Several methods of coping with this problem are being reviewed by supervision.

f. Vaults 15A, 16A, and 17A have been rearranged and cleaned. This was quite noticeable on a subsequent contamination survey.

g. The wash room floor of K-1100 Building, which has been slippery when wet, was successfully roughened with an air hammer and a special tool bit.

h. All air hoses in K-1100 Area which are not necessary to the process have been removed; these hoses have often been used for cleaning clothing, summer cooling, and horseplay.

i. The faulty air hoist used in the K-1100 mix room has now been replaced; several alleged strains have been referred to this piece of equipment in the past.

j. Several large welding screens have been added to the K-1401 Welding Shop.

k. The K-601 cubicles are still not shielded sufficiently to withstand an explosion.

l. Housekeeping in K-1401 Building appeared to be good during audit inspection with only obvious minor conditions noticed.

m. Hand tools in the plant tool storage were found in good condition. Faulty tools are placed in separate boxes for either salvaging or repair.

Unsafe Acts

a. Although an employee was injured at the Power House when a Chicago air hose coupling came loose, other hose couplings were found with locking pins attached. In other plant locations, a sizeable number of these pins were missing.

b. Unsafe acts were responsible for 3 of the 4 lost time cases this month. These are (1) An employee was burned when a gas furnace was lit and an excessive gas-air mixture ignited violently; (2) A maintenance mechanic used a pipe pry to separate 2 sections of a pipe line; and (3) Two maintenance mechanics failed to pin an air hose coupling when they found the pin missing.

c. Many employees of the K-1131 and K-1413 Buildings were noticed on several surveys to be working where film badges are needed without them, and those that were wearing badges did not have them covered.

d. A study of the Maintenance Division's injuries for December indicated that the predominating unsafe acts were taking improper hold of material or tools, poor position to accomplish task, and failure to wear protective equipment where needed.

e. Audit surveys of the crane operations in the K-1401 Building indicate that some of the unsafe acts of operators noted sometime back during normal work seem to have been lessened.

f. Large trucks delivering equipment to the K-1401 Building continue to park for unloading beneath crane trolley wires, thus making it necessary for an employee to work near the energized trolley wires while unloading the equipment.

g. The method of torquing hold-down compressor bolts by hand has been modified to allow mechanical torquing and thus get away from some of the job hazards.

h. Surveys of the powered trucks in the Process Maintenance Areas reveal that hitching rides by employees is becoming more of a problem.

D. Items on Present Plant Problems

Items Requiring Special Attention

a. The hydraulic ram installed in the K-27 drain line for composite sampling is now operating. The similar installation for the K-1300 drain has not operated satisfactorily.

b. A survey of unmarked guy wires near parking spaces was made to determine if this condition could be the cause of some of the vehicle-backing accidents. Guy wire markers are to be installed in widely used parking areas.

(cont'd)

1. Items Requiring Special Attention (Cont'd)

c. In view of the 2 motor vehicle accidents which occurred while trucks were passing through electrical-powered security gates, it was found that the gates would close by merely energizing the system; thus, the guard starts gate closing and then goes about his business and does not observe another vehicle moving into path of closing gate.

d. A normal type of flow meter ruptured during testing in the K-1401 Development Section. This incident indicated that the installation had probably been bolted down in a strained position, since the test pressures were far below manufacturer's recommendations.

e. After deliberating the hazards of carbon tetrachloride, supervision of the K-306-7 section decided to use Freon as a substitute in the installation of packing in the still column.

f. The problem of the Southern Railway train crossing the K-1240-8 Parking Lot exit at quitting time was corrected by staggering the train crew shift so that the train wouldn't enter the plant until after quitting time.

g. With changes in the Barrier Plant operation, the ammonia tanks are to be discontinued; this will eliminate one of the potential toxic gas locations on the plant.

h.

i. A study of the effects of HF released to the atmosphere indicated that a large release would be difficult to control by a water spray system.

j. An HF tank car leaking about the dome was removed to an isolated siding and kept there until a representative of the manufacturer could arrive; repairs were completed with plant employees under the direction of the manufacturer's representative.

2. General

a. An exceptionally high film badge of 32 rep caused some concern, especially when the investigation did not turn up all the desired information.

b. The increase in minor injuries for the month in K-1100 Area was not in the same proportion as the personnel increase.

c. The crane repair program in the K-1100 Area is now being carried on by the special crew out of K-1401 rather than assigned Process Maintenance men. Generally, the special crew is better able to properly service such equipment.

d. The significant increase in uranium concentration at the K-27 drain outlet in Poplar Creek has prompted additional sampling to determine the specific cause of the build-up. It appears that most of this material is coming from K-1131.

(cont'd)

2 General

e. All plant areas where air contamination is a problem have now been surveyed to determine the extent of this problem. This is primarily those areas that are relatively cold and had not been thoroughly studied.

f. Preliminary work is being carried on in K-601 with the feeling that the motor cleaning job will be carried on here. The problems of the solvent used seem to be well known.

g. K-312-2 Building is now being used as a withdrawal station for ClF_3 and UF_6 being pumped from K-27. The temperatures used have been established to eliminate freeze-out troubles with ClF_3.

h. The new vacuum cleaner set up for emptying alumina traps has proven to be effective since no spillage over 100 counts per minute was found. Air contamination was below the P.A.L.

i. The old ferrule fitting machines of the Barrier Plant were modified at the point of operation to incorporate some of the accident prevention features found on the new ferrule fitting machines. The instances of finger injuries reduced when the new machines were installed.

j. The vacuum testing work just getting underway in the K-33 Plant appears to be well planned; no injuries of significance have been reported.

C. Emergency Planning

1. The regular scheduled plant emergency drills were held on the "A" and "D" Shifts. The "A" Shift Drill was designed to create Power House boiler trouble resulting in electrical power shortage that would affect normal plant operation. The "D" Shift Drill was a contaminated drink' water problem as a result of sabotage; operational difficulties occ' when it became necessary to valve off the drinking water system.

2. Additional studies were made of the surrounding plant areas ir determine if the secondary roads were usable for vehicle tra' of an evacuation emergency.

3. Audit surveys of the local emergency boxes indicate thr 65% of the boxes are kept up to date.

[illegible] Clothing

1. Approximately 300 pairs of vinyon-n coveralls have been received on the plant under the present contract.

2. Safety shoes again played an important role in saving an employee's foot when a 250-pound drum of material slid from the bed of a truck and fell on his foot.

3. In a study of failures in service of the Chemox Mask, no definite instances were found; there were some indications that lack of knowledge limited the use of this equipment and was interpreted to be a failure of the canister.

4. An additional study of the Scott Air-Pak was made to determine if other specific conditions such as comfort, ease in donning equipment, and versatility were equal to or better than the Chemox Mask. Ease in donning and getting into operation appear to be greatest asset of the Scott Air-Pak.

5. The oversized cover goggles were ordered for use on the plant but none have been received.

6. Since M.S.A. Company informed us that the Comfo Respirators being used on the plant are only made for Carbide use, other respirators have been gathered to determine if one or more other respirators will do as good or a better job.

[illegible] and Plants

1. The survey of the small plant slogan boards indicate that 2 should be added and one torn down.

2. Supervision of shops in K-1401, which have hand counters, have started an on-the-job training program to keep hand counters in proper order.

3. The 2 films available for plant safety meetings were "Motor Mania" and "Artificial Respiration".

4. The 1954 calendars were distributed according to last year's list; a few modifications were made to agree with present plant organization.

5. A tentative index of the Safe Practice procedures was made up reflecting some of the additions and deletions expected during the coming year.

S. L. Sullins
Safety and Health Physics

SLS:msp

PLANT ACCIDENT EXPERIENCE

November, 1953

Whereas the minor injury frequency increased sharply from a below-normal value in the preceding periods to a point approximately 10% above the plant average to date, no significant change in plant injury potentials are indicated; a single major injury involving amputated fingers occurred and only one over-P.A.L. exposure to penetrating radiation was noted.

The general property damage accidents were not only below the plant experience for such incidents but were also relatively minor in nature. The 2 motor vehicle accidents resulted in $57 damage, and the 2 minor property damages caused $49 damage. No fires were reported.

Both contamination and radiation indices for the plant indicated a slight upward trend. The methods of determining other plant environmental conditions did not indicate any significant changes and no material releases were reported.

HFH:SLS:bjn

12-3-53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

DATE: December 2, 1953

CC: Mr. W. L. Richardson
File

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for November 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	1	31	23
No. of Non-Tab Major Injuries	7	4	34	26
No. of Sub-Major Injuries	2	0	17	26
No. of Non-Tab Sub-Major Injuries	0	1	3	0
No. of Significant Minor Injuries	0	0	6	5
No. of Minor Injuries	350	291	3,886	4,017

Comparative Frequency and Severity Rates:

	BASE PERIOD 1948 High	1952 Low	1952 Cum.	PREVIOUS SIX MONTHS May High	May Low	October Cum.	Last Month Actual	Current Month (Est.)	Year To Date (Est.)
Frequency	12.39	0.00	2.87	3.76	0.90	2.82	0.90	1.04	2.66
Severity	6.78	0.00	0.38	0.05	0.004	0.07	0.01	0.19	0.10
Minor Injury Frequency (Estimated)				360.	262.	313.	262.	362.	332.

Last Major Injury Occurred November 6, 1953

Man hours and days accumulated since Last Major Injury 789,868 Hours 24 Days.

Majors and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Amputation; distal ends, 2nd and 3rd digits, right hand	11/6/53	-	188*
	Deep laceration; web between 1st and 2nd digits, right hand	11/4/53	-	-
	Fracture; 2nd, 4th, and 5th digits, left hand	11/2/53	-	-

* Percent disability estimated.

Motor Vehicle Accident	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	2	4	30	46
Estimated Damage	$ 57	$ 233	$ 2,456	$ 2,873
Estimated Frequency Rate	0.73	1.42	0.99	1.66

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	0	0	4	16
Fire Loss (Estimated)	$ 0	$ 0	$ 570	$ 1,772
Fire Loss Rate (Estimated)	0.00	0.00	0.01	0.04

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	2	2	24	9
Estimated Damage	$ 48	$ 264	$53,862	$11,161

CURRENT ACCIDENTS

Date	Location	Type	Description
11-2-53	Northwest Corner of K-31	Motor Vehicle Accident	The driver of a bus, having stopped to discharge passengers, backed up and struck a pickup truck, damaging the front end.
11-3-53	K-306-7 Truck Alley	Motor Vehicle Accident	The driver of a pickup truck started the motor while it was in reverse gear; the truck started backwards, damaging the door which had been left open.
11-16-53	K-303-3	Property Damage Incident	The boom of a Yale and Towne crane struck the door of the withdrawal alley, damaging it, as the operator was turning the crane onto "K" Avenue.
11-23-53	North Railroad Entrance to K-25 Area; Gate #89	Property Damage Incident	A security gate was bent when it was blown from the grasp of the guard who was holding it open and into the side of a train which was passing through.

Remarks

No serious indications of plant changes were noted from the contamination levels, the number and type of injuries, or the property damage type of accidents; however, the minor injury frequency rate increased approximately 10% above the yearly average. The number of non-tabulatable major injuries which were primarily back conditions totaled 7. Both the plant contamination and radiation indices increased. Other changes in the plant conditions are noted below:

1. No fires were reported during the month.
2. The 4 property damage type of accidents involved 2 motor vehicle accidents and 2 minor property damages, totaling $106 damage.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Normal work routine throughout the plant did not require special emphasis in any of the areas.

1. Change in Plant Conditions

a. X No Change ____ Improved ____ Retrogress

Remarks

Although some changes were noted in plant conditions due to the increase in both contamination and penetrating radiation levels, the changes were not considered to be significant.

2. Significant Types of Items Resulting From Inspections

a. Although handling and storing of contaminated equipment produced some air-borne activity in K-1410 Building, it is apparent that the use of respiratory protection is good.

b. An exhaust system is being installed in the K-832 Pump House to lessen the possibility of chlorine gas pocketing in the storage room in case of a leak.

c. Several exhaust hoods, located in the Research Analysis Section, have been replaced because of their restricted use due to corrosion.

d. Film badge usage in the K-1131 Process Laboratory and K-1301 Area dropped noticeably, and a spot check of the areas indicated that none of the employees in the K-1300 Area was and only one in the K-1131 Process Laboratory was wearing a badge.

e. Safety glasses are being worn better than film badges in the Process Laboratory. However, only 50% of the personnel were wearing safety glasses during an inspection; supervision indicated that safety glasses are only worn when hazardous analyses are being processed.

f. The quarterly inspection report of the K-1401 Shop Area itemized many insignificant items that should have been corrected prior to the inspection by supervision of the various areas involved; seemingly, supervisors expect such an inspection report before they take action to correct such conditions.

g. In order to adequately man the Barrier Plant, each shift has been increased from 80 to 120 employees. Extra foremen were set up to furnish the supervision necessary to carry on the division's program.

h. The chlorine trifluoride storage has been moved inside the plant area to the K-1302 Building. Supervision responsible for this activity is modifying the building to afford protection to both material and employees working in the building.

i. Some modifications of the smelting facilities in K-1037-C are expected. The installation of facilities to reduce air-borne contaminants, exhausted from the furnace, will be part of the addition.

j. Modifications of the ferrule fitters in the K-1037 Area, to reduce the number of accidents from this equipment, seem to have been successful. Only one such accident occurred during the month.

k. Supervision of K-631 is again contemplating using a compressed air-powered locomotive to move the cars along the track in this area. The major concern has been to reduce the number of injuries that have come about by manually handling such equipment.

[illegible] Unsafe Acts

a. An unsafe act involving the question of good workmanship on the part of a craftman was responsible for the one lost time accident for the month.

b. The injury to a timekeeper some 3 months back has now been changed to a permanent partial disability because of a 10% disability in the finger involved. This unsafe act was probably the most uncalled for of any that has occurred lately on the plant. It involved his climbing upon a desk to reach an overhead light and getting his hand into a wall mounted fan.

c. One of the major items noted from spot inspections of the K-1401 Building has been the number of deformed 2-pole male plugs. Within one area, 7 were found.

d. An inspection of tool room equipment shows that defective tools are not stored in bins but are tossed into a special container to be sent to the repair shop. Very few defective tools were found.

e. Engineers spot checks in various areas indicate that neither employees nor supervisors concern themselves sufficiently with the condition of hand tools.

f. Spot checks of the Axial Flow and A. C. Compressor Shop indicate that employees are smoking within the contaminated areas.

g. Two motor vehicle accidents at the Laboratory portal were found to be the result of the location of guard employees with reference to the gate operating switches. The switch should be a maintaining contact type instead of the momentary contact type presently in use.

[illegible] Plant Problems

[illegible] Special Interest

a. The shift change bus loading problem has apparently settled down as far as complaints are concerned; however, new buses are being considered to further improve the general transportation problem.

b. During the last series of HF experiments to determine the value of water fog or spray upon the gas, the use of a solution of $NaH\ CO_3$ seems to offer better results than water alone. The final report of this effort will be completed during the month of December.

c. Sprinkler heads over the area of K-1004-D, where alkali metal is being processed, have been blocked to prevent accidental discharge of water.

(cont'd)

3. Items Requiring Special Attention (Cont'd)

d. With the installation of a mezzanine floor in K-1037, the use of the north bay crane becomes both hazardous and complicated. Barricades and guards are being designed to eliminate personnel hazards.

e. Final plans have been completed for removing and transferring the Radon Plant to X-10. Incorporated in this plan has been a procedure for handling such a penetrating radiation source in order to keep personnel exposure to a minimum.

f. Although the transfer of fluorine from K-25 to Y-12 does not start until April of 1954, procedures for handling this work at K-25 have been completed for approval.

4. General

a. Supervision of the K-1131 Electrical Shop has taken steps to look into the health physics habits of the employees assigned to this area in order to assure better control of this problem.

b. Increased contamination near the new fluorinator in K-1413 resulted from powder leakage during hopper loading. In order to reduce this contamination, intermediate valving has been installed to block off the powder during the loading operation.

(cont'd)

d. Some quarterly housekeeping inspections were held by Maintenance supervision during the month, and most of the efforts were directed toward listing obvious unsafe conditions. Such conditions should have been already observed by the local supervisors, leaving the committee free to observe some of the more important facts of the work.

e. Spot checks of hand counters and records sheets indicate that these instruments are out of operation more often than suspected.

f. The last of the plant areas, primarily shops, are being surveyed and studied to determine the normal air activity for the area.

g. Sampling of the ash from the K-1413 fluorinator indicates that a penetrating radiation problem may result from this operation. The ash, which has an intensity of 150 mr/hr, is finally stored in a large steel drum.

h. One of the major results of the Chemical Division Quarterly Letter seems to be the establishment of posted procedures for carrying out routine operations in the K-1037 Area.

i. Film badge contamination studies indicate that some employee's badges have been found contaminated for as many as 7 consecutive weeks.

j. All departments of the Manufacturing Office Division held safety meetings during the past month at the insistence of the divisional superintendent.

k. The Maxon strike resulted in a pile-up of material in the hands of Shipping and Receiving; however, storage and handling was such that the results did not indicate an abnormal number of unsafe acts or unsafe conditions within their facilities. (cont'd)

3 Emergency Planning

1. Two regular plant emergency drills were held during the month with the "B" and "C" shifts being involved. The "B" shift drill involved a process gas leak when a valve was knocked from the storage cylinder. The "C" shift drill was a duplication of the recent transformer fire. Both drills were applicable to plant emergencies in the past.

2. The snow plan, which is made up each winter, was prepared again to keep plant routes open and to help emergency equipment to reach those spots which are considered to be of primary importance for the plant's operation.

General (cont'd)

l. An abnormal number of back conditions and subsequent allegations of an injury was noted during the month; however, the 4 incidents were non-tabulatable.

m. The fluorine recovery system, which has been installed in K-1413 and used in connection with the UF_4 and UF_6 conversion process, is not considered to be a problem at this time.

n. Experimental methods of cleaning motors "in place" with carbon tetrachloride are still being carried on in the Production Division; the third floor of K-601 Building has been set up for this work.

o. Renewal of driver permits for those employees whose permits become out of date December 31, 1953 is in progress; approximately 50% of the renewal has been processed.

D. Protective Equipment and Clothing

1. Tests of the Scott Air-Pak indicate that, although it has certain minor advantages over the present apparatus in use on the plant, some of the other features primarily weight, size, and additional equipment would not justify their use on the plant at the present time.

2. Vinyon-n coveralls have been received at X-10, and it is expected that K-25 shipments will begin about the middle of December.

3. The value of using spats to prevent welder's sparks from falling into the tops of shoes was again reviewed. Both the 6" spat and the 14" leggings, which are supplied for this purpose, are stocked on the plant in a limited supply. These protective spats, which were stocked in rather large quantities at one time, were surplussed because of limited use.

4. The values of safety shoes were indicated when an employee had a large valve, weight approximately 1600 pounds, to turn over on his foot. He suffered a broken toe but no other complications.

5. Normal use of protective equipment around the plant, primarily masks and respirators, seems to be abused; this equipment has been found tossed in corners, behind equipment, lying along the side of the road, and etc.

6. Switches for the constant beta monitor have been received and, when installed, should make the monitor ready for service sometime around the first of the year.

7. One continuous drain line sampler has been installed in the K-27 Area drain but is not functioning as expected. Engineering has not completed the work but expect to sometime the first of the year.

8. The automatic starting device for the Chemox Mask has been received but has not been evaluated for its worth in connection with emergency use on the plant.

E. Promotion and Education

1. A study of plant injuries for use in promotional work revealed that 6% of the employees had 37% of the injuries, whereas the total injuries were experienced by only 1/3 of the plant employees.

2. Electrical Maintenance, in their employee meetings, have been emphasizing the use of protective equipment and the type work where such equipment is necessary.

3. During the month of November, "Stay Alert - Stay Alive", a film on general plant accident prevention, was made available for use on the plant.

(cont'd)

Promotion and Education (cont'd)

4. A study of the small plant slogan boards located about the plant indicates that some repair work is needed.

5. No particular theme was pushed in the monthly promotional material.

S. L. Sullins
Health Physics and Safety

SLS:mmp

PLANT ACCIDENT EXPERIENCE

October, 1953

The major injury experience was again below the plant average with only one such injury occurring when an employee suffered a chemical burn and subsequent infection of the ear canal. The minor injury experience, although slightly higher than that of September, remained in line with normal plant expectancy. Three over-P.A.L. exposures to penetrating radiation and 5 over-P.A.L. hand contamination conditions were reported; none of these were considered to indicate significant problems. The 2 property damage type of accidents amounted to $264 damage, and the 2 motor vehicle accidents resulted in $190 damage. No fires or material releases were reported for the month.

The plant levels of contamination were slightly reduced, but the levels of penetrating radiation were somewhat higher. There were no other significant changes in the plant conditions with respect to radioactive materials.

SLS:msp

11/4/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: November 3, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for October, 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	2[a]	30	22
No. of Non-Tab Major Injuries	3	0	26	25
No. of Sub-Major Injuries	0	1	15	26
No. of Non-Tab Sub-Major Injuries	1	0	3	0
No. of Significant Minor Injuries	0	0	6	4
No. of Minor Injuries	375	326	3,644	3,656

Comparative Frequency and Severity Rates:

	BASE PERIOD 1948 - 1952			PREVIOUS SIX MONTHS April - September			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	3.76	1.87	3.13	1.91	0.90	2.71
Severity	6.78	0.00	0.38	0.05	0.004	0.10	0.004	0.01	0.09
Minor Injury Frequency (Estimated)				360.	287.	327.	311.	338.	339.

Last Major Injury Occurred October 9, 1953 — Man hours and days accumulated since Last Major Injury 752,250 Hours, 22 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Ear Infection	10/9/53	10/13/53	7

classified as sub-major last month, was reclassified to major injury during October.

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	2	5	26	40
Estimated Damage	$190	$413	$2,356	$2,553
Estimated Frequency Rate	0.73	1.82	0.95	1.59

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	0	2	4	14
Fire Loss (Estimated)	$ 0	$496	$570	$1,772
Fire Loss Rate (Estimated)	0.00	0.12	0.01	0.04

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	2	2	22	9
Estimated Damage	$264	$425	$53,805	$11,160

CURRENT ACCIDENTS

Date	Location	Type	Description
10-16-53	Telephone Right-of-way, northeast of Y-12 Plant - 1½ miles.	Property Damage	In an effort to pull the front wheels of a Farmall "Cub" Tractor from a deep ditch, a tow line from a truck was fastened to the tractor frame; when pull was exerted, the frame broke.
10-19-53	C-Bay, K-1401	Property Damage	As a crane operator was positioning his sling to pick up a compressor stator, the sling struck another half-stator, which was standing on a sloping surface, and knocked it to the floor, causing it to break.
10-27-53	7th Street and Avenue "P"	Motor Vehicle Accident	The driver of a pick-up truck turned too sharply from "P" Avenue onto 7th Street and struck a metal sign post with the left front fender, resulting in damage to the left front fender and front axle.
10-30-53	Boulevard Road	Motor Vehicle Accident	The driver of a carryall alleges that as he applied the brakes of his vehicle, the left front wheel grabbed, causing the right side to swing over into a security fence; extensive damage to the right side resulted.

Remarks

Plant contamination indices, which have been climbing regularly, dropped off following decontamination and painting efforts in some of the major areas. Major injuries continue low. Other changes which occurred during the month are listed below:

1. The contamination indices for the plant reduced for the month, but the radiation levels increased.

2. As last month, only one major injury occurred and is below the year's average.

3. Property damage type of accidents was low for the month with no fires or material releases reported.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

No special emphasis was devoted to any particular area although such areas as K-1131 Shops, K-1401 Shops, K-1231, and K-1410 came in for more than average inspection. Only one large maintenance and repair job, the K-31 to K-33 piping tie in was closely watched.

1. Change in Plant Conditions

a. _____ No Change ___X___ Improved _____ Retrogres

Remarks

The plant contamination and housekeeping conditions appear to be improved.

2. Significant Types of Items Resulting From Inspections

a. Several defective wire rope slings were found in use in the Special Shops at K-1401. Broken wires in the lay of the rope, due to stretching across sharp corners, were responsible for the condition found.

[illegible] Items Resulting from Inspections (Cont'd)

b. Results of a special study of the K-1131 Instrument Maintenance Shop indicated that the above-P.A.L. airborne contamination found was coming from the ventilation system.

c. Permanent pipe handrails are being installed at the K-31 hatchway openings to do away with the chains which were used.

d. Since the work load in Cascade Services has been quite heavy, the areas who rely upon them for decontamination have not had adequate decontamination services.

e. A motor driven fan in K-1037 Area threw a blade which penetrated the surrounding sheet metal duct work. Although no injuries resulted, the value of guarding was evident in an indirect sort of way.

f.

g. Area surveys indicated that smoking in contaminated areas was more prevalent during the month.

h. Although not as obvious as in the past, the transportation of compressed gas cylinders is a continuing problem.

i.

j. Safety showers in K-1401 Basement have been repaired and put back into service as a result of the housekeeping inspection.

k. K-1131 maintenance work is to be carried on by one man with any additional help coming from a maintenance pool. The old problem of working one man in a hazardous area has arisen.

l. Engineering turned Maxon into K-413 on the basis that surveys show a below-P.A.L. condition.

m.

n. K-1085 welding training shop was found to be quite cluttered; the building is being used irregularly of late.

o. The beta activity of Clinch River has dropped until it is only slightly above background.

p. The pick up point at K-1409 for nitrogen cylinders had to be revamped to allow pick up and delivery safer access to the doorway.

q. Several ounces of mercury were found on the floor of the leak testing area of K-1401. The material apparently came from a broken gauge on testing equipment.

r. The new product purification plant at K-306-7 is 10% complete. No important problems are expected from this work.

3. Significant Types of Unsafe Acts

a. On several occasions, crane operators have been noted relying on limit switches to halt hoisting mechanism. This sort of operation indicates that crane training should be continued.

b. A survey of plant railroad crossings indicates that motor vehicle operators cross tracks while the warning bell is ringing and the lights are flashing; this occurred primarily while car switching was in progress.

c. Job studies of maintenance work in K-1131 revealed that several operators and maintenance employees failed to wear film badges. Two supervisors were also included in this.

d. Spot checks of a few areas where portable equipment is used indicated that some repairs are going on in the field. However, only 4 defective tools pointed out improper repairs.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. The use of kerosene oil burners to drive off solidified process material did not present a carbon monoxide problem in K-31.

b. With the transfer of chlorine trifluoride storage from the T-51 warehouse to K-1302, supervision is following the precautions as outlined in SP-11 as nearly as possible.

1. Items Requiring Special Attention (Cont'd)

c. Reclamation of the 250 pounds of contaminated MFL oil is at a standstill awaiting a procedure for safe handling of the material during processing.

d. Shielding of the Radium-Beryllium source in the Counting Laboratory has not been completed. The room has been adequately marked and a time limit for personnel exposure has been established.

e. Two large machine bolts, used to hold compressors together, detonated while dismantling was in progress. As an impact wrench made contact, the precipitate on the threads seemed to explode. Samples of both oil and bolts were obtained and are being analyzed.

f. Preliminary planning has taken place for dismantling the Radon Plant and transferring it to X-10. Supervision appears to be well aware of the problem ahead of them.

g. The problem of knocking down HF vapors with water fog indicates that tremendous quantities of water are necessary before effective coverage is obtained.

h. The cubicles built in K-601 to handle possible explosions similar to the one which occurred in K-413 were made of 22 gauge steel and would not begin to contain such an explosion.

2. General

a. As Electrical Maintenance makes plans to take over a shop area in K-413, they want to make their equipment out of material that is easy to decontaminate and thus improve the contamination control.

b. Work involving alkali metals continues to cause trouble. The last such incident occurred when water was used to flush a contaminated pipe and an explosion resulted.

c. The cost of poor crane handling was revealed when an operator, dragging a cable sling from a crane hook, overturned a large piece of equipment, breaking it.

(cont'd)

2. General (cont'd)

d. While dismantling a compressor that had some 800 pounds of material in it, long-term air samples were taken during the work and indicated that some 62 c/m were present. The employees on the job wore respirstory protection.

e. A decision was made between Southern Railway supervision and Plant Security supervision concerning the position of guards in signalling trains through plant security gates.

f. Guy wire markers close to parking lots and turning areas have been listed for striping to prevent damage to motor vehicles.

g. The job engineers who are responsible for Maxon work on the plant are apparently not convinced that they should check for contamination themselves and continue to call upon the Safety and Health Physics Group.

h. The Engineering Division, which has had several serious explosions recently, has prepared procedures to deal with similar problems in the future.

i. A survey of the bus loading problem revealed only 2 instances when the buses were hazardously loaded.

j. A few K-25 employees have started to work in the K-33 Area on a part-time basis; these employees are primarily a planning group for vacuum testing.

C. Emergency Planning

1. Two emergency drills were carried out by the "D" and "A" Shifts. The drills incorporated some operational problems but usually stemmed from some simple emergency. The drill held by the "D" Shift more nearly comes up to what the plant is seeking.

2. A Safety and Protection Division emergency procedure was prepared during the month to tie in with the plant plan.

3. K-25 access roads were studied to determine if they would handle the vehicle traffic during a mass evacuation of employees.

4. Some improvement has been noted in the emergency boxes' condition during the past month; some equipment has been changed out and that missing replaced.

D. Protective Equipment and Clothing

1. As protection for the employees wearing prescription glasses and working near welders, cover goggles with an oversized cup are being considered.

2. A sample solvent degreaser called "Brulin's Cleaner" was received on the plant for possible use in the place of carbon tetrachloride. Tests are being made to determine if it will justify using on the plant.

3. A supply of new electrician's gloves did not meet the test placed on them by the Electrical Testing Group and were sent back to the vendor. Replacements were made but testing specifications were requested by the vendor to determine if they are different from theirs..

4. Two types of Scott Air-Paks were ordered and received for testing. No decision has been made as to their worth.

5. Six samples of standard coveralls ordered for inspection purposes were received.

6. The safety shoe program is being continued as an extension of last year's contract.

7. The installation for calibrating air samplers is only partially completed.

E. Promotion and Education

1. Standard Practice Procedures, in which safety and health physics is involved, are being brought up to date. These involve SPP Nos. 305, 358, 360, 354, and one on Use of Compressed Gas Cylinders.

2. After looking at the K-1037 injuries by job breakdown, supervision of the area was able to put their finger on the jobs where injuries regularly occur.

3. Information on the safe use of power trucks was prepared for the Stores Group who used the material in their employee meetings.

4. Three fire films were used on the plant during October to call attention to K-25 fire prevention efforts.

5. The contract for 1954 calendars was placed and the date suggested for delivery, December 15, 1953, was agreed to.

(cont'd)

Promotion and Education (cont'd)

6. Assistance was given the Community Chest Program to help K-25 Plant to reach its goal.

S. L. Sullins
Health Physics and Safety

SLS:msp

PLANT ACCIDENT EXPERIENCE

September 1953

The plant major injury experience continues below the plant average since only one such injury occurred, this incident involving an eye burn from an electric welding operation. Minor injuries remained below the plant average but relatively the same as for the past few months. Only one personnel exposure to penetrating radiation above the P.A.L. and one over-P.A.L. hand contamination were reported, and neither of these indicated a significant plant problem.

With 2 fires, 5 motor vehicle accidents, and 2 other incidents occurring, the plant's general property damage experience was markedly up for the month. Of the motor vehicle accidents, only one resulted in significant damage and was thus primarily responsible for the $413 total; in addition, the fires resulted in $496 damage and the other incidents caused a $425 loss.

A slight upward trend was noted in the plant levels of both surface contamination and penetrating radiation during the month, and one significant material release occurred. There were no other significant changes in plant conditions due to radioactive materials.

SLS:bjn
10/3/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

UNCLASSIFIED

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: October 2, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for September, 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	2	28	22
No. of Non-Tab Major Injuries	0	1	22	24
No. of Sub-Major Injuries	2	0	16	21
No. of Non-Tab Sub-Major Injuries	0	0	2	0
No. of Significant Minor Injuries	0	0	6	2
No. of Minor Injuries	300	297	3,219	3,199

Comparative Frequency and Severity Rates

	BASE PERIOD 1948 - 1952			PREVIOUS SIX MONTHS March - August			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	4.70	1.94	3.40	1.94	0.96	2.92
Severity	6.78	0.00	0.38	0.10	0.007	0.13	0.007	0.004	0.10
Minor Injury Frequency (Estimated)				379.	287.	339.	287.	286.	335.

Last Major Injury Occurred 9-3-53 — Man hours and days

Accumulated since last Major Injury 674,422 Hours 27 Days.

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Flash burns; both eyes	9-3-53	9-4-53	4
	Low lumbar strain	9-7-53	-	-
	1st degree burns; face, neck, and left arm - 2nd degree burns; right forearm	9-28-53	--	--

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	5	3	24	36
Estimated Damage	$413	$55	$2,166	$2,186
Estimated Frequency Rate	1.82	0.99	0.97	1.62

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	2	0	4	7
Fire Loss (Estimated)	$496	$0	$570	$1,728
Fire Loss Rate (Estimated)	0.12	0.00	0.02	0.05

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	2	1	20	8
Estimated Damage	$425	$13	$53,538	$11,111

CURRENT ACCIDENTS

Date	Location	Type	Description
Unknown	Unknown	Motor Vehicle Accident	Unknown
9-11-53	7th Street and Avenue "K"	Motor Vehicle Accident	The driver of a pick-up truck, backing from the one-way portion of Avenue "K" at K-1029 into the 7th Street Intersection, struck the right rear section of an oncoming pick-up truck traveling east on 7th Street.
9-11-53	16th Street, opposite K-1413 Bldg.	Motor Vehicle Accident	The driver of a vehicle struck a utility pole guy wire as he attempted to turn the vehicle around; the left rear fender was damaged.
9-16-53	Avenue "K" at K-301-1 Withdrawal Alley	Motor Vehicle Accident	The driver of a pick-up truck backed out of K-301-1 Withdrawal Alley into the side of another pick-up truck moving north on Avenue "K". Damage was confined to the latter truck.
9-28-53	K-31	Motor Vehicle Accident	The driver, using a pick-up truck to pull a tool cart in the basement of K-31, struck a concrete pillar while momentarily distracted; the left front fender was damaged.

Date	Location	Type	Description
9-3-53			
9-23-53	K-1024 Building	Fire	A gasoline supply hose to a tar pot blew off under pressure; this allowed gasoline to escape, damaging surrounding equipment and burning employee.
9-6-53	Security Gate #100, West of Main Portal	Property Damage	Security Gate #100 was bent when a switching engine, which had stopped too close to the gate for it to be fully opened, began moving while the end of the gate was still resting against the engine.
9-9-53	K-1401 "H" Area Basement	Material Release	A FC weigh bottle being evacuated by heat lamps exploded after several hours on stream.

Remarks

Although the property type of accident experience during the month increased, no outstanding problems were noted. The injury experience continued at a low level; however, contamination indices indicated an upward swing. Some of the more important conditions are listed below:

1. The major injuries continue to remain below plant average with only one case being reported.

2. For some undetermined reason, the minor injury frequency continues to range around 300 for the month. It is felt that possibly some factor not recognized is responsible for this continuing low figure.

3. The 5 motor vehicle accidents stood out among the 9 property damage accidents that occurred during the month.

4. The plant levels of surface contamination and penetrating radiation indicated an upward trend for the month also.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:
Although attention was devoted routinely to the 2 major construction areas, other areas in which the work was closely followed included the boiler overhaul work, the decontamination of K-413, pipe line installation between K-33 and K-31, and the miscellaneous internal revisions in K-1401.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogre

Remarks
The injury type of accident was again noticeably reduced. Other factors that indicate the plant conditions were changed very little.

2. Significant Types of Items Resulting From Inspections

a. The K-1037 addition is now in use; however, some of the protection planned has not been completed. A makeshift arrangement utilizing CO_2 is being temporarily used in the system in place of the nitrogen. Completion of the system is expected in October.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. Although planning for employee protection while working on the K-31 and K-33 pipe line tie-in continues to improve, a lost time accident was experienced on this job during the month.

c. The bus schedule and loading appear to be adequate; on a few occasions, some overloading has been noted.

d. An inspection and survey of the K-1131 ventilation system indicated that the intake side of the filters were highly contaminated; in addition, considerable wipe material was found lodged in the duct work.

e. The Salvage Yard is very well kept and orderly with the material being stacked according to its use.

f. A large transformer which has caused concern in the K-1037-C Building has been enclosed with an expanded metal barrier to safeguard both the equipment and the employees.

g. Visitor protective equipment at K-1131 is now maintained by the Process Maintenance Group assigned to this building.

h. General housekeeping conditions in the Laboratory Areas have improved during this month.

i. In place of decontamination, Building K-101 has been painted to reduce the present contamination levels.

j. Decontamination of the K-1401 Basement Area following a cylinder explosion removed most of the visible material; a few isolated locations atop equipment were found exceeding the plant P.A.L.

k. The general picture of the Power House overhaul work indicates that it is being adequately controlled; only a few unsafe conditions were noted on the inspections.

l. The Parking Lot conditions continue about the same with apparently adequate parking spaces available; some employees continue to park where they please and thus complicate the smooth functioning of the exits.

m. A platform and scaffold were found being used in the K-1401 Building with sub-standard handrails. This equipment is to be modified to meet the A.S.A. Specifications by raising the handrails from 22" to 42".

n. Outside of the areas controlled by the Coded Chemicals Group, Process Areas have had a noticeable decrease in contamination.

o. Additional removal of improvised structures in "G" Bay of K-1401 Building will provide more storage space for plant equipment.

p. The Design and Development Group has organized an inspection committee to furnish supervision with an evaluation of the area conditions.

3. Significant Types of Unsafe Acts

a. Employees transferring HF acid from a tank car to a storage tank were not concerned when acid sprayed from several leaks in the piping system and continued to work near the leaks.

b. Several electric arc flash burns occurred during the month as a result of lack of foresight and failure to use adequate eye protection.

c. Employees of 2 groups within the Maintenance Division were observed handling both rough and sharp edged materials without using protective gloves.

d. An employee of another maintenance group was found trying to lift a box of material using improper lifting techniques; his feet were not positioned properly to offer proper balance and permit load lifting with his leg muscles.

e. Vehicles continue to be operated in the K-1401 Building in excess of the 5-M.P.H. speed limit.

f. Some crane operators apparently do not feel that the warning bell is necessary and have been observed carrying loads across personnel.

g. Since the walls of the quarry disposal area have not been scaled in several years, trucks that turn around or park close to the foot of the quarry walls stand a chance of being struck by a falling boulder.

h. Instrument mechanics working in the shops were found using hand tools that were in need of repair.

i. An employee relamping an area in the process building was using a 3-leg stool as a means of reaching the light bulbs.

j. Employees using straight ladders continue to overlook the value of tying off the top of ladder to preclude it falling.

k. A laboratory employee was observed handling L-28 without either hand or eye protection.

l. A lack of shielding was noted on 2 maintenance jobs involving electric welding. The helpers were wearing protective equipment.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Seemingly, the only major problem in the Power House overhaul work has been the coordination of safety items from shift to shift since both unsafe conditions and unsafe acts were often corrected on one shift but were found to be prevalent on subsequent shifts.

b. Since the foremen have been chosen for the vacuum testing work at K-33, some discussion has taken place on the safety aspects of this work; in this connection, they have begun to prepare some of their operational procedures which include the necessary safety precautions for doing the work.

1. Items Requiring Special Attention (Cont'd)

c. A decision has not been made in determining why the minor injury frequency for the plant has dropped to its present level since normally, during boiler overhaul and in the late summer and fall months, the frequency rises.

d. Compressed gas cylinders continue to be hauled in trucks without being properly chocked. Spot checks of the situation reveal that this not only pertains to the Stores Group but practically every other group that picks up compressed gas cylinders from the Stores buildings.

e. As a follow-up of the old injury that occurred in the K-1101 Compressor Building, the Utility Department has installed a device on each air compressor that will prevent the piston from closing during maintenance work.

f. Although transfer of the Radon Plant to X-10 is only in the talking stage, some thought is being given to the problem of dismantling the equipment within this area and how to adequately protect the employees involved.

g. The K-1401 Building supervisor has completed a plan for sectionalizing the "J" Bay crane installation to enable maintenance work to be carried out on one crane while the others are still in operation. Engineering plans will be presented before this work takes place.

2. General

a. Chlorine cylinders used at K-832 Pump House were finally located inside the building without floor level ventilation as proposed. Although the Engineering Division felt that there was adequate ventilation within the room, the Utilities Department supervisor is not satisfied with the present installation.

b. The small shed type storage buildings, Nos. K-1219 and K-1238, are being utilized by maintenance for overflow work. In addition to the sandblasting of contaminated coolers, box making and electric arc welding are in progress. It was necessary that some of the surrounding conditions be changed to allow for safer operations.

c. On 2 occasions during the past month, both large and small cylinders were thrown from flat bed trucks because they were improperly secured. In one instance, departmental procedures were completely overlooked and, in the other, it was necessary for them to establish a method of securing such loads.

(cont'd)

2. General (Cont'd)

d. Although considerable response has been experienced from the divisional letters, Maintenance Division supervision has not been disturbed by the facts in their letter.

e. Although Process supervision has given some consideration to locating and storing cylinders throughout their areas, only slight improvement has been noted in this program.

f. On several occasions, a request from Process Maintenance supervision to furnish film badges for men going into a film badge area has resulted in some of these men having 2 badges recorded for one week. This usually occurs when a supervisor hurriedly requests a film badge for an employee before determining if the man had a badge at his regular work location.

g. The sliding doors installed in K-31 did not create as much of a problem as first expected. The door is easily opened; however, the wind velocity through the door will possibly cause some eye injuries in the future.

h. Although copies of all monitoring surveys are not received by the Safety and Radiation Hazards Department, the K-1413 Group and most of the Process Areas are now monitoring their buildings routinely. Some of the Process Areas do send copies of their surveys to this department.

i. The new HF absorber installed in K-1303 is reinforced to withstand the pressure which caused damage to its predecessor. Following charging, some additional work will be necessary to properly fit it for the job.

j. Routine surveys are not being carried on in the K-1300 Area since supervision of this area does not feel that their problem warrants this sort of effort. (cont'd)

C. Emergency Planning

1. Since the routine emergency drills were missing during the month of August, 4 drills were held during the month of September. These drills involved all the shifts and were slanted toward including operational problems. Two of these drills were especially applicable to this effort; the other 2 were more or less emergency problems arising from some abnormal condition within the areas.

2. The Laboratory Division brought all their emergency boxes up to date and now have them on a routine month-by-month inspection.

3. The K-25 emergency file at A.E.C. Patrol Headquarters was reinventoried and the documents, plans, and prints brought up to date. Also, the file cabinet combination was changed.

General (cont'd)

k. The lost-time injury for the month had all the makings for a much more serious case had the quantities of gasoline which saturated his clothing been in excess.

l. Only routine health physics problems will be encountered in the new side purge that is being installed in K-311-1. The problem should not be extensive if good operating procedures are carried out.

m. The barrel-handling device in K-1231 is being replaced with an improved design that will prevent the load from being dropped.

D. Protective Equipment and Clothing

1. Several departments having a decontamination problem are planning similar equipment to the steam jet decontamination unit now on trial; supervision having such a problem feel that it has possibilities.

2. A study of the K-25 glove program did not reveal that the plant was far out of line in stocking the present variety of gloves; however, it did point up that the usage and corresponding expenditures for such protection were quite high.

3. The spectacle type glass with side shields and equipped with protective lenses were purchased for welder helper use. Workmen on the K-31 and K-33 tie-in were the first to receive these glasses.

4. A sample impermeable suit manufactured to the Quartermaster Corp specifications will be available on the plant sometime during the month of November. At this time, the suit will be evaluated for K-25 use, and, if found to be acceptable for plant conditions, a supply will be purchased to replenish the present stocks.

5. The proportional water sampler needed for composite sampling of plant drain lines is being built to incorporate the hydraulic ram principle and thus the continuous flow into the collecting vessel will offer a representative sample over the period of time desired.

E. Promotion and Education

1. Promotion and education activities involved slanting billboards, calendar inserts, and the back of the plant report to fire prevention for the month of October.

2. The Instrument Engineering Group, having closely missed a rather serious foot injury, put on a program through their safety meeting to advocate the use of safety shoes. A sizeable number of the group purchased shoes as a result of this.

3. Two films entitled, Speed and Reflexes, and Housekeeping for Men Only, were shown on the plant for those groups who desired to use a film in their meetings. Fire Prevention films will be available during the month of October.

4. Twenty-one proposed Safe Practice Bulletins on plant chemicals have been prepared for approval by those groups who have knowledge of the material discussed.

(cont'd)

Promotion and Education (cont'd)

5. A complete set of pictorial sketches showing the areas under survey have been distributed to departmental personnel concerned with this activity.

6. Several departments in addition to the Engineering Division have made noticeable achievements in man-hours worked without a lost-time injury. The Engineering Division's record of 2,000,000 man-hours worked without a lost-time injury is an important achievement.

7. Safety Meeting Minutes of the Manufacturing Office Division reflect some improvement over the past months, and it is understood that some supervisors are actually evaluating the meeting minutes according to some planned procedure.

S. L. Sullins
Health Physics and Safety

SLS:msp

PLANT ACCIDENT EXPERIENCE

August, 1953

The 2 major injuries for August, involving flash burns of the eyes and a broken finger, represent a noticeable reduction over last month. The minor injury experience continues essentially constant and is slightly below the yearly average. No significant plant problem is considered to be represented by the 2 personnel exposures to penetrating radiation above the P.A.L., and no over-P.A.L. hand contamination was reported.

There were no fires, no material releases, and only one insignificant property damage accident with a loss of $18. Three motor vehicle accidents occurred during the month.

The plant levels of surface contamination remained approximately the same, whereas the penetrating radiation levels decreased by about 10%. There were no other significant changes in plant conditions due to radioactive materials.

SLS:msp

9/2/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: ~~September 2~~, 195 3

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for ~~August~~, 195 3

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	5	27	20
No. of Non-Tab Major Injuries	1	4	21	21
No. of Sub-Major Injuries	0	2	14	21
No. of Non-Tab Sub-Major Injuries	0	0	2	0
No. of Significant Minor Injuries	0	1	5	2
No. of Minor Injuries	350	347	2,951	2,806

Comparative Frequency and Severity Rates:

	BASE PERIOD ~~1948~~ ~~1952~~ High	Low	Cum.	PREVIOUS SIX MONTHS February High	July Low	Cum.	Last Month Actual	Current Month (Est.)	Year To Date (Est.)
Frequency	12.39	0.00	2.87	3.76	1.97	2.64	3.74	1.94	3.16
Severity	6.78	0.00	0.38	0.10	0.003	0.04	0.03	0.007	0.11

Minor Injury Frequency (Estimated) 379. 325. 345. 332 Man hours 338 and days 344.

Last Major Injury Occurred ~~August~~ 25, 1953 Hours 6 Days.

accumulated since last Major Injury 210,713

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charge
	Flash burns; both eyes	8-11-53	8-12-53	1
	Fracture; 3rd digit, right hand	8-25-53	8-26-53	6 still off

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	3	1	20	30
Estimated Damage	$55	$0	$1,163	$1,767
Estimated Frequency Rate	0.99	0.17	0.90	1.48

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	0	0	2	5
Fire Loss (Estimated)	$0	$0	$74	$1,728
Fire Loss Rate (Estimated)	0.00	0.00	0.002	0.05

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	1	0	18	7
Estimated Damage	13	$0	$53,113	$1,441

CURRENT ACCIDENTS

Date	Location	Type	Description
8-6-53	K-1020 Parking Area	Motor Vehicle Accident	The emergency brake on a parked carryall suddenly released, allowing the vehicle to roll backward into a power pole.
8-19-53	7th Street	Motor Vehicle Accident	As the driver of a 3/4 ton pickup attempted to right a stack of material on the seat beside him, he allowed the right front fender to strike the white plank guard.
8-21-53	K-1024 Parking Area	Motor Vehicle Accident	As an employee was backing a truck from the parking area into 15th Street, he struck a post with the left front fender.
8-10-53	K-1300 Area	Property Damage	Two employees, attempting to pull a hyster from a mud hole with a pickup truck, tied onto the front bumper of the truck so that when pull was exerted, the bumper was torn off.

Remarks

Both the accident experience and the health physics reports indicate some improvement over the past months. The most notable of these are listed below:

1. The major injuries dropped below plant average for the first time in 3 months.
2. Although minor injuries have ranged below last year's average, the month of August was exceptionally low with 29 injuries reported.
3. Property damage accidents continue to be insignificant with the exception of motor vehicles which involved 3 minor incidents.
4. Plant levels of surface contamination showed approximately a 2% increase while the penetrating radiation levels decreased approximately 10%.
5. One abnormally high film badge reading occurred to an employee who has had 2 previous exposures. A logical explanation of the exposure has not been made.

II. Significant Highlights of Health Physics and Safety Functions

A Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Particular attention was devoted to the K-1037 addition which is nearly complete, the K-33 to K-31 tie line, the exit to K-1240-8 Parking Lot, the green scrap recovery work in K-1037, the boiler house overhaul work, and the new UF_4 conversion process in the Laboratory Division.

1. Change in Plant Conditions

a. _____ No Change ___X___ Improved _____ Retrogre.

Remarks

Although there were no noticeable changes in the housekeeping conditions, the contamination levels did not increase appreciably, and the penetrating radiation levels showed a downward trend. Also, the over-all number of accidents has reduced noticeably.

2. Significant Types of Items Resulting From Inspections

a. The addition to the K-1037 Building is approximately 98% complete and, when completed, will improve some of the congested conditions of the area. This should occur around September 15, 1953.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. The modification of the exit to the K-1240-8 Parking Lot has improved the conditions as described last month. Although some employees misuse the cut-off and use it as a thoroughfare, the hazard of pedestrians crossing in front of the traffic is not so serious.

c. The maintenance work involved in the K-31 to K-33 tie-in has been greatly improved over last month's inspection. The use of work platforms and safety equipment were among the improvements noticed.

d. Portable speed limit signs have been placed outside the K-27 Switch House by area supervision to control speeding by building doorway.

e. The cranes in the K-31 Area have now been modified to comply with the recommendations made following the crane failure of several months past. The removal of the cable drum housing, and the installation of a device designed to de-energize the crane when cable overriding occurs seems to be the most effective.

f. During the handling of feed cylinders in K-131, it was noted that the hysters were being overloaded, that the hyster boom was operated near the 440-volt power line, that the hyster had a frayed load cable, and that cylinders were stacked without chocking.

g. The Chemical Department of the Laboratory Division is now including such practices as barricading pumps and traps, properly cleaning chemical traps, and fluorinating the piping system prior to use with halogenated compounds.

h. No recognizable improvements were noted in the health physics activities of the K-1131 maintenance area.

i.

j. Congested housekeeping conditions in K-1037 continue to be quite noticeable even though resulting accidents have not occurred.

k. Beach-Russ pumps stored in K-1231 have resulted in contaminated oil spreading over the area.

l. K-101 Building conditions have improved considerably following decontamination efforts.

m. Instrument Maintenance supervision has built a small shed outside K-1024 for the storage of flammable liquids.

n. Traffic near the main portal on "F" Avenue and 7th Street is quite congested. Pedestrians do not use crosswalks.

(cont'd)

2. Significant Types of Items Resulting from Inspections (cont'd)

o. A new rubber tile floor has been installed in "J" Laboratory to offer a floor surface that will be easier cleaned.

p. The plant parking facilities appear to be adequate since the completion of one lot and the enlargement of another.

3. Significant Types of Unsafe Acts

a. Three air tool operators were observed chipping concrete without the benefit of either respirator or goggle protection.

b. A major injury occurred to a welder's helper who failed to use proper eye protection while working alongside a welding arc.

c. The use of safety glasses is sporadic in the posted areas of the K-1401 Shops.

d. A major injury occurred when an employee attempted to start a stalled electric motor by pulling on the belt drive. His third finger, right hand, was caught between the belt and the pulley.

e. A motor vehicle accident occurred when the supplies being carried in the seat of a pickup truck started to fall, and the employee attempted to grab them, jerking the steering wheel; this resulted in the truck striking a guard rail.

f. Maintenance employees opening a piping system in K-1413 containing contaminated material did not use respiratory protection.

g. Maintenance employees used scrap lumber from an outdoor scrap pile to build a scaffold. Some of the material was very poor.

h. The unsafe acts noted on the K-31 to K-33 tie line work last month have been corrected.

i. Two pickup trucks, one from the Engineering Section of K-1401 and the other from the Utilities Section of K-1401, were observed hauling 13 to 18 employees unsafely.

j. Material handlers in the sheet metal storage area persist in moving such material without using proper hand protection and continually experience cuts.

E. Work or Present Plant Problems

1. Items Requiring Special Attention

a. Cascade Services Groups are preparing to do the vacuum testing on the K-33 piping. Planning for proper performance of such work is now in progress.

b. A new process of UF_4 to UF_6 conversion with BrF_3 is to be studied in K-1004-J Laboratory. The proposed process will probably create some additional alpha contamination problems; however, other methods and equipment are being studied that will control this problem if found to be feasible.

(cont'd)

1. Items Requiring Special Attention (Cont'd)

c. Supervision whose facilities require the use of trucks has listed for the Garage Department the trucks which will go off the plant area. Complete lighting will not be installed on other vehicles since they will not be on State highways.

d. The study of personnel contamination reveals that, in many locations in maintenance, the amount of personnel contamination found is significantly below that expected.

2. General

a. The boiler overhaul program in the Power House is being carried on in a satisfactory manner. Some of the handling problems of last year have been improved for both efficiency and safety.

b. Low level exhaust inlets are planned for the K-802 Building since the chlorine station is being transferred inside the building and there is no physical barrier between this room and the pump watch station.

c. Production push and construction congestion in the Barrier Plant seemingly does not give supervision of this area the necessary time to correct general unsafe conditions of the area.

d. A process to separate coolant from PCB has been installed in the K-1413 Building. At the present time, no major problem exists.

(cont'd)

2. General (Cont'd)

e. Three Elliott pumps have been installed in K-631 to replace the present Beach-Russ pumps. Although no important safety problem exists, material releases similar to those experienced in the past can be expected, but the over-all contamination picture should be improved.

f. Automatic controls and alarms have been installed on air compressor auxiliaries in K-1101 to assure adequate cooling water flow through system. This was done following the major injury and equipment damage in July and should reduce the chance of equipment damage because of inadequate water supply.

g. The gate closing device on west side of Avenue "P" at vehicle portal has been moved to give additional clearance in traffic lane.

h. Contaminated film badges increased in some areas during the month resulting in supervisory action to get covers worn over the badge.

i. Improvements are planned for the smelting furnace in K-1037-C; most of these have to do with improving the material handling problem, thus reducing hazards.

j. In order to bleed the contents of faulty compressed gas cylinders, the K-1300 Area is to be rigged for this project. Final plans have not been made but the large stack and adjacent exhausting equipment are to be used.

k. An aqueous HF storage tank was inspected internally by the Equipment Test Group with only minor problems arising. The work went off very well.

3. Emergency Planning

1. No regularly scheduled emergency drills were held during the month due to a mix-up in the scheduled dates. Although a request has been made of operating groups to propose general operating problems for future use, very few have been submitted.

2. Since the discontinuance of the routine fire drills in 1951, no evacuation drills have been held in the Administrative Offices.

3. In case of emergency water trouble, the large 48" valves in the pump houses require 45 minutes for 6 men to manually close. Working platforms have been built around these valves so that impact tools can be used to speed up this work in case of an emergency.

Protective Equipment and Clothing

1. New specifications for coveralls were completed and sent to the Purchasing Department for future orders. The new specifications more nearly conform to a standard garment.

2. The experimental steam jet decontamination unit has done an excellent job on the trial runs and seems to have excellent possibilities.

3. With the relaxation of the controls over work gloves, any employee can withdraw them from Stores over his own signature. Such a situation will soon run the glove usage above normal.

4. After studying the value of a cover goggle for welder helper use versus spectacles with side shields for the same job, it was felt that the latter would be more extensively used than the goggles because of their comfort.

5. Specifications of the Army Chemical Corps impermeable suit were received and are being used as a basis for the K-25 specifications. From all indications, the Quartermaster Corps will be able to furnish the same impermeable suit for K-25 use in October.

6. The Scott Air-Pak Mask was investigated during the month and found to incorporate some qualities that are more desirable than the mask now in use. Sample outfits will be purchased for experimental purposes.

7. Since the K-25 shoe contract will be completed during September, and a 4-plant specification has been accepted, the coming year's contract should be rather automatic.

[illegible] and Publicity

1. Calendars are ready to be purchased as soon as colors are decided.

2. The routine promotional activities of the department carried no special program other than to develop some phase of the safety and health physics program.

3. Five fire prevention films have been ordered to have on hand during fire prevention week. Their titles are as follows: Friend or Foe, Octopus in the House, Preventing Fires Through Electrical Safety, Fire in Minature, and A Way with Fires.

4. Employee safety meetings increased during the month. The most noticeable were those in the Laboratory Division and Engineering Division.

5. The use of eye protection during welding operations was highlighted in the Maintenance Utilities Department safety meetings during the month. This came about as a result of flash burns to several employees during this period.

(cont'd)

E. Promotion and Education (cont'd)

6. The films "Traffic With The Devil" and "Safe As You Make It" were used on the plant during the month of August.

7. The Standard Reference Information on radiation instruments has been completed and sent to supervision in the field.

8. Drawings of the monthly survey areas have been completed and are in printing for reproduction.

9. Laboratory supervision invited their safety and health physics representative to their staff meeting to discuss some of the problems that were outlined in the quarterly letter.

S. L. Sullins
Health Physics and Safety

SLS:msp

PLANT ACCIDENT EXPERIENCE

July, 1953

Although the plant major injury experience remains above average as a result of 4 major injuries involving a bruised foot, a knee sprain, electric arc burns, and a fractured hand, the minor injury frequency rate continues approximately unchanged. There were no over-P.A.L. hand contamination exposures and only 2 personnel exposures to penetrating radiation above P.A.L. None of these instances were considered to indicate a definite plant trend or problem.

No property damage, fires, motor vehicle accidents, material releases, or general property damage accidents were experienced, although one motor vehicle accident involving a privately-owned vehicle occurred.

Plant levels of surface contamination and penetrating radiation increased significantly, rising by factors of approximately 13% and 25%, respectively. There were no material releases, and no other significant changes due to radioactive materials.

SIS :mep

8/3/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

UNION CARBIDE AND CARBON CHEMICALS COMPANY

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: August 3, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for July, 1953

I Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No of Major Injuries	4	4	23	16
No of Non-Tab Major Injuries	2	4	18	19
No of Sub-Major Injuries	2	3	14	18
No of Non-Tab Sub-Major Injuries	0	1	2	0
No of Significant Minor Injuries	0	2	5	2
No of Minor Injuries	395	384	2,670	2,348

Comparative Frequency and Severity Rates.

	BASE PERIOD 1948 - 1952			PREVIOUS SIX MONTHS January - June			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	3.76	0.99	2.95	3.76	3.74	3.06
Severity	6.78	0.00	0.38	0.11	0.003	0.11	0.11	0.03	0.11
Minor Injury Frequency (Estimated)				379.	325.	352.	360.	368.	355.

Last Major Injury Occurred July 28, 1953 — Man hours and days accumulated since Last Major Injury: 174,120 Hours, 3 Days.

Majors and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Possible torn cartilage; right knee	7/3/53	7/7/53	14 Still
	Contusion; right foot	7/23/53	7/24/53	8 Off
	Fracture; right wrist, 4th and 5th digits, right hand	7/28/53	7/29/53	3 Still Off
	Laceration; right hand	7/28/53	7/29/53	3 Still Off
	Burns; face, neck, ear, right arm and hand	7/14/53	-	-
	Incomplete oblique fracture; 5th metatarsal, right foot	7/16/53	-	-
	Chip fracture; 5th digit, right foot			

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	1	1	16	27
Estimated Damage	0	$34	$1,078	$1,618
Estimated Frequency Rate	0.17	0.17	0.84	1.63 Last Year

Fires	This Month	Last Month	Year to Date	Same Period
No. of Fires	0	0	2	5
Fire Loss (Estimated)	$0	$0	$74	$1,728
Fire Loss Rate (Estimated)	0.00	0.00	0.003¢	0.06

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	0	6	17	6
Estimated Damage	$0	$10,901	$53,103	$1,366

CURRENT ACCIDENTS

Date	Location	Type	Description
7-7-53	Oak Ridge Turnpike and Illinois Avenue	Motor vehicle accident	A K-25 5-ton duplex dump truck traveling south on the Turnpike struck a 1950 Ford, 4-door, a private vehicle, when the ford turned into the Turnpike from Illinois Avenue. No damage was suffered by the federal vehicle, but the Ford was a total loss.

Remarks

The more significant factors indicated in the accident and health physics experience are as follows:

1. The major injury experience continues to remain above the plant average.
2. The minor injuries continue unchanged for the year but indicate a slightly lower average than last year.
3. The type of accidents included in property damages were exceptionally low for the month with only one motor vehicle accident being reported.
4. Plant levels of surface contamination and penetrating radiation increased significantly, rising by factors of approximately 13% and 25%, respectively.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Special emphasis was placed on modification of K-1401 Maintenance facilities, Air Contamination Study in K-1131, and a general follow-up of the proposed changes in halogen compound handling in K-1401.

1. Change in Plant Conditions

a. _____ No Change _____ Improved _____ Retrogressed

Remarks X

Plant contamination levels and penetrating radiation levels again increased during the month. There was no significant change in plant housekeeping conditions.

2. Significant Types of Items Resulting From Inspections

a. The new compressor pit in K-1401 will incorporate new and modified equipment which will improve the equipment handling and reduce employee exposure to accidents.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. The construction program in K-1100 Building has created considerable congestion and accident hazard in order to carry out the routine work of the area.

c. The Stores Department continues to improve the storage facilities of both the small parts and heavy materials storage.

d. The stairwell lighting in the Cascade building continues to present a problem due to the infrequent lamping or the exceptionally short life of the bulbs. A proposal has been made to purchase a light bulb that will reduce the frequency of lamping.

e. Protective equipment such as respirators, goggles, and face shields are still not being worn in the areas of the plant where they are required.

f. The "cocooning" program in the K-27 Area has apparently been stopped, and only the worst contaminated areas will be covered.

g. The K-1005 Laboratory is in need of a general clean-up of such conditions as oil spillage, tripping hazards, and properly securing compressed gas cylinders, etc.

h. Maintenance Shops in K-1131 continue to indicate a problem from area contamination, hand counting, and penetrating radiation.

i. Film badge covers are becoming more noticeable in K-1131 Building.

j. A traffic problem has been created along the exit road from the new K-1240-8 Parking Lot. Employees attempt to dart across the 2 lanes of traffic to get to their ride which is usually waiting on the south side of the road.

k. Inspection of the maintenance work which involved tying the cross-over lines from K-33 to K-31 indicated that the over-all planning was incomplete in view of the fact that the work was being carried on at a 40' ~~75'~~ elevation without the benefit of adequate work platforms or scaffolds.

l. Both Carbide and Maxon trucks have been observed passing the K-27 Switch House in excess of plant speed limit.

m. The basement of the K-27 Area indicates an improvement in equipment storage and contamination control. Additional work is yet to be done.

3. Significant Types of Unsafe Acts

a. A serious injury resulted when a plant employee reached into an air compressor cylinder to check for leaking valves. Back-pressure on the piston caused it to close on his hand.

b. Welders working on pipe lines at approximately 75' elevation were attempting to weld the piping without the benefit of safety belts.

c. Maintenance mechanics continue to be observed in the K-1401 Building using both stationary grinders and portable grinders without the benefit of eye protection.

d. Improper job procedures in handling equipment in and out of the K-1401 degreasing tanks caused the concentration of trichlorethylene to go above the P.A.L. on several occasions.

e. During the hot weather, motor vehicles, especially trucks, were observed going about the area with both the driver and the passenger holding the doors open to create a breeze through the vehicle.

f. The contamination level in the K-1231 Office continues to be high; yet, the employees continue to drink coffee and eat in the area.

g. Two carpenters were observed working from one 12' step ladder. The step ladder was not used in a conventional manner but was leaning against the building support as a straight ladder.

h. Crane operators in the Special Shops Area continue to carry loads above the heads of workmen and quite often fail to give a warning signal to get the employee's attention.

i. Improper gripping, handling, and storing of material were responsible for 2 recent injuries in the Special Shops Department.

j. Maintenance mechanics, using disc grinders, continue to move the grinder about without taking into consideration the ease with which the disc will break. Normally, the grinders are brought to a stop before the grinder is moved.

k. Hardly any criticism can be made of the manner in which scooter operators drive about the plant. Sometimes, excessive speed is noted but not with any regularity.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

(cont'd)

1. Items Requiring Special Attention (Cont'd)

b. In an attempt to learn more about halogen compounds used on the plant, the Laboratory Division is planning a demonstration of typical explosion causes for concerned employees.

c. The Utilities Department, with the assistance of Maintenance Engineering, carried out the hydrochloric acid cleaning of the K-1515 filter beds without any difficulty. The work was well planned and incorporated the necessary protective measures to prevent employee injury.

d. The investigation of the transformer explosion in K-31, in which the manufacturer's representative was present, revealed no misoperation or cause due to personnel failure, and was more or less attributed to a normal operation or faulty design. Some thought is being given toward the installation of explosion vents in the cubicles, reinforcing the cubicle side next to the disconnect arm, and furnishing the electrician with additional protective equipment while doing the switching.

e. Since it is quite often necessary to work on one of the 4 overhead cranes, located in "J" Bay of the K-1401 Building, while one of the others is energized, plans are being made to set up an isolation section of the bay so that a crane can be taken to this particular section for overhaul or repair without shutting down the other equipment. This modification poses a serious problem to insure complete insulation from electrical systems.

2. General

a. The belt drier in K-1413, from which considerable contamination has been experienced, has been modified in an attempt to enclose the system. Some improvement can be expected in the area contamination surrounding this piece of equipment.

b. The Stokes pumps, used in the Laboratory Division to evacuate halogen compounds from the piping system, will be barricaded to prevent injuries in case of a possible explosion in the pump.

c. The equipment designed for handling the alkali metal experiments has been completed and incorporates the necessary protective features to prevent injury to the operators.

d. The potential explosion possibilities of ammonia in the K-1101 Area appear to be minor although, should the conditions of temperature, concentration, and ignition source be filled, an explosion might result.

e. Vehicle and pedestrian traffic on the corner of "F" Avenue and 7th Street during shift change appears to be rather hazardous since the pedestrians cut across the street to the portals from all angles.

(cont'd)

2. General (Cont'd)

f. The same buildings and areas, that have been responsible for most of the alpha contamination and controlling the plant levels of contamination, were again responsible for a rise in both area and hazard indices for the month.

g.

h.

i. Specific recommendations have been made for controlling the Freon-113 degreasing system and establishing hand counters for monitoring employees in the K-1420 Building.

j. The use of oily sweeping compounds in the Chemical Division Areas appears to do nothing more than make the floors look cleaner. Monitoring of the area indicates that contamination is entrained in the compound and continues to build up from week to week.

k. The ventilation system in K-303-1 Seal Shop is to be modified to exhaust the fumes away from the building entrance. At the present time, the exhaust is whipped back into the operating area.

l. The K-1413 Building is being modified for the installation of a side withdrawal station and, from the information available, it appears that no serious problem will result.

m. The Chemistry Research Section of the Laboratory Division has developed a detailed conditioning procedure for fluorinating on a piping system prior to its use with highly reactive fluorinated compounds.

n. Permission has apparently not been granted to allow the Engineering and Development Group to experiment with 40% process material in the Y-R system at K-1413.

o. As a result of some increase in the contamination level in the K-131 Tool Room, The Stores Department has set up a procedure by which they will routinely monitor their own facilities and thus use the Health Physics Survey as a check rather than the deciding factor for action.

p. Following the K-27 Switch Yard accident in which a painter backed his truck into a feeder line, additional measures have been taken to preclude vehicles of any type from entering a switch yard. In case it is found necessary to drive inside the gates of a switch yard, a special escort from the Power House will be present.

C. Emergency Planning

1. With the plan to include operational difficulties in the emergency problems each month, 2 drills were held which involved the "C" Shift and "B" Shift. Each problem was developed by supervision of the operating area involved and the drill was carried out with the assistance of supplementary groups acting as judges. "C" Shift held an operational problem in K-601 Building which involved a release of chlorine trifluoride material while the "B" Shift problem involved operational difficulties in the gas cracking unit at the K-1100 Building.

2. The storage and dispensing of toxic and flammable material from the Stores Department has been transferred to the K-1416 Building where adequate protective measures have been installed, and emergency equipment placed in the nearby emergency box.

3. Supervision of the K-1029 and K-1034 Buildings have requested the installation of emergency alarms in the buildings and a crash gate in the fence for evacuation purposes.

4. An evacuation of the K-1401 Building, following a suspected release in the north end of the building, indicated that all personnel were not being notified of emergency conditions. The Mechanical, Test and Inspection Group is planning to follow this problem in order to determine how they can be incorporated into the building emergency plans.

D. Protective Equipment and Clothing

1. In order that Stores stocks contain an adequate supply of coveralls, a supplementary order of 1,200 prs. of cotton coveralls was received during the month.

2. The last of the continuous water samplers has been completed and installed in Clinch River at Poplar Creek outlet.

3. The steam jet cleaning equipment, mentioned last month, was modified to do away with the multiple jet idea and use a slotted nozzle.

4. With the continuing difficulties of film badge results as determined by X-10, alternate steps toward obtaining better results are being studied. Costs for doing this work at K-25 are being compiled.

5. The magnetic source handler has been completed.

6. A motor and boat are to be purchased for use in gathering water samples from the various locations in Clinch River.

7. No progress has been indicated in the efforts of Engineering to develop a proportional water sampler. The work continues in an active status.

8. Specifications for the Army's impermeable suit are being made available to K-25 for use.

E. Promotion and Education

1. A purchase requisition for 1954 calendars has been sent out for bid. Both Y-12 and Paducah want calendars for their use.

2. Y-12 personnel taking over the Y-R program from K-25 was given a briefing on the accident prevention requisites of the work.

3. The Carbide Courier highlighted the value of safety shoes by carrying a story on an employee whose foot was saved from serious injury by wearing safety shoes.

4. Routine promotional activities were not slanted toward any one type of problem during the month.

5. The Chemical Division becoming concerned over foot injuries requested a study of the problem. Their frequency of foot injuries was above plant average, and 50% of the injuries could have been prevented with safety shoes.

6. Three additional divisional letters were added this quarter to the regular number. The Manufacturing Office Division, the Industrial Relations Division, and the Safety and Protection Division are made up semi-annually.

7. Standard Reference Information on radiation instruments was completed during the quarter.

8. Safe Practice Information on K-25 chemicals is being prepared. Seven of these procedures are ready to be sent out in the proposal state.

9. Two films, "Seconds Count" and "The Chance to Lose", were used in safety meetings.

S. L. Sullins

S. L. Sullins
Health Physics and Safety

SLS:msp

PLANT ACCIDENT EXPERIENCE

June, 1953

The plant injury experience was above average as a result of 4 major injuries involving a back strain, a knee sprain, an ankle sprain, and multiple burns of an employee's face and neck. The minor injury frequency rate continues to remain slightly below the plant average to date. The 2 personnel exposures to penetrating radiation above the P.A.L. are within normal plant expectancy, but the 11 over-P.A.L. hand contamination exposures are slightly above average. None of these incidents represented a significant plant problem.

There were no fires and a single motor vehicle accident resulted in $34 damage. However, 5 property damage accidents caused a loss of approximately $11,000.

Slight increases in the plant levels of surface contamination and penetrating radiation occurred during the month, but no significant changes in other plant environmental conditions with respect to radioactive materials were noted. One of the property damage accidents mentioned above also resulted in a major material release when a faulty valve failed.

7/2/53

SLS:msp

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site

6/15/95
Date

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: July 2, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for June 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No of Major Injuries	4	3	19	12
No of Non-Tab Major Injuries	3	2	14	13
No of Sub-Major Injuries	3	1	12	15
No of Non-Tab Sub-Major Injuries	1	0	2	0
No of Significant Minor Injuries	2	1	5	2
No of Minor Injuries	350	357	2,241	1,938

Comparative Frequency and Severity Rates:

	BASE PERIOD 1948 - 1952			PREVIOUS SIX MONTHS 12-1-52 - 5-31-53			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	3.55	0.99	2.78	2.80	3.76	2.95
Severity	6.78	0.00	0.38	0.10	0.003	0.08	0.07	0.05	0.09
Minor Injury Frequency (Estimated)				379.93	325.29	355.79	333.21	329.88	347.49

Last Major Injury Occurred June 30, 1953 — Man hours and days accumulated since Last Major Injury 0 Hours 0 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Sprain, left knee	6-2-53	6-3-53	27
	Back strain	6-13-53	6-14-53	16
	1st and 2nd degree burns, face, neck, and ears.	6-16-53	6-17-53	13
	Sprain, right ankle	6-30-53	7-1-53	0
	Laceration and contusion, right elbow	6-22-53	-	-
	Sprain, right ankle	6-22-53	-	-
	Laceration and fracture, 4th digit, right hand	6-24-53	-	-

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	1	2	15	24
Estimated Damage	$34	$370	$1,098	$1,412
Estimated Frequency Rate	0.36	0.71	0.92	1.67

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	1	4	5
Fire Loss (Estimated)	$0	$49	$74	$1,728
Fire Loss Rate (Estimated)	0.00	0.01¢	0.004¢	0.07¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	4	3	16	6
Estimated Damage	$ 10,906	$11,301	$53,108	$ 1,366

CURRENT ACCIDENTS

Date	Location	Type	Description
6-15-53	K-402-8	Motor Vehicle	An employee, driving a pickup truck from the K-402-8 and K-402-9 Withdrawal Alley into 7th Street, turned right too quickly, causing the rear fender to strike a guard post.
6-1-53	K-1131	Property Damage (Material Release)	As the valve on a one-ton cylinder was opened, the retaining nut split, allowing the contents of the cylinder to escape into the building.
6-3-53	K-131	Property Damage	An operator was hoisting a feed cylinder, using the monorail hoist, when the cable snapped, dropping the cylinder to the floor.
6-4-53	K-1401 Basement	Property Damage	A Stokes Vacuum Pump had been used in the purging of a highly reactive material from a furnace stand. The pump had been valved off for about 3 hours when it suddenly exploded.
6-4-53	K-1301	Property Damage	An operator, preparing to valve hot air into an HF tray absorber for purging, failed to open the vent valve, causing a pressure build-up with subsequent rupture of the absorber.
6-6-53	K-1401 Retubing Area	Property Damage	As a maintenance crew was moving a heavy spool with an overhead crane, one of the sling hooks came loose; the load swung, jerking the other hook free, and the load fell approximately 6' to the concrete floor, damaging the assembly.

Remarks

Significant accident trends and Health Physics factors are highlighted below:

1. The 4 major injuries experienced produced a frequency rate which again is significantly higher than the previous 6-months average; although, the injuries experienced were less severe as noted from the severity rate.
2. The minor injury frequency rate continues to reflect a decrease from the plant average.
3. Two personnel exposures to penetrating radiation were recorded, continuing the decreasing trend of such incidents.
4. No reportable fires were experienced.
5. The one motor vehicle accident brought the total for the year up to 15 which compares favorably with the same period last year when 24 were recorded.
6. Both plant indices reflecting extent and intensity of alpha contamination and penetrating radiation increased.
7. The number of cases of hand contamination recorded in excess of the P.A.L. was considerably in excess of the average figure.
8. The number of property damage accidents, as well as their potentiality for producing more serious results than was actually experienced, is of major concern, and will require concentrated effort on the part of all concerned to assure that hazardous operations in the plant are effectively "under control".

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Over and above the routine inspections, special emphasis has been placed on the "cocooning" program in the K-27 Area, the compressor pit in K-1401, and the clean-up in K-413. Other plant areas requiring periodical inspections and follow-up have been the K-33 construction, the portals and parking lot construction, the changes in K-1300 Area and the K-1420 decontamination building.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogress

Remarks

Both plant contamination levels and penetrating radiation levels increased during the month.

2. Significant Types of Items Resulting From Inspections

a.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. The large "I" beams located above the cranes in K-29 have now been striped to prevent maintenance employees from striking their heads while working under them.

c. Contamination indices for the K-1401 Basement have been increasing slightly due to the value and equipment changes in the experimental system there.

d. Although improvement has been attained toward enclosing the hydrater and dryer in K-1413, contamination from this source continues to be a problem.

e. Around the periphery of the new compressor pit, clods of dirt and other material were left in a position to cause a tripping hazard as well as a falling body hazard.

f. Areas of high contamination in K-1234 are being painted.

g. Several plant areas were noted with cylinders unchained and stored in a haphazard fashion.

h. The new acid-resistant rubber floor to be placed down in Laboratory "J" will offer ease in decontamination effort that heretofore has caused concern.

i. Personnel contamination checks in the K-1131 Building reveal that maintenance employees are subject to a high degree of contamination.

j. Respirators were not worn by an employee grinding flanges although supervision has emphasized this problem within the Process Maintenance Group of late.

k. Process Maintenance health physics practices are improving although some practices continue to be contrary to those recommended.

l. Hyster equipment was observed in service with a damaged cable that would undoubtedly fail under severe load.

m. Employees working as a team with hoist and crane operators continue to reach into or snatch at a lifting load to straighten block cable or equipment.

3. Significant Types of Unsafe Acts

1. Employees working in the K-1401 compressor pit were observed not wearing hard hats while the material around the edge of the pit could have easily been kicked in on top of them.

2. Contrary to the action of an employee in K-1410, the use of compressed air for drying equipment should be accompanied with eye protection.

3. A chemist in Laboratory [redacted] was observed mixing a highly reactive material into a reactor, using no hand or face protection.

4. A Process Maintenance man was observed hanging onto a hook of a hyster while it was traveling upward and the boom was moving.

5. Smoking with their hands showing above-P.A.L. count continues to be a maintenance mechanic problem.

6. Employees of the K-31 Area were observed working through a hatchway in the floor without the benefit of protective railings. There was nothing to prevent someone or something bumping one of the group into the hatch opening.

7. A property damage and explosion occurred as the result of an employee of the Engineering Development Department not following the proper operating procedures.

8. An electrician was observed working from an improvised platform made up of a table, a box, and a board.

9. Power tools have again been observed with the male plugs deformed to fit a 3-pole receptacle.

10. Certain operational malpractices have been responsible for the increased maintenance necessary to keep the K-1401 cranes in the proper operating condition. Possibly, the crane training will improve this.

11. An employee of the K-1301 Building was observed stopping a leak in a UF_6 line without the benefit of respiratory equipment.

12. Painters working in K-1401 were observed using straight ladders against the building columns without tieing them off to preclude falling.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Plant area drawings of audit survey locations are approximately completed and will offer quick access to contamination information about plant conditions.

(cont'd)

1. Items Requiring Special Attention (Cont'd)

b. The series of explosions involving the reactions of BrF_3 and MFL oil have caused concern in several of the operating divisions. The Laboratory Division Group is again running experiments to determine the cause of these explosions; they are looking deeper into the problem to ascertain if the breakdown products of either material might not be responsible for the incidents.

c. A color coded cylinder dolly is being used in the K-31 Area for handling ClF_3 cylinders. This is a follow-up to assure better ClF_3 control.

d. The K-1420 prints on some of the processing systems were received during the month and seem to include considerations for good operation.

e. A study of the Maintenance Division minor injury experience revealed that one section of the Process Maintenance Department is the major contributing group. The failure to wear safety glasses and gloves which resulted in eye and hand injuries appears to be their major problem.

f.

g. The street modifications necessary to control the traffic at "F" Avenue and entrance to the A.I.T. Terminal have been completed; although it seems to work rather smoothly, on occasion, when employees do not observe directional traffic flow markers, some confusion is noticed. After 2 weeks of use, the problem should straighten out itself.

h. The "cocooning" job in K-402-1 is continuing; however, the Maintenance Division is now furnishing their own "look-out" to prevent unauthorized entrance of employees.

2. General

a. Following the crane failure in K-31 in which the cable was sheared off against the drum housing, the company representative felt that the cause was attributable to the light load block and not enough clearance on the housing opening. These changes are being made on the crane parts. An additional idea is being studied in which a limit switch will cut out the electric circuit should the cable build-up on the drum move a control arm.

b.

c. The dust collecting system to be utilized in conjunction with the barrier grinding facility has been approved for installation. Also, the open handling of ground scrap between hoppers is being studied with the idea of enclosing the system completely.

2. General (Cont'd)

d. The belt dryer system being installed in the K-1413 Building is expected to cause some contamination due to its structure; however, some refinements have been made to improve it over "J" Laboratory use.

e. It has been suspected that employees within the Maintenance Division have been using other employees' film badges without realizing that the badge's value lies in the record of one individual. This showed up when an over-P.A.L. exposure could not be explained and the employee insisted he had not used his badge during the week.

f. The continuous extraction system for K-131 recovery is partially completed. It is felt that this system will not be either a contamination or safety problem if the operation is carried out as planned.

g.

h. Continual internal changes in processing equipment are occurring in the Barrier Plant. No significant problems other than the routine problems arising from maintenance operations are expected.

i. The K-1401 compressor pit is approximately 80% completed and work has been well carried out with the exception that hard hats are not worn, thus exposing employees to possible injury from materials falling or being kicked into the pit.

j. The practice of not replacing worn parts, bad cables, etc., on cranes and hoists when first noticed has lead to a series of crane incidents. Most of the conditions were noted by the Mechanical Inspection Group.

k. The internal inspection of an HF storage tank in K-1132 was completed satisfactorily. Early planning and proper instructions offered protection to those who went inside the tank.

C. Emergency Planning

1. The 2 plant emergency drills were held during the month and involved "C" and "A" shifts and involved emergency releases in which chlorine gas was involved. The "C" shift emergency took place at the K-701 Building in the Power House Area and involved the Fire Department, the local emergency squad, and the plant emergency squad. The release on the "A" shift occurred at the K-832 Building and involved only the local emergency group and the plant emergency squad. Both releases were properly controlled. A few minor points were brought to the attention of the emergency groups by the shift superintendent and offered suggestions toward improving the over-all efficiency of handling such emergencies.

2. To improve emergency evacuations, the PA system in K-1037 and K-1100 is being modified to improve the equipment so that the instructions given can be heard above the noise of the building.

3. The I.B.M. Section of the K-1034 Building is studying the installation of an alarm system that will warn their group of an emergency. This came as a result of the K-1131 release of which their personnel were not notified of a release until fumes entered their area.

D. Protective Equipment and Clothing

1. Due to the unsuccessful attempts to decontaminate K-413, a steam cleaning device has been built to determine the effectiveness of decontamination with this type of equipment.

2. The 5 beta-gamma probes, built as an attachment for the Samson survey instrument, have been received; however, the probes d not conform to specifications.

3. Assistance was given to the Cascade Services Group toward finding a vendor that will be interested in developing a portable type vacuum system and cyclone separator for their use. Their major concern is to get a more compact unit that will more efficiently do the job.

4. Preliminary studies of the new M.S.A. Mask and its use on the K-25 Plant indicate that there is not much value in swapping masks at the present time.

5. Approximately 1,000 vinyon-n coveralls have been received on the plant from the Milburn Company. The plant coverall supplies have continued to drop and it may be that additional company coveralls will be necessary to supplement the program again.

6. The 4-plant proposal for safety shoes seems to meet the present K-25 program with the exception that additional stocks, due to the increased number of styles, may be necessary.

7. The leather glove designed to be a long-life heat resistant glove seems to be holding up very well under use. Since K-25 usage is limited to 2 groups, a glove such as this will offer the necessary protection at reduced costs.

8. The third constant air water sampler is now being built and should be in service during the current month.

9. While compiling information on the Army Assault Mask, its use and cost at the K-25 Plant, it was felt that more than necessary efforts were required to obtain such information. In order to expedite future inquiries, the Stores Department should keep a closer cost and usage record.

E. Promotion and Education

1. Following serious explosions and releases during the month, a supervisory conference was held to point out some of the necessary safeguards to eliminate such incidents in the future. The conference was held on a continuing basis until the entire plant was covered. It is felt that the success of the conference could only be considered fair since only one or 2 divisions followed up with an emphatic program for correcting their own conditions.

2. Following film badge exposures and unsatisfactory investigations, meetings were held with the supervisors involved to assist them in keeping a closer check on film badge use.

3. The Laboratory Division is now planning to furnish this department with the safety and health physics matters discussed in their staff meetings.

E. Promotion and Education (Cont'd)

4. Assistance is being given to the Production Division to offer a more effective safety and health physics training program since they cannot utilize regular safety meetings. This is being done in the form of accident summaries, related articles, and near accidents.

5. Following the drowning accidents to 3 K-25 employees, the film "Water Wisdom" was brought on the plant for use. It was well received by the groups who saw it.

6. Standard Reference Information concerning plant materials is being prepared. Each bulletin will be a short detailed sheet.

S. L. Sullins
Health Physics and Safety

July 13, 1953

PLANT ACCIDENT EXPERIENCE

May, 1953

Two major injuries were experienced, one involving an inguinal strain and the other involving a dislocated elbow accompanied by head lacerations. Although slightly lower than the plant average to date the minor injury frequency rate remains approximately the same. The 2 personnel exposures to penetrating radiation above the P.A.L. and 3 over-P.A.L. hand exposures to contamination were within normal plant experience.

The single motor vehicle accident reported resulted in damage of $330, and the 1 minor fire caused less than $50 damage. However, 3 property damage accidents, involving a cylinder explosion, a dropped piece of process equipment, and a broken valve causing the loss of valuable plant materials, resulted in a total loss of about $41,300.

Although the plant levels of surface contamination have again increased slightly during the month, the levels of penetrating radiation have remained basically the same and no marked changes in other plant environmental conditions were noted. A single significant material release involving radioactive material occurred as a result of the cylinder explosion indicated above.

HFH:lja

6-3-53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved, for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: June 2, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for May, 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	3	14	11
No. of Non-Tab Major Injuries	2	1	11	8
No. of Sub-Major Injuries	1	3	9	14
No. of Non-Tab Sub-Major Injuries	0	1	1	0
No. of Significant Minor Injuries	2	0	4	1
No. of Minor Injuries	355	379	1,879	1,525

Comparative Frequency and Severity Rates:

	BASE PERIOD 1948 - 1952			PREVIOUS SIX MONTHS 11-1-52 - 4-30-53			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	3.55	0.00	2.02	2.73	2.05	2.65
Severity	6.78	0.00	0.38	0.10	0.00	0.05	0.03	0.03	0.08
Minor Injury Frequency (Estimated)				379.93	325.29	360.63	345.38 hours	331.34 days	350.78 Days.
Last Major Injury Occurred				5-16-53			Hours	15	
accumulated since last Major Injury				514,512					

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charge
	Inguinal Hernia	5-14-53	5-17-53	14
	Dislocated right elbow; lacerated forehead; abrasion, left knee	5-16-53	5-17-53	14
	Abrasions, 1st and 2nd digits, both hands	5-22-53		

Motor Vehicle Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	1	4	13	17
Estimated Damage	$329	$165	$1,023	$694
Estimated Frequency Rate	0.37	1.47	0.97	1.43

Fires	This Month	Last Month	Year to Date	Last Year Same Period
No. of Fires	1	0	2	5
Fire Loss (Estimated)	$49	$0	$74	$1,728
Fire Loss Rate (Estimated)	0.01¢	0.00	0.004¢	0.08¢

Other Property Damage Accidents	This Month	Last Month	Year to Date	Last Year Same Period
No. of Accidents	3	3	11	4
Estimated Damage	$41,301	$700	$42,202	$395

CURRENT ACCIDENTS

Date	Location	Type	Description
5-22-53	"F" Avenue	Motor Vehicle	An employee, driving a pickup truck, saw a 5-ton truck ahead swing to the left, and, thinking it was turning left, started to pass on the right. The 5-ton truck turned right, however, and the hood of the pickup was jammed under the body of the 5-ton truck.
5-13-53	K-402-8	Fire	The insulation around a vent line to stack burned when line became red-hot, burning venting operation.
5-1-53	K-303-2	Property Damage	An employee was maneuvering a fork-lift between a coolant cooler and a building ventilation fan. The fender of the lift struck the valve on the drip leg of the cooler, breaking it off. Coolant loss resulted.
5-22-53	K-602-2	Property Damage	Mechanics, raising a 10-ton converter with a 10-ton crane, noticed the cable was over-wound on the hoist drum. The operator began lowering the converter; however, it fell approximately 6' when the cable parted. The head of the converter was damaged, and the concrete floor of the building was cracked.
5-25-53	K-413	Property Damage	Employees were transferring waste material from a cylinder by placing it in a heated bath of water. An internal explosion resulted in cylinder distortion and was followed by a larger explosion that caused extensive damage.

Remarks

Explosions, material releases, and property damages were the outstanding causes of concern during the past month. Plant levels of surface contamination increased slightly, but the levels of penetrating radiation remained about average. A resume' of the plant conditions, relative to accident prevention and health physics, is listed below:

1. Two major injuries were experienced during the month.
2. The minor injury frequency rate dropped below the plant average for the first time in several months.
3. One motor vehicle accident occurred during the month.
4. The one minor fire which occurred during the month did not appreciably affect the low fire loss that has been experienced this year.
5. Two personnel exposures occurred during the month from routine work in or near the K-1131 Area.
6. Three property damage accidents, incorporating 3 different incidents, occurred during the month; one, an explosion; another, a heavy load falling; and, third, a minor operational incident that resulted in a major material release. The estimated loss was $41,301.
7. Both the plant area index and hazard index increased during the month and can be traced to the increase in indices of 4 plant areas.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Employee inspections during the month were devoted to generalized plant locations; however, some additional efforts were devoted to the K-1300 Area, K-1131, and the "cocooning" program in the K-27 Area. Current construction programs now being carried on were also inspected periodically; these areas included K-33, the Portals and Parking Lots, the new Compressor Dismantling Pit in K-1401, the changes in K-1300, and the additions to K-1037 and K-1100.

1. Change in Plant Conditions

a. _____ No Change ___X___ Improved _____ Retrogressed

Remarks

Slight changes have been noted in general plant housekeeping, probably as a result of the increased emphasis by plant management. Contamination indices for the plant increased during the past month.

2. Significant Types of Items Resulting From Inspections

a. The obsolete equipment stored in K-1410 and K-1231 has been moved to reduce congestion and offer more usable space.

(Cont'd)

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. Observation of employees at work indicates that they are not wearing safety glasses in hazardous areas, even though the foreman's accident reports often point out that safety glasses were worn when an eye injury occurred.

c. The long-term air sampling program in K-1410, and K-131 has been allowed to slide from neglect and mechanical trouble with sampler.

d. Contamination levels, which have increased in the K-1131 Process Laboratory, occurred as a result of tracking material from outside sources.

e. The mercury spills observed in K-1303 have been cleaned and the air contamination rechecked. The concentration was below the P.A.L.

f. Large garbage cans used for contaminated material continue to remain at a high level of contamination of both surface and wipe count. Supervision has not felt that it is necessary to decontaminate these cans.

g. The cleaning of air compressor motors at K-1201, with a carbon tetrachloride spray system, had to be modified to assure employee protection.

h. The sewer repair work on "F" Avenue had to be stopped in orde that the ditch shoring was modified to prevent a "cave-in" of side wall.

i. The "Cocooning" work at K-402-1 is continuing as originally planned with the exception that the guards have now been replaced with maintenance personnel.

j. Supervisors of K-1037 and K-1100 are following up on the recommendations that arise in their safety meeting, and the results are noticeable in the general appearance of the building.

k. The large electrical wire spools stored at K-1036 have now been chocked to keep them from rolling.

l. Housekeeping conditions continue to show excellent results in the Manufacturing Office Group. Supervision is staying closely behind this program.

m.

n.

o. The steam cleaning efforts in K-1413 seemed to do very little good toward lowering the contamination levels in this building.

(Cont'd)

Significant Types of Items Resulting from Inspections (Cont'd)

p. The basement area of K-402-1 through 5 has become increasingly contaminated due to the storage of K-1131 equipment such as valves, piping, etc. in this area. The major cause of contamination occurred as the result of open pipe, valves, and equipment being moved about prior to decontamination.

q. Crane maintenance in K-1401 is going very slow because of available manpower. Serious defects and conditions are given priority to prevent employee injury.

r. The emergency box located on the northwest side of K-1401 has been repaired and replenished.

a. An insulator was observed carrying and handling a stripping knife carelessly while at work, and not utilizing the scabbard during periods of disuse.

b. Sheet metal employees were observed handling light-gauge metal without the benefit of hand protection. This action is generally the cause of 25% of the Sheet Metal Shop's accidents.

c. A motor vehicle accident occurred when one employee tried to outguess the other employee by passing on the right-hand side. The employee of the first vehicle cut back to the right to make a turn.

d.

e. The investigation of a motor vehicle accident revealed that the operator was driving without an A.E.C. permit. Also, he was driving a vehicle with faulty brakes.

f. Employees of the Carpenter Shop were observed working from a sub-standard scaffold. The supervisor was not aware that such a work platform should meet plant standards as set forth in EF Procedures No. 202 and 203.

g. Chemical Division employees were observed walking about in hydrolyzed PG in their regular shoes. Although HF in some concentration could be expected, rubber boots or overshoes were not considered.

h. Three electricians were observed working from the same step ladder, unaware that such actions were often the forerunner of serious accidents.

i. Employees of the Valve Shop were observed grinding and shearing metal without the use of safety glasses.

j. A rigger, acting as hookman, was observed using an oversized hook on a job that would allow the point to barely protrude through the hole. Not only was the job unsafe, but also uneconomical since the rigger spent considerable time in getting the hook to hold.

k. Back injuries persist in the various groups as a result of employee failure to utilize mechanized equipment.

(Cont'd)

a. The "cocooning" job, being applied in the Pipe Gallery at K-402-1, has again been resumed with slight modification in the control methods. This problem will be continued over a 3 or 4-month period. Ventilation will be good during the summer and fall months; however, should some hold-up occur, and the work be extended into the winter, when windows and doors are closed, additional precautionary measures will be necessary.

(Cont'd)

Significant Types of Unsafe Acts (Cont'd)

l. Respirators were not worn by K-1401 employees working near the sand-blasting operation.

m. Hardly any unsafe acts were observed on the sewer excavation work.

n. A welder deliberately passed by the fire guard at the "cocooning" job and started welding in the controlled area.

1. Items Requiring Special Attention (Cont'd)

b.

c. The installation of the new oxide conversion unit in K-1300 has begun. This unit is primarily on a test basis and will present some contamination problems, depending upon the manner in which it is operated.

d. The Lunch Room entrance from the Operating Floor of K-1420 has been re-routed through the hot locker room in order to provide routine hand decontamination and counting.

e. The area drawings, developed for a pictorial contamination control record, have been completed and are kept on a monthly basis. From a drawing, one can get a quick idea of how a particular area is progressing.

f. The explosions that have occurred in the last month have prompted reconsideration of establishing job procedures when dealing with some of the more hazardous chemicals within the plant.

g. Pyrophoric metal experiments are now being conducted in K-1004-D. The metals are in minimal amounts, and are kept in an inert atmosphere. Additional study into the safe handling of these materials is continuing.

h.

i. A sizable amount of money has been allocated for the installation of a dust control system The problem confronting supervision is to purchase and install the basic needs for a good system, since it is felt by Engineering that the budgeted

2. General amount will not be sufficient to purchase the desired installation.

a. Clean-up and modification of the K-1401 Building have been completed with the expectation that the sterilization section now in K-1401 will move to this area in June.

b. The Quarterly Letters sent out during the month of April prompted action in several divisions throughout the plant. Results have been noted in clean-up, contamination, and safety meetings.

c. The driver-testing route is being modified to conform with the new security portals. The major portion of the route will be outside the K-25 Area, and will utilize the roads in and around the K-25 Plant.

d. The Power House is instigating a continuous painting program whereby 2 painters are kept routinely in this area for this work. To date, their work methods have been acceptable.

(cont'd)

2. General (Cont'd)

e. Storage of machinery and equipment in the basement of Building K-402-1 through K-402-5 was made in a haphazard fashion. The equipment which came from contaminated areas was not sealed off; consequently, the floor areas have become contaminated from material spilling from pipe and flange openings.

f. The design prints of the internal structure of K-1420 are coming in for review. Of late, the major portion has been on the design of small parts decontamination.

g. Considerable concern has been manifested over the number and magnitude of medical restrictions with which supervision has had to contend. In many instances, the injury was rather slight; yet, the restriction was worded in such a manner that the employee had to be sent off work.

h. The back injuries, joint injuries, strains, and sprains seem to increase from week to week. In most instances, the incident was slight and no attention was paid to the injury until some pain was noted which prompted an allegation.

i. Preliminary work has begun toward rebuilding the K-1131 exhaust stack. Copper sheeting will be used and not aluminum as had originally been planned. One section of copper sheeting, used in patching the stack, has held up well and shows only slight corrosion.

j. The problem of radiation from the smoking ash receiver removed from the system in K-1131 Building has prompted supervision to store this equipment adjacent to the K-1410 Building. It is hoped that a better method of sealing these containers will soon be found.

C. Emergency Planning

1. The 2 general plant emergency drills held during the month involved the "B" and "C" Shifts. "B" Shift was involved in a simulated critical reaction in the K-1300 Area. This particular problem included plant staff groups that can be expected to assist in such emergencies. The "C" Shift was involved in a simulated loss of power emergency at the K-1501 Steam Plant, and involved the utilization of additional personnel to put the equipment back in service.

2. The tight seal of the emergency boxes, stretcher boxes, and first aid boxes has caused mildewing of the contents of some boxes. Some effort should be made to allow air circulation inside these boxes.

3. The Laboratory Division has developed an emergency procedure and set up an emergency team for handling alkali metal emergencies within their group.

D. Protective Equipment and Clothing

1. Employees of the Chemical Division have been experiencing slipperiness with the sole of the company-issue safety shoe. It is their feeling that the plant should return to the leather-sole shoe for general plant use. Additional study of this problem is now underway.

2. The Chemical Warfare Service has apparently changed their production requirements since the Stores Department has informed us that they will furnish the company 60 impermeable suits in July, 1953. This will extend plant supplies to approximately 3 years.

3. A sample of the large cup goggle has been received and is in use in the Welding Section of Maintenance. This cover goggle may be the answer to the eye protection of welder's helper's against flash burns.

4. Eighty-five pair of Dynel coveralls were purchased from the Y-12 Plant for use and study in comparison with vinyon-n coveralls. Y-12 had a surplus of experimental garments which they were willing to transfer to the K-25 Plant.

5. The magnetic source handler has been received but is not as finished a job as had been expected. Some modification may be required at a later date.

6. An evaluation and test of the low range gamma scintillation meter is being made. Also, Instrument Engineering and Area III have been given an instrument for evaluation.

7. It is estimated by Plant Engineering that the Juno calibration device will cost about $1,800.

E. Promotion and Education

1. Routine promotional activities continued during the month with the main efforts directed toward developing a back log of calendar inserts and Plant Experience Report material.

2. Several divisions, who have not shown a marked safety meeting program, have begun to prepare material for safety meetings. Seemingly, this interest stems from the Quarterly Letters sent out in April.

3. The U. S. Army films, The Effects of Radiation and Radiation Detection Instruments, were used in meetings during the month. The film on the Atomic Explosion was also shown during the month.

4. Health physics educational and promotional material has been compiled and classified for use. This was set up to centralize the material.

5. Assistance is continuing toward improving the work methods of the Process Maintenance Group in their relations with the Chemical Division.

(cont'd)

E. Promotion and Education (Cont'd)

6. The Manufacturing Office Division has surpassed its past record of days worked since its last lost-time accident. A letter of commendation is being prepared.

7. The superintendent of the Maintenance Division sent a letter to the various departments commending them on their improved housekeeping.

8. Standard Reference Information on radiation detection instruments has been prepared for review.

F. Summary of Air Sample Results

Special and routine air sampling indicated no significant changes in plant activities or work methods. A serious potential accident from inhalation of carbon monoxide was recognized when the employees reported ill to the plant dispensary. This problem resulted primarily from the lack of ventilation due to building modifications. The modifications eliminated ventilation openings, and allowed exhaust fumes from gasoline-powered vehicles to be retained in this area.

S. L. Sullins
Health Physics and Safety

SLS:msp

PLANT ACCIDENT EXPERIENCE

April, 1953

The plant major injury frequency rate for the month is well below the plant average since only one lost time injury was experienced, this resulting from a slip and consequent cartilage damage of the left knee. Since the date of the injury, the plant has worked 544,630 man-hours through the end of the month, and this record is continuing. The plant averages for minor injuries were maintained for the month. The 3 personnel exposures to penetrating radiation above P.A.L. are in line with plant averages.

Motor vehicle accidents were up for the month with 4 incidents resulting in $156.00 property damage. No fires were reported for the month, continuing the exceptionally low fire loss ratio for the year. Three property damages resulted in $700.00 cost. The plant levels of surface contamination have increased slightly during the month, but the levels of penetrating radiation have been reduced. Other plant environmental conditions indicated no marked changes. No significant material release involving radioactive materials was reported.

5/4/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

INTER-OFFICE CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1004 Building

CC: Mr. W. L. Richardson
File

DATE: May 2, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for April, 1953

Plant Accident Experience

Personnel Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	4	10	11
No. of Non-Lab Major Injuries	2	2	10	6
No. of Sub-Major Injuries	3	4	8	11
No. of Non-Lab Sub-Major Injuries	1	0	1	0
No. of Significant Minor Injuries	0	1	2	1
No. of Minor Injuries	400	426	1,517	1,198

Cumulative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 to 12-31-52			PREVIOUS SIX MONTHS 10-1-52 to 3-31-53			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	3.55	0.00	1.86	3.55	0.92	2.55
Severity	6.78	0.00	0.38	0.10	0.00	0.03	0.10	0.02	0.04
Man hours Injury Frequency (estimated)				401.46	325.28	370.40	379.93	364.50	351.67

Last Major Injury Occurred 4-13-53

Man hours and days accumulated since last Major Injury 544,630 Hours 17 Days.

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Probable torn cartilage; left knee	4-13-53	4-14-53	17
	Infected abrasions; finger	4-3-53	-	-
	Severe contusion; right wrist	4-8-53	-	-
	Strained left shoulder	4-24-53	-	-

Date	Location	Type	Description
4-23-53	K-1020 Building	Property Damage	While an electrically-controlled oven was being used to dry out Mercoid switches, an explosion occurred which buckled the top, sides, and door of the oven.
4-24-53	Gate #100, south of New Parking Lot	Property Damage	A train stopped in front of the gate in question so that a guard might open it. The train was too close for the gate to open, however, and as the engineer released the brakes prior to backing up, the train rolled forward slightly, striking and bending the gate.

Remarks

Both the accident prevention and health physics portion of the highlights point out interesting factors about the plant activities during the month. Of more importance is the fact that the major source of penetrating radiation has been removed from the plant, causing a reduction in both the area and hazard penetrating radiation indices. Also, plant contamination levels have increased during the month. Some plant comparisons are noted below:

1. The major injuries fell off to one which is below the plant average.
2. Minor injuries continue about the plant average.
3. Motor vehicle accidents increased to 4 for the month.
4. Fires and fire loss remain significantly low; no particular justification can be found.
5. Personnel exposures increased to 3 during the month. Two resulted from K-1131 activities and one from K-1231 filter work.
6. Three property damages for the month increased the low average for the plant.
7. The total area of the "30" locations used for computing plant levels of alpha contamination was increased by approximately one-third. This caused considerable variation in the results.

III. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Removal of the "hot cave" in Laboratory K-1004-J, Changes in K-1300 Area, K-1131, Contaminated Area of K-27, K-1037 and K-1100; current construction program on the new Laboratory Addition, K-33, Maintenance Offices, Portals and Parking Lots, and New Seal Shop.

1. Change in Plant Conditions

a. X No Change _____ Improved _____ Retrogress

Remarks

Contamination indices increased slightly over last month; however, the penetrating radiation indices reduced somewhat due to the removal of the K-1004-J Laboratory "cave".

2 Significant Types of Items Resulting From Inspections

a. Personnel contamination checks indicate that the K-1406-2 Canteen is visited by a larger percentage of personnel with over-P.A.L. conditions than other canteens.

(Cont'd)

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. The Welding Shop, in attempting to combat flash burns, has fabricated and put into service an increased number of welding shields to limit the arc flashes.

c. Guardrails have been added to the office steps at the new Seal Shop and around the high voltage equipment adjacent to this area.

d. The painting of the floors to control the contamination levels in the K-1401 Compressor Shop prior to occupancy has been completed.

e. Supervisory interest and efforts in behalf of the demolition of the "cave" in K-1004-J Laboratory paid off in the desired results of no injuries, no radiation exposures above P.A.L. and, in general, a well-handled job.

f. Results of the K-1401 Barrier Laboratory housekeeping are quite noticeable and indicate continued improvement in this area.

g.

h. Makeshift equipment continues to cause concern in the K-1037 and K-1100 Areas but appears to be a routine method of getting the job done within these areas.

i. General clean-up in the storage areas and repair of equipment in the K-1300 Area is continuing.

j. The spread of contamination from the UO_3 Weighing Room in K-1301 continues as employees track it about. The Engineering Group responsible has made no real attempt to keep the material confined.

k. K-1131 Lunch Room and Maintenance Offices indicate an increase in the area index during the past month. This, also, is primarily due to tracking of material in and out.

l. A study of the causative factors for the injuries in the Engineering Division indicated that finger injuries, primarily lacerations, were the most predominant.

m. Mercury spills were noted in the Engineering Development Section of the K-1401 Building.

n. Minor injuries for the Barrier Plant hit a peak for the year with a total of 48 for the month. Most of these injuries were of the garden variety and included primarily hand injuries and possible strains.

o. Consideration is being given to identifying the utility piping facilities in the K-1100 and K-1037 Area.

3 Significant Types of Unsafe Acts

a. Engineers working in K-1301 Weigh Room were observed working in UO_3 powder without the necessary respiratory protection.

b. Maintenance employees were observed moving welding carts about the plant on pickup trucks without proper anchoring.

c. A rather serious injury resulted when an employee fell while running upstairs and fractured the radius bone of his left arm.

d. A maintenance employee was observed stepping from a step ladder to a pipe line, then using his foot to drag the ladder into position beneath him. The safer method would have been to climb down from the ladder, move it over to the proper position, and then remount it to complete the job.

e. Two operators in K-631 were noted sweeping and cleaning the area while an open pipe line was visibly exhausting PG fumes within the building. No respiratory protection was worn by either employee.

f. A more than ordinary number of motor vehicle operators were observed exceeding the plant speed limit during the month.

g. Employees working in an 8' excavation were observed working in the ditch without the benefit of hard hats. Shoring against sliding earth had been completed.

h. In an effort to clean up foreign material on the floor, an employee of the Engineering Division used an ordinary sponge saturated in nitric acid to clean the floor; acid burns of the hands resulted.

i. Operators of the K-1410 Decontamination Area were observed using compressed air to dry equipment without protecting their eyes with safety glasses. A similar situation was noted in the K-1401 Maintenance Area where employees were using an air line to dry decontamination solutions off the floor.

j. A sub-major injury occurred as a result of an unsafe act by an employee, operating a fork-lift truck, who slapped at an overhanging electrical line and got his arm caught between a door jam and the fork-lift boom.

(Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. The "cocooning" application going on in the pipe gallery at K-402-1, 2 and 3 was discontinued during the month due to the lack of material. The project has been carried out satisfactory thus far; however, additional precautions are expected when the work is begun again.

b. The demolition work in K-1004-J Laboratory was well handled by both Maintenance and the Operations Group. Possibly, the success to this venture was the preliminary planning that took place prior to beginning work.

(Cont'd)

3. Significant Types of Unsafe Acts (Cont'd)

k. Employees were observed working near a sandblasting operation without the benefit of safety glasses or respiratory protection.

l. Mechanics throughout the maintenance areas continue to use mushroom headed tools instead of dressing them prior to use.

1. Items Requiring Special Attention (Cont'd)

c. An agreement has been reached between the K-1300 Area supervision and the Disposal Group at X-10 concerning the method of transferring and disposal of used electrolyte solution.

d. The method of drying residual methyl alcohol in mercoid switch tubing caused an explosion in the electric oven during the month. In the future, vacuum pumps will be utilized to remove all materials from such equipment.

e. Since the safety lane inspection program is to be a project of the individual AEC contractor, K-25 preliminary procedures have been submitted for approval.

f.

g.

h. A new method of converting UO_2 to UF_4 is to be started in K-1004-J Laboratory and will be processed in a vertical reactor with UO_2 powder freely falling against an upward flow of anhydrous HF.

2. General

a. The installation of an exhaust hood over the trichlorethylene degreasing tank at the new Seal Shop now appears to be adequate. There was a question concerning where the exhaust outlet should be located.

b. The installation of a new conveyor feeding system for the pulverizer unit in K-1037 necessitated guarding of equipment parts for the protection of the operators.

c. Bi-weekly samples of the Clinch River effluent can now be successfully obtained through the constant water sampler located just off Poplar Creek Island. The data collected will allow for closer checks of river conditions.

d. No trouble is anticipated from the test reactor installed in K-1301 for the conversion of uranium oxide.

(Cont'd)

2. General (Cont'd)

e. The drip trays mounted underneath the fluorine piping in the K-1300 Area have been removed due to their deteriorated condition and will only be replaced in limited locations since it is thought to be an unwarranted addition.

f. To reduce the contamination in K-1413 Building and also to improve the handling method, the Engineering Division has been experimenting with a vacuum system to load the UO_3 drying unit. This will probably assist this program considerably.

g. A general recommendation concerning formal safety meetings was made to all divisions in the quarterly letters; it is felt that this phase of employee education can be of more use t. supervision.

h. A hand-operated, 4-wheel cart has been designed to move and stack 1000-pound ingots at the K-1037 smelting area. This cart will materially improve the handling operation as well as offer a safer method of storing.

i. The use of blanking plates on equipment having been removed from contaminated systems has again become a problem; contamination has been spread due to material falling from piping or equipment flanges.

j. A job study of the dumping and charging of alumina traps, by the Chemical Division, revealed that considerable spread of contamination is being experienced in the areas where this dumping takes place. In some instances, it has caused the area indices to increase above the ?.A.L.

3. Emergency Planning

1. As has been the custom, 2 general plant emergency drills were held during the month which involved simulated emergencies. The "B" and "D" Shifts were involved in these emergency drills with "B" Shift involved in a simulated hydrogen release followed by an explosion in which personnel injury, and the control of gas flow was of primary concern. The "D" Shift was faced with the problem of a possible critical reaction in the Cold Trap Room of K-302-5. Both shift emergency crews carried out their assignments very well.

2. Some emergency stations continue to remain out-dated as far as inspections are concerned.

D. Protective Equipment and Clothing

1. Approximately 300 pairs of new vinyon-n coveralls have been received on the plant as a part of the new contract. Included in this group of coveralls are a few pair of womens' garments.

2. The 4-plant meeting to establish safety shoe styles should result in a reduction in safety shoe stocks. Each plant will not need to carry a quantity of unusual sizes since intra-plant transfers will be available.

3. The impermeable suits now being purchased from the Chemical Warfare Service will no longer be available from this establishment. To offset this, other vendors will be asked to submit possible samples of impermeable suit material for use on the plant. Such materials as natural rubber, neoprene-rubber, Gra-lite, Kel-F, etc., will be experimentally considered for use.

4. Two pair of over-sized cover goggles have been purchased for use with ordinary plant safety spectacles. At the present time, the cover goggles now in use do not fit snugly around the facial contours when worn over plant safety spectacles.

5. A work glove that is interchangeable from right to left hand has been ordered for evaluation on the plant. The obvious interest in this glove is the fact that it is usable on either hand, thus eliminating the necessity of stocking both right and left hand gloves.

6. The heat resistant leather glove designed by the Mine Safety Appliance Company is not only heat resistant but incorporates a long-life quality. The Plastic Shop now uses an asbestos glove.

7. The new constant water sampler has been installed just off Poplar Creek Island in the Clinch River. The modification to the continuous sanitary water monitor has been completed and is now being tested at the K-1515 Building.

E. Promotion and Education

1. Safety meetings have been utilized in both Process Maintenance and Chemical Operations Groups in order to improve the employee's knowledge of area hazards and how they can be minimized.

2. The film "Seventh Column" was shown during the month of April in safety meetings where the story was applicable to the group's activity.

3. Routine promotional activities continued as far as the calendar inserts, plant billboard slogans, and monthly plant experience reports were concerned.

4. To better identify the areas of the plant in which radiation surveys are made, scale drawings are being developed to keep both the engineer and the area supervisor appraised of the respective area under survey.

5. Safety meetings were highlighted in many departments during the month of April to interest those groups who have allowed this education tool to slide.

(Cont'd)

E. Promotion and Education (Cont'd)

6. Safety awards were completed during the past month and all excess items have been returned for credit.

7. Representatives of the Health Physics and Safety Section attended one day of the 2-day session of the Safety Institute held at the University of Tennessee during April. Three outstanding subjects were discussed that were of considerable interest to those present. The subject matter of each is as follows:

   a. The proper methods of preserving wood and wood products to conform with the A.S.A. Standard Code on ladders and scaffolds.

   b. The use of safety meetings to analyze employee accidents.

   c. A general discussion about instruments and their value in air sampling and the analysation of gases.

S. L. Sullins
Health Physics and Safety

PLANT ACCIDENT EXPERIENCE

MARCH, 1953

Four major injuries occurred during the month causing the plant injury frequency and severity rates to range slightly above plant averages. These injuries included a rather serious hip fracture, a sprained ankle, extensive hand burns, and a broken foot. Since the last lost time injury, the plant has worked 976,613 man-hours through the end of the month and is continuing. The number of minor injuries occurring during the month indicated an increase over the past month but is in line with normal plant averages. Two personnel exposures over the P.A.L. were indicated by film badges.

Motor vehicle accidents dropped off to one minor incident which involved property damage of approximately $25.00. Fires and property damages continue to remain at a low level with no major fires reported during the month and only one property damage incident resulting in a $60.00 loss reported. The plant levels of surface contamination increased slightly during the month, but the levels of penetrating radiation and other environmental conditions indicate no notable changes. No releases of significant quantities of radioactive materials occurred.

April 3, 1953

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

[illegible] CORRESPONDENCE

[illegible] CHEMICAL [illegible] Post Office Box P, Oak Ridge, Tennessee

[illegible] E. F. [illegible]
[illegible] Building

DATE: April 3, 1953

C: [illegible] L. Richardson
[illegible]

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for March 1953

[illegible] Accident Experience

[illegible] Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Time Period
No. of Major Injuries	4	2	9	10
No. of Non-Tab Major Injuries	2	6	8	4
No. of Sub-Major Injuries	3	1	4	11
No. of Non-Tab Sub-Major Injuries	0	0	0	0
No. of Significant Minor Injuries	0	1	1	1
No. of Minor Injuries	390	330	1,117	876

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 - 12-31-52			PREVIOUS SIX MONTHS 9-1-52 - 2-28-53			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	2.04	0.00	1.75	0.99	3.72	2.84
Severity	6.78	0.00	0.38	0.02	0.00	0.02	0.003	0.10	0.05
Minor Injury Frequency (Estimated)				401.46	325.29	373.57	325.29	362.67	352.90

Last Major Injury Occurred March 3, 1953 Man hours and days accumulation since last Major Injury 976,613 Hours 28 Days.

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Burns, both hands	3-2-53	3-3-53	28
	Fracture, 1st, 2nd, and 3rd metatarsals, left foot.	3-2-53	3-4-53	28
	Fracture and dislocation, right hip.	3-3-53	3-4-53	28
	Acute sprain, right ankle	3-3-53	3-4-53	28
	Contusion of scalp, laceration 2nd digit, and fracture, 5th digit, right foot.	3-10-53	-	-
	Laceration, left forearm	3-23-53	-	-
	Compound fracture, 3rd and 4th digits, right hand.	3-26-53	-	-

1 $25. 0.35	5 $454. 1.75	8 $528. 0.98	14 $362. 2.03
0 $0.00 0.00	1 $25. 0.00	1 $25. 0.00	3 $1,278. 0.10¢
1 $58.	1 $40.	4 $201.	0 $0.00

3-31-53	"F" Avenue	Motor Vehicle	While driving around the east end of the K-1030 Building, the driver of AE-3564 struck the monorail of a parked vehicle, turning it over.
3-16-53	K-1401 "R" Area	Property Damage	A maintenance mechanic, attempting to repair a Whiting 10-ton crane, found the load hook up against the upper block. When he pushed the "down" button to lower the hook, the controls were found to be reversed and the hook was pulled tighter against the block to a point where the cable broke, dropping the hook.

Remarks

With the exception of plant injuries, no definite trends can be noted in the statistical facts as presented in the highlights summaries.

1. The major injuries for the month are above the plant average.
2. Similarly, sub-major injuries are above plant average.
3. Minor injuries increased during the month as compared with last month; however, the minor injury frequency rate of 363 is within the 6-month cumulative figure.
4. Motor vehicle accidents are below the plant average.
5. Fires and resulting fire damage continues to remain at a low level.
6. Two personnel exposures showed up on film badges during the month.
7. Property damages continue to remain minor in resulting damage.
8. Two film badge exposures occurred during routine plant maintenance and operation. One exposure has not been definitely pinned down.
9. The addition of 5000 ft^2 of highly contaminated area is probably the major reason for an increase in the plant area and hazard indices.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1401 Basement, K-1401 Barrier Research, Laboratory "J", K-1300 Area, K-1131 and K-27; incomplete construction of Security Fencing and Portals, New Maintenance Offices, Laboratory additions, K-33, and Cement Silo for batch plant storage.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks

No significant changes can be recognized; however, the housekeeping conditions appear to be the same, and the indices of contamination are up slightly over last month. The number of injuries indicate a need for increased efforts on the part of supervision to reduce employee accident exposures.

2. Significant Types of Items Resulting From Inspections

a. A safety shower in both the K-1300 Area and the Barrier Plant was found to be inoperative and indicates a need for an over-all safety shower check-up.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. Emergency box equipment in the Barrier Plant is not being changed on any prescribed schedule. Scheduling is considered especially important to control gas masks, electrician's rubber blankets and gloves.

c. The wooden stairs to the loading platform in Building K-1037-C, where smelting is being carried on, is faulty due to unrepaired treads and handrails.

d. The fire door was found to be tied open with a rope. This, of course, makes the device worthless during a fire.

e. Increased alpha contamination is being noted in the K-1413 Building due to the installation of the wet mixing process which causes splashes and spills from time to time.

f. Contamination surveys in the AC Compressor Shop indicate an increase in contamination. The splattering of material from the degreasing operations appear to be the cause.

g. The K-1401 Vapor Blaster Unit has been modified to include a catwalk and mechanical handling equipment. The modifications will not only improve the operation but will also reduce the accident exposure.

h.

i. The exhaust duct openings left in the stage platform at K-402-1 when duct work was removed have been covered; however, the coverplates present a minor tripping hazard since they are slightly elevated.

j.

k. The alcohol testing bath in the K-1100 Building has presented a fire problem for several months and is now being improved by the installation of more desirable vats equipped with ventilation equipment.

5. Significant Types of Unsafe Acts

a. The electrical interlock in the was found tied down, indicating that some employee has not been following supervisory instructions.

b. Although the manner in which bus drivers operate on the plant has improved considerably, some of the drivers continue to be observed driving in a reckless manner. This includes such things as speeding and cutting in and out of traffic.

c. Employees entering the K-402-1 Area to either inspect the cocooning operation or for other purposes were observed not complying with the regulations established for work in this area. This included proper respiratory protection and general smoking requirements.

d. A maintenance mechanic was observed using a disc sander in a spread-eagle fashion with one foot on a step ladder and one on the building structure some 4' away.

e. Crane operators continue to transport material over employees heads. In many cases, this unsafe act is not accompanied by a warning bell from the crane operator.

f. Proper shielding of electric arc welding continues to present a problem and has been responsible for several flash burns during the past month.

g. Welders working above a vat of alcohol in the K-1037 Building made no attempt to minimize the chance of fire from the falling sparks.

h. A maintenance mechanic needing a step ladder picked up a ladder that had a step missing and used it until the ladder was pointed out to him as unfit for such work.

i.

j. Employees were observed riding a material handling cart in K-1100 Building. The cart is not designed to carry an employee with the load.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. The continuous water sampling for Clinch River monitoring has been completed and is in the final stage of testing. It is expected to be located in the river within the next few weeks.

b. A study was made of the fission products "fall-out" in this area due to the "A" Bomb explosion of March 17th. The results indicated a concentration of approximately 1 mr/hr, primarily beta radiation.

(Cont'd)

1. Items Requiring Special Attention (Cont'd)

c. The storage of contaminated SM valves was brought to the attention of supervision of the Stores Department, and it is their feeling that the problem should be controlled at either the user or decontamination activity rather than the Stores Department. It is their feeling that they are merely a service group and are dependent upon the groups mentioned to keep them informed.

d. The crane operators training program was started during the month. Other divisions, in addition to Maintenance, were notified of the program and are taking part in the training.

e. The carbon tetrachloride "in place" cleaning of electric motors has been scheduled for the K-27 Plant during the coming quarter. Operating procedures for this operation are being prepared.

f. It has been proposed that Electrical Maintenance recover the carbon tetrachloride from the electrical motor cleaning operation and, if such a project is carried out, it will be necessary to evaluate the levels of alpha contamination encountered.

g. The modification of Laboratory "J" to allow for the alkali metals experimental work will cause concern since it involves the experimental cave which has contamination levels as high as 2100 mr/hr. Supervision has planned a conference with the various groups concerned with this problem in order to point out the proper method for demolition and modification.

h. In order that the Plant Records Department might use the F-10 Building in the old N.E.P.A. Area, a survey was made of the uranium and plutonium contamination in this building. The uranium problem appears to be negligible but, according to the Industrial Hygiene Section, the beryllium problem is of a serious nature.

2. General

a. Exhaust ventilation has been added to the calcimer unit in K-1131 and is designed to remove nitrous oxide fumes from the operation.

b. Two types of injuries have been predominant during the past month; namely, eye injuries due to flash burns, splashing liquids, etc., and finger injuries resulting from material handling.

c. The medical restriction problem in the Barrier Plant caused concern during the past month when, on one shift alone, 15 men had some form of a medical restriction.

d.

(Cont'd)

1. Items Requiring Special Attention (Cont'd)

i. Since the blending operation of the K-1100 Area incorporates the transfer of finely pulverized material, a study has been made of possible dust explosion hazards in this area. No definite decisions have been made; however, the National Bureau of Fire Underwriters Report on such problems indicate that the problem can be controlled by several methods. Other information is being sought such as the manufacturer's experience with the material, and the U. S. Bureau of Mines studies of such materials, or similar materials.

j. Evaluation of the air sampling methods used on the plant and the related equipment is continuing. It was found that the Tornado samplers show lower results than the Pump-Type sampler. Efforts are being made to eliminate leakage around assembly connections and improve the calibration and reliability of results.

k. Comparative air sampling is continuing with the Gast Pump, Cenco-Hi Vacuum Pump, and the Tornado Type Sampler. The final results have not been completed.

2. General (Cont'd)

e. Crane accidents continue to occur; a 10-ton Whiting Crane in the back of K-1401 was involved in 2 accidents during the month. One of these accidents occurred when an employee allowed the cable to be lowered to its full length and re-wound in the opposite direction on the drum. The other accident occurred when the bolts holding the rail bracing and support came loose, causing part of the equipment to fall.

f.

g. Contaminated barrier grinding in K-1401 has not proven to be the contamination problem as first believed. The levels remain less than 200 counts per minute. High fluoride concentrations were found, however, and will require proper respiratory protection of employees involved.

h. 9th Street, West, has been restricted to only building traffic and delivery, and signs indicating this restriction authorized. The traffic in this area has been quite congested, especially during loading and unloading of 1-ton CWS cylinders, and it was felt by the supervisors of adjacent areas that this street should be closed to through traffic.

i. In order to have a more desirable means of reaching the basement in the restricted area of K-1401, a hatchway has been cut through the concrete floor so that the overhead crane can be utilized to lower or remove equipment in this area. Proper precautions have been taken to make the area safe.

C. Emergency Planning

a. The "A" and "C" shifts were involved in routine emergency problems during the past month. The "A" shift was involved in an operational drill when a large water header broke and required outside help to assist the operational group in the K-31 Area. The "C" shift was involved in a chlorine release at the K-1515 Building and, in general, involved nothing more than local emergency routine. The operational problem was exceptionally well handled but the release problem pointed out some of the fundamental requirements to handle such an emergency. need to be stressed.

b. In order to improve the plant evacuation system in the Cascade, Process supervision has authorized utilizing existing fire alarm horns and the installation of other alarms in area offices and the Central Control Room.

D. Protective Equipment and Clothing

1. The magnetic source handler, which is being modified, has not been completed.

2. One extensive user of the Comfo Dust Respirator has complained about the fit of the facepiece and filter resistance to breathing. The problem is being studied to determine if a more practical type respirator, that will fulfill K-25 requirements, is available on the commercial market.

3. One-hundred and twenty pairs of new vinyon-n coveralls were received during the past month. This is approximately 5% of the initial order.

4. As mentioned several months back, 2 pairs of experimental goggles were ordered for evaluation of their effectiveness against grinding wheel dust. These goggles were built with a foam rubber insert around the eye piece for a snug fit. Only slight improvement over the standard type goggle was noted and the addition of such stocks is not recommended.

5. The Y-12 Plant is contemplating the use of vinyon-n coveralls and is making studies of laundering and static electricity hazards.

6. Re-organization within the Stores Department has changed the responsibility for fulfilling material order points in this group. The General Stores Section is responsible for order points and stocks, and the Tool Section is now required to withdraw their stocks from this section. This affects safety equipment slightly.

7. A representative of the Lehigh Safety Shoe Company visited the plant and some of the difficulties of shoe delivery were brought to his attention. Apparently, a misunderstanding of the plant requirements has resulted in this concern making up K-25 orders after receiving requisition instead of withdrawing from stocks as established in the yearly contract.

8. The testing of the Mervac Vacuum Cleaner has not been completed; however, the tests made indicate that this machine will be acceptable for picking up mercury droplets and filtering out vapors. (Cont'd)

E. Fromotion and Education

1. The safety awards were received on the plant during the past month and distributed. Approximately 1% is yet to be delivered to stragglers, ill employees, and transferred employees.

2. A representative of the Safety and Radiation Hazards Department attended the Greater New York Safety Council Meeting from March 24, 1953 to March 27th. The meeting was average; however, as always, a few concrete answers to questions resulted as well as some stimulating talks and discussions.

3. Driver testing for the month is off about 20% over the past months.

4. Receiving and Shipping Department has offered an alternate proposal for identifying cylinders as presented in SPP-355. Their proposal would require the vendor to furnish the cylinders properly identified according to the material specifications rather than the receiving group identifying them.

(Cont'd)

D. Protective Equipment and Clothing (Cont'd)

9. The stocks of vinyl-coated gloves, No. H-494, are being reduced by substituting, where possible, this glove for the leather palm glove. Some complaints have been received from supervision as they feel that their work can only be accomplished with the leather palm glove.

10. Decals for identifying monorail and overhead crane high voltage electrical lines at K-631 have not been received.

E. Promotion and Education (Cont'd)

5. Recognition of the high frequency of eye injuries has prompted supervisory follow-up in the field. Safety meeting material has largely been built around this problem to further create concern on the part of employees affected by such work.

6. The film entitled "Accident Behavior" was shown on the plant several times during the month. This film deals with the step-by-step follow-up of an accident to pinpoint the cause.

7. Additional follow-up was made with reference to the new Interstate Commerce Commission rulings covering fire extinguisher modification and spare lighting parts to be carried on trucks operating within Interstate Commerce. Supervision of the Garage Department has been notified of the new regulations.

F. Summary of Air Sample Results

1. Air sampling for routine atmospheric conditions indicated only 2 problems during the month:

   a. HF concentrations in K-631 were found to be slightly above plant acceptable limits as the result of a faulty seal on an Elliott Pump.

   b.

2. Special air samples were taken to verify the conditions of problematical operations:

   a. A study was made of the fumes from the new welding flux in K-1024, Sil-Flux. Complaints have been received from instrument mechanics concerning throat irritations; however, when the final analyses are recorded, some fluorides will be found.

   b. A follow-up of a mercury spill in K-1004-C revealed no traces of mercury.

   c. Special analyses were made of trichloroethylene cleaning in K-1004-A; no concentrations were discovered in the area.

S. L. Sullins
Safety and Health Physics

SLS:msp

PLANT ACCIDENT EXPERIENCE

February 1953

The only major injury which occurred during the month resulted in a severe leg laceration; after its occurrence, 942,032 man-hours were worked without an incident. The plant severity and frequency rates for the month are well in line with the average plant experience, and the minor injury experience indicates a slight reduction in such incidents. No personnel exposures over the P.A.L. were indicated by film badge exposures.

Four of the 5 motor vehicle accidents occurring during the month proved to be rather insignificant; however, one of the accidents resulted in over $300.00 damage. The plant continues to be free of major fires and property damages although one minor property damage involving a damaged fence gate was noted. No notable changes were found in the plant levels of surface contamination, penetrating radiation, or other environmental conditions, and no major material releases of radioactive materials occurred.

3/4/53

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/45

[illegible]

[illegible] Post Office Box [illegible] Oak Ridge, Tennessee

[illegible]

DATE: March 4, 1953

[illegible]

SUBJECT: Highlights of the Plant Accident Experience and Safety Department [illegible] Report for February, 1953

1. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	3	4	8
No. of [illegible] Major Injuries	4	0	4	4
No. of [illegible] Injuries	2	0	2	10
No. of [illegible] Major Injuries	0	0	0	0
No. of [illegible] Minor Injuries	0	0	0	0
No. of Minor Injuries	373	397	770	576

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48		12-31-52	PREVIOUS SIX MONTHS 8-1-52		1-31-53	Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
[illegible]	12.39	0.00	2.87	4.24	0.00	2.09	1.86	0.99	1.91
[illegible]	6.78	0.00	0.38	0.08	0.00	0.05	0.02	0.003	0.02
Minor Injury Frequency (Estimated)				401.46	363.53	398.15	369.18	367.68	368.49

Last Major Injury Occurred February 2, 1953 Max. Hours and Days

Accumulated since Last Major Injury 942,032 Hours 26 Days

Fatal and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Laceration, right leg	2-2-53	2-3-53	3
	Avulsion, left thumb	2-12-53	-	-
	HF burns, left foot	2-19-53	-	-

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	5	2	7	9
Estimated Damage	$454.00	$99.00	$503.00	$184.00
Estimated Frequency Rate	1.75	1.16	1.23	1.98

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	1	1	3
Fire Loss (Estimated)	0.00	$25.00	$25.00	$1,278.00
Fire Loss Rate (Estimated)	0.00	0.00	0.00	0.15

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	1	2	3	0
Estimated Damage	$40.00	$103.00	$143.00	$0.00

CURRENT ACCIDENTS

Date	Location	Type	Description
2-6-53	K-1020 Parking Lot	Motor Vehicle	The driver left his vehicle parked with the emergency brake in the "off" position. The vehicle rolled backward and struck a power pole.
2-6-53	Avenue "P" and 7th Street	Motor Vehicle	The vehicle driver, angling toward the curb, misjudged the clearance and struck the Security gate post.
2-7-53	Poplar Creek Scrap Yard	Motor Vehicle	While attempting to pass another vehicle, the driver misjudged his clearance and struck another vehicle.
2-10-53	"F" Avenue	Motor Vehicle	The operator, backing his vehicle, failed to see another vehicle parked behind him.
2-18-53	Avenue "F" and 15th Street	Motor Vehicle	The vehicle operator, in making a turn at the intersection, failed to observe another vehicle turning in the opposite direction and struck its left front fender.
2-25-53	K-1037 Vehicle Gate	Property Damage	The latch on the electrically-operated vehicle gate failed and allowed it to swing back against a truck passing through. The latch of the gate caught on the corner of the truck bed.

Remarks

The statistical facts indicate no definite trends that can be considered serious; in general, the highlights of activities remain below last year's average.

1. The one property damage was relatively minor.
2. The number of minor injuries for the month is comparable to the average for the past months, but is slightly higher than the average for last year.
3. Motor vehicles are again above average in both number of accidents and damage.
4. Fires for the month were insignificant; a new protective device in K-1037 actuated on 2 separate occasions to minimize fire damage.
5. Four of the 5 over-tolerance hand counts arose because of unfamiliarity of trainees with the hand counting program; the other occurred due to a recording error.
6. For the second straight month, no over-P.A.L. film badges were recorded.
7. The slight increase in area and hazard indices can be attributed to material releases, operational difficulties, leaking drums, spills, and routine maintenance in K-1131, , Vault 16-A, and K-1410 Areas.
8. No fission product waste was discharged into White Oak Lake during the month; hence, a significant reduction of beta activity in the sanitary water system resulted.

III. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:
Modification to Security Fencing and Portals, Proposed K-1420 Decontamination Building, New Maintenance Offices, Laboratory Additions, K-33 Construction, K-27 Area contaminated in release, and proposed Maintenance Sandblasting Building.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks

Housekeeping conditions remain relatively the same. Decontamination of the affected areas mentioned last month continues to improve. The demolition of air supply to cell motor ducts created additional contamination in the K-402-1 Building when loose material fell from the internal sections of the duct-work.

2. Significant Types of Items Resulting From Inspections

a. All Shop Areas of the K-1401 Building, with the exception of 2 small areas, have been decontaminated according to recommendations. The 2 areas mentioned are expected to be completed in the next few weeks.

(Cont'd)

2. Significant Types of Items Resulting From Inspections (Cont'd)

b.

c.

d. Demolition work, connected with removing ventilation ducts from electric motors in K-402-1, has caused additional contamination since considerable material was caked along the side wall of each section of duct-work.

e. Recurring releases in the pumps installed in the waste line of K-306-7 Building necessitated the installation of cubicles to contain future releases.

f. The decontamination efforts in K-1413, anticipated in last month's report, have been completed; in addition to this work, painting has been carried out on the floor surfaces and the tower platform.

g. The trolley wires adjacent to the new platform and floor in K-1413 Building have been disconnected, and the crane was moved to the other end of the building.

h. The access platform adjacent to the new smeltering installation in K-1037-C has now been provided with a handrail.

i. Construction is approximately 80% complete on the K-1037-C annex which is to be used to reline furnace shells for the smeltering operation.

j. It was found that several areas are using either unqualified employees or employees with limited experience to operate overhead cranes. The supervisors of these areas were notified that the Training Department will give crane training to plant employees upon supervisory request.

k. A commercial product, "Rugged Wear", is being used to repair holes and worn spots in concrete to assure a smooth working surface. The material appears to be satisfactory considering the short time it has been in service.

l. The housekeeping program, carried out in the Stores Department, has produced a fire problem since the employees pour flammable liquids from a drum by gravity rather than use the lift pumps which are now routinely moved from barrels. The policy for handling such material has been changed.

3. Significant Types of Unsafe Acts

a. Operators of mobile cranes were observed deliberately switching off the proximity alarm during an operation near power lines. It was found that they were not aware of either the value or the method of operating this device.

b. Supervision of the Sheet Metal Shop has reinstructed their employees to use gloves when handling large sheets of metal. This came as a result of observing their employees handling sheet metal with their bare hands.

c. Employees of the K-1037 Area persist in lifting cylinders with a floor-operated crane from an off-centered position. A minor injury resulted in this unsafe practice some 2 months ago.

d. Following an investigation of a rather serious finger injury in the Welding Shop, supervision has established work practices of using wood block spacers between the metal table tops and heavy sections of sheet metal. This was done to preclude mashed fingers.

e. Employees of the Vacuum Pump Shop were noted using damaged chokers and slings while handling heavy pumps and compressors. It was necessary that the old equipment be replaced with new.

f. An increase in employee "horseplay" was noted in the Special Shops during the month and necessitated a reinstruction period concerning the problem at a subsequent safety meeting.

g. The handling of a large stator from the Machine Shop involved the use of the overhead crane and proper employee coordination. The work methods observed were conducive to equipment damage and involved such unsafe acts as employees riding stator, and failure to block equipment.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. A meeting was held with K-1131 supervision to increase the plutonium sampling locations in the Feed Plant. The additional sampling locations were the pumps and cold trap. The result of one sample has been received which indicates a 36 ppb of plutonium from the pump.

1. Items Requiring Special Attention (Cont'd)

b. A new distillation process is planned for installation at the top of the Cascade for product purification. Process Engineering will operate the process in a semi-Pilot Plant state.

c. Radioactive iron pipe is being used as a tracer in Laboratory A to determine the effects of iron plugging of barrier. The system is well shielded and identified, with the highest level readings of 50 to 75 mr/hr at the exposed side.

d.

e. The back log of uncontaminated scrap material from the K-1037 Area has been smeltered, and the furnace will be used only when sufficient quantities of scrap have built up to justify starting the operation. No decision has been made concerning the final disposition of the contaminated scrap from this area.

f. The Stores Department has the problem of getting rid of surplus material stored in Vault 31X that was contaminated during a release in K-27. Their major problem seems to be in complying with SPP-382.

g. Preliminary work has been completed on the radiation tolerances necessary to control daily dosage rates from Clinch River. The daily dosage of radiation from plant drinking water was based on the normal work span of an individual or approximately 30 years. A peak radiation was established to determine at what level the intake pumps would be shut down to prevent over-contamination of plant water supply. This figure was based on an assumption that 1/10 of a life-time dose in one day should be the shutting off level.

h. A comparative study is being made of the air sampling results obtained by the K-25 method of sampling versus Y-12 method of sampling. The final results have not been completed.

2. General

a. Assistance was given Canteen supervision in determining the resistance to contamination of the proposed tile floor material "Terraflex".

b. The Garage Department has discontinued reporting motor vehicle damages which are less than $25.00. This means that the damages reported by the Safety and Radiation Hazards Department cannot be compared with the damages reported by the Garage Department.

(Cont'd)

2. General (Cont'd)

c. Although the Maintenance Division Inspection Program points up problems from time to time, the interpretation of the seriousness of these problems, by supervision, varies widely. Some supervisors feel that only outstanding conditions or acts should be pointed out, while others enumerate even minor conditions.

d. The success of the continuous extractor of the Pilot Plant operation indicated a need for such equipment in the K-131 Recovery System and, consequently, one has now been installed. At the present time, no serious safety or health physics problems are expected.

e. A special hood, built of pipe framing and covered with canvas, is being installed in the K-402-5 Cell Floor to reduce widespread air activity and confine contamination during stage pump rebuilding. The hood is connected to the building exhaust fans to take off suspended material.

f. Modification of the K-631 monorail installation has been necessary to allow overhead clearance for loading and unloading trucks. The modification will include excavation to obtain a lower level of entrance.

g. Some anticipated moves within the Maintenance Division include transfer of the Seal Shop to K-303-1 Basement, remodeling of the K-1407 Building to house Sterilization Shop, and relocation of the Salvage Yard between the Cement Plant and K-1501, in order to clear out the present yard for the new decontamination building.

(Cont'd)

C. Emergency Planning

a. The emergency drills for the past month were modified to operational problems and were well received by the "B" and "D" Shifts. "B" Shift was involved in an operational problem in which a large water header sprung a leak and required outside help to assist the operational group concerned. The "D" Shift was involved in an operational power failure at the Steam Plant, and it, too, required additional help to manually fire the coal boilers. No serious misoperations or emergency routine faults were noted, but those employees involved got a brief glimpse of what could be expected in such emergencies. The additional help mentioned above was recruited from the emergency team, primarily the emergency squad members, firemen, and guards.

b. Some improvement has been noted in the condition of the emergency boxes throughout the plant, especially in the contents of the boxes and the current date of the equipment.

(Cont'd)

2. General (Cont'd)

h. Following a concerted effort to determine operators of damaged vehicles, Process Maintenance, who has been one of the major offenders, has initiated the procedure of holding the last person signed out with the vehicle responsible for any damage found. Improved reporting may result from this action.

i. The guillotine type of shear, located in K-1037 and used to remove ferrules from the tubes, has been adapted with a suitable guard to protect the operator from the blade.

C. Emergency Planning (Cont'd)

c. The emergency drills have pointed up the fact that several local areas have not established local emergency squads or have not properly trained them. In some instances, the drills had to be carried solely by the plant emergency squad, when a local group could either have handled the emergency or at least handled the preliminary requirements.

d. Modification of the C-216 alarm system in the K-1302 Area has resulted in a portion of the installation becoming obsolete. This equipment has been removed so that it will not be mistaken as operative.

D. Protective Equipment and Clothing

1. Supplies of the impermeable suit hood, designed to be worn with the Chemox Mask, were found to be depleted due to damage from laundering and decontamination. New supplies have been ordered.

2. Two complaints were received concerning slight HF burns while wearing the impermeable suit. Investigation of both cases revealed that improper method of wearing the suit was responsible for the burns.

3. The warning alarm on the overhead cranes in K-31 has not been adequate to alert employees working below. Plans are underway to modify the warning device or install a device that can be heard readily.

4. Dupont No. 553, a new type of film, will be used in the film badges in the near future. This film merely incorporates an additional high range film that Dupont No. 552 does not have.

5. Decontamination of the Chemox Breathing Apparatus caused some concern to supervision of the decontamination and sterilization section following the large material release in which they were used. A P.A.L. of 50 counts per minute was established for the face piece and the P.A.L. for clothing for the remainder of the apparatus.

6. An agreement has been reached with the Stores Department to identify both the Gas Mask and Chemox Mask as to the speaker and non-speaker types. The speaker type masks are not held for emergency or special jobs.

7. The magnetic source handler is being modified to incorporate a stronger magnet and a shoulder strap for additional aid in handling.

8. A usable continuous water sampler for composite sampling of Clinch River has not been found. Several vendors and health groups in this area have been contacted to determine if they have knowledge of such equipment.

E. Promotion and Education (Cont'd)

1. The Training Department's orientation in Health Physics was completed during the month.

2. Fifty percent of the safety awards have been received on the plant and the remainder expected by March 15th.

3. One department of the Chemical Division submitted minutes of their safety meetings. This occurred after a lapse of some 6 months.

4. The film "You Bet Your Life" was procured for use on the plant during the month.

(Cont'd)

D. Protective Equipment and Clothing (Cont'd)

9. A commercial type water sampler for sampling drain discharges has not been found.

10. The testing of the Mervac Vacuum Cleaner has not been completed.

11. Complaints continue regarding the neoprene coated glove, No. H-489, leaking; this complaint is not something new and can be recognized by close inspection. This glove was purchased for light protection and has never been recommended as safety equipment for general plant use. Certain department heads felt that the dexterity available in this glove made it well worth keeping on the plant.

E. Promotion and Education (Cont'd)

5. The problem of maintenance employees in K-1131 disregarding the personal hygiene aspect of contamination was highlighted with responsible supervision. A more responsible attitude can be expected in the future. A similar problem in K-1413, in which several employees were found with a uranium positive urinalysis, was handled through the area supervisors.

6. Additional work on Good Housekeeping calendar inserts is continuing. Three ideas are being developed. Other calendar inserts are also being prepared for final use.

F. Summary of Air Sample Results

1. Routine air sampling indicated the following problems during the month:

   a. Over the cleaning hoods in K-1024, an over P.A.L. of nitrogen dioxide was found. The 42 ppm found is considerably in excess of the plant limit of 25 ppm. Air studies and job operations are planned to establish corrective measures.

   b. The carbon tetrachloride motor cleaning operation at K-1030 indicated no serious employee exposure, although the samples point out that the concentrations range sometimes slightly above the plant limit of 50 ppm.

   c. The problem of keeping respirators or masks on employees in known concentrations of dusts, gases, or fumes, continues to cause supervision concern.

2. No special air samples were taken during the month.

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Safety and Health Physics

SLS:msp

PLANT ACCIDENT EXPERIENCE
JANUARY - 1953

The 2 major injuries of the month, one, a minor knee-cap laceration, and the other an amputated thumb, brought to a close the plant record of 1,124,160 exposure hours without a disabling injury compiled since November. No personnel exposures over P.A.L. were indicated by film badge exposures, and there appears to be a slight downward trend in the minor injury frequency. Two minor property damage accidents, totaling $103.00, and 2 motor vehicle accidents occurred during the month.

Two minor material releases at K-1303 and K-131 caused localized contamination in the areas, but a release in K-631 produced extensive contamination. The month was notably free of fires, and the plant levels of surface contamination and penetrating radiation remained essentially unchanged.

February 4, 1953

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site

6/15/95
Date

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: February 4, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for January, 1953

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	2	2	2
No. of Non-Tab Major Injuries	1	2	1	2
No. of Sub-Major Injuries	0	1	0	5
No. of Non-Tab Sub-Major Injuries	0	1	0	0
No. of Significant Minor Injuries	0	0	0	0
No. of Minor Injuries	385	415	385	289

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 - 12-31-52			PREVIOUS SIX MONTHS 7-1-52 - 12-31-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.87	4.24	0.00	2.13	1.82	1.86	1.86
Severity	6.76	0.00	0.38	3.23	0.00	0.54	0.02	0.02	0.02
							378.59	350.02	350.02

Minor Injury Frequency (Estimated)
Last Major Injury Occurred January 17, 1953 . Man hours and days
accumulated since last Major Injury 485,191 Hours 14 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
*	Laceration of knee	1-12-53	1-17-53	9
*	Amputation of tip of thumb	1-17-53	1-18-53	12

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	2	7	2	6
Estimated Damage	$49.50	$1205.40	$49.50	$146.00
Estimated Frequency Rate	1.16	2.69	1.16	2.53

Fires	This Month	Last Month	Year	Year Period
No. of Fires	0	1	0	2
Fire Loss (Estimated)	$0.00	$184.84	0.00	$1253.00
Fire Loss Rate (Estimated)	0.00	0.04	0.00	0.30

Other Property Damage Accidents	This Month	Last Month	Year To Date	Year Period
No. of Accidents	2	0	2	0
Estimated Damage	$103.00	$0.00	$103.00	$0.00

[illegible]

Date	Location	Type	Description
1-6-53	"E" Avenue	Motor Vehicle	The employee attempted to pass a vehicle and struck another vehicle when he failed to judge the clearance between his vehicle and a parked vehicle on the opposite street curb.
1-29-53	14th Street and Avenue "A"	Motor Vehicle	The employee was backing bus at an intersection and struck another vehicle parked behind his vehicle.
1-15-53	K-1037	Property Damage	A mechanic, operating a 15-ton crane, overhoisted the load, thus allowing the load block to strike a corresponding upper block with sufficient force to break 3 sheaves and damage the cable.
1-16-53	Maintenance Area	Property Damage	A pickup truck, equipped with a pipe carrier, was overloaded with 7 sections of 2" x 20' lengths of pipe. The truck bed broke loose at the rear, and the pipe fell on the rear fenders.

Remarks

No significant changes were noted in the comparative facts for the month. Film badge use is up; however, the number of exposures has varied only slightly. There were no over-P.A.L. exposures reported. The plant area index increased due to extended contamination in K-1413 and K-1004-J Laboratory. The reduction in the plant hazard index resulted from reduced contamination at K-1131. The most important change noted is the increase of beta activity in plant drinking water. Plant accidents, as a whole, are below the 1952 average. The 2 property damage cases were relatively small, but one of the personnel injuries will result in permanent finger disability.

II. Significant Highlights of Health Physics and Safety Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

New Water Storage Tank, New Security Fencing and Portal Construction, Laboratory Fluorination Process, Proposed K-1820 Decontamination Building, and New Offices for Maintenance Division.

1. Change in Plant Conditions

a. ____X____ No Change _____ Improved _____ Retrogressed

Remarks

Decontamination continues in the K-27 and K-631 Areas where sizeable material releases have occurred. Decontamination has now reached out-of-way places of these areas.

2. Significant Types of Items Resulting From Inspections

a. Although noticeable results indicate some clean-up in Laboratory "J", contamination by feed material is still present. A dry box has improved this work.

b. The new windshields for Scooters are in use and offer an improvement over the home-made cardboard shields which allowed poor visibility. The top-heavy appearance of the scooter apparently has no effect on the stability of the scooter, when in motion.

2. Significant Types of Items Resulting From Inspections (Cont'd)

b. The installation of an access ladder to the second floor of the Power House created a bumping hazard with an overhead steam line. The steam line was marked and identified to make it obvious to employees using the ladder.

c. K-1413 contamination is continuing to rise; however, the CA Pilot Plant is expected to shut-down in the near future, thus allowing clean-up and reduction in building contamination.

d. The hot waste holding tank at Laboratory "J" spilled over and filled the retaining pit. Analysis of the water indicated 120 ppm uranium and 238 ppb plutonium. The water has been removed to the X-10 holding pond.

e. The ventilation system for the K-1065 Welding School has now been installed. This installation was designed to exhaust the welding fumes from the building.

f. Due to several near-vehicle accidents within the K-1401 Building, the Maintenance Division has established a 5-MPH speed limit in this building.

g. The Maintenance housekeeping committees are again making routine inspections. The inspections are made on a 90-day schedule and provide for the rotation of the supervisory membership.

h. Catwalks and access ladders for operation of the Leslie gas valves at K-1501 Building have now been installed. This installation will make the operation in and around these valves much safer.

i. Diesel oil storage is to be maintained in the 2 Power House service tanks that have been cleaned of bunker oil. It is thought that the entire tank farm may be surplussed in the near future since the tanks are unused; each tank has been pumped down to residual storage of approximately 250 gallons.

j. No definite answer has been established to reflect the cause of 3 employees of the K-1413 Building showing up with positive urinalysis findings. More intense air sampling is being carried on to pinpoint the cause of this trouble.

k. Alpha contamination in K-131 has dropped noticeably. The contamination index has dropped from 70 to 23 and the hazard index from 174 to 56. General decontamination efforts were responsible for this reduction.

l. Rotted base timbers used in the steel storage yard will be removed and more permanent bases installed to better facilitate the storage of steel and other metal stocks.

m. Disposal of partially filled compressed gas cylinders continues to be a problem of the Manufacturing Office Division; however, the disposal group trained to handle such material is becoming better able to handle the cylinders.

3. Significant Types of Unsafe Acts

a. Employees of K-1037 Building removed the electrical interlocking switch to the pulverizer unit, thus leaving the equipment free to be opened during operation. The interlocking device has now been replaced.

b. The operator of the electric hoist in K-1037-C positioned himself hazardously while moving heavy loads from one side of the room to the other. The equipment has been re-designed so that it will not be necessary for the operator to position himself where a falling load might strike him.

c.

d. Large metal dies were found stored on top of a garbage can. The supervisor of the area immediately corrected this practice and had the material moved.

e. Employees of several departments were found working in contaminated material areas without respiratory protection. This condition was called to the attention of supervisors concerned.

f. Machinists were noted removing shavings and scrap material from running lathes with their bare hands. This action was called to the attention of the supervisor concerned who talked to the employees about such acts.

g. Mechanics, disassembling equipment in the Pipe Gallery in Building K-302-4, were observed throwing material from this elevation to the main floor without roping off the surrounding area and thus prevent other employees from walking beneath the workmen. This was called to the attention of the Maintenance supervisor who had the area roped off and a descriptive sign installed.

h. Employees were again observed riding on the back of truck beds with their legs dangling over the sides. This was called to the attention of the supervisor concerned who corrected this condition.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Warehouse supervision sent an inventory of the acid storage warehouse listing chemicals by rooms for study and determination if any of the materials were incompatible. Several recommendations were made to supervision concerning storage changes and future storage of incompatible materials.

1. Items Requiring Special Attention (Cont'd)

b.

c.

d. A Laboratory-sized feed plant has been installed in the ventilation hood of K-1413 and is being operated by the Conditioning Laboratory supervision. The engineer involved with the group is following the Health Physics and Safety problems that are connected with the work.

e. Investigation of the lead concentrations found in a special survey of the K-1401 dust sediment indicates no serious problem. Obviously, the lead dust is getting into the atmosphere from some operation, and, at the present time, the engineer involved is attempting to locate the source of lead dust.

f. A study of the K-25 film meter program, including history of the program, procedure at X-10, exposure of control films, etc., is underway.

g. A sandblasting building is being designed for use by the Maintenance Division and will incorporate 3 rooms; 2 of the rooms will be devoted to sandblasting and general shop work, the other room will be designed to house necessary metal spraying equipment. Several recommendations for improving this building have been accepted by the Engineering Design Group.

h. An over-filled HF tank car had to be pulled off to a railroad siding located outside of plant area where the HF material expanded and leaked out around the flanged connections. The plant group responsible for filling these cars now weigh each car so that over-filling will not occur again.

2. General

a. The improper use of the Hazardous Work Permit has led to a study of the mechanics for making the permit work. The material release involving the Beech-Russ Pump incident at K-631 indicates that not enough emphasis has been placed on the use of this permit by either operation or maintenance. Proposed modifications for improving the permit have been submitted.

b. Smelting of contaminated barrier appears to be static since the impurities found in the ingots make them unusable for the commercial market.

c. Job specifications for the freight elevator at K-1100 Area called for the use of an inching button rather than a floor leveling device. This method does not conform to code and Engineering was asked to use leveling devices at floor levels rather than use the inching button.

2. General (Cont'd)

d.

e. Effective January 1, 1953, some changes were made in the locations used to compute plant radiation and contaminated levels. Inaddition, changes were made in the areas surveyed (ft^2) and in survey frequency.

f. Garage supervision was contacted concerning the new ICC ruling that increased the size of fire extinguishers to be used on motor vehicles operating in interstate commerce. It was discovered that under a new plant policy, extinguishers are being removed from plant vehicles and all new equipment will not carry fire extinguishers. Vehicles operating in interstate commerce will be outfitted to conform to ICC Regulations.

C. Emergency Planning

a. "A" and "C" shift emergency teams were involved in regular plant emergency drills during the month. "A" shift was involved in a fluorine release in K-1302 Building and "C" shift was involved in a criticality problem in K-302-5. The efforts of the teams were average; however, one of the bright spots of the drills occurred after completion of the drill, when members of the emergency squad gave brief instructions to new members of the squad.

b. Emergency boxes continue to be found with out-dated equipment. The responsible supervisors were notified of the condition.

c. An additional section of the plant public address system can now be run off the emergency power system in case of a power failure. This change gives increased opportunity for use of the public address system during power failures in K-25, K-27, and K-31 Areas.

D. Protective Equipment and Clothing

1. Work is progressing on the testing of a Mervac Vacuum Cleaner designed for picking up mercury spills and purifying the exhaust. Results, at present, are inconclusive.

2. The magnetic source handler has been received. Tests show that the permanent magnet is not strong enough to pick up the source capsule and some modification has been necessary. Other changes are being considered for more convenient usage of this instrument.

3. The lead pot for carrying radioactive sources was completed during the month but needed slight modification prior to use.

4. The vinyon-n coverall contract was given to the Milburn Company on a price basis. This company was promised 1000 yards of cloth per week by the mill and claim that delivery should start shortly after the first shipment of cloth.

5. Cleaning, sterilization and decontamination of fabric-lined neoprene rubber gloves have presented a problem at the laundry. Efforts, at the present, are directed toward eliminating one of the drying periods which seems to slow up the work.

6. Fire blankets have been provided for use in the smelting building at K-1037-C. Showers have not been installed.

7. Respiratory protection and the protective carriers are being left scattered around the buildings after use. These conditions have been pointed out to the supervisors concerned.

8. A follow-up from last month on employees in K-1410 not wearing their safety glasses showed that all operators were wearing their glasses.

(Cont'd)

E. Promotion and Education

1. Three lectures on Health Physics instrumentation were given to Training Department personnal during the month. This training is in keeping with the plan to equip the Training Department personnel for field instruction.

2. The Industrial Relations Division held its quarterly safety meeting during this report period. A film, "Screwdrivers and Screwjays", was shown.

3. A film, "Accidents Don't Happen", was shown to the Mechanical Design Group at its monthly safety meeting.

4. Mr. P. C. Zienke of the Y-12 Safety Department showed a film to several of the Engineering Groups and to a few from the Safety and Health Physics Section. The film was made at Y-12 and was titled "Alkali Metal Reactions". Y-12 is having a copy of the film made so that it can be used on a standard sound projector.

E. Promotion and Education (Cont'd)

5. A suitable housekeeping insert has not been developed although several have been presented. Work on this is continuing.

6. Safety awards have been ordered and are expected for distribution about the first of March.

7. For the year 1953, a film has been ordered for each month of the year for use in safety meetings. These films are diversified in safety matter and are for use as a general safety film. Special films will also be procured when available.

F. Summary of Air Sample Results

1. Routine air sampling continues to be one of the best ways to determine atmospheric conditions of an area at a particular time. Most of the air sampling for the month resulted from routine sampling. With the exceptions of fluorine, trichlorethylene, and mercury, there were no over-P.A.L. results during the month. The fluorine concentrations were noted during routine maintenance of pumps, and the majority of those present in the area wore protective equipment; three or four by-standers did not wear respiratory protection. The over-P.A.L. trichlorethylene conditions resulted during normal degreasing operations when the operator did not allow drainage of equipment before elevating. The mercury condition resulted when an ordinary vacuum cleaner bag was found filled with mercury and had been spilled over the floor.

2. Special air sampling was used infrequently during the month and the four analyses gave no indication of a problem.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

INTER-COMPANY CORRESPONDENCE

*RBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: January 5, 1953

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for December, 1952

I. Plant Accident Experience

Plant Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	1	25	23
No. of Non-Tab Major Injuries	2	1	28	25
No. of Sub-Major Injuries	1	0	27	13
No. of Non-Tab Sub-Major Injuries	1	0	1	4
No. of Significant Minor Injuries	0	1	2	0
No. of Minor Injuries	425	374	4441	3194

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 - 6-30-52			PREVIOUS SIX MONTHS 6-1-52 - 11-30-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	4.24	0.00	2.02	0.00	1.94	2.17
Severity	6.78	0.00	0.34	3.23	0.00	0.54	0.00	0.07	0.31
Minor Injury Frequency (Estimated)				482.85	363.53	419.73	363.53	413.10	365.93

Last Major Injury Occurred December 10, 1952 — Man hours and days accumulated since last Major Injury 613,792 Hours 21 Days.

Majors and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
[redacted]	Third degree burn, 4th right digit.	12-4-52	12-30-52	1
[redacted]	Fracture, great toe.	12-10-52	12-11-52	19
[redacted]	Contusion, right flank.	12-17-52	-	-

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer, Oak Ridge K-25 Site — 6/15/95 Date

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	7	6	53	46
Estimated Damage	$1468.19	$582.55	$4487.34	$2467.42
Estimated Frequency Rate	2.73	2.02	1.75	1.74

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	1	0	12	14
Fire Loss (Estimated)	$170.00	$0.00	$2000.00	$737.00
Fire Loss Rate (Estimated)	0.04¢	0.00¢	0.04¢	0.015¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	0	0	5	10
Estimated Damage	$0.00	$0.00	$11,160.00	$3413.56

CURRENT ACCIDENTS

Date	Location	Type	Description
12-4-52	On Ridge Turnpike and White Wing Road	Motor Vehicle	The driver was traveling east toward the Oak Ridge Turnpike and White Wing Road intersection. As he entered the intersection, he applied his brakes. The vehicle skidded on the pavement and turned over on its top. Five persons in the vehicle exited through a rear window. One personal injury resulted.
12-5-52	Gate No. 153, Duct Line Road	Motor Vehicle	The driver was proceeding through Gate #153 and failed to maintain adequate clearance, striking the left rear fender against the gate.
12-11-52	7th Street West of Avenue "F"	Motor Vehicle	The driver of AE-3587 was traveling west on 7th Street into the intersection. The driver of AE-4099 failed to heed a stop sign at the intersection and struck the front fender of vehicle AE-3587.
12-11-52	" " Avenue and 3rd Street	Motor Vehicle	The driver of vehicle AE-1100 was backing and failed to maintain adequate clearance, striking a guard post.

Date	Location	Type	Description
12-14-52	16th Street inside K-1300 Area	Motor Vehicle	The driver of vehicle AS-2058 was using same to push a tractor to start it. The hitch slipped and the vehicle was damaged when it struck the bumper of the tractor.
12-23-52	Avenue "E" between Wing B & C, K-1001 Building	Motor Vehicle	The employee was backing and failed to maintain clearance, striking a parked vehicle.
12-26-52	Inside K-1021 Bldg.	Motor Vehicle	The employee failed to close a compartment door on the vehicle. As the vehicle was being driven from the building, the compartment door struck the side of the building, resulting in damage to the vehicle and the building.
12-1-52	K-1008-A	Fire	A fire was discovered in a wood clothing locker of Building K-1008-A. Three wood lockers were damaged including personal clothing of three employees. The cause of the fire was undetermined.

Remarks

A brief glance at the 1952 safety record, although similar to the 1951 record, indicates that a more serious injury potential was present in 195' than in 1951. This is recognized in the sub-major injury totals and minor injury frequency rate. Further study into these facts will produce additional facts that will undoubtedly reflect the causes.

Motor vehicle accidents again hit a monthly peak for the year and indicate that more serious consequences can be expected if such accidents continue to occur.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed t- -rd the following areas and operations:

New Water Storage Tank, New Security Fe- -ng and Portal Construction, Contaminated Materials Smelting, New Fluorination Process, Renewal of Driver Permits, and Handling and Distribution of Safety Awards.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks

The housekeeping emphasis continues to show evidence of efforts in several of the plant areas.

2. Significant Types of Items Resulting From Inspections

a. Inspection of the Parking Lots revealed that the parking problem becomes increasingly congested. Some 300 to 400 cars are regularly parked out of designated areas.

b. Locker inspections in K-1008-A did not reveal too many fire hazards, however, supervision recognized that many employees have stored in their lockers 2 or 3 like items of safety equipment.

c. Swinging scaffolds used on the job continue to be built according to specifications. In some instances, the extra personal safeguard of possibly a safety line could have been utilized to further protect the individual.

d. Instrument Maintenance work at K-1515 Basement occasionally causes mercury contamination. The operators of the building along with the Maintenance Group are abreast of the condition and are keeping the area free of mercury.

(Cont'd)

Significant Types of Items Resulting From Inspections (Cont'd)

e. Excavations along roads and utility lines have been left open creating both a pedestrian and a motor vehicle hazard and have made it necessary to closely follow such work to get correction.

f. Inspection of the new laundering facilities at K-1015 indicates that none of the working areas are above the plant allowable limit for contamination and the laundered clothing also continues to remain below the plant allowable limit.

g. All areas of the Barrier Metallurgical Department have now been set up as mandatory eye protection areas and so marked.

h. In an area of K-1037 Building, explosion-proof fixtures were found to be dismantled. This was brought to the attention of the supervisor concerned and has since been corrected.

i. Life rings presently located adjacent to the K-705 Building were found to be without suitable rope. This was brought to the attention of the supervisor concerned and has been corrected.

3. Significant Types of Unsafe Acts

a. Employees continue to use improvised work surfaces such as boxes, cans, and crates when working on short time jobs. This fact continues to be brought to the attention of supervisors concerned.

b. Employees at the Power House were noted storing broken ladders in the regular storage areas with other ladders. This occasion offered a good opportunity to revitalize Power House supervision's interest in their ladder program.

c. Two maintenance men were noted handling tools back and forth by tossing them from one elevation to another. This was brought to the attention of the maintenance supervisor concerned who promptly corrected the unsafe act.

d. During the major PG release in K-402-1, the employees concerned with the emergency and subsequent decontamination wore the prescribed respiratory protection but, in many cases, entered the area in their personal clothing.

e. Employees continue to attempt to manually handle equipment rather than to use mechanical equipment provided for such jobs. The most outstanding example of this occurred in the K-1037 Building when a 100-pound container of powder was manually carried upstairs and dumped into a hopper. This was pointed out to the local supervisor who thought a mechanical device could be added.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Laboratory "J" has an experimental program in operation in which uranium oxide is fluorinated with aqueous HF. This process has caused both safety and health physics problems which can be controlled.

b. A locker fire causing some damage and considerable fire potential prompted locker inspections in the various areas of the plant. For the most part, the fire hazards consisted of dirty clothing piled in locker, storage of a few cans of flammable material and evidence of burned out cigarettes on the shelve. Supervision recognized other values than fire hazards when they found that employees had several duplicate pieces of safety equipment stored in their lockers.

c.

d. Print review revealed that a loading ramp is being designed for the K-1037 loading area which would cause unsafe conditions. A modification of the design was presented to the Operations Group and Engineering and some improvement was attained.

1. Items Requiring Special Attention (Cont'd)

e. The specifications for the freight elevator for the new Blending Room of K-1100 Building called for an inching button that would allow the operator to move the elevator at will. This was considered to be hazardous and recommendations were made to designate the elevations to be used for loading and unloading, and thus allow leveling devices to control floor stops rather than an inching button.

f. With the increased work load in the Electrical Maintenance Group and prospects for an additional load from K-33, a new building and an addition to the K-1030 Building is planned to handle Electrical Maintenance work. To date, the major concern has been to establish the location of the new building.

2. General

a. From all indications, the laundering facilities as set up in K-1015 will be an improvement over the old program. Not only is cleaning and decontamination of clothing acceptable, but it appears that the change will be more efficient. Close follow up is being maintained to assist those groups involved to further improve this work.

b. The storage platform at the rear of Laboratory "P" continues to be cluttered with various pieces of equipment. Supervision of this area has agreed to improve this condition by returning unused equipment, salvaging unwanted material and, in general, just cleaning up.

c. Windshields have been purchased for the motor scooters and even though the windshields will not be received for sometime, supervision has agreed to remove the improvised shields to attain better visibility.

d. The Conditioning Laboratory is being moved to Laboratory "P" in order to allow for more room for maintenance facilities in K-1401. This work is routine and very little hazard has been noted.

e. The ferrule swagging machine in K-1100 Building has been redesigned to eliminate the pinch point in which several employees' fingers have been mashed.

2. General (Cont'd)

f. Employees of the Instrument Department were found to be using new visitor badges each day, causing unnecessary work in maintaining film badge records. Supervision of this group has been asked to request a permanent badge for each of these men.

g. Two major injuries have occurred to employees of the Hobson Construction Company. Both of these injuries are back sprains and, in general, were not serious. During investigation, their supervision knew very little about either accident. Additional efforts will be made to improve this situation.

h. Motor vehicle accidents again reached a monthly peak for the year and, included in this group, was one very serious incident in which one or more fatalities could have occurred. Such accidents justify closer supervisory attention.

i. Transportation of nickel ingots from the K-1037 Building has been by rail; however, motor carriers are now being used requiring additional loading facilities. To facilitate this work, a loading dock has been fabricated and a 2-wheel truck with an abnormally long handling arm. Routine handling by use of a fork-lift truck has been the only required equipment for loading freight cars but it cannot be used to load the motor trucks because of the low overhead.

C. Emergency Planning

1. The two plant emergency drills held during the past month involved "B" Shift in a C-216 release at K-1302 Building and "D" Shift in a sabotage drill at K-1515 Building. The over-all effectiveness of the plant emergency teams continue to improve; however, it is felt that one big factor which may further improve their work is the utilization of an emergency team in each localized area.

2. Additional work and study was made of possible employee dispersal routes in secluded locations to be used in case of an area attack at the K-25 Plant. A map colored to direct employees of the Safety and Protection Division to naturally protected areas near the plant has been made and can be reproduced.

D. Protective Equipment and Clothing

1. Repeated efforts to develop a guard for the Carpenter Shop table saws have not been too successful because of various limitations; Engineering has presented a new design that supervision feels will allow a more universal use of the saw. The guard is being manufactured at the present time and, if successful, others will be built.

2. Protective clothing and equipment necessary for employees in the Smelting Room were modified slightly to include protection during smelting of contaminated material. The recommendations were in keeping with plant policy.

3. Both fire blankets and showers are to be installed in the smelting area to prevent minor burns from becoming extensive.

D. Protective Equipment and Clothing (Cont'd)

4. The air supplied hood purchased for use with the present air supplied suits was received and is now in use on the plant. It appears that this hood will give the desired ventilation and cooling effect to the employees working in the hot areas.

5. Following a routine order of gas masks, the Army came back and asked for mask sizes. This is the first time that this has occurred because heretofore the face piece was built as a universal size. The Purchasing Department has requested samples of the small, medium and large mask so that one size can be established as average for the plant.

6. Two vendors have supplied leaded samples of material for inspection and study to determine if the density of lead is adequate to afford protection against penetrating radiation. One sample was made of a gra-lite base and the other sample was made of neoprene rubber.

E. Promotion and Education

1. Safety award details are continuing according to plans with the 7th of January established as the date for follow up on late cards and the 15th of January set for ordering the awards. The major hold up, as usual, seems to be getting the cards returned promptly since about 6000 were sent out and 168 are still to come in.

2. Reissue of driver's permits 3 years or older was completed with the exception of 2 groups of employees; one, those who have had a physical change since their permit was issued; the other, those employees who may be expected to drive their public carrier or heavy equipment on public highways. The 2 groups designated are held pending management decision.

3. Interesting details were uncovered in a not too extensive study of ICC Regulation changes. The most outstanding of these concerns the fact that hardly any periodicals or other publications indicate that changes are made from time to time in the safety portion. Further efforts are being made to determine how changes can be picked up without digesting the entire regulations as sent out by the Commission.

4. The 1953 calendars were distributed 2 weeks prior to the first of the year. Some additions to the original designated number had to be added.

5. A study was made of the procedure governing the gas mask and canister exchange and how well these procedures are being followed in the field. Basically, the program is carried on as planned with minor infractions that cause some masks and canisters to become out-dated. Two factors stand out as problems; one, the assault mask canisters are not being utilized to their fullest extent; the other, it is possible although not very probable that an assault mask canister may receive a crash concentration of some material and not be removed from service until the date established by coding.

E. Promotion and Education (Cont'd)

6. With the Training Department going into a heavy equipment and crane training program, the department has assisted them in organizing this program. The Maintenance Division, who requested this training, feels that it will go a long way towards improving some of the equipment incidents now occurring.

7. With the reduced fire protection inspections and routine, questions begin to come up in the field as to the prime responsibility for maintaining the fire equipment. This offers a good opportunity to explain to supervision the program of the Safety and Protection Division in this regard.

8. From the tone of the minutes of an Electrical Maintenance Safety Meeting, it is felt that these employees are beginning to realize that the safety program is actually their program and are taking a more active interest.

9. Three safety films were showed during the month by plant groups. The title of the films were, "The Air We Breathe", "Electrical Safety in the Home", and "Four Thousand Years of Experience".

F. Summary of Air Sample Results

1. Contrary to the air sampling of the last few months, December has been an exceptional month in which both special and routine air sampling has taken place. Furthermore, the results of these air samples did not indicate satisfactory conditions in all cases and points out that some correction is necessary.

   a. Routine air sampling points up the following conditions:

      (1) Nickel dust continues to present a problem in the K-1037 Building.

      (2) Freon and phosgene gases found in connection with maintenance change-out in process areas seems to be under control with hardly any traces of such gases.

      (3) Mercury conditions continue to remain insignificant since sampling indicates no problem; however, in the K-1300 Area, open containers of mercury were found and the drains contained visible accumulations of material.

      (4) In the Cleaning Area of K-1401, trichlorethylene was found to be above plant acceptable limits. This apparently came from improper handling and operations of equipment during degreasing operations.

      (5) A carbon monoxide problem showed up in the air sampling at the Garage Area and necessitated improved methods of exhausting the atmosphere of this building.

      (6) HF air sampling indicated 2 areas above plant acceptable limits; one area K-1004-J where the new experimental operations for fluorination is taking place; the other area was the K-1131 Building during normal operations.

   b. Special air sampling has been used to a great extent this month and points out the following conditions:

      (1) A wide range of contaminated dust results were found in the K-1037 Smelting Area while contaminated material was being pulverized. This problem is being considered by the supervisor of the area with the assistance of the Safety and Health Physics Department.

      (2) Fluorine concentrations inside the Towers of the CA Pilot Plant of Building 816 were below the plant limits.

F. Summary of Air Sample Results (Cont'd)

(3) Several investigations were made to determine if a normal dust problem was present in K-1037 and K-303-1. The results indicated no potential silicosis problem since the size of the dust particles and the quantities of dust present in the air were not conducive to developing this physical condition.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards Dept.

SLS:msp

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Mr. H. P. Henry
K-1001 Building

DATE: December 3, 1952

CC: Mr. W. L. Richardson
File

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for November, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	0	24	22
No. of Non-Tab Major Injuries	0	1	25	22
No. of Sub-Major Injuries	0	4	25	11
No. of Non-Tab Sub-Major Injuries	0	0	0	4
No. of Significant Minor Injuries	1	1	3	0
No. of Minor Injuries	435	445	4089	3148

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 to 6-30-52			PREVIOUS SIX MONTHS 5-1-52 to 10-31-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	4.24	0.00	1.87	0.00	2.04	2.30
Severity	6.78	0.00	0.34	3.23	0.00	0.54	0.00	0.00	0.34
				482.85	328.35	414.35	401.46	444.74	417.15

Minor Injury Frequency (Estimated)

Last Major Injury Occurred November 24, 1952

Man hours and days accumulated since last Major Injury 192,500 Hours 8 Days

Majors and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charge
*	Torn cartilage, right knee	11-24-52	12-3-52	-
*	Back Sprain	11-27-52	12-3-52	-

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	6	4	45	46
Estimated Damage	$582.55	$365.03	$3019.15	$2467.42
Estimated Frequency Rate	2.02	1.53	1.60	1.89

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	6	11	13
Fire Loss (Estimated)	$0.00	$110.00	$1838.00	$712.00
Fire Loss Rate (Estimated)	0.000¢	0.03¢	0.05¢	0.015¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	0	1	5	10
Estimated Damage	$0.00	$49.40	$8490.40	$3413.56

CURRENT ACCIDENTS

Date	Location	Type	Description
11-1-52	Blair and Dallas Rd.	Motor Vehicle	The driver of truck failed to apply his brakes in time to stop and struck No. 3 fire pumper from the rear.
11-17-52	K-303-1 and Avenue "K"	Motor Vehicle	The driver of the vehicle was backing from a parked position. He failed to maintain proper clearance and struck a utility pole.
11-19-52	Avenue "E"	Motor Vehicle	The driver of Bus No. 1 was pulling around Bus No. 2. He failed to maintain proper clearance and struck Bus No. 2.
11-21-52	State Route No. 73 Blount County, Tenn.	Motor Vehicle	The driver of federal vehicle was driving from the Airport toward Knoxville at approximately 20 MPH. The privately owned vehicle had been stopped on the shoulder of road when the federal vehicle skidded out of control on the ice and snow and struck it from the rear.
11-25-52	Avenue "F"	Motor Vehicle	The driver of vehicle An-1191 was proceeding south on Avenue "F" when a privately owned concrete mix truck, being towed by another truck, struck the side of the vehicle.
11-29-52	Avenue "F"	Motor Vehicle	Employee was driving north on Avenue "F", He attempted to drive through the partially closed gate, misjudged the clearance and the right side of the bus struck the gate post.

Remarks

For the second time during the calendar year of 1952, the K-25 Plant has accumulated the minimum number of labor hours without a disabling accident to be considered in the U.C.C. Safety Award Plan. On November 6, the plant had exceeded 1,509,849 consecutive labor hours and continued on to November 24 when a disabling injury occurred. The total number of man-hours worked during this period was 2,092,836.

Motor vehicle accidents again exceeded the monthly average of such accidents and 2 of the 6 involved third party.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations: New Water Storage Tank, New Security Fencing and Portal Construction, K-1037-A Contaminated Materials Smelting, General Plant Traffic, K-631 Conveyor Installation and Heavy Equipment Usage.

1. Change in Plant Conditions

a. _____ No Change _X_ Improved _____ Retrogressed

Remarks

The emphasis placed on plant housekeeping has caused considerable change in the appearance of many plant areas; not only have the areas improved their looks, but have also apparently had some bearing upon the "run of the mill" plant accidents.

2. Significant Types of Items Resulting From Inspections

a. Many improvements have been noted in the various areas since the emphasis has been placed on general plant housekeeping. Some of these are; lined off storage areas, better materials stacking, established aisleways, and the general removal of junk about the plant.

b. Additional safety screens have been provided in the Shop Area of K-1401 to eliminate the possibilities of electric arc burns to employees eyes.

c. Sheet metal guards have been placed on all belt and pulley transmissions in the Machine Shop.

d. Motor vehicles continue to be used on frosty mornings with only a small area of the windshield cleared for driver's vision. This condition has prompted a request to place a supply of scrapers in Stores.

e. Machine guards were found either removed from K-1037 or K-1100 machinery or else left off after maintenance; however, replacements were made upon notification.

2. Significant Types of Items Resulting from Inspections (Cont'd)

f. Scaffolding on the sub-contractors job is now being built in an acceptable manner. The 2nd and 3rd tier handrails for the interior scaffolding have not been placed to date but have been requested of the job engineer.

g. The experimental plating equipment set up in the K-1004-A Laboratory continues to expand thus necessitating equipment modification by supervision.

h. Extension cords leading from temporary equipment and other set-ups in K-1131 continue to crisscross passageways and doorways, creating a tripping hazard. These are gradually being eliminated or elevated to get proper clearance.

i. Maintenance supervision has taken steps to blank off open piping of equipment removed from contaminated service in order to minimize personnel exposure and reduce contamination.

3. Significant Types of Unsafe Acts

a. Maintenance employees continue to practice riding highlifts, tractors, and other mechanical equipment as passengers. Supervision concerned has been notified of this condition.

b. A group of Process Maintenance employees was observed smoking and using the lunch room facilities with contaminated person and clothing. Their supervisor promptly corrected this condition when the situation was brought to his attention.

c. Operators in the K-402-1 Area were noted using wrenches improperly sized and unadjusted. Supervision was notified of this condition and corrected the unsafe act.

d. Cascade Service employees were noted working at a decontamination table utilizing compressed air without eye protection. The supervisor was notified and promised corrective action.

e. Feed Plant operators were observed in a visible cloud of UF_6 without the benefit of Army Assault Masks. The supervisor promptly secured masks for these employees as soon as he was notified.

f. Machine Shop employees were observed using small files without handles for burring the stock on revolving lathes. The supervisor took immediate steps to correct this condition when it was called to his attention.

(Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Winch installation and special car moving devices have now been placed in use in the K-631 Railroad handling system. This, of course, will minimize manual movement of the cylinders and tend to improve the over-all handling problem.

b. Supervision of the K-1410 Building took steps to safeguard the 300-pound lid to the new spray tank in order to prevent it from falling while the operator is working in the tank.

c. With the increase of new supervision in the Maintenance Division, medical restrictions were discussed with top supervision to point out that these supervisors need to be impressed with the value for working restricted employees as prescribed by the Medical Department.

d. The installation of toilet and lavatory facilities at the Clinch River Dock will be started in the next 30 days.

3. Significant Types of Unsafe Acts (Cont'd)

g. Employees continue to be observed working from atop piled material or boxes; although this action is not uncommon, immediate correction is accomplished when the supervisor calls the situation to their attention.

h. An employee narrowly escaped serious injury when he mistook a ClF_3 cylinder for an oxygen cylinder and cracked the valve to determine if it was empty. Better cylinder identification is being placed on each cylinder so that this mistake will not re-occur.

1. Items Requiring Special Attention (Cont'd)

e. The K-1037-A contaminated material smelting process appears, at the present time, not to have near the problems that were first expected. Only one trial run has been made and the pulverizer was not used; however, the next sample run will include pulverized contaminated material and, until the results of these are completed, there will be no definite recommendations to supervision.

f.

2. General

a. A significant motor vehicle accident occurred when the driver of a bus attempted to pass another bus and struck its left hand corner in passing. This bus driver has had other such occurrences and supervision disciplined him severely.

b. Damage to mobile cranes, highlifts, and other mechanical powered equipment caused concern during the past month, primarily because of overloading and misuse. Often, supervision does not judge equipment misuse as cause for property damage but rather thinks of it as equipment failure. This fact was quite evident during an investigation of a Hyster damage.

c. Specific responsibilities for crane loading operations involving converters and compressors in the K-1401 Building have been specifically assigned to certain supervision in the area. This procedure is expected to reduce the number of handling accidents and reduce equipment damage.

d. The Maintenance Division inspections, outlined some 6 months ago, started out on a monthly basis but shortly thereafter drifted to a 90-day basis and, lately, no inspections have been made. There has been no notification that these inspections are to be discontinued.

e. The Stores Section of the Manufacturing Office Division, in order to follow through on the present housekeeping conditions, have set up committees in the various groups to assist in keeping their areas in acceptable condition.

(Cont'd)

2. General (Cont'd)

f. With the installation of new product lines in K-1100 and K-1037 to increase production, additional wastes must be discarded.

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g. In spite of all the emphasis placed on tagging contaminated equipment transferred around the plant, such equipment shows up from time to time. The significant incident of the month was a 4000 CFM vacuum pump transferred to the K-1401 Building by Process Maintenance. It was not tagged or decontaminated.

h. Leaky ClF_3 cylinders have created a serious handling problem to all groups concerned. The Transportation Department has agreed to handle all cylinders no matter their condition. We have agreed that we will assist supervision to train their employees in safe handling of gas cylinders.

i. The overhaul of the bag elevator located in K-801-A will not only improve the job safety but will also save a material loss.

C. Emergency Planning

1. As scheduled, 2 plant emergency drills were held during the past month and involved "A" shift in an ammonia release and "C" shift in a fire at K-402-2. The effectiveness of the emergency teams seem to improve with each drill, but even so, such things as lack of specific equipment, indecisiveness of the significant factor of the drill, and a few other unforeseen circumstances indicates that there will never be too much planning.

2. HC smoke pots are now available as a stores item for use in emergency drills or other needs.

D. Protective Equipment and Clothing

1. With the main laundry taking over the entire plant laundering facilities of both contaminated and uncontaminated equipment, only minor complaints have been received. These are primarily delivery dates. A study of procedures for sterilization now being used in conjunction with the normal cleaning problem may be modified since some handling costs can be eliminated. This problem is being considered by the groups concerned.

2. The hopcalite material for replacement in the Mervac Vacuum Cleaner filter cartridge has been received, and the Mervac Vacuum Cleaners have been shipped from the vendor.

3. The emergency boxes placed in Stores are being withdrawn and used for ordinary storage boxes around the plant. This use is not only expensive but is misleading because of the manner in which they are identified. The problems involved have been brought to the attention of supervision concerned.

4. The Purchasing Department has not been successful in locating a vendor for firemen's boot with a built-in puncture proof sole. They are continuing to make contacts since it is believed that such equipment is manufactured.

5. It was found impractical to use standard neoprene shoulder length gloves in the vapor blaster at K-1410. For this reason, the machine part had to be reordered to fulfill this job.

6. Concern over the insulation qualities of the long cuff asbestos glove prompted the investigation of supplies. It was discovered that this style glove had not been received on the plant since 1950 and no changes have really occurred since the original standardization of gloves sometime in 1949.

7. Leather palm gloves were recommended to the Transportation Group for handling dry ice since the plastic coated gloves they had been using would get so hard and stiff employees had little dexterity and finger movement.

D. Protective Equipment and Clothing (Cont'd)

8. A more indicative label is needed for the ClF_3 cylinders since the present label will only cover one-third of the cylinder circumference. This lack of identification was recognized when a near accident occurred during the past month.

9. A Woodhead extension light incorporating the features of maintaining a safe light in an enclosed and hazardous area by transforming a 110-volt system to 6 volt was examined and shown to interested supervision. The general feeling was that all boiler overhaul, pressure vessel testing and inspection, and other hazardous jobs requiring low voltage lighting should use such a piece of equipment.

E. Promotion and Education

1. The fact that several potentially serious accidents have occurred on the 4-12 shift in the Machine Shop was pointed out to supervision concerned. Their reaction indicated concern that the second shift accidents should be out of line with first shift accidents. They immediately inaugurated increased safety efforts, emphasizing good workmanship, safe acts, and general shop housekeeping.

2. Special housekeeping slogans and posters have been developed to further emphasis the present trends in housekeeping improvement throughout the plant.

3. Supervision of the Maintenance Shop has been contacted to improve their investigation of minor injuries. The major concern has been to attain 3 factors; proper cause coding, adequate description, and recommendations for improvement.

4. A noticeable let-up in proper ladder usage prompted the immediate use of the safetygraph in the groups that have the greatest need for the material.

5. The general safety film produced by the Pennsylvania Railroad has been well received during the month and many requests have been made to bring the film back at some later date.

6. The 1953 calendars were received and the job seems to be very good. Distribution will follow about the first of December.

7. The safety slogan contest handled through the Carbide Courier was completed during the month with 75 slogans presented. It is expected that some of these slogans will be used on the 14 slogan boards placed throughout the plant.

E. Promotion and Education (Cont'd)

9. The calendar insert and poster work has been limited somewhat with the decision to discontinue the use of multi-color printing on the plant. The Paint Shop no longer employes a cartoonist and, at the present, one of 3 choices must be made to secure cartoon work for the future:

   a. Use K-25 employees with the knack for art work.

   b. Use either Y-12 or X-10 artist.

   c. Go on the outside for art work.

F. Summary of Air Sampling Results

1. As was the case in last month's air sampling results, no serious problems presented themselves in either the routine air sampling or special air sampling for this period.

   a.

   b. Fluorine concentrations in K-101 indicated only slightly above P.A.L. during the period of sampling.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

[illegible] CARBIDE AND CARBON CHEMICALS COMPANY

[illegible] DIVISION OPERATING CONTRACT [illegible] Post Office Box P, Oak Ridge, Tennessee

TO: Dr. J. P. Henry
K-1001 Building

CC: Mr. J. L. Richardson
File

DATE: ~~November 3,~~ 195~~2~~

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for ~~October~~, 195~~2~~

I Plant Accident Experience

Personnel Injury Experience	This Month (Estimate)	Last Month	This Year to Date	Last Year Same Period
No. of Major Injuries	0	2	22	19
No. of Non-Fatal Major Injuries	0	3	24	21
No. of Sub-Major Injuries	5	0	26	6
No. of Non-Fat Sub-Major Injuries	0	0	0	3
No. of Significant Minor Injuries	1	0	1	0
No. of Mine Injuries	400	392	3654	2876

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 to 6-30-52			PREVIOUS SIX MONTHS 4-1-52 to 9-30-52			Last Month Actual	Current Month Est.	Year to Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	4.24	0.00	1.93	2.04	0.00	2.36
Severity	6.78	0.00	0.34	3.23	0.00	0.61	.01	0.00	0.36
Minor Injury Frequency (Est.)				402.85	328.35	406.71	400.76	400.00	391.17

Last Major Injury occurred September 24, 1952 [illegible] Lost hours [illegible] Days

Accumulated since last Major Injury 1,232,391 Hours 37 Days

Majors and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
	Right forearm broken	10-6-52	-	-
	Fracture, left rib; contusion, left side and kidney	10-17-52	-	-
	Fracture, left little finger	10-21-52	-	-
	Fracture, right wrist	10-30-52	-	-
	Deformity, 1st digit, left hand	10-30-52	-	-

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	4	6	40	44
Estimated Damage	$365.03	$422.26	$2554.49	$2455.42
Estimated Frequency Rate	1.53	2.29	1.62	1.99

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	6	0	11	8
Fire Loss (Estimated)	$110.00	$0.00	$1830.00	$27.00
Fire Loss Rate (Estimated)	0.03	0.000¢	0.05¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	0	1	4	9
Estimated Damage	$0.00	$700.00	$8441.00	$3201.56

CURRENT ACCIDENTS

Date	Location	Type	Description
10-6-52	Storage Yard, West, K-1059	Fire	Timbers ignited by welder's sparks.
10-6-52	East, K-1004-F	Fire	Insulation on truck ignited by hot pipe.
10-6-52	East, K-1037	Fire	Hot coals inadvertently put in Dempster Dumpster.
10-17-52	K-1066 Cylinder Yard	Fire	Wood framework under cylinder apparently ignited from carelessly discarded cigaret e or match.
10-20-52	Outside, K-1414	Fire	Trash in Dempster Dumpster ignited from welder's sparks.
10-23-52	Col. C-6, K-1401	Fire	Wood framework in escape hatch ignited by welder's sparks.
10-16-52	7th Avenue, West Avenue [illegible]	Motor Vehicle	The driver of Vehicle No. 1 was backing and failed to maintain clearance, striking a motor scooter.
10-16-52	K-1414 Parking Area	Motor Vehicle	The employee was leaving a parking area at K-1414 Building and failed to maintain clearance, striking rear door and fender of another vehicle.

(Cont'd)

Date	Location	Type	Description
10-16-52	7th Street, West K-402-2	Motor Vehicle	The vehicle driver was backing from a parking space and failed to maintain clearance, striking a Fire Alarm Box.
10-29-52	Oak Ridge Turnpike at "E" Road Intersection	Motor Vehicle	The employee was traveling west on the Oak Ridge Turnpike. As he approached "E" Road intersection at an excessive speed, a truck approaching the intersection from "E" Road failed to stop. The employee applied his brake, skidded and drove off the road into a ditch. The employee received minor injuries.

Remarks

One particular cause of fires has presented a problem through the past month, primarily because of the dried condition of grass and weeds. The fires were started by welder's slag or sparks in which the grass or weeds surrounding the work area caught afire. Little, if any, precautionary measures were taken prior to welding operation.

The plant is again approaching the one and one-half million man-hour mark. November 8, 1952 is the approximate date this will occur.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Inspection during the month was directed toward the following areas and operations:

Power House Boiler Overhaul, New Water Storage Tank, New Security Fencing and Portal Construction, K-1037-A Contaminated Materials Smeltery, and general plant traffic.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks

Although no great change was noted in the general plant conditions, the construction now in progress along with the new construction that is expected in a few weeks will cause additional hazardous conditions.

2. Significant Types of Items Resulting From Inspections

a. Inspection of one sub-contractor's work pointed out that the supervisors and employees of this concern are not aware of code requirements for ditch excavations and had men working in a ditch some 6½' to 7' deep without any sort of shoring. The K-25 resident engineer, responsible for this job, was contacted, but he apparently felt that the sub-contractor had no serious problem since nothing was done to correct the condition.

b. The pressure differential between the inside and outside of the K-31 Building cell floor has caused considerable concern because the cell floor door swings open so violently. Supervision of the area has asked Engineering to offer a solution to correct this problem.

(Cont'd)

2. Significant Types of Items Resulting From Inspections (Cont'd)

c. On enlarging the K-1037 Parking Lot, right-of-way entrances had to be cleared and part of the parking area graded.

d. The large converters in the vacuum testing area have been improved by guarding the sprocket chain drive for the test wagon, by replacing several unsafe tools and by providing a tongue rest for the transfer wagons.

e. The Stores Department has provided a one-piece ramp for the loading dock between K-1212 and K-1213 Buildings.

f. Process Maintenance trucks have been equipped with anti-slip tread to prevent further injuries to employees while ascending and descending the trucks.

g. Fan housing extensions at K-861 Cooling Tower, promised some months back, have now been completed. The extensions were recommended to preclude either an operator or some other employee from being struck by the revolving fan blades.

h. The Barrier Research Department, located in the K-1401 Building, was found to be below its average safe condition. The housekeeping was below average and the mechanical and electrical shielding and guarding were not adequate. Correction of these conditions can be expected within the next two weeks.

i. Fire investigations reveal that supervision is not keeping their fire extinguishers filled.

[illegible] Unsafe Acts

a. The past month was plagued by a series of small fires which were started from the lack of precautionary measures rather than an unsafe act; however, both electrical and oxyacetylene welders can be expected to prevent such fires by protecting the surrounding work area from sparks and slag.

b. Although some employees are negligent about wearing safety glasses in generalized eye protection areas, it is generally felt that employees working on hazardous jobs usually wear their protective glasses or goggles. However, two men were found in the K-1037-A Area, one using a power grinder and the other chipping on a soft metal ingot without using any sort of eye protection. The supervision concerned immediately corrected this work habit.

c. An electrician, working on a mobile crane, was found using an extension cord from which he had stripped the insulation and then had the bare ends inserted into a three-way receptacle. The supervisor concerned immediately corrected this practice upon notification.

(Cont'd)

[illegible] Plant Problems

[illegible]

a. The proposed job of smelting barrier in K-1037-A Building will create undesirable contaminated conditions in the surrounding area and will require respiratory protection for the operator. Recommendations are being prepared as a guide for supervision of this area.

b. The Engineering Division is proposing to use portable oil fired heaters in K-33 and X-Cite to provide heat for starting up or conditioning cells. The heaters now in use in K-31 utilize steam and the Operations Group is interested in getting away from this type of heater. The problem was discussed in general in which such things as a fire hazard and safety hazards were mentioned.

c. The Engineering Division was not able to furnish an adjustable guard for standard portable disc grinders as requested by the Stores Department. It was their general feeling that a guard could not be designed for a variety of jobs, but could be designed for any one job that was now being carried on or was expected in the future.

3. Significant Types of Unsafe Acts (Cont'd)

d. After noticing that the Stores Department clerks were jumping from the platform to service motor vehicles with gasoline, it was decided that a set of steps was needed near the gasoline pumps rather than use the present set of steps located 40 feet down the loading dock.

e. Contrary to the recommendations of SP-11, the material involved is being stored in large quantities on the cell floor of the K-601 Area. Supervision is aware of the potential hazards of this material but indicate that this area will continue to be the general dispensing area. A method of attaining correction or offering an alternate solution to this situation is being studied.

f. Employees using the portable inspection platform and ladder in K-1401 were observed standing on the platform while other employees were moving it to a new location. Although the platform has been built to adequately safeguard workers, it was not built for such use. Supervision has taken steps to eliminate this practice.

g. On two occasions, crane operators have been observed using an overhead crane as a tugger or pulling device in which they have hooked onto wheeled carts and pulled them across the floor by trolleying the crane. This has been called to the attention of supervision concerned.

1. Items Requiring Special Attention (Cont'd)

d. At the present time, the chrome and nickel plating shop proposed for the Machine Shop Area will not be installed. Evidently, the plating being done at Y-12 is not satisfactory and it is felt that K-25 can do this work better and more expeditiously. The installation and operational problem is no different from any other routine or standard type plating problem.

e. Following several complaints about the Gallahar Bridge, it was found that the bridge decking was in a serious condition. The rock trucks now traveling this bridge to the K-33 site had beaten the top planking and some of the supporting structure underneath until large openings were evident. This information was passed on to the AEC Safety Department, and it has now been improved.

f. A detailed study was made of the Medical Department's letter, listing the recommendations for correcting some of the medical and industrial hygiene problems in the K-1037 and K-1100 Area. Each item was studied and recommendations made concerning its value.

2. General

a. Driver testing has again reached a peak making this load far above our previous anticipated level.

b. Three additional motor vehicles were sent to the Garage for repairs to damage that had not been reported as motor vehicle accidents. The total amount of the damage was approximately $40h.00, indicating the extent of this damage.

c. A special study was made of the shuttle bus activity from the K-1024 Building. Some complaints from over-loading have caused concern. The study revealed that, on the particular day chosen, no over-load was observed.

d. The proposed revisions in the electrical permit procedure appear to relax the responsibilities of the electricians checking the electrical system. It is felt that a stronger responsibility should rest with this group, and the group revising this procedure has been so informed.

e. The transfer of the gasoline pump from the K-1401 Building to the K-1035 Building has been completed with no difficulty. The supervisors concerned planned this job completely so that the old underground tank was pumped free of gasoline and the excess floated out with water. After all the gasoline was removed, final precautions were taken by filling the tank with water, by capping off opening and back-filling the excavation.

C. Emergency Planning

1. The two plant emergency drills held during the past month involved the "B" Shift in a plant sabotage drill and "A" Shift in a chlorine release at the K-801-A Building. The basic considerations in setting up such drills was to determine the effectiveness of the shift emergency team. It is generally felt that the emergency work of the shift teams continue to improve; however, those involved in this emergency work continue to expect a good or bad decision from the judges whose only responsibility is to point out the general trends of the various group's activity.

2. On a request from the Shipping and Receiving Department, the engineer concerned has assisted them to develop a local emergency team that will be capable of handling their local emergencies. Their training consisted primarily of developing a know how to handle certain chemicals, where to get assistance for meeting emergencies, and the equipment available to them for protection during such an emergency.

(Cont'd)

D. Protective Equipment and Clothing

1. Concerning the U. S. Army Assault Mask now being stored because of unusable condition, the Stores Department has started replacing the eye pieces on the mask and are placing one hundred of these masks back in service each week. The cost factor is high; however, this work is being done as slack time occurs in the Maintenance Group responsible for this work.

2. No definite conclusions have resulted from the study of carbon dust sifting from around the retaining ring of the M-11 canister filters. The number of complaints are relatively few.

3. To improve the worth of the heat suit now in use and to assist the Compressor Shop Maintenance Group in making their work in cells safer and more comfortable, a test helmet with an air supplied inlet has been purchased for testing. It is expected that this hood will afford the employee protection against 170° heat, thus enabling him to remain in the area on an extended shift.

4. Mervac Vacuum Cleaners, promised for the first of October, have not been received.

5. Three crane boom warning devices have been received on the plant to prevent crane operators from booming their crane into highlines. The alarm works very satisfactorily in that it is adjustable to the desired limits or working area; however, if a crane operator sets the working limits on the warning device and then pays little attention to the signal by booming erratically, the crane boom may pass through the alarm zone and strike the highline.

C. Emergency Planning (Cont'd)

3. The committee set up to study emergency conditions during snow, sleet, or icy conditions, met during the past month and outlined the program for the coming winter season. The decisions were distributed to those concerned in the form of a letter signed by Mr. J. B. Scott.

4. The K-25 classified material prepared for disaster control in Oak Ridge Area has now been indexed and placed in a special file cabinet in the AEC Patrol Building located on Bear Creek Road and adjacent to the Y-12 Area. This building's number is 9705 and the entrance is located 200 yards west of the north portal of the Y-12 Plant.

Protective equipment and facilities (cont'd)

6. Although some areas are making an attempt to keep the local emergency boxes in usable condition, other areas show little, if any, interest in keeping the equipment in usable condition.

Promotion and Education

1. A safety film, "Not By Chance" produced by the Pennsylvania Railroad, was given wide distribution in the plant since it was felt that the film had a good general safety lesson for all concerned.

2. The 1953 calendars are being silk screened by an advertising firm in Knoxville with a bid of 55 cents each. The calendars are to be ready by December 15, 1952.

3. Efforts of each engineer during the month of October have included promoting Fire Prevention Week. Suggested material for safety meetings was built around this theme and applicable fire films were used.

4. The safety award period from February 28, 1952, to June 9, 1952 is ready to be announced. The bronze bar indicating the UCC Award was received and has been mounted with earlier awards.

F. Summary of Air Sample Results

1. Routine air sampling continues to show a marked indication that such a program produces desired results. Only one investigation indicates over P.A.L. limits.

   a. The routine air sampling for mercury, hydrochloric acid, fluorine, oxides of nitrogen and trichloroethylene all indicated the areas involved were relatively free or well below the P.A.L. for the material investigated.

   b. A [redacted] problem still exists in [redacted] and has prompted the Medical Department to request that Barrier Plant supervision furnish coveralls to employees in this area. It is our understanding that supervision has agreed to furnish the employees involved with company issue coveralls.

2. Only two types of special air sampling was requested during the past month and in all studies no serious problem was indicated.

   a. Like the results of the routine mercury air sampling, the results of special air studies indicate little, if any, mercury problem.

   b. A special study of the fluorine discharge from the K-1131 stack and its subsequent dilution throughout the area revealed that it would be difficult to predict the pattern such gases would assume in traveling across the plant. Although no over plant limits were found, it was discovered that higher concentrations of fluorine were found one-half mile downwind from the stack than were found one-fourth mile downwind from the stack.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. P. Henry
K-1001 Building

DATE: October 2, 1952

CC: Mr. W. L. Richardson
File

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for September, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	4	21	17
No. of Non-Tab Major Injuries	3	2	24	18
No. of Sub-Major Injuries	1	3	22	8
No. of Non-Tab Sub-Major Injuries	0	0	0	2
No. of Significant Minor Injuries	0	0	0	0
No. of Minor Injuries	450	456	3254	2561

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 - 6-30-52			PREVIOUS SIX MONTHS 3-1-52 - 8-31-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	4.24	0.00	2.58	4.24	2.12	2.53
Severity	6.78	0.00	2.34	3.23	0.00	1.64	0.08	0.02	0.42
Minor Injury Frequency (Estimated)	482.85	328.35	396.39				482.85	406.50	391.65

Last Major Injury Occurred September 24, 1952 — Man hours and days accumulated since last Major Injury 189,346 Hours 6 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
*	Acid burn, left eye	9-16-52	9-17-52	1
*	Amputation, distal portion of left thumb and fractured second finger.	9-24-52	9-25-52	6
	Imbedded splinter under nail of 2nd digit, right hand.	9-25-52	-	-

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	6	3	36	41
Estimated Damage	$422.26	$149.15	$2189.46	$2247.42
Estimated Frequency Rate	2.29	0.78	1.52	2.09

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	0	5	7
Fire Loss (Estimated)	$0.00	$0.00	$1725.00	$25.00
Fire Loss Rate (Estimated)	0.00¢	0.00¢	0.05¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	1	1	4	9
Estimated Damage	$7000.00	$75.00	$8461.00	$3201.56

CURRENT ACCIDENTS

Date	Location	Type	Description
9-7-52	Northwest Ramp, Plant 113	Motor Vehicle	The driver of Vehicle E-898 was traveling east on the northwest ramp when the accelerator stuck. He glanced down to see what was wrong and, during this time, his vehicle swerved into the security fence.
9-10-52	9th Street at "F" Avenue	Motor Vehicle	The driver of Vehicle AE-3777 stopped at intersection of Avenue "F" and 9th Street. The driver of Vehicle AE-3778, following, applied his brakes but they failed and he struck the vehicle in front of him.
9-15-52	Access Road-E-1410 Bldg.	Motor Vehicle	The employee was backing out from a parked position. The employee failed to see the vehicle behind him and struck it.
9-15-52	East, E-1036 Building	Motor Vehicle	The vehicle operator failed to maintain adequate clearance in passing a utility pole as he left a loading platform and damaged the running board of his vehicle as he struck the pole a glancing blow.
9-23-52	E-1058 Bldg.	Motor Vehicle	The employee was backing his vehicle up to a loading platform. He misjudged the distance and struck the bumper block of the platform.

(Cont'd)

CURRENT ACCIDENTS (Cont'd)

Date	Location	Type	Description
9-26-52	Avenue "K" at K-309-3 Bldg.	Motor Vehicle	The driver of Vehicle B-6054 was traveling north on Avenue "K". As he approached the K-309-3 Withdrawal Alley, the driver of AE-1840 backed out of the Withdrawal Alley directly in front of him and he struck the vehicle on the right side, resulting in damage to both vehicles.
9-11-52	K-602-3 Bldg.	Property Damage	Oil filter units damaged when struck by a Yale low-lift operated by an unauthorized driver.

Although the number of major injuries has fallen off during the past month, the minor injury frequency continues at a high level, considerably above the yearly average. Efforts have been made to call this minor injury trend to the attention of concerned supervisors so that attention can be given to the predominant accident causes.

For the second time this year, motor vehicle accidents have again reached a peak and presents a problem of improving simple driving techniques.

Studies of accident records to determine if any particular factor could be responsible for the increase in injury frequency revealed that employees hired since January 1, 1952 were involved in approximately 30% of the accidents. This fact pointed the way to definite corrective action.

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

Power House Boiler Overhaul, K-1300 Area Electrolyte Loading and Dumping Procedure, New Water Storage Tank, and New Security Fencing and Portal Construction.

a. _____ No Change _____ Improved _____ Retrogressed

Remarks x

Significant Types of Areas Requiring Some Inspections

a. An inspection of the K-1024 Building revealed that some improvement could be made in the storage of acetone, alcohol, and acids located in the Pickling Room. Supervision of this area is now making plans for storing the flammable material outside the building.

b. A lighting survey in the Communications Building at Oak Ridge indicated a need for additional lighting over the operator's switchboard. An Engineering request has been made to improve the lighting conditions.

c. Maintenance supervision, assigned to the Power House Boiler Overhaul, continues to keep hazardous areas roped off, welding rods off the floor, and oil spots cleaned up. On some occasions, however, the time lag between first notice of a hazardous condition and its correction is extensive.

2. Significant Types of Items Resulting from Inspections (Cont'd)

d. The electrical wiring for Guard Tower No. 33 is being repaired and the old handrail sections will be spliced by bolting.

e. The slipperiness of the K-1001 tile floor has been corrected by scrubbing the protective glaze from the tile with strong soap. This protective glaze was an intermediate coating that was applied to this tile prior to waxing.

f. The defective latch observed on freight elevator in Laboratory A is being repaired in order to obtain the proper interlocking operation.

g. The fire escape stairs on the outside of Clayton Hall were found to be in need of repair and the supervisor of this building has made arrangements to get the work done.

h. The Maintenance Engineering Department has agreed to repaint all guy wires, utility poles, and barricade posts so that they will not be an obstacle to safe vehicle operation.

1. Observed Types of Unsafe Acts

a. In view of the fact that operators of motor vehicles in K-1401 Building have been driving at excessive rates of speed in this congested area, supervision of the building has established speed limits, crosswalks, and other caution signs to obtain cooperation from vehicle operators in this area.

b. Workmen in the cylinder storage yard at K-1066 were found to be using work gloves with alpha contamination above plant acceptable limits. It was necessary for the supervisor of the yard to authorize more frequent glove changes in order to conform to plant standards.

c. Two employees working in a congested area were observed removing welding lugs from the side of a heavy piece of equipment by striking them with a 12-pound sledge hammer. When the lugs broke free, they, of course, flew some 8 to 10 feet in some direction. This was immediately corrected when it was brought to the attention of the supervisor of the group.

d. Employees of undetermined groups have been observed riding the bed of trucks both standing up and sitting on the side panels of the trucks in question. When the license number was obtainable, this was called to the attention of the supervisors concerned.

(Cont'd)

B. Work Practices & Plant Problems

1. Areas Requiring Special Attention

a. Building and Grounds supervision has been concerned over the fact that woodworking machinery in the Carpenter Shop is being operated on the night shifts by unauthorized persons. It is felt that the best solution to this problem is to place the entire machinery either on master switches that can be locked or else enclose the area by fencing.

b. Following modification of the AEC Driver Testing Bulletin, SFB-4, a procedure has been developed by which re-issue of driver's license will be made. This procedure will simplify the original proposal since a more expeditious agreement has been made for handling the medical aspects of each case.

c. Supervision continues to expect the Safety Department to remove their unmarked or faulty compressed gas cylinders. This was indicated on 2 occasions during the past month in which the Safety Department was asked to remove a leaking HF cylinder from the cylinder storage dock area to remove 10 cylinders of chlorine trifluoride with faulty valves from a cascade area. In each of these cases, the Company policy for handling such material was explained to the responsible supervisor who took steps to familiarize key employees with the general hazards of handling such simple emergencies.

(Cont'd)

3. Significant Types of Unsafe Acts (Cont'd)

e. As has been indicated on other occasions, employees continue to ride trucks in which cylinders, etc. are not securely tied down. This has again been called to the attention of the responsible supervisory group.

f. Several unsafe acts that are universal at K-25 were noticed on the boiler overhaul work and concerned primarily the use of faulty tools, climbing unsecured ladders and using a wrench as a hammer.

g. A major injury was suffered by an employee when he reached into a converter frame to remove a fouled hook and caught his left hand between the rollers of the converter frame and the converter. This incident is getting widespread publicity to supervision since it involves both the unsafe act of the employee and the unsafe conditions that caused the hook to become fouled.

1. Items Requiring Special Attention (Cont'd)

   d. With winter just around the corner, a meeting was held with the representatives of groups responsible for the removal of snow and ice during the winter months. Plans were made to utilize maintenance employees and equipment to clear plant sidewalks and streets during inclement weather. Minutes of the meeting, indicating the plans, will be sent out from the Maintenance Engineering Department.

   e. Elevated temperatures inside the Pilot Plant Housing in the K-1401 Building are causing considerable discomfort to the employees involved and concern to the supervisors responsible for their work. Apparently, the temperature in question is quite a bit higher than the 150°F temperature studied by Plant Medical several years back. Use of the air supplied coverall gives the employees body comfort but does not adequately cool their head. A canvas dust hood adapted with an air line connection will be studied in the near future to determine if it will give the additional cooling needed.

2. General

   a. The carbon tetrachloride recovery unit located in the K-1030 Building will be improved somewhat with the revisions now planned by Engineering. The improvements will more efficiently remove carbon tetrachloride fumes from the operation.

   b. A study was made to determine the cost involved in K-25 unreported motor vehicle accidents. During the one-week period chosen as the represented period, all vehicles reporting to the Garage Area with unreported damage were logged and the damage itemized. The five vehicles falling in this category had damage that amounted to $431.70.

   c. With a few exceptions, the barge loading facilities are now considered to be safe for the general loading and unloading of feed cylinders. If supervision continues their instruction program with regard to safe handling of these cylinders, the operation should continue in an acceptable manner and be relatively accident-free.

   d. To obtain supervisory concern over the Foreman's Accident Report and indirectly a willingness to accept responsibility for accidents, a study was made of a month's accidents to determine the distribution of the cause responsibility. As expected, approximately 90 percent of the accident causes were assigned to "Insufficient Safety Morale" of the employee, while less than 10 percent were assigned to supervision. Not until supervision experiences the realization that Safety Morale can be molded by supervision will the assigned causes of accidents change.

(Cont'd)

2. General (Cont'd)

e. K-1300 Area electrolyte is hauled in open containers on flat bed trucks to the X-10 Plant and buried. Although minor burns have been received, the manner in which this material is handled will lead to more serious consequences. It is felt that a specially designed tank adaptable to a Dempster Dumpster will handle this material safely.

f. With the upward trend of minor injuries, supervision has been contacted to determine the cause, if any, for this increased frequency. Primarily, this has been in the Maintenance Division where a larger percentage increase has been noted. It is felt that some change should be noted in future accident statistics.

C. Emergency Planning

1. "A" and "C" shifts were involved in the two routine plant emergency drills for the past month. "A" shift was involved in a multiple fire drill at K-1029, K-1034, K-802 and K-1238. The primary objective of this drill was to determine if the decisions of emergency units would control important fires first. "C" shift was involved in a chlorine release at the K-201-A Building. This particular drill was designed to evaluate the operational procedures of the concerned groups as well as the reaction of the shift emergency team.

2. Certain areas around the plant continue to improve their emergency facilities and also the ability of their employees to combat local emergencies. This enthusiasm generates from month to month and serves to improve the overall plant ability to meet any emergency situation.

3. Emergency lanterns located in various emergency boxes were found to be inoperative due to disuse. In each instance, the lantern was corroded so badly that it had to be discarded. There is only one answer to this problem and that is to have some employee assigned to keep the emergency equipment ready for operation.

D. Protective Equipment and Clothing

1. 2400 U. S. Army Assault Masks are now being stored because of HF etched condition of the lenses. The device, fabricated on the plant to replace the lens in these gas masks, will only handle approximately 4 masks per hour, thus imposing a replacement cost factor far above some mass production method. For this reason, the Material Command of the Army Chemical Corp at Edgewood, Maryland, was contacted and, although they were not certain they would be allowed to do this job, they estimated that one day would be sufficient to replace lenses in the entire 2400 masks. No cost factors were given.

2. The Purchasing Department has received final bids from manufacturers of vinyon-n fabric coveralls. An adequate supply of these coveralls should be on the plant sometime in the next 90 days.

3. The Army Assault Mask, M-11 canister, continues to present a problem in the field because of residual activated carbon being blown into the employee's eyes while using the mask. The definite cause has not been established and efforts are being made to determine if the assembly is defective or possibly residual material is left deposited in the top of the canister.

4. Continued efforts to locate a vendor for a fireman's boot having a puncture proof insole have not been successful; however, there have been indications that such a product exists. Seemingly, most fire units utilize a boot with a separate insole for areas where puncture hazards exist.

(Cont'd)

C. Protective Equipment and Clothing (Cont'd)

5. Surplus items of safety equipment advertised through other AEC operations have neither been recommended nor rejected for use at K-25 but have been evaluated for general plant use. In this way, the operational groups and the Stores Department determine if the equipment can be used on the plant.

6. A new light-weight apron, specially designed for resistance against acids and heat, is to be tested in the K-1401 Building and parts of the Laboratory. This apron is of woven spun glass fabric coated with polyethylene plastic and should be far superior to the present aprons now used on the plant. The price of this apron is approximately twice the price of the apron now in use.

E. Promotion and Education

1. Final price quotations are being received by the Purchasing Department to determine the concern that will print the 1953 calendars. As soon as final bids are in, the contract will be closed and the calendars made up. We expect to receive them sometime during the first of December.

2. Several films were previewed during the month with only one being acceptable for K-25 use. This film entitled "The Signs of Life" is primarily a highway safety film and has some use if and when a group requests a traffic safety film.

3. With the tentative decision to present a $5.00 safety award for the accident-free period ending June 10, 1952, $2.00 items will be gathered from Y-10 and Y-12 for display.

4. For the orientation of new employees and new supervisors, the Training Department has been including some of the more general phases of safety to supplement supervisory training in the field.

F. Summary of Air Sample Results

1. Routine air sampling was significant during the past month in that over PAL showed up infrequently. The conditions involved in over PAL are not considered serious since they can be corrected.

   a. HF studies in the K-1131 Building continue to indicate above PAL in some areas of the building; however, chronic concentrations continue to reduce with only sporadic indications that cause concern.

   b. Mercurial concentrations continue to remain well within their limits and indicate that supervision is aware of the routine necessary to keep these concentrations at a low level.

   c. Building drafts and misoperation continue to be the preponderant cause for overtolerance conditions of trichloroethylene in K-1401 Cleaning Area. As outside temperature rises, employees unconsciously open adjacent windows and quite often the drafts cause a turbulence within the degreasing tank that cause the concentrations to rise above PAL. Supervision continues to follow this problem, instructing those employees responsible for this activity in proper operation of degreasing equipment.

2. Special air sampling again played an important part in furnishing some of the factual information concerning overtolerance conditions in certain areas during the past month. In each case, the air sampling was mandatory because of an acute problem in the particular area.

   a. Special studies of dust samples collected from the braces, trusses, etc. of the K-1401 Building were made to determine the probability of continued exposure to certain types of metal dust. Although traces of all the common materials were found, the amounts did not create any immediate concern but did indicate, however, that cleaning should be recommended on a periodic basis.

   b. A study was made of the mercury purification still in K-1004-A to determine the extent of equipment leakage and the possible concentration build-up. Some leaks were evidenced and corrections made but, during the course of the study, the distillation line broke, and the equipment had to be shut down and the room evacuated. This problem will be tested again at a later date.

   c. Engineering, in the process of experimenting with cadmium and zinc solder, felt that air samples should be taken in and around such an operation. The results of this air sampling indicated no hazardous conditions in that plant acceptable limits were not exceeded.

(Cont'd)

F. Summary of Air Sample Results (Cont'd)

d. When an isolated area in the K-1515 Building was found to be contaminated with mercury droplets, air sampling was made to determine the concentration in the surrounding area. Prior to the air sampling, residual mercury was removed from the floor and work surfaces to such an extent that the PAL was not exceeded in the area. This condition was by far the worst condition found in some 12 to 18 months.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

^LS:msp

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

DATE: September 3, 1952

CC: Mr. W. L. Richardson
File

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for August, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	4	4	19	14
No. of Non-Tab Major Injuries	2	6	21	18
No. of Sub-Major Injuries	3	3	21	8
No. of Non-Tab Sub-Major Injuries	0	0	0	1
No. of Significant Minor Injuries	0	0	0	0
No. of Minor Injuries	425	410	2773	2113

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 – 6-30-52			PREVIOUS SIX MONTHS 2-1-52 – 7-31-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	5.96	0.00	2.36	4.23	4.24	2.58
Severity	6.78	0.00	0.34	3.23	0.00	0.58	3.23	0.08	0.47
	447.39			328.35		373.36	433.38	450.02	376.66

Minor Injury Frequency (Estimated)

Last Major Injury Occurred August 14, 1952. Man hours and days accumulated since last Major Injury 517,000 Hours 17 Days.

Major* and Sub-Major Injury Summary:

	Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
*		Sprain, right foot	8-2-52	8-5-52	27
*		Crushed left hand	8-3-52	8-4-52	14
*		Extensive arc burns, face, neck, arms, hands and eyes	8-12-52	8-13-52	19
*		Sprain, right ankle	8-14-52	8-21-52	11
		Fracture and laceration, 2nd digit, left hand	8-6-52	-	-
		Fracture, 5th digit, right hand	8-15-52	-	-
		Fracture, 5th metatarsal, right foot	8-25-52	-	-

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer, Oak Ridge K-25 Site
6/15/95
Date

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	2	3	29	41
Estimated Damage	$131.95	$206.00	$1750.00	$2247.42
Estimated Frequency Rate	0.76	1.20	1.49	2.35

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	0	5	7
Fire Loss (Estimated)	$0.00	$0.00	$1728.00	$25.00
Fire Loss Rate (Estimated)	0.00¢	0.00¢	0.05¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	1	0	7	9
Estimated Damage	$75.00	$0.00	$1881.00	$3201.56

CURRENT ACCIDENTS

Date	Location	Type	Description
8-21-52	4500 Building, X-10 Plant	Motor Vehicle	Employee, backing the truck into a building, struck the bumper block of a loading platform as he manouver the truck into position.
8-28-52	Avenue [illegible] at 10th Street	Motor Vehicle	The operator of No. 2 vehicle attempted to pass No. 1 vehicle when he didn't see the driver's hand signal. The No. 1 vehicle turned into a side street and collided with Vehicle No. 2.
8-12-52	K-1515 Building	Property Damage	When an employee attempted to test fuses in a 575-volt, 100-ampere safety switch with a make-shift tester, arcing resulted within the box, damaging it beyond repair.

Remarks

A brief study of the plant accident experience indicates that the last two months experience is far above the average for the plant. Not only is this true with reference to major injuries but it is also true when considering the frequency of our minor injuries. The most concrete method of evaluating the plant accident potential hinges primarily on the minor injuries tabulated. When minor injuries approach a peak, it can be assumed, in most instances, that the exposures to accident are likewise at a peak. This one factor to an alert supervisor should be the signal for increased efforts in eliminating unsafe conditions and unsafe acts within his area of influence.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:
K-631 Switching Area, Power House Boiler Overhaul, Loading of CWS Cylinders aboard Barges, and Design of Chlorine Trifluoride Storage Building.

1. Change in Plant Conditions

a. x No Change _____ Improved _____ Retrogressed

Remarks
With the beginning of the K-33 construction program, surrounding plant conditions have taken on the hustle and bustle that accompanies a construction project. K-25 employees must be alerted to the congestion and activity to keep accidents to a minimum.

2. Significant Types of Items Resulting From Inspections

a. As a result of several near injuries while handling material in the K-25 material storage yard, it was found that with the addition of limit stops on the conveyor table, the accidents could be reduced. These mechanical stops will be placed on the conveyor table in the near future.

b. The large Gantry crane located at the rear of K-1401 building has caused considerable concern with reference to the possibility of an employee getting caught beneath the traveling wheels. Supervision has decided to utilize a pipe wheel skirt that will brush any obstruction from the path of the wheel.

c. Supervision is studying the feasibility of installing road lights on the mechanical tow trucks for safer night operation. This equipment towing flat bed cars is widely used in the plant both night and day.

Significant Types of Items Resulting From Inspections (Cont'd)

d. Roofs and partitions built of transite continue to be the cause of potentially serious accidents. For some reason, employees misjudge the strength of this material and walk across it as if it were regular built-up roofing. Efforts have been made to get line supervision interested in changing such conditions but have not met with success. It may be necessary to carry the problem to top supervision in the near future.

e. Due to the limited use of power presses for small parts stamping and forming at K-25 Plant, modern methods are not utilized to incorporate safe operation and press feeding. Several practical suggestions for improving this work were passed on to the engineer and supervisor concerned.

f. Converters being stored along 13th Street were found to be stored with little consideration given to prevent their rolling; recommendations were made for properly chocking this equipment in position.

g. One of the major omissions of maintenance mechanics seem to be the replacement of machine guards, covers for floor openings, barricades, etc. This was pointedly recognized when, on 2 occasions, machine lathes were found with their gear train guard off.

h. The large paint spray booth apparently is not doing the job that it should since residual paints and lacquers are bypassing the mechanical exhaust and settling out in spots surrounding the booth. Following a study of the spray booth exhaust system, supervision is planning to modify the booth.

3. Significant Types of Unsafe Acts

a. Even though more emphasis is being placed on eye protection than ever before, employees are seen in mandatory eye protection areas without their personal goggles, glasses, or eye shields. Supervision continues to correct these conditions when notified.

b. Three unsafe acts were corrected by a supervisor in charge of the No. 1 Boiler overhaul at the Power House. The unsafe acts were as follows:

(1) Using faulty scaffold boards across handrails without proper anchoring.

(2) Employees not wearing hard hats inside of furnace.

(3) An employee using a step ladder with a broken side rail which was obviously wired together.

c. Employees transporting compressed gas cylinders were observed lifting the cylinders by hooking them through the hole in the valve cap and hoisting them to and from the truck. This method of handling such equipment was corrected and a specially built loading cage is now used. (Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Although K-25 experienced very little trouble in loading the cylinders to be shipped by Barge to Paducah, the Paducah plant experienced considerable difficulty, mainly mechanical and operational, when they attempted to unload the barge. Several cylinders were dropped from the hoist which caused only slight damage to property and no injury to employees. This apparently came from the lack of training of crane operators.

b. The boiler work now in progress at the Power House is continuing in an acceptable manner. Supervisors on this job have developed established plans for routine work and continue to effectively protect the employees from accident. Only a small number of unsafe acts and conditions have been observed by the employees associated with this work.

c. A natural gas leak at the X-10 reducing station caused concern when it was thought that the leak might be in a large supply line and would require welding. This incident was corrected with simple piping methods but caused recognition of the fact that procedures should be established for future handling of such leaks. Supervision is studying this problem and job procedures should soon follow.

(Cont'd)

Significant Types of Unsafe Acts (Cont'd)

d. One of the most significant unsafe acts occurring at the K-25 Plant resulted in major burns to the employee involved when he used an ordinary desk lamp as a make-shift fuse tester and caused an electrical arc to occur inside a 100-ampere, 575-volt switch box.

1. Items Requiring Special Attention (Cont'd)

   d. Work has been discontinued on the original proposed AEC Driver Testing Bulletin, No. SFP-4, Serial No. 15. A committee of plant and AEC representatives met to discuss the provisions, as outlined. The bulletin was modified by this group so that the provisions involving physical impairment would not be retroactive.

2. General

   a. Three 150-pound chlorine cylinders were found in the sewage disposal station and were apparently quite old. It was necessary to determine the amount of material in each cylinder and then either utilize or dump the contents. Supervision was able to make use of the contents in the chlorination system.

   b. Two cases of chemically pure bromine arrived on the plant in leaking containers, necessitating their disposal or repackaging. The Laboratory Division was able to use this material after it was placed in acceptable containers.

   c. Following the relatively serious accident in K-631, the unsafe conditions in this area were improved.

   d. The Garage policy of changing bus, truck and passenger car tires only when the tire was completely worn out has now been modified so that tires are replaced when they show signs of excessive wear. This has to do primarily with the practice of using excessively worn tires on vehicles without considering the vehicle's use.

   e. The electrical rack-out procedure, SP No. 325, now in the proposal stage, is being studied to determine if the details for electrical rack-outs are adequate. It has been felt by some supervisors that certain portions of the procedure should be strengthened.

C. Emergency Planning

1. Two regularly established plant emergency drills were held for the "B" and "D" shifts. The "B" shift drill involved sabotage in which 2 unidentified persons attempted to get into K-1515 Building and not being successful proceeded to a secondary spot at the water tanks. The "D" shift drill was designed to utilize the services of both the emergency squad and Fire Department personnel in assisting the local employees of the K-1300 Area to handle a fluorine release.

2. The HC smoke pots now being used in the emergency drills will be stocked in the plant Stores Department. This will guarantee a supply for individual shift drills.

D. Protective Equipment and Clothing

1. The combination welder's helmet with adjustable head band, described in last month's report, has been received on the plant. A complete study of this helmet has not been made; however, it appears that it will fill the requirements as expected in eliminating large stocks and sizes of equipment.

2. The Gra-Lite Company, manufacturers of a fluorinated material that has possible use in gloves and coveralls. submitted a sample of their material impregnated with lead for use on jobs involving radioactive material. This was received in answer to a Preliminary Inquiry sent out to Vendors for lead impregnated cloth to be used in gloves, aprons, sleeves and coveralls.

3. The lens rings for the repair of the U. S. Army Assault Mask have not been received. This repair work is to be done on the large number of masks which have become unserviceable due to HF etching of the lenses.

4. Standardization of company-issue coveralls is in the last stage of acceptance by plant management. Standardization will utilize a vinyon-n fabric that will be long wearing, acid resistant, and easy to launder.

5. The 1952/53 safety shoe contract is likewise in its last stage of being accepted by plant management with a minimum number of shoe styles to be stocked.

D. Protective Equipment and Clothing (Cont'd)

6. Several thousand pairs of women's cotton coveralls are available through AEC from the Hanford Washington Plant. These coveralls can be obtained at approximately one-half price and are being studied for possible use at K-25.

E. Promotion and Education

1. Answers from most of the advertising and printing firms to the Preliminary Inquiry for printing or silk screening the 1953 calendar has been received by the Purchasing Department. The price for silk screening this calendar seems to be about .55¢ while the price to print such a calendar is nearer .75¢. A definite request for bids will go out the first of September.

2. Two films were shown on the plant during the past month; one, "The ABC's of Hand Tools", has been successfully used by Maintenance Groups in developing a consciousness of the proper care of hand tools; two, a local traffic safety film entitled "Killers of the Highway" which was filmed by the State Highway Department in East Tennessee, was well received by approximately 350 employees. The local touch had much to do with their lively interest.

3. Provisions have been made to change the picture on the large signboards. The new sketch will be a movie projector, projecting the wording used from week to week.

4. The Joseph A. Holmes Safety Award, mentioned some months back, was received on the plant and formally presented to the plant employees at the Annual First Aid Contest held in Oak Ridge on August 23, 1952.

F. Summary of Air Sample Results

I. The routine air samples taken throughout the K-25 Plant cover most of the areas of the plant where hazardous gases and dusts are found. These surveys continue to indicate to plant supervision the hazardous atmospheric conditions. In order to follow up on the conditions shown, each supervisor must study these reports to determine their course of action. The following air samples indicate significant conditions because of employee exposure hours involved.

A. All areas sampled for HF concentrations were found to be above plant acceptable limits during the past month. No particular reason was given by either laboratory group or supervision concerned, but, in a couple of areas, the limits reached 23 ppm HF.

B. Fluorine samples are taken routinely each month in the K-1131 Absorber Room. These readings continue to indicate that fluorine is present in slightly higher concentrations than the plant acceptable limit. Supervision of the area have been notified of the conditions and are endeavoring to determine the cause.

C.

D. Trichloroethylene and mercury, which for years caused concern because of above plant acceptable limit concentrations, have been controlled through close supervisory follow-up. This is indicated in the air sampling results which continue to show below plant acceptable limits.

II. No special air sampling was made during the month of August.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

INTER-COMPANY CORRESPONDENCE

ARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: August 4, 1952

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for July, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	4	1	13	13
No. of Non-Tab Major Injuries	6	5	19	13
No. of Sub-Major Injuries	2	1	17	6
No. of Non-Tab Sub-Major Injuries	0	0	0	1
No. of Significant Minor Injuries	0	0	0	0
No. of Minor Injuries	425	413	2363	1767

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-48 - 6-30-52			PREVIOUS SIX MONTHS 1-1-52 - 6-30-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	12.39	0.00	2.74	5.96	0.00	1.64	1.08	4.33	2.03
Severity	6.78	0.00	0.34	.06	0.00	.04	.006	3.31	0.51
Minor Injury Frequency (Estimated)				447.39	319.69	35[illegible].27	447.39	460.39	367.46

Last Major Injury Occurred July 29, 1952. Man hours and days accumulated since last Major Injury 61,542 Hours 2 Days.

Major and Sub-Major Injury Summary:

	Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
*		Multiple injuries and subsequent amputation of right leg.	7-17-52	7-18-52	3000
*		Inguinal hernia, left	7-26-52	7-27-52	50
*		Acute lumbar strain	7-29-52	7-30-52	2
*		Sprain, left ankle	7-24-52	7-26-52	6
		Dislocated left shoulder	7-10-52	-	-
		Fracture, 3rd and 4th digits, right hand	7-22-52	-	-

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer, Oak Ridge K-25 Site
6/15/95
Date

tor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	3	7	27	36
Estimated Damage	$206.	$717.	$1618.	$1357.
Estimated Frequency Rate	1.20	2.73	1.59	2.38

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	0	5	5
Fire Loss (Estimated)	$0.00	$0.00	$1720.	$25.
Fire Loss Rate (Estimated)	.00¢	.00¢	.06¢	0.00¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	0	1	6	7
Estimated Damage	$0.00	$945.	$1366.00	$2943.

CURRENT ACCIDENTS

Date	Location	Type	Description
7-15-52	K-1035 Parking Area	Motor Vehicle	Vehicle struck utility pole
7-22-52	Scale House Exit Road	Motor Vehicle	Vehicle struck metal guard post
7-24-52	Vault 10-A	Motor Vehicle	Door of vehicle struck concrete post

Remarks

With the conclusion of a disabling accident-free period, plant employees generally have a let-down during which several lost time accidents are recorded. This has been the case for the month of July following the serious accident on the plant. Although the injury was tragic, sympathetic interest was manifested throughout the plant concerning the possibility of preventing such accidents in the future. It is felt that this injury will have a decided bearing upon the safety attitudes of plant employees.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:
The loading of CWS cylinders aboard barges, water fog protection for Electrical Switch Yards, K-631 Switch Area, and overhaul of K-801-B Cooling Tower.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks
It is generally felt that with the increased emphasis on production and associated maintenance that too many make-shift locations are being set up to handle the overloads in various areas. Make-shift and temporary equipment are akin and lead to hazardous conditions.

2. Significant Types of Items Resulting From Inspections

a. As usual, employees attempt to combat the summer heat by utilizing fans on the floor, desk tops and file cabinets with no regard to protective guards. Each condition noted was called to the attention of the supervisor concerned who corrected the condition by either elevating the fan or guarding the fan blades with 1/2" hardware cloth.

b. Material handling techniques, in conjunction with the oversized equipment, continues to be the major factors in heavy equipment accidents. This again points to the fact that two things are needed to correct these conditions: One, proper operating techniques by the various equipment operators, and, the other, the appropriate size of equipment for handling heavy materials. Supervision is aware of this situation and are making every effort to correct it.

2. Significant Types of Items Resulting From Inspections (Cont'd)

c. Although it is generally known that the electrical switching equipment in the K-1131 fluorine generator room is a major electrical problem, an electrical inspection and study was made to determine the electrical potential to ground on each cell, piping, bus bar, and other related equipment. The information recorded deserved consideration and was called to the attention of the building supervisor.

d. At the request of maintenance supervision, the Barge Loading Dock facility was inspected for possible improvement of the area. The subsequent recommendations dealt mainly with modification of the facility to eliminate certain unsafe conditions.

e. The motor failures in the K-31 area continue to cause concern from both an outage standpoint and personnel safety. Supervision of the area, recognizing that the cover plate which is blown from the motor housing may strike some employees, has remedied this condition by hinging the cover plate on one side so that it will not blow free. There have been approximately 23 of these electrical explosions in this area and the manufacturer is redesigning and repairing the motors to prevent future occurrences.

f. K-736, proposed as an alternate storage of chlorine trifluoride, proved to be inadequate as far as compliance with provisions outlined in SP-11. Supervision felt that the original proposal of a new building for this storage would be more acceptable.

g. The access road for K-33 construction will run through the back of the K-25 Plant separating the Cooling Tower and Pumping Stations from the rest of the plant. Although very few employees have occasion to enter the Cooling Tower Area, some congestion can be expected in crossing this access road during the construction period. Other than the traffic congestion, very little trouble is expected from this part of the construction program.

h. Mechanics overhauling the internal structure of the K-1501 boilers were observed using 110-Volt extension units with unprotected lamps. The supervisor was notified that a 32-Volt system is available on the plant for such use.

a.

b. The nickel smeltering area, now considered one of our most potentially hazardous areas, has established protective clothing requirements for employees entering the area. Yet, various employees continue to go into this area without the prescribed protective clothing and wander in among the workmen. Supervision is making efforts to correct this condition.

c. The signalling operations for overhead cranes and mobile cranes continue to present problems due to the fact that, on numerous occasions, no employee is designated as the crane signalman or more than one employee is attempting to get the craneman's attention.

(Cont'd)

a. Following construction of the Barge Loading Area, two barges were loaded, and shipped to Paducah. Very little is known of the loading and transportation considerations since the entire contract was handled through the Paducah Plant. The problems noted and considered to be of major importance were referred to the Paducah Plant for study.

b. Preliminary work, preparatory to beginning overhaul of the No. 1 Boiler and auxiliary equipment at the Power House, is underway. Supervision in charge of the groups involved in the equipment overhaul have been contacted to assure proper planning and cooperation. It will take considerable effort of all employees involved to attain the enviable success of past overhauls.

c. Additional efforts by K-631 supervision indicate that the switching area will be improved somewhat. The installation is now complete and the significant unsafe conditions were pointed out for correction.

3. Significant Types of Unsafe Acts (Cont'd)

d. Employees continue to use poor judgment concerning transportation of equipment by trucks and have been observed riding loads that are not tied down and standing on truck beds while the vehicle is in motion. In each instance, the supervisor concerned was notified when the incident was observed.

e. A supervisor, who was seen driving his truck with one arm in a cast, was immediately placed on a job that would not require his personal transportation by his supervisor.

1. Items Requiring Special Attention (Cont'd)

   d. Analyses were made of the effluent from the neutralization pit north of K-1131 in order to determine if the HF concentrations were above PAL. A study indicated that concentrations were too high, and supervision of the area had additional limestone placed in the pit to further neutralize the concentrations.

2. General

   a. Certain supervisors desiring to increase the number of employees holding federal motor vehicle permits scheduled their men for heavy equipment tests without determining if they had any knowledge of such equipment. On several occasions, the road test had to be stopped before the vehicle was put into motion because the employee did not have the first idea of how to shift the gears. This situation was brought to the attention of the supervisors concerned with a request that a screening process take place to determine if each employee has knowledge of the equipment which he is to be tested.

   b. The motor scooter problem seems to be isolated to the Manufacturing Office Division, thus establishing a small group of employees as operators. The only requirement to date that restricts a motor scooter operator is the AEC Bulletin requirement which states that an operator of any motor vehicle shall have a comparable state of Tennessee permit. Therefore, each motor scooter operator is expected to have his Tennessee driver's permit over-stamped indicating that he is permitted to operate a motor scooter.

   c. Special attention has been given to the rearrangement and installation of equipment now being placed in the basement of K-1101 for experimental work by the Barrier Research Department. The job engineer in charge is paying particular attention to arranging equipment for its best possible use and safe operation.

   d. Following the serious injury to a carpenter who was using an electric drill, additional engineering studies were made to revise present engineering standards to assure identification of two-wire installations covered with three-pole receptacles. Along with this, emphasis has been placed on proper testing of portable hand tools and other such equipment.

   e. A procedure was written at the request of Maintenance supervision for the adoption of standard crane signals at the K-25 Plant. Although ASA crane signals have been in use, employees are observed using non-standard signals on the job.

C. Emergency Planning

1. As usual, two plant emergency drills were held during the past month in order to give the entire shift emergency teams an opportunity to function as a unit. "C" shift was involved in a sabotage drill in which a parachute was used to signify the entrance of an unidentified person. Through coincidence, this drill occurred at the same time a planned shift drill was staged. "B" shift was tested in a routine criticality problem in which one of the plant gammagraphs was set off to signify a heavy radiation source.

2. The plant emergency boxes are not being maintained properly for good emergency operation. Too often, the emergency equipment has been removed from the box and not replaced, and other equipment is not kept up-to-date. These conditions have been called to the attention of supervisors concerned so that they might establish a routine insnection program.

3. Several new emergency boxes have been installed throughout the plant area, mainly in Maintenance Groups which have heretofore not considered emergency equipment essential to their particular work.

4. A schedule of 6-months emergency drills has been prepared, outlining 2 drills per month and the Safety and Radiation Hazards' employees necessary to stage the problem.

D. Protective Equipment and Clothing

1. Adequate supplies of yellow dyed socks, underwear shirts and underwear shorts are now available through the Tool Department.

2. The safety shoe survey prior to the 1952/53 contract has been completed. A neoprene/cork sole has been selected for the Company issue shoes. Neoprene/cork soles have been substituted for the rubber/cork soles on one of the employee purchase shoes while a neoprene/crepe sole has been substituted for the leather sole on the woven toe employee purchase shoe.

3. The plant coveralls, both men's and women's, with the exception of men's welder's coveralls, have been standardized with respect to fabric and construction. Future coveralls will be of natural color, open weave, 500 denier, vinyon-n fabric and lock stitch construction.

4. There has been no progress towards design and fabrication of a lens ring press for repair of the large number of U. S. Army Assault Masks which are unserviceable due to HF etching of the lenses.

5. A slight change has been made in the method of packing U. S. Army Assault Masks. The quantity of paper used to wrap the canister has been increased five fold and a loose wrap rather than a tight wrap utilized. It is expected that the new method will provide a better cushion between the canister and the facepiece. Facepiece failures that recently have created a problem have ceased, at least, for the present.

D. Protective Equipment and Clothing (Cont'd)

6. Dust from M-11 mask canisters, which for a time was an acute problem, has ceased to be troublesome. It is thought that only a small group of canisters were involved and that the dust was accidentally introduced into assembly at the time of manufacture.

7. An improved hard hat/welder's helmet combination with an adjustable headband, which will eliminate the need for stocking a large number of sizes, has been substituted for the old non-adjustable type.

8. A sample of the new "Mervac" mercury collecting vacuum cleaner has been demonstrated by the manufacturer. Delivery should be accomplished this month on the two "Mervac" cleaners on order for K-25.

E. Promotion and Education

1. While studying the proposed production of the plant Safety and Radiation Hazards film, it was found that commercial manufacturers of projection equipment such as Bell and Howell Company and RCA have developed a process of adding an emulsion to ordinary film so that a sound track can be added by non-professional people. This device is a built-in attachment purchased with a 16 MM projector that automatically places the sound on the film. Not only is this very useful but also versatile since it can be wiped from the film at will and changed as is done with a wire recorder. It is felt that this will give us additional lee-way in developing the type of film desired.

2. Dr. Neal Ward, the new plant physician, was given a short orientation into the work of the Safety and Health Physics Group.

3. Sample safety awards to be presented for the disabling accident-free period were ordered with emphasis placed on three particular types of awards. The types included general awards such as have been given in the past, inscribed loving cups and special award plaques.

4. The new Maintenance Division program of departmental inspections is paying off in safety dividends since the supervisors who make up the inspection committees have an opportunity to observe both unsafe acts and conditions in their own and adjacent areas. This program will bear more fruitful results than anything attempted in the Maintenance Division in some time.

5. Seven safety films were reviewed during the past month; 5 of these were a training series not adaptable for our use at the present time; however, the other 2 films entitled "Plan To Live" and "Safety For Electronic Personnel" will be used in the areas where applicable.

6. With the continued hot weather, emphasis was placed on the use of salt tablets in an effort to prevent possible heat exhaustion. Both safety meetings and posters were utilized to publicize the facts that cause heat exhaustion.

F. Summary of Air Sample Results

1. From all indications, routine air sampling continues to be the major source of information for determining over-tolerance conditions by plant supervision. The many air samples taken on a routine basis cover widely the exposures in the plant.

   a. For the past few months, nickel dust conditions have not presented any serious concentrations; however, on two occasions, nickel dust concentrations in the K-1037 Building were found to be far above plant allowable limits.

   b. HF concentrations were found to be above tolerance in the K-1131 Building during a piping replacement. The employees recognized that some sort of mask was necessary but chose an ordinary dust respirator which has no ability to remove HF vapors. This problem was called to the attention of supervision concerned by recommending that additional training in the use of respirators and gas masks be given each employee.

   c. The manner in which mercury is handled throughout the plant is indicative of what can be accomplished by organized efforts to establish acceptable methods of control. This sort of control can cause a reduction in area concentrations of other hazardous materials. During the past month, very little residual mercury was noticed on the floor and work benches.

2. Supervision did not resort to special air sampling during the month of July.

G. Items of Interest to our Operations

Through organized training courses and practical application, the functions of the Safety Department are being disseminated to the Health Physics engineers. It will be some time before equivalent proficiency in both fields can be expected from these men.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

INTER-COMPANY CORRESPONDENCE

ARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001 Building

CC: Mr. W. L. Richardson
File

DATE: July 3, 1952

SUBJECT: Highlights of the Plant Accident Experience and Safety Department Progress Report for June, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	0	9	13
No. of Non-Tab Major Injuries	4	2	12	10
No. of Sub-Major Injuries	1	3	15	6
No. of Non-Tab Sub-Major Injuries	0	0	0	1
No. of Significant Minor Injuries	0	0	2	0
No. of Minor Injuries	413	327	1938	1506

Comparative Frequency and Severity Rates:

	BASE PERIOD 1-1-51 - 6-30-51			PREVIOUS SIX MONTHS 12-1-51 - 5-31-52			Last Month Actual	Current Month (Est.)	Year To Date (Est.)
	High	Low	Cum.	High	Low	Cum.			
Frequency	4.18	0.00	2.80	5.96	0.00	2.05	0.00	1.08	1.65
Severity	.09	.02	.06	.06	0.00	.04	0.00	illegible	.04
Minor Injury Frequency (Estimated)	351.22			319.69		393.84	328.35	447.39	351.12

Last Major Injury Occurred June 10, 1952. Man hours and days elapsed since last Major Injury 615,420 Hours 20 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charged
*	HF Burns, face, neck, shoulder, and hands	6-10-52	6-10-52	6
	Contusion, right foot	6-15-52	-	-

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Motor Vehicle Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	7	1	24	27
Estimated Damage	$717.	$263.	$1422.	$1108.
Estimated Frequency Rate	2.73	.41	1.66	2.09

Fires	This Month	Last Month	Year To Date	Last Year Same Period
No. of Fires	0	1	5	4
Fire Loss (Estimated)	$0.00	$0.00	$1728.00	$25.00
Fire Loss Rate (Estimated)	.00¢	.00¢	.07¢	.00¢

Other Property Damage Accidents	This Month	Last Month	Year To Date	Last Year Same Period
No. of Accidents	1	3	2	7
Estimated Damage	$945.00	$365.00	$1366.00	$2943.00

CURRENT ACCIDENTS

Date	Location	Type	Description
6-3-52	Avenue "D" and 3rd Street	Motor Vehicle	1948 Ford pickup struck another vehicle.
6-6-52	K-27 Cylinder Yd.	Motor Vehicle	Duplex truck struck another vehicle.
6-11-52	Avenue "K" and 15th Street	Motor Vehicle	International pickup truck struck another vehicle.
6-17-52	12th Street, West	Motor Vehicle	Pontiac Sedan struck guard post.
[illegible]-52	K-1300 Area	Motor Vehicle	Vehicle struck converter.
[illegible]-52	K-1031 Area	Motor Vehicle	Vehicle struck guy wire.
6-29-52	Avenue "M"	Motor Vehicle	Vehicle struck flood light pole.
6-3-52	K-1300 Area	Property Damage	Buckled Boom on Yale crane.

Remarks

The disabling accident free-period described in last month's report was abruptly brought to an end on June 10th when an employee suffered HF burns on face, neck and hands. Under the UCC Safety Award Plan, the 3,100,513 man-hour accident free-period established during this period is a new plant record, a new Oak Ridge record, and a new UCC Chemical Division record. This achievement speaks well for both employee and plant supervision interest in safety and indicates that even better safety records can be expected in the future.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, Clinch River Shipping Dock, Proposed Chlorine Trifluoride Storage House, Water Fog Protection for Electrical Switch Yards, K-633 Addition, and Overhaul of K-801-B Cooling Tower.

1. Change in Plant Conditions

a. ___X___ No Change _____ Improved _____ Retrogressed

Remarks

Although plant conditions, in general, remain the same, the possible effects of K-33 construction on general plant operations have been studied. It is believed that other than congestion, no serious complications will be noticed.

2. Significant Types of Items Resulting From Inspections

a. In the everyday routine of using hand tools, Maintenance mechanics throughout the plant have apparently lost sight of the fact that even hand tools must be properly maintained in order to minimize the possibility of accidents such as eye injuries, embedded chips, broken fingers, etc. Maintenance supervisors are now aware of the hand tool conditions and have taken steps to correct this general attitude of mechanics.

b. The existing railroad tracks laid out for the K-631 Building have some potentially hazardous conditions. With the movement of cars along the tracks bumping other cars, and switching from one track to another, joint evaluation and job study is needed to assure safe operation in this area. Supervision is aware of these conditions and considers their permanent plans to be adequate for proper and safe operation.

2. Significant Types of Items Resulting From Inspections (Cont'd)

c. In order to control the use of and minimize the hazards of operating motor scooters on the plant, supervision of the Garage Area has taken steps to govern the maximum speed of this equipment. Additional efforts are being made to assure that each operator is qualified to operate such equipment.

d. One of the problems of maintaining Triple "O" converters is the lack of adequate working surfaces around the converters for employees. In order to improve these conditions, supervision of the area concerned has taken steps to adapt suitable platforms for this job.

e. It is quite interesting to note the caliber of the repair work going on in the K-801-B Cooling Tower which indicates that positive planning took place prior to the work. As has been the case many times before, when supervision takes time to plan a job properly, the work is above average and efficient and cannot be compared to the ordinary job around the plant in which little, if any, job planning is recognized.

f. With an above average number of motor vehicles being sent to the Garage for repairs without any history of the incident, a partial plant survey of pickup trucks was made to determine if this condition is prevalent. Nine out of twenty vehicles observed were found to be damaged with apparently no concern as to who or how the equipment was damaged. This condition has been brought to the attention of plant supervision.

Significant Types of Unsafe Acts

a. In order to beat the summer heat, employees of both office and plant areas have taken wall fans and set them on the floor for additional cooling, but have not taken the necessary precautions to enclose the fan blades as has been present plant practice. This problem has confronted supervision each summer and is generally climaxed with some degree of injury to an employee.

b. Process Maintenance employees transporting long I Beams on a flat bed truck were not utilizing the conventional red flag so necessary to prevent vehicles from running into the unprotected ends of material. Maintenance supervision has corrected this condition by establishing red flags in each of their truck cabs.

c. Fork lift one stors were noticed carrying loads of equipment and material at a level where their vision was blocked. The employees involved corrected the conditions on their own initiative when the matter was discussed with them.

d. A K-25 job engineer working as liaison with a sub-contractor was observed on several occasions inspecting work from a river barge and adjacent equipment without a life jacket. This sort of attitude caused indecision on the part of sub-contractor supervision when this and other safety measures are proposed.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. The Clinch River Loading Dock Contract having been completed, a subsequent contract was let to the same contractor for additional work on this installation. The work necessary to complete this job entails some diving, small barge work and heavy-duty hoisting. In carrying out this work, the contractor is not too considerate of safety even though certain conditions have been called to his attention from time to time.

b. Heavy equipment has been purchased that will more suitably handle the 10-ton feed cylinders without the possibility of equipment damage. Until such a time as this equipment is delivered on the plant, the present rigs will have to be used with some discretion and effort made to prevent future damage. Supervision is attempting to point out to each heavy equipment operator the necessity for him to take extra precautions in handling the equipment.

c. The liquid fluorination problem now being tested at the Y-12 Plant appears to have some merit. The system is to be installed in K-1131 in the near future, supplementing the present fluorinating process. The major safety concern will be the elimination of HF acid burns resulting from misoperation or corrosion leaks.

(Cont'd)

1. Items Requiring Special Attention (Cont'd)

d.

2. General

a. For the first time, an employee with impaired vision in one eye was rejected from receiving a driver's permit. This will undoubtedly bring about some discussion on the part of plant supervision which will necessitate some final disposition of such cases in the near future.

b. Recommendations were made to the Engineering Department concerning the opening of the parking lot previously used by Maxon Construction Company and located across 14th Street from the K-1037 Building. This lot could be utilized with minor expense to cut down the overflow at the parking lot on the hill. The intentions were not to spend any great sums of money nor to make this lot a first-class parking lot; however, it is felt that the use of this parking lot will minimize the parking problem until the proposed lots are built.

c. In a study of the proposed Maxon Construction Company work for K-33, it was determined that the blasting as planned for excavation work of K-33 Area would not be severe enough to affect our cooling water lines or fire water lines. However, should the size of the shots be increased or should the excavation plans be revised to make the work nearer the present K-25 utility lines, possible damage may result. Adequate precautions have been taken by Maxon Construction Company to make this construction project safe.

d. Several cylinders of unknown material were discovered at the old cylinder evacuation area. Following the identity, the contents of each cylinder will be evacuated and the cylinders either returned to the vendor or scrapped.

e. The information on crane boom warning devices, designed to indicate the proximity of electrical high lines, was again discussed with both Maintenance Division supervision and Engineering. It is hoped that consideration will be given to a warning device that will be found to be worthwhile, thus giving some warning indication to the crane operators if and when they approach a high line, while operating in the field.

(Cont'd)

2. General (Cont'd)

f. The Y-12 Plant, planning to install fluorine generators for use at their plant, requested that representatives of cognizant K-25 groups meet with similar representatives of their plant to discuss the general fluorine generation problem. A Safety Department representative met with this group.

C. Emergency Planning

1. Two routine plant emergency drills were held during the past month in which the same problem was used. "D" shift and "B" shift emergency groups answered the call of a gasoline fire near the gasoline island at K-1414. The drills occurred as a surprise to the emergency groups of both shifts and especially to the "D" shift which made a very commendable showing.

2. With an influx of new supervisors in the K-1401 Building, top supervision of both Maintenance and Engineering were contacted with regards to keeping these supervisors up to date on emergency planning. Supervision concerned has followed up on the original recommendations by authorizing emergency manuals for the new supervisors. Other efforts have been made to establish local emergency directors for the various areas of the building in order to assure proper response to an emergency.

3. A film developed by the Army entitled "Sabotage America" was previewed for use in conjunction with emergency preparedness. The film was not considered to be appropriate for general plant use but has exceptional qualifications for use in the Security Department. A representative of the guard force previewed this film for possible use in this department.

D. Protective Equipment and Clothing

1. The first yellow dyed socks to be received on the plant have been found to bleed, staining the wearer's feet and transferring the dye to other coating when washed at the laundry. The Purchasing Department has contacted the vendor for information relative to the dyeing method, and samples have been provided the Laboratory Division (S. D. Schneider) for investigation. The possibility of employees developing dye sensitivity has been discussed with the Medical Department.

2. Two General Electric Company Insulated Suits have been procured from Y-12 for use by the Fire Department in combatting alkali metal fires.

3. The last vendor safety shoe samples have been received for consideration prior to the placement of the 1952/53 safety shoe contract.

4. Additional information has been collected relative to the use of Vinyon-N coveralls as regular issue coveralls. It is felt that the merits of a synthetic coverall, such as Vinyon-N, over cotton coverall warrant their use.

5. Little or no progress has been made toward the design of the lens ring press which is needed to properly install new U. S. Army Assault Mask lenses.

(Cont'd)

D. Protective Equipment and Clothing (Cont'd)

6. Considerable difficulty has been experienced in the field with carbon dust sifting from U. S. Army, M-11 Gas Mask Canister and getting into the wearer's eyes. Inspection of a large number of canisters discloses that carbon dust was allowed to enter the completed canister prior to capping. From information received, this condition was limited to a small number of canisters and, through inspection of new canisters prior to installation on the masks, this condition can be detected.

E. Promotion and Education

1. The novelty of the Aetna Reactometer, used in safety meetings during the month of June, created considerable driving interest in many employees. The comparative reaction time and the braking time of various individuals pointedly demonstrated the need for alertness while driving. This safe driving training aid was exhibited to some 1236 employees and established more interest in defensive driving than any other device, film, or discussion previously used.

2. The 3,100,513 disabling accident free-period established by K-25 has given considerable opportunity to publicize management, supervision, and employee interest in safety. The Carbide Courier and other publications have emphasized the underlying facts of this achievement.

3. In order to properly educate employees involved in handling cranes, motorized hoists and other motorized equipment, the Maintenance Division is preparing a pocket size booklet that will establish proper operating and safe practice procedures for such equipment. It is expected that each person operating such equipment will be given one of these booklets, thus reducing equipment damage.

4. Two films have been ordered for the month of August to supplement the routine Safety Meetings. One entitled "The ABC's of Hand Tools" was especially ordered for Maintenance Groups while the second entitled "Plan To Live" was procured for Laboratory use.

5. Two suggested outlines for a plant safety film were presented for possible development during the coming year. The major idea behind such a project is to develop a safety film using plant personnel in order to establish a local atmosphere. It is expected that this film will have a definite safety story that will be put across through use of local scenes and employees.

6. Preliminary work and inquiries have been initiated towards finding an advertising company who will silk screen the calendars or a printing firm who will lithograph them. Preliminary inquiries have gone from the Purchasing Department to possible vendors.

F. Summary of Air Sample Results

1. Routine air sampling continues to increase although only the familiar types of materials and conditions were studied. From all indications, supervision is relying heavily on routine air sampling to keep abreast of prevailing toxic conditions. However, a small percentage of the investigations made could have been made through the special air sampling program because of their nature.

   a. Routine studies of nickel dust conditions continue to reveal no serious concentrations of nickel dust; however, on one occasion, the plant tolerances were slightly exceeded.

   b. Fluorine, one of the most frequently surveyed materials on the plant, does not appear to be a problem as long as the equipment and piping remain in good repair; however, once a leak is discovered, plant limits are exceeded within a matter of minutes. The indicative odor of fluorine causes immediate concern and the employees leave the area.

   c. For the first time in several months, the trichloroethylene problem has caused some concern when above plant limits were noticed in the Seal Shop. Investigations of this condition revealed improper handling of the material and was easily corrected.

   d. Mercury continues to be handled in an acceptable manner with hardly any concentrations being evident to the Laboratory Sampling Group. It is still noticeable that mercury is not always confined to proper vessels since droplets continue to be found on floor, work benches, and table tops.

2. A brief study was made of the special air sampling problem to determine why supervision is resorting to some other method of establishing an area or department atmospheric condition. The best answer at the present seems to be that, although the number of special air sampling requests have diminished, routine air sampling has increased and in many cases overlap those that were once being checked under the special category.

   a. Detailed air samples were made surrounding the large exhaust stack from the K-1401 Building in which the predominant material exhausted is trichloroethylene. No evidence of above plant limits existed in any of these determinations.

   b.

G. Items of Interest to our Operations

A sidelight on the sub-contract work at the Clinch River Loading Dock indicates that our opinion concerning this firm's safety efforts were not without foundation.

The old barge that drew so much derogatory comment was used to carry the clam shell. Some two to three hours after loading the clam shell, the barge began to sink, but for quick thinking of the contractor the entire equipment would have sunk. The barge sank following removal of clam shell but has since been salvaged and demolished.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards Dept.

SLS:msp

[illegible]

To: [illegible]
[illegible] Building

CC:

Date: June 3, 1952

Subject: [illegible]
[illegible]
[illegible]
[illegible]
May 1952

[illegible] Accident Experience

Personal Injury Experience	This Month Estimated	Last Month	This Year to Date	Last Year Same Period
No. of Major Injuries	0	0	8	13
No. of Man-Hrs Major Injuries	2	2	8	6
No. of Fatalities	3	0	14	5
No. of Permanent Sub-Total Injuries	0	0	0	1
No. of Minor Injuries	325	322	1523	1268

Accident Frequency and Severity Rates:

	DATE PLAN OF 1/1/51 - 6/30/51			PREVIOUS TEN MONTHS 11/1/51 - 4/30/52			CUMULATIVE FIGURES May 1952
	Goal	High	Low	Cum	High	Low	Cum	Actual	Cumulative
Frequency	4.18	0.00	2.80	5.96	0.00	2.31	0.00	0.00
Severity	.09	.02	.06	.06	0.00	.03	0.00	0.00
Comb. Freq.				11.93	0.00	5.39	0.00	3.27

**Last Major Injury occurred March 24, 1952. Man-hours and days

Cumulated since Last Major Injury 2,114,601 Hours 93 Days

Major and Sub-Major Injury Summary:

Name of Employee	Description of Injury	Date Injured	Lost Time Begun	Days Lost or Charged
	Fracture, left hand	5-9-52	-	-
	Laceration, 4th digit, left foot	5-14-52	-	-
	Sprain, left ankle	5-22-52	-	-

** The major injury occurring 3-24-52 does not interfere with the current U.C.C. awer man-hour record, cumulative since 2-28-52. Under this plan, 2,836,127 man-hours have been accumulated.

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	1	2	17
Estimated Damage	$263.00	$50.96	$676.03
Estimated Frequency Rate	0.41	0.85	1.82

Fires	This Month	Last Month	Year to Date
No. of Fires	1	1	5
Fire Loss (Estimated)	$0.00	$450.00	$1728.00
Fire Loss Rate (estimated)	0.00	0.11¢	0.08¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	3	1	4
Estimated Damage	$365.00	$30.00	$395.00

This document has been approved for release to the public by:
[signature] 6/13/52 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

[illegible]

[illegible] June 3, [illegible] 2

Subject: [illegible] Highlights of [illegible] Accident Experience [illegible] Safety Department [illegible] gress Report for May [illegible] 2

[illegible] Accident Experience

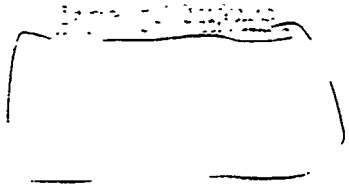
Personal Injury Experience:	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	0	0	8	13
No. of Non-Lab Major Injuries	2	2	8	6
No. of Sub-Major Injuries	3	0	14	5
No. of Non-Lab Sub-Major Injuries	0	0	0	1
No. of Minor Injuries	325	322	1523	1268

Cumulative Frequency and Severity Rates:

	[illegible] 1/1/51 - 6/30/51			[illegible] 11/1/51			[illegible] 4/30/52	[illegible] May [illegible] 2
	Goal	High	Low	Cum	High	Low	Cum	Last Month Actual	[illegible] Estimated
Frequency	4.18	0.00	2.80	5.96	0.00	2.31	0.00	0.00
Severity	.09	.02	.06	.06	0.00	.03	0.00	0.00
Pot. Freq.				11.93	0.00	5.39	0.00	3.27

** Last Major Injury occurred March 24, 1952 Man hours and days accumulated since last Major Injury 2,836,127 Hours 93 Days

[illegible]



[illegible]	Description of Injury	Date Injured	Last Time Began	[illegible]
	Fracture, left hand	5-9-52	-	-
	Laceration, 4th digit, left foot	5-14-52	-	-
	Sprain, left ankle	5-22-52	-	-

** The major injury occurring 3-24-52 does not interfere with the current U.C.C. man-hour record, cumulative since 2-28-52.

[illegible]	This Month	Last Month	[illegible]
[illegible]	1	2	17
[illegible]	$263.00	$50.96	$676.03
[illegible]	0.41	0.85	1.82
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	5
[illegible]	$0.00	$450.00	$1728.00
[illegible]	0.00	0.11¢	0.08¢
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	1	4
[illegible]	$365.00	$30.00	$395.00

Remarks

The accident-free period indicated in the last month's Progress Report continues to grow and is now approaching the three million man-hour mark. This not only establishes an accident-free period as described under the UCC Safety Award Plan, but it also establishes a new K-25 all-time accident-free period. The present accident-free period is continuing since there has been no lost time accident as of the end of the month.

II Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations: Emergency boxes located in all areas, K-1037A, K-1131, Clinch River Shipping Dock, Proposed Chlorine Trifluoride Storage House, Water Fog Protection for Electrical Switch Yards, K-633 Addition, and Switching Tracks for K-631.

1. Change in Plant Conditions

a. X No Change ____ Improved ____ Retrogressed

Remarks

Basic plant conditions remain the same; however, the K-1037, K-1401, K-1413 and K-1410 indicate continuous emphasis by supervision on material handling and storage.

2. Significant Types of Items Resulting From Inspections

a. Broken or faulty step ladders continue to be found in various areas of the plant. Although the number of ladders involved has diminished, supervision, in some instances, is neglecting to get the proper maintenance for such equipment.

b. The fact that welding and cutting sparks have been the predominant cause of fires during the past year at K-25, Safety and Fire Prevention Sections have worked jointly to procure from the groups concerned adequate precautionary measures to eliminate such fires in the future through preliminary job planning.

c. Some manufacturing concerns and vendors ship their material to K-25 in large trucks and tractor trailers. Since their drivers are not cleared for certain plant areas, K-25 drivers replace these men and take the vehicles concerned into the controlled areas. In some instances, the K-25 driver has not been qualified to drive such equipment and, in one instance, caused damage to the

2. Significant Types of Items Resulting From Inspections (Cont'd)

vendor's truck. Plant supervision has corrected this condition.

d. The Northeast Wing of Columbia Hall is now being used by the Purchasing Department. The building was inspected by the supervisor and other interested groups to assure safe conditions.

e. K-1410 supervision has agreed to move some of the piping to the new vapor blaster in order that the building operators might work around the equipment without head injuries. In addition to this, the temporary flexible connections to the digester have been replaced with permanent piping.

f. Supervision of the K-305-8 area is planning to replace the collapsed wooden platform at the rear of the building with a concrete platform. This proposal is not only safe, but also economical, since each building is designed with an access platform.

3. Significant Types of Unsafe Acts.

a. A plant janitor was noted working around the employees of the K-1414 Building using compressed air to clean off benches, equipment, etc. He was not wearing eye protection and apparently was not aware that his actions were unsafe. Supervision concerned with this area promptly corrected these unsafe acts.

b. Process Maintenance supervision has made an all-out effort to eliminate the equipment damage accidents such as have occurred during the past month. Their major concern has been to make each employee aware of proper operating procedures.

c. Two employees with medical restrictions, requiring that they wear safety glasses, were noted working in a hazardous area without eye protection. This condition was called to the attention of the supervisor concerned who immediately corrected each employee's understanding of medical restrictions.

d. HF lines in K-1131 and K-1300 Areas were again found uncapped. The Maintenance supervisors concerned indicated that the work was not complete and that proper capping would subsequently take place. This does preclude the possibility of the material

(Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. The K-31 mobile work platform is in the process of being redesigned in order to make the elevated working surfaces safer. The problem has been to add certain features such as handrails and stair treads without making the equipment impractical for use at higher elevations.

b. The targets for the new pistol range will not be redesigned to eliminate the use of steel framework. Supervision concerned felt that the hazard did not warrant substituting wood for the steel framework.

c. Following the incident of the minor Lithium fire, efforts were made to channel applicable information for control of the material to the plant groups concerned. The major problem concerned educating the Fire Department in the properties of Lithium.

d. With the installation of additional tracks and switches, the K-631 problem of moving the 10-ton feed cylinders and carts becomes a complicated item. An economical and safe method of moving the loaded carts has not been presented to date.

3. Significant Types of Unsafe Acts (Cont'd)

dripping onto some other workman who is not aware of such procedures.

e. A mobile crane was found with its safety controls made inoperable in order to do a particular job. This condition happened to be another important factor that stimulated supervision to formulate specific equipment operating procedures.

e. The problem of chiseling solidified cascade material from carbon traps arose again, and the supervisor of the area took the necessary precautions to keep the hazard to a minimum. Due to operational problems, carbon traps may not be replaced with alumina traps.

a. Following the event in which improperly coded oxygen cylinders were received on the plant, the Receiving and Shipping Department has agreed to return such cylinders to the vendor. This situation arises periodically when some employee takes the liberty of coding the cylinders to suit himself. The answer to this problem is a universal color code for cylinders that is recognized by industry.

b. The initial contract for the Clinch River Shipping Dock is practically complete. The major concern has been in obtaining compliance with well established safe practices.

Although the initial contract is being completed, a secondary contract is to be put up for bid. The present contractor may or may not get this contract.

c. Supervision of the UF_6 cylinder storage yard has not acted on the redesign of the storage yard. It is agreed, however, that something must be done to improve the facilities in each yard. The minimum objective is to improve the storage of the cylinders.

d. Through the efforts of supervision, defensive driving by plant employees is improving. This is reflected in both the repair charges and the number of accidents.

e. The problem of handling ammonium nitrate was discussed with supervision concerned and, in most instances, it was found that no problem existed; however, in one section of the Chemical Division, it was found that ammonium nitrate is used widely. The supervisor of this area was briefed on the hazards of ammonium nitrate, especially when handled and processed improperly.

C. Protective Equipment and Clothing

1. Blue denim work jackets, having been ordered for use on the plant, were received and stocked in the Stores Department.

2. In view of the fact that very few standard fire fighting chemicals are worth while in combatting Lithium fires, the Laboratory Division has established powdered carbon depots in areas where Lithium fires may be expected. The Fire Department has supplemented these depots with their own supply of powdered carbon.

3. Approximately 1100 U. S. Army Assault Masks are now out of service due to broken or HF etched lenses. An unsuccessful attempt was made to procure a lens ring press from the U. S. Army to install new lenses. A press is being designed and will be constructed at K-25 to do this job.

4. Approximately 50 pairs of women's safety shoes were sold in the three weeks these shoes have been available.

5. Sample safety shoes are being reviewed prior to the placement of the 1952/53 safety shoe contract.

6. A change of specifications for acid resistant coveralls to require 500 denier Vinyon-N fabric and a double lock stitching is being considered. The 500 denier fabric is again available from the mill at slightly greater cost than Dynel fabric.

7. Samples of a new neoprene overshoe "rubber" have been received. It is expected that this "rubber" will replace the present type which do not fit work shoes and are not HF resistant.

D. Emergency Planning

1. As was planned, 2 plant emergency drills were held during the past month. Each drill was designed to simulate a possible emergency that could occur in a certain area. One drill involved a combination sabotage and fire drill at K-25 Switch Yard, but did not gain the desired results as plant emergency groups were forewarned. The second problem, a simulated chlorine release in the Power House Area, offered exceptional opportunities to observe the emergency groups in operation. All-in-all, the groups concerned handled the problems well and were able to further evaluate their ability to combat plant emergencies.

2. Following an inspection and survey of the emergency truck on display in Oak Ridge, several pieces of equipment and tools were considered to be of use on the plant emergency truck. A listing of this equipment was submitted to the Fire Department for study and use, if desired.

E. Promotion and Education

1. In order to further emphasize the value of safe driving, by indicating the limitations of reaction time and braking time, the Aetna Reactometer will be used in safety meetings during the month of June.

2. The Y-12 film on Lithium fires was used during the month to point out to responsible groups the seriousness of Lithium and other alkali materials. The film vividly demonstrates the hazards involved when fighting such fires, but goes further to indicate the type of materials that can be used to extinguish these fires.

3. For use in training K-1131 personnel who may be exposed to HF, F_2 and UF_6, a resume of information on protective equipment and its use has been prepared. It is expected that this material will be given to each employee in this particular area for information.

4. Some 500 employees saw the two films that have been on the plant for 30 days entitled "Fatal Seconds" and "Ladders, Scaffolds, and Floor Openings".

5. Following 3 significant hoisting equipment accidents, emphasis was placed on furnishing supervision with information and material that would pointedly indicate how such accidents can be minimized. Supervision has followed through in this regard and have taken steps to stop such accidents in the future.

6. The training aid, "Let's Pretend", mentioned in last month's Progress Report, continues to give a message pointing out the value of proper eye protection.

F. Summary of Air Sample Results

1. Considerable emphasis was placed during the past month on routine air sampling to keep supervision informed of the hazards of mercury, fluorine, carbon monoxide, HF, ammonia and uranium in the various areas of the plant. The air samples were taken during normal operations in order to give a reasonable indication of the atmospheric conditions. From this information, each supervisor is able to formulate his own opinion as to the corrective action necessary to improve the areas.

   a. In general, plant acceptable limits of mercury were not exceeded; however, droplets were noticed in and around Laboratory sinks, floor areas and table tops.

   b. Routine carbon monoxide determinations indicate that plant supervision is taking necessary steps in the areas concerned to prevent the existence of over-tolerance conditions.

   c. Oxides of nitrogen presented a problem during the month when, on 2 occasions, determinations revealed that over-tolerance conditions existed. This was immediately

(Cont'd)

G. Items of Interest to our Operations

1. The cooperative efforts of the Hobson Construction Company to comply with recommendations for safe working conditions have been below par. This may stem from an unsympathetic liaison group through which the Safety Department works. A more definite agreement on safe working conditions should precede the initial work of a sub-contractor.

2. From all indications, the ladder problem seems to be settled. It is felt that group responsibilities are well defined and should show positive results.

3. The reassignment of Health Physics and Safety employees to combination assignments has been mapped out on paper and will go into effect during the first week of June.

F. Summary of Air Sample Results (Cont'd)

called to the attention of the supervisor concerned who took steps to reduce the atmospheric concentration and to furnish protective equipment to the employees in the area.

d. Determinations for uranium dust continue to remain below the plant acceptable limit;even under these conditions, the operators seem to understand that a problem is present and wear respiratory protection.

e. Although, at the time of sampling, fluorine gas was quite noticeable in the K-1131 generation room, plant acceptable limits were only exceeded in remote instances. These instances usually occur from time to time due to equipment leaks.

2. Supervision is gradually discontinuing the use of special air sampling to determine if hazards exist in their respective area. This may mean that conditions are improving throughout the plant and are being routinely checked, or it may mean tha supervision does not feel that they have problems that necessitate such studies. The information received from such determinations conclusively give the supervisor an answer for respiratory problems. Only 4 such investigations were made during the month.

a. Special fluorine determinations were made outside K-25 buildings in order to determine if the concentrations were below plant acceptable limits. For a period of one hour and fifteen minutes, the air samples indicated concentrations of slightly above plant acceptable limit to only traces of fluorine.

b. A special investigation was made of 4 exhaust hoods in the K-1401 Building to determine if the air flow rates were adequate to remove the vapors from the breathing zones of the operators. One of these hoods proved to be inadequate for the job in which it was designed.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

[illegible]

To: [illegible] Henry
[illegible] Building

Date: May 2, 1952

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for April, 1952

CC:

I Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	0	1	8	11
No. of Non-Tab Major Injuries	1	0	5	6
No. of Sub-Major Injuries	0	1	11	4
No. of Non-Tab Sub-Major Injuries	0	0	0	0
No. of Minor Injuries	325	300	1201	977

Comparative Frequency and Severity Rates:

	BASE PERIOD 1/1/51 - 6/30/51				PREVIOUS SIX MONTHS 10-1-51 - 3-31-52				CURRENT PERIOD April, 1952
	Goal	High	Low	Cum	High	Low	Cum	Last Month Actual	This Month Estimated
Frequency	4.18	0.00	2.80		5.96	1.21	2.74	1.12	0.00
Severity	.09	.02	.06		.06	.01	.04	.06	0.00
Pot. Freq.					11.93	2.24	5.87	2.24	0.00

** Last Major Injury occurred March 24, 1952. Man hours and days accumulated since last Major Injury 1,807,062 Hours 62 Days

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
None	-	-	-	-

**The major injury occurring 3-24-52 does not interfere with the current U.C.C. man-hour record cumulative since 2-28-52.

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	2	5	16
Estimated Damage	$50.96	$158.57	$413.03
Estimated Frequency Rate	0.85	2.11	1.74

Fires	This Month	Last Month	Year to Date
No. of Fires	1	0	4
Fire Loss (Estimated)	$450.00	$0.00	$1720.00
Fire Loss Rate (Estimated)	0.11¢	0.00	0.10¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	1	0	1
Estimated Damage	$30.00	$0.00	$30.00

This document has been approved for release to the public by: [signature] 6/15/95
Technical Information Officer Date
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Remarks

Plant personnel continuing its efforts in behalf of accident prevention has again established another accident-free period of one and one-half million man-hours without a lost time injury. This happens to be the 4th such achievement of the plant and indicates uncommon interest in accident prevention. The present record is continuing since there have been no lost time accidents to date.

II. Classification Distribution of Departmental Functions

A. Description of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1037A, K-1131, Clinch River Shipping Dock, New Metallurgical Laboratory Pilot Plant, New Chlorine Trifluoride Storage House and Water Fog Protection for Electrical Switch Yard.

B. Change in Plant Conditions

a. _X_ No Change _____ Improved _____ Retrogressed

Remarks

It is noteworthy to mention that the housekeeping and general storage arrangement of materials has greatly improved in the Maintenance portion of the K-1401 Building

C. Significant Types of Items Resulting From Inspections

a. Upon inspection of the Stores Department's sheet metal storage, it was found that due to the lack of storage racks it had become necessary for them to resort to makeshift storage. The Stores Department is preparing to install additional racks in order to improve this condition.

b. Inspection of step ladders in the field reveals that they are being purchased under MS 20.3 which was superseded by a modified MS that was agreed upon by the various divisions concerned. The ladders are being modified in the field by the user.

c. Ambulance drivers having indicated that the passenger portion of the ambulance seems to be a catch-all for various pieces of equipment, the vehicle was inspected and all superfluous equipment was either secured or removed from the vehicle.

2. Significant Types of Items Resulting From Inspections (Cont'd)

d. Close inspection of the facilities of the Automatic Sprinkler Company, who is the sub-contractor for installing water fog protection in the Switch Yard, reveals that they are attempting to comply with the various recommendations concerning their responsibility. The other sub-contractor, the Hobson Construction Company, is likewise following plant recommendations; however, their supervision is prone to expect detailed reason for safety.

e. Carpenter Shop supervision has made protective table aprons for all Dewalt Saws, decreasing the possibility of the saw blade cutting into an operator's leg.

f. Supervision in charge of the K-861 Cooling Tower platform extension promised general cleanup of the scrap material observed thrown in a haphazard fashion about the job.

g. Demolition of the K-1056 Building has been completed and Carpentry supervision concerned with this job should be commended for the safe manner in which the work progressed. The most serious unsafe condition noted during this demolition work was the use of straight ladders that were too short for some of the work; however, upon recommendation, this was corrected by use of extension ladders.

2. Significant Types of Unsafe Acts:

a. Two electricians working in the K-131 Building repairing a lighting circuit were seen testing the circuit by cautiously touching their bare fingers to the energized wiring. Naturally, this is not an accepted method of electrical circuit testing, by any group on the plant, but it does indicate that the electricians, being too lazy to return to their department for proper testing equipment, used this makeshift and hazardous method of testing the circuit. This sort of attitude, in addition to the lack of foresight, has caused many accidents within the Maintenance Groups.

b. Maintenance mechanics were observed using step ladders that had been tagged as defective. This sort of action stems from only one consideration and that is poor safety morale.

c. A Maintenance employee was noted holding a piece of sheet metal in his bare hand while he was drilling a 1/2" hole with a drill press. This unsafe act appears to be quite common and can best be corrected by furnishing vises or other necessary equipment to hold the work securely.

(Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Assistance was given the Engineering Department in an attempt to incorporate necessary safety features into the future chlorine trifluoride storage house. The recommendations, made, closely followed those outlined in Sp-11 and were the basic considerations for the preliminary design.

b. A final decision was made by Operations Division supervision and Process Maintenance supervision as to the lock-out of equipment in K-1131 while it is being repaired. This procedure incorporates all the present plant policies such as the Hazardous Work Permit and Electrical Work Permit, and goes one step further by allowing the maintenance mechanic to lock out each piece of equipment to be repaired by pad-locking its switch. The maintenance foreman retains the key until the work has been completed and ready to return to the operation group.

c. At the request of K-1131 supervision, the Safety Department was asked to prepare an itemized listing of protective equipment needed for specific jobs in this area. This material was prepared and presented to the supervisors concerned with the thought that it might be distributed to each employee. No definite distribution has been made to date.

3. Significant Types of Unsafe Acts (Cont'd)

d. Stores Department employees were again observed manually handling sulphuric acid drums in a hazardous manner. This problem, being similar to the sulphuric acid handling problem at the water treatment plant, can be corrected by use of the same portable acid trailer proposed several months ago to reduce the job hazards and facilitate the work. This trailer will not be completed until late spring.

e. Employees continue to use makeshift devices for ladders. The latest such incident involved a maintenance mechanic who was working off an up-ended barrel. This unsafe act was immediately corrected when called to the supervisor's attention.

f. On several different occasions, the emergency key has been moved from the box on the elevator shaft in K-1037 Building, and used to open the elevator doors while the elevator was at another level. It was never established who was involved in this hazardous act but the supervisor concerned was notified that such unwarranted incidents were taking place in this area. The supervisor concerned will correct this unsafe act.

1. Items Requiring Special Attention (Cont'd)

d. Many dead fish found along the banks of Poplar Creek indicated that some material was being discharged into the Creek that caused their death. An investigation revealed that the fish had been killed as far as two miles above the K-25 Plant. K-25 waste effluent is being sampled on a regular schedule.

2. General

a. Although the toxic fumes created by the flame-cutting and welding of freon lines in K-31 has dropped to a minimum, supervision has been interested in establishing a better freon purging procedure. A new procedure was discussed with the supervisor of the area and it is felt that more satisfactory results will be noted in the Industrial Hygiene tests in the future. The major additions to the procedure have been to pressure the system with air to 50 pounds per square inch gage, then purge 4 times until stratification of freon gases has been eliminated.

b. The Janitorial employees using the vacuum cleaner in K-1037 have been complaining of electrical shocks. Investigation of the accident with the cooperation of Mr. Barker revealed that the problem was not from faulty equipment but resulted from static electricity which was accumulating on the cleaner attachments and grounding through the operator's body. A recommendation was made for correction of this condition by bonding the hose attachments to furnish a permanent ground.

c. Each safety engineer has completed one series of radiation monitoring assignments. Considerable progress has been noted in their ability to monitor an area and to make out the Health Physics Audit. It is anticipated that as this work becomes even more routine, that still a better job will be forthcoming.

d. Driver testing continues to increase from week to week and has become a full three-days work for one employee. In order to alleviate this situation, the driver testing should be transferred to some other agency or an employee be utilized on a part-time basis.

2. General (Cont'd)

e. Several motor vehicle accidents occurred during the month when the emergency brakes on the vehicle apparently did not hold and the vehicle rolled down a hill into a post or some other obstruction. Maintenance supervision has instructed all drivers and mechanics to leave motor vehicles in gear in addition to applying the emergency brakes.

f. The design of the acetic acid room in the new Chemical Storage Warehouse was found to be inadequate for such storage because of lack of heat. In attempting to adapt some form of a unit heater, Engineering is planning to install a non-explosion proof heater. This is not according to our recommendation.

C. Protective Equipment and Clothing

1. The Tool and Stores Departments have elected to use the present stocks of coveralls without adding color or pockets. All new coveralls will be purchased under the new specifications.

2. The Purchasing Department has not been successful in securing adequate competitive bids on the three-plant standard work jacket. A sample jacket was received April 28th and is being tested for quality.

3. The special neoprene coated acid suits have been delivered and are in limited use at K-1131 and K-1413.

4. The women's safety shoes have not been delivered.

5. Sample safety shoes have been received from two companies for consideration prior to placement of the 1952/1953 Annual Safety Shoe Contract.

6. A number of U. S. Army Assault Masks were found defective; however, investigation has not disclosed the cause. Investigation is continuing.

7. After considerable urging, supervision is making the Emergency Equipment Stations usable in case of an emergency.

8. The women's coveralls have been delivered. They are acceptable under the specifications in force at the time the order was placed.

D. Emergency Planning

1. Two emergency drills held during the month of April were again designed to symbolize actual emergency conditions in areas that have not been tested for their emergency work. One drill was a UF_6 release at the K-1413 Building while the other drill involved a criticality problem in K-1300 Area. The problems were aptly handled by the groups concerned and, during the discussions, constructive ideas were added to the general emergency program.

2. Since it is felt that the use of HC smoke pots, to simulate a gas release and smoke, is hazardous, it will only be used outside of building areas in order that employees will not be subjected to concentrated fumes. This limitation similarly limits the variety of usable problems.

3. The emergency drills are being planned four months ahead in order to assure a planned problem well in advance of the scheduled drill dates.

E. Promotion and Education

1. The new training aid entitled "Let's Pretend" has proven to be one of the best promotional ideas used in several months. The comments and enthusiasm by those attending group meetings indicate that this type of program has lasting results.

2. Plant Records Department, writing an office worker's manual, requested that the Safety Department furnish the material on "Office Safety" for incorporation in this booklet. This project has been completed and forwarded to them.

3. With acceptable safety film becoming more difficult to locate, the Safety Department has been contemplating producing a K-25 Safety and Radiation Hazards film. The film would be budgeted during the years Fy-53 and possibly Fy-54.

4. To change the copy on our sign boards safely and to eliminate one-half to three-fourths of an hour's time while changing these boards, a scaffold board platform has been designed to facilitate this job.

5. Promotional material used by the Safety Department for furthering safety on the plant is being set up on a one year program to assure continued copy for the calendar insert, monthly report and sign board slogans.

6. Continued assistance is being given to the Editor of the Carbide Courier to help him present an acceptable safety story from time to time.

F. Summary of Air Sample Results

1. Routine air sampling continues to furnish indicative information concerning the conditions in areas where atmospheric conditions present a problem. Each sample result, although not conclusive, presents a definite indication or trend to the supervisor concerned so that he might evaluate the respective area conditions for corrective action.

   a. Routine air samples in K-1410 for ammonia conditions indicate only slight concentrations of 10 ppm in this area.

   b. Mercurial concentrations in the sampled areas of the plant continue to show that supervisory attention is keeping the atmospheric concentrations to a minimum. Since the areas studied are representative of the plant and prior conditions in which mercury droplets were found on desk tops and floors have been reduced to a minimum, it is believed that this industrial hygiene problem has been publicized until supervision understands how to control mercury.

(Cont'd)

G. Items of Interest to Our Operations

1. The nonchalant attitude of K-1131 supervision toward safety causes the recommendations of our department to be filed as superfluous material. We have been hoping that this feeling would change especially when the work in this area became formalized but, to date, we can see no marked improvement in their attitude or area conditions.

2. The ladder situation on the plant continues to be in a state of indecision with the Purchasing Department sending out bids in a manner similar to the way they purchase nails; engineering has not changed their material specifications to reflect any of the decision agreed upon by the groups concerned; the Stores Department receives and distributes ladders without proper acceptance.

F. Summary of Air Sample Results (Cont'd)

c. Hydrogen fluoride and other fluorides air sampling were found to be below plant acceptable limits. This is one of the few times fluoride concentrations have remained this low.

2. Special air sampling remains the supervisor's main source of information to determine if a suspected hazardous condition actually exists in any particular area. For some reason, supervision had only minimal need for such determinations during the month.

a. Special air sampling of the products of coolant decomposition when related to converter changeout continues to indicate overtolerance conditions of hydrogen fluorides. Although operators and welders connected with this work are wearing protective gas masks, the work method is in need of a change to eliminate personnel exposure while cutting into coolant lines.

b. Special air samples were taken in connection with the two process gas releases during the month. This sampling was necessary in order to determine when employees could safely return to their work.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards Dept.

SLS:mmp

[illegible]

[illegible] Building

Date: April 1, 1952

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for March 1952

To:

I Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	5	8	8
No. of Non-Tab Major Injuries	0	2	4	4
No. of Sub-Major Injuries	1	5	11	2
No. of Non-Tab Sub-Major Injuries	0	0	0	0
No. of Minor Injuries	300	287	876	750

Comparative Frequency and Severity Rates:

	Base Period 1/1/51 - 6/30/51			Previous Six Months 9-1-51 - 2-29-52			Current Period March, 1952	
	Goal	High	Low	Cum	High	Low	Cum	Last Month Actual	This Month Estimated
Frequency	4.18	0.00	2.80	5.96	1.21	3.24	5.96	1.12
Severity	.09	.02	.06	.05	.01	.04	.05	.06
Pot. Freq				11.93	2.38	6.28	11.93	2.22

** Last Major Injury occurred March 24, 1952. Man hours and days accumulated since last Major Injury 890,331 Hours 31 Days

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
*	Inguinal Hernia	3-24-52	3-26-52	50
	HF Burn, Left Knee	3-15-52	-	-

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	5	3	14
Estimated Damage	$178.57	$37.50	$362.07
Estimated Frequency Rate	2.11	1.26	2.03

Tires	This Month	Last Month	Year to Date
No. of Tires	0	1	3
Tire Loss (Estimated)	$0.00	$25.00	$1278.
Tire Loss Rate (Estimated)	$0.00	0.006¢	0.15¢

[illegible]	This Month	Last Month	Year to Date
[illegible]	0	0	0
[illegible]	$0.00	$0.00	$0.00

** The major injury occurring 3-24-52 does not interfere with the current USC manhour record cumulative since 2-28-52.

This document has been approved for release to the public by [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Through the concerted effort of plant supervision, the plant potential injury frequency was reduced considerably during the month of March. This is quite indicative when it will be remembered that the month of February included 5 major injuries and 5 sub-major injuries. With our potential injury frequency fluctuating as it has for the first quarter of the year, it seems that our minor injury frequency might possibly indicate the trouble. This has not proven to be true since our minor injury frequency rate discloses no peaks but continues to remain below the plant mean for 1951.

[illegible]

K-1100, K-1037, K-1037A, K-1131, off the plant areas such as Clayton Hall, the proposed Clinch River Shipping Dock and the new Pilot Plant of the Metallurgical Laboratory.

[illegible]

X No Change [illegible] Improved [illegible] Retrogressed

[illegible]

[illegible]

a. Following a minor injury that occurred on a foot powered shear, the machine was inspected and found to be without a guard. Supervision concerned has since installed a barrier type guard for this shear.

b. A new small metal parts stripping and plating operation is being installed in the basement of Laboratory A. The engineer involved made detailed recommendations for protective clothing, ventilation and safe practices needed for this work. These recommendations have since been completed.

c. To indicate the efforts put forth by some supervisors, the K-31 Area is cited as an example. A detailed inspection was made of this area with only a few conditions found unsafe. These included such conditions as a broken ladder, unchained compressed gas cylinders with caps rolling about floor, and an unguarded pump motor shaft. All of these conditions were corrected.

2. Significant Types of Items Resulting From Inspections (Cont'd)

d. Due to vibration in the K-29 Building, several light fixtures have fallen and, in order to eliminate this condition, the hold down bolts have been coated with a material that will harden and not allow the bolts to back out.

e. In order to determine if corrective action is needed, a study was made on several occasions of the plant bus system from 4:30 until the plant was cleared. The findings revealed that although some of the crowd was apparently shoving and pushing, in most instances loading and unloading was orderly. It is felt that this condition can only be corrected by the individuals concerned since adequate facilities are furnished by the company. The major cause for crowding is that many of the employees are reluctant to wait on the second and third busses and crowd on the first one.

f. The Process Laboratory employees were noted moving 12 gallon carboys of acid and other similar material manually. It was recommended to them that they use the patented type of carrier designed for such equipment so that carboys can be transported without breaking.

g. A recommendation was made to the supervision of K-1131 Area to cover the foot treadle of a seal dismantling press. This sheet metal cover is to prevent accidental operation of the press. An additional recommendation was made to discontinue the wearing of rings and gloves while using the press.

3. Significant Types of Unsafe Acts.

a. An employee moving a 55 gallon drum of trichloroethylene decided to move the material by rolling it toward himself. As the momentum of the drum increased, it got away from the employee, rolling over his foot and against his leg. The injury to his foot was slight in view of the fact that the employee was wearing safety shoes.

b. Several employees were observed using power tools such as drills, grinders, air hammers, etc., without the protection of safety glasses. This situation was corrected as soon as the supervisor was notified.

c. A maintenance employee was seen using a step ladder that was not only defective but had been condemned and tagged. This sort of attitude is one of the paramount reasons that often causes serious injuries. Correction was immediate.

d. On three occasions during the past month, employees were noted using extension ladders on smooth surfaces without the benefit of safety feet. Supervision was informed of the proper ladder feet required for extension ladders.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Preparations are being made to assist Process Maintenance in planning for changeout of all converters of the K-29 area. It is felt that if a proper type of job method is set up, future accidents and injuries during this work will be markedly reduced.

b. Maxon Construction Company, making a survey of some of their salvage material, found two or three barrels of protective clothing that did not belong to them. Investigation of this situation revealed that most of the equipment had been transferred from the K-25 Plant in some manner or other. The best answer concerning how this equipment was transferred to the Maxon Construction Company dated back to an emergency that occurred during construction days at K-29 in which we furnished this equipment to them for clean up purposes.

c. Special consideration and attention has been devoted toward making each safety engineer responsible for certain plant areas in which contamination is known to be present. This responsibility involves monitoring, supervisory contacts, and evaluation of the respective area for the purpose of maintaining these areas as near zero contamination as possible.

3. Significant Types of Unsafe Acts (Cont'd)

e. A pickup truck coming from the Engineering Department at quitting time continues to unload anywhere from 11 to 15 employees at the K-1001 Building. This has been called to the attention of the supervisors concerned on several occasions.

f. A Stores Department truck was seen with a load of cylinders piled hazardously on the truck bed without the benefit of any sort of hold down device. This was called to the attention of the supervisor concerned who promised corrective action.

1. Items Requiring Special Attention (Cont'd)

   d. The Barge Unloading Dock Contract is now in force and the preliminary work necessary before the back water rises is being completed by the contractor, Hobson Construction Company. The engineer responsible for this facility has met with representatives of Plant Engineering and a Construction Company representative in order to discuss accident prevention for this job.

2. General

   a. Due to the increase in traffic violations on the plant, the guard force discusses each violation with the employee concerned and makes a written report of the incident to his supervisor. A copy of this report is filed in the operator's folder.

   b. With the moving of the BrF_3 fluorinating pilot plant to the K-1300 Area, contacts were made between the groups concerned in order that they understand the potential hazards of this material. This project incorporates considerable liaison work between the Laboratory Division Group and the Chemical Division Group.

   c. The reissue of drivers permits has now been mapped out for issue sometime this year. The plan involves mainly medical determination as to the employee's physical condition. Once we have the medical department's confirmation that the employee's physical condition meets the requirements of the AEC Bulletin, his permit will automatically be issued to him.

   d. In order to establish the types of oil to be used in the vacuum pumps for the chlorine trifluoride recovery system, a meeting was held in which representatives of the interested groups attended. Our major concern did not involve recommending MFL oil or hydrocarbon oil but it did involve recommending protection for personnel working in and around equipment containing either type oil. After some discussion in which the merits of both types of oils were pointed out, the Process Group decided that they would use hydrocarbon oil as the lubricating medium.

C. Protective Equipment and Clothing

1. A three-plant standardization of coverall specifications has been accomplished. These specifications include side pockets and bright yellow color.

2. A three-plant standardization of work jacket specifications has been accomplished; however, the K-25 jackets will be finger tip length while the other plants may use shorter jackets.

3. The special neoprene coated acid suits have not been delivered.

4. Women's saddle oxford safety shoes are on order and scheduled for delivery early in April.

5. A recent management decision requires the stocking of adequate supplies of leather palm canvas gloves but recommends the use of vinyl coated canvas gloves as a general work glove in contaminated areas.

6. The women's coveralls for Vacuum Test Group are on order; however, delivery is overdue. This order is being expedited.

D. Promotion and Education

1. As a result of considerable work with Industrial Relations' Division supervision, their divisional safety meeting has been revitalized to incorporate pertinent factors that will help them carry a safety story to the individual employee. The meetings are built around a safety quiz so that each employee will have a part on the program.

2. "Sparkie", the electrical demonstration man, was modified to make our safety talk on the grounding of portable electrical tools more impressive.

3. The plant report pin-pointing lost time injuries for 1951 made quite an impression upon both supervision and employees. It is felt that this sort of presentation should be made at the beginning of each new year.

4. A few departments who did not have the opportunity to see the film "A Closed Book" were given an opportunity when this film was brought back to the plant.

5. A new training aid was received on the plant and is designed to demonstrate the seriousness of eye injuries. This demonstration vividly pictures a routine day in the life of a blind person. It is expected that this equipment will be used in safety meetings throughout the plant.

C. Protective Equipment and Clothing (Cont'd)

7. The manufacturer reports progress on both the Mercury Vacuum Cleaner and the Optical Mask development project.

8. The Industrial Glove Company is working on a special glove for handling dry ice.

9. The Mine Safety Appliance Company has promised samples of a chrome leather glove to replace the long asbestos glove now used at the smelter. Asbestos gloves have a very short life in this service.

E. Emergency Planning

1. The 2 emergency drills held during the month of March involved a criticality problem in K-1410 and a UF_6 release at K-1413. The objective of the criticality problem was to determine if the emergency squad had improved in its use of radiation detection instruments. The objective of the UF_6 release was designed to determine if supervision and employees of the K-1413 Building, who have lately finished an emergency training program, were ready for an emergency in their area.

2. An evaluation of the plant emergency boxes was made to establish if they were being maintained in usable condition. In most cases, the equipment requiring regularly scheduled exchange had not been touched in several months. Furthermore, some equipment had been removed and not replaced.

3. A resume of the plant emergency drills is being prepared in a chart type form for plant supervision's study and evaluation. This form will be kept up to date and upon request or on scheduled dates, a copy will be submitted for study.

F. Summary of Air Sample Results

1. Although, at times, it has been found that some of the air samples were not taken from the most appropriate spots, it is felt that, on the whole, the air sampling program is positive enough to give interested supervisors an indication of the atmospheric conditions in their departments. The following information is representative and points out the value of such routine checks:

   a.

   b. No areas in the plant routinley sampled for mercury concentrations in the atmosphere indicated a serious condition; however, each area involved had droplets of mercury on floors and work tables.

(Cont'd)

G. Items of Interest to our Operations

1. The evaluation of the area emergency boxes indicated that only a few areas are maintaining their boxes as originally prescribed. Even though the designated equipment and inspection periods are subject to changes, some sort of routine is necessary in order to guarantee a fully equipped box if and when an emergency occurs.

2. The basis for re-issue of motor vehicle operators permits has been completed and as soon as plant management is fully decided upon the course to follow, the information will be permanently set up on the IBM tabulating equipment.

3. Although the incident described under IIB1b above indicates a laxness on someones part, K-25 should consider this fact before loaning equipment to other AEC contractors or plants. This does not mean to discontinue loaning equipment but it does indicate that a closer check is needed to prevent such, hard to get, equipment from getting lost.

Summary of Air Sample Results (Cont'd)

c. Routine sampling for trichloroethylene vapors in the K-1401 Building indicates that supervision is making every effort to control degreasing operations. Over-tolerance conditions occur during infrequent surges. A serious condition continues to exist due to the fact that some operators consider the Chemical Cartridge Respirator protection against such vapors.

2. Special air sampling was again not extensive this month and the three sample determinations listed below further indicate that supervision must rely upon such studies to be aware of area conditions.

a.

b. The converter retubing operation in K-1401, presenting a radiation and Uranium problem, was studied for its potential hazards. Air samples studied indicated both alpha contamination and Uranium dust but neither ranged near the plant acceptable limits.

c. Maintenance employees breaking a cement floor in the K-1030 Building with air hammers were creating quite a visible dust. Supervision of the area concerned about possible health hazards asked for a dust count of surrounding atmosphere. The condition proved to be non-hazardous.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards

SLS:msp

Date: March 4, 1952

Subject: Monthly Report of Plant Accident Experience for February, 1952

I. Plant Accident Experience

Personnel Injury Experience	This Month (Estimated)	Last Month	Year to Date	Last Year to Date
No. of Lost Time Injuries	5	2	7	5
No. of Non-Lost Time Injuries	0	2	2	2
No. of Major Injuries	5	5	10	0
No. of Non-Lost Sub-Major Injuries	0	0	0	0
No. of Minor Injuries	260	289	549	508

Man-hours Exposure and Severity Rates:

	All Work 1/1/51 - 6/30/51			Particular Work 8-1-51		1-31-52	Cumulative Since February, 1952
	Goal	High	Low	Gas	High	Low	Gas	Actual	Actual
Frequency	4.18	0.00	2.80	4.18	1.21	2.45	2.21	5.96
Severity	.09	.02	.06	.04	.01	.04	.01	.05
Pot. Prog				7.24	1.24	4.49	7.74	11.92

Last Major Injury occurred February 28, 1952 No. man-hours days accumulated since last Major Injury 28,919 Days 1

Major and Lost Time Injuries Summary:

Type of Injury	Description of Injury	Date Injured	Date Returned to Work	Time Lost to Date
*	Laceration, anal area	2-4-52	2-7-52	Still Off
*	Laceration, left leg	2-15-52	2-22-52	Still Off
*	Sprain, left knee	2-18-52	2-23-52	Still Off
*	3rd degree burns, both feet	2-28-52	2-29-52	Still Off
*	1st degree burns, both feet	2-28-52	3-2-52	Still Off

(See back of sheet)

Injury Frequency Indicators	Last Month	Year to Date	Last Year to Date
No. of Accidents	3	6	9
Dollars Lost	$37.50	$146	$183.50
Accidents per Million Man-hours	1.26	2.53	1.90

No. of Accidents	1	2	3
Dollars Lost	$25	$1253	$1278
Accidents per Million Man-hours	0.05¢	0.30¢	0.15¢

No. of Fatalities	0	0	0
Fatalities per Million Man-hours	0.00	0.00	0.00

This document has been approved for release to the public by: Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
	Contusion, 1st and 3rd toes, left foot	2-4-52	-	-
	Amputation and bone exposure, 3rd digit, left hand	2-7-52	-	-
	Deep laceration, left hand	2-13-52	-	-
	Fractured rib, shoulder strain, minor abrasions	2-26-52	-	-
	Fracture, 1st digit, left foot	2-28-52	-	2

Remarks

The plant minor injury frequency rate continues to remain below the plant mean for the year 1951. Yet, our present major injury frequency, in addition to our potential injury frequency, has reached a significant point in which corrective action must be taken immediately.

II Significant Highlights on Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, K-1100, K-1037A, off the plant areas such as Clayton Hall, the proposed Clinch River Shipping Dock and Elza No. I and II Switch Yards.

1. Change in Plant Conditions

a. X No Change ____ Improved ____ Retrogressed

Remarks

Inspection revealed that the original temporary installations such as the wood cribbing in the Material Storage Yard will need to be replaced in the near future.

2. Significant Types of Items Resulting From Inspections

a. In order to cope with step ladder failures and inconsistencies, the Electrical Maintenance Department has established check sheets in which supervision periodically inspect their respective ladders to determine if they meet the plant specifications for such equipment.

b. The improvised monorail hoist located in K-131 is now undergoing revisions to meet the material handling problem and to incorporate the desired safe features.

c. Following inspections and recommendations, the material handling device used in north side of K-631 for moving the 12.5-ton cylinders has now been satisfactorily arranged in which a Northwest Crawler Crane, adequately designed, handles the cylinders to and from the specially designed warons.

(Cont'd)

2. Significant Types of Items Resulting From Inspections (Cont'd)

These wagons are mounted on a narrow gauge railroad for ease and safe handling. It is felt that this operation is acceptable except for the manual method used to push the carts to and from the building.

d. The preliminary excavation of the proposed Clinch River Dock revealed that some unknown materials had been buried in this Salvage Yard Area. Samples of this material were tested and in each instance the material was considered non-hazardous. The work has been continued and is now ready for the sub-contractor to take over.

e. Several plant areas are not keeping their plant emergency boxes in first-class shape and, in each instance, supervision responsible for the boxes has been notified and the equipment again brought up to its original status.

f. A Maintenance Department hyster moving material cylinders in the Storage Yard tipped over while stacking a cylinder on the wood cribbing. Investigation revealed that the major cause for this incident was the deteriorated condition of the wood cribbing which allowed the cylinders to slide and fall. The hyster attached to one of the cylinders became over-balanced and tipped over. Since the wood blocks used for the cribbing of these cylinders are as old as the plant, new material is being purchased to replace the rotted material.

g. Supervision of the K-29 Area, having suffered 3 or 4 lube oil leaks in and around the compressor pumps and motors, should be concerned with the amounts of residual lube oil adhering to the duct work of the supplied air system since it increased the probability of fire in this area. The Fire Control Group is aware of this condition and has several ideas under consideration for decreasing the fire hazard.

3. Significant Types of Unsafe Acts.

a. A serious accident was averted when a bus driver closed the rear door of a bus on the arm of an employee and started off. Other employees on the bus caught the driver's attention in time to prevent dragging this employee. Supervision of Transportation has taken steps to prevent such accidents in the future.

b. An employee removed the guard from a delta table saw in the Carpenter Shop and was ripping lumber. When the unsafe act was called to the attention of the supervisor concerned, the guard was replaced immediately.

c. A rigging crew moving a heavy piece of equipment was observed allowing any of crew to signal craneman. This unsafe act was called to the attention of the supervisor on the job who immediately corrected condition and designated one man as the signalman.

d. An HF spill in the K-1131 Building was instrumental in causing 2 lost time injuries during the month, primarily because protective equipment used by the employees cleaning this spill was not the prescribed protective equipment for such a job. This incident (Cont'd)

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. Additional guarding and some revision of equipment has been found necessary in K-1037A. This work will be completed prior to the initial operation of the building. It is felt that due to the nature of the work being performed in this building, more protective equipment will be utilized at the start-up of the operation than will be required later on when its exact needs are determined.

b. The investigation of several new chlorinated hydrocarbon mixtures is in process, and it is hoped that at least one of these mixtures will serve as a substitute for the present trichloroethylene usage or the carbon tetrachloride usage.

c. Preparations are being made at the present time for re-issuing all driver permits dated prior to January, 1951. This re-issue mainly concerns employee's physical condition and the length of time that his permit has been in use. While we are setting up the mechanics for the issuance of these permits, subsecuent re-issue dates, which will be yearly henceforth, are being considered.

3. Significant Types of Unsafe Acts (Cont'd)

indicates that operating procedures are needed for this area to preclude such injuries to employees working in or cleaning up HF spills.

e. Flexible plastic hoses are still being used in various locations in the plant to transfer various chemicals from one vessel to another. We are again attempting to get the supervisors concerned to change from make-shift connections to permanent installations and thus to eliminate the possibility of chemical burns to employees.

f. Welding Shop employees were noted pouring molten lead into molds without use of the proper protective clothing. To prevent injuries from both splash and lead fumes, this was called to the attention of the supervisor concerned and recommendations made to correct such conditions.

1. Items Requiring Special Attention (Cont'd)

   d. A C&CCC sub-contractor will install the new [redacted] Switch Yard extinguishing units and it will be necessary to discuss the safety problem with the representative of the contracting group. Further, an explanation will be made to familiarize him with the method of contact for both statistical information and safety problems.

   e. The Barge Unloading Dock to be located in the Power House Area is now being considered by sub-contractors and, as soon as the low bidder is determined, work is expected to start. Our concern will be two-fold: One, the contractor's safety problems and records and two, the K-25 personnel protection in this area after completion of loading dock.

2. General

   a. Having discovered the molding of lead bricks in K-1401 Building, it was necessary to determine the concentration of lead fumes in surrounding atmospheres and to familiarize the supervisor concerned with the hazards of lead. After the results of Industrial Hygiene sampling were available, the supervisor was contacted and the conditions that make lead fumes hazardous explained to him.

   b. With the exception of one division's portion, the present ladder specifications have been accepted and as soon as possible will be made available to the plant in order to obtain agreement by concerned groups.

   c. With the cooperation of Maintenance employees, overhead signs indicating the height of obstructions crossing plant roads have been standardized and will replace the old signs shortly. In addition to this, in several locations where signs were not present, signs have been added to the list. This is especially true in the K-31 Area.

   d. Evaluations and accident studies of the certain divisions and departments in the plant were made by the respective engineers and distributed to the supervisors concerned in order to make them aware of the conditions that prevail in their areas.

   e. The conditions which caused a cold trap failure several months back are still present in the K-1131 Area with apparently no effort being made to furnish the automatic heat control that will preclude such incidents in the future.

C. Protective Equipment and Clothing

1. Samples of the present and the proposed types of plant coveralls were collected for consideration in a general three-plant meeting. It is expected that this may lead to a three-plant standardization.

2. The application of a film of MFL to gas mask lenses has significantly reduced the etching by HF previously experienced.

3. The special neoprene suits requested as protection against HF splashes have been ordered but will not be delivered until the end of March.

4. A requisition to provide a Stores supply of women's safety shoes of the saddle oxford type has been issued and is now being processed by the Stores Department.

5. Some welders who have been fitted with Rx safety spectacles have experienced difficulty in fitting welder's cover goggles over the spectacle frames. Dr. Russell is now making the adjustments necessary to correct this condition.

(Cont'd)

D. Promotion and Education

1. The safety awards for the K-25 Plant employees transferred to Paducah have been shipped to Paducah for distribution.

2. The film "Self Preservation In An Atomic Attack" did not prove to be worth considering since we have used several similar films. The film "Disaster Control" was ordered for preview.

3. Assisted the editor of the "Courier" to develop a cartoon character for each issue. The character's action will be indicative of some activity on the plant.

4. The 1951 calendar costs have been compiled and each plant's cost prorated according to the number of calendars used.

5. Two groups of Maintenance, namely Grounds Section and the Masonry Section, have outstanding records in safety. The Grounds Section has worked 1003 days without a chargeable injury, and the Masonry Section has worked 719 days without a chargeable injury.

2356

6. The Utilities Maintenance Department is starting a gas mask training program in order to further acquaint their employees with needed information for their protection on the job.

C. Protective Equipment and Clothing (Cont'd)

6. There is still some resistance among employees and supervisors toward the use of vinyl coated work gloves rather than the leather palm gloves originally supplied. The vinyl coated gloves have been found to wear two to five times as long as originally expected.

7. Coveralls for women in the Vacuum Test Group have been ordered. Delivery is expected about March 20th.

8. Because of the increased number of women in manual jobs, the Tool Department is increasing the women's glove stocks.

9. Penetration of the soles of both the rubbers and commuter boots by HF has resulted in two major injuries. This condition had been anticipated and the group involved had received prior warning that the subject equipment did not provide adequate protection against HF.

10. The testing of the Pioneer Rubber Company Pb/Rubber samples has been speeded up by the recurring need for special protective clothing.

11. Considerable trouble has been experienced recently when vendors bid on "or equal" specification and supplied inferior material. Such shipments are returned and action taken by the Purchasing Department.

E. Emergency Planning

1. Two emergency drills were held during the month of February. One drill involved a "criticality" problem and accentuated the need of additional training in the use of detection instruments on the part of the operation group concerned. The second drill simulated a F_2 release and fire in the north end of the K-1401 basement as a result of sabotage.

2. Maps, Operating Manuals, Emergency Manuals and pertinent information were collected for use in the three-plant emergency control station established by AEC.

3. In order to get a simple evaluation of the plant emergency drills, a guide was designed for use of the judges in which they will be able to indicate the time element, first aid treatment, protective equipment used and other emergency control activities. This guide is now being expanded so that the judges will evaluate the various activities of the emergency drills in more detail.

4. The emergency diesel power equipment purchased for the different areas in the Cascade and K-1101 Building are approximately 60% installed. As soon as this equipment has been installed and arranged in proper order, it is planned to hold an emergency drill in which it will be necessary to energize this equipment.

5. The emergency problem held February 29, 1952, in K-1401 again indicated the need for closer cooperation and knowledge of conditions when they occur in this building. Since more than one division and department is located in this building, and the fact that they have no interlocking warning devices, some of the groups do not know when emergencies occur in other areas. This was once called to the attention of all the supervisors in this building but was considered that when one area has an emergency there should be some method of warning the other groups in the building.

F. Summary of Air Sample Results

1. The routine air sampling program carried on in the plant continues to keep the interested group abreast of the conditions in their facility. The following information indicates some of the conditions found by routine sampling:

   a. An atmospheric survey for mercury in the Vacuum Pump Shop indicates that this group is keeping their area in acceptable condition since all determinations from air sampling indicated zero concentrations.

   b. Although a few droplets of mercury were noticed in the Laboratory Area on table tops, in the sinks, and in the cracks of the floor, air sampling revealed that little or no vaporization is taking place since the determinations showed zero concentrations of mercury in the atmosphere. This can probably be attributed to the use of HGX powder which holds down mercury vapors when such conditions are discovered.

   c. The routine sampling of primary concern is the HF sampling taking place in the K-1131 Building. During the month, there were no determinations made in which the concentration was zero but which generally ranged from 2 ppm HF to 13 ppm HF.

(Cont'd)

G. Items of Interest to our Operations

1. Since it has been felt K-1131 supervision is endeavoring to improve this area by following some of the recommendations of the various evaluation groups, the laxity in which they have viewed HF acid has caused 2 major injuries and possibly three from improper handling of an HF acid spill. It is hoped that this incident will cause enough concern to not only supervision of the Chemical Operations but to plant supervision, in general, so that future incidents of this nature will be properly controlled.

2. Considerable concern to our group of late has been to the location of out-dated assault mask canisters assumed to have been stored by various divisions for future emergency use and then never touched in their routine use of these masks. In one particular instance, the supervisor concerned had stored some 50 Army Assault Masks for emergency use by his personnel. This is not in line with the general thinking of the plant and one which would require the plant to triple their gas mask supply in order to make such quantities available to all divisions.

F. Summary of Air Sample Results (Cont'd)

Employees were noted during these periods of sampling to be unconcerned about the HF vapors, to attempt protection by wearing a handkerchief over their face and a few wearing the Army Assault Mask for complete protection. Most of these samples were taken following some sort of a release in this building.

2. Non-routine air sampling was not extensive during the past month but in the instances shown below indicate that the seriousness of an incident can only be determined through proper air sampling.

a. Following a slight spill of acid in the Extraction Room of K-131, air samples indicated that 137 ppm oxides of nitrogen were present. The MAC of these gases are so very low that supervision of the facility was greatly concerned when this concentration was determined.

b. Supervision of K-1030 Building concerned with the air velocity of the degreasing tanks ventilation system had velocity tests run to determine if the employees were getting proper air change. The tests made by the Laboratory Group indicated that, with the exception of one corner of the tank, the air velocity was adequate.

c. During the operation in which the Welding Shop was molding lead ingots, special air samples were taken at the face level of the maintenance employees. Results of the samples determine that there were no lead fumes present in the atmosphere.

S. L. Sullins for
Safety and Radiation Hazards Department

SLS:msp

INTER-COMPANY CORRESPONDENCE

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tenn.

To: Dr. [illegible] Henry
[illegible] Building

CC: Mr. D. H. Rader

Date: February 4, 1952

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for January, 1952

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	2	2	2
No. of Non-Tab Major Injuries	2	4	2	0
No. of Sub-Major Injuries	5	1	5	0
No. of Non-Tab Sub-Major Injuries	0	0	0	0
No. of Minor Injuries	300	260	300	255

Comparative Frequency and Severity Rates:

	BASE PERIOD 1/1/51 - 6/30/51				PREVIOUS SIX MONTHS 7-1-51 - 12-31-51				CURRENT PERIOD January, 1952
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency		4.18	0.00	2.80	4.18	1.21	2.15	2.48	2.21
Severity		0.09	0.02	0.06	0.04	0.00	0.04	0.04	0.01
Pot. Freq.					7.24	1.24	3.44	3.71	7.75

Last Major Injury occurred January 9, 1952. Man hours and days accumulated since last Major Injury 640,838 Hours 22 Days.

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
	Lumbar Strain	1-2-52	1-3-52	5
	Puncture wound, left hand	1-9-52	1-11-52	3
	Foreign body, right eye	1-11-52	-	-
	Sprain, right ankle	1-14-52	-	-
	Puncture wound, right thigh	1-21-52	-	-

(See back of page)

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	6	0	6
Estimated Damage	$146	0.00	$146
Estimated Frequency Rate		0.00	

Fires	This Month	Last Month	Year to Date
No. of Fires	2	1	2
Fire Loss (Estimated)	$1253	$25	$1253
Fire Loss Rate (Estimated)	0.000¢	0.000¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	0	0
Estimated Damage	0.00	0.00	0.00

document has been approved for release to public by: [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Major and Sub-Major Injury Summary (Cont'd)

HP burns, left hand	1-24-52	-	-
Fracture, left foot	1-31-52	-	-

Remarks

The plant minor injury frequency rate of 402 for the month of August has been gradually lowered until we have reached a point below the plant mean for the year 1951.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, K-1413, K-1024, K-1100 and K-1037A

1. Change in Plant Conditions

a. _X_ No Change _____ Improved _____ Retrogressed

Remarks

No significant change in plant conditions.

2. Significant Types of Items Resulting From Inspections

a. Material specification for ladders is being revised to assure the plant a heavy duty step ladder properly treated for outside service. This revision was brought about by a near ladder accident during the month of January.

b. A revised method of emptying compressed gas cylinders is now in effect in which the user, with the assistance of the Works Laboratory Department and the Safety and Radiation Hazards Department, has complete control of evacuating the cylinders.

c. The LeTourneau 10-ton cylinder handling equipment, not being usable at the K-25 Plant, is being replaced by a narrow gauge railroad track in order to move the heavy cylinders inside of Building K-631 aboard specially designed flat cars.

2. Significant Types of Items Resulting From Inspections (Cont'd)

d. For storage of large quantities of chlorine trifluoride on t plant, an old building outside the K-25 fenced area now know old J. A. Jones Cafeteria is being reworked to house the cyl inders.

e. Improved powder exhaust systems are being installed in the K-1037 and K-1100 Buildings in order to further reduce the e sure to nickel powder and reduce the possibility of contact dermatitis.

f. Following considerable trouble from a 3-ton hoist in K-402 Section, a new hoist is being contemplated for use at this s If supervision does not make extra attempts to stop misuse o the new hoist, safe conditions will not greatly improve the situation.

3. Significant Types of Unsafe Acts.

a. It was discovered that partially filled HF cylinders are being returned to the Receiving Department unmarked. This condition is now being corrected.

b. Welders using special welders gas masks were detected placing their masks on the floor beneath their work, thus allowing welding slag to pit the lens of the masks. An effort is being made to improve each welder's attitude toward protecting his equipment from damage.

c. Engineering Groups were noted using nitrogen cylinders filled with Freon. This is an unsafe practice and is contrary to SP-355.

d. Employees working in K-1131 were noted working unprotected beneath dripping HF lines. This is still a predominant cause of many of the injuries coming out of this building.

e. Due to the numerous needs for one-half to 3-ton hoists, many old hoists are being put back into operation without proper inspection and maintenance. As a result, 2 near accidents have occurred indicating a more rigid control is needed before re-installing such equipment.

B. Work on Present Plant Problems

1. Items Requiring Special Attention

a. With Building K-1037A gradually reaching completion, considerable study is being given to the protective equipment necessary to make smelting operations safe for the work that is to be carried on in the area.

b. An out-growth of the chlorinated hydrocarbon problem has indicated that a material known as methyl chloroform is suitable for many cleaning jobs. One limiting factor, however, seems to be that aluminum or aluminum alloys are attacked by this material to a serious extent.

c. Written procedures are being drawn up covering the proper method of wearing protective equipment on the plant. To date, this includes only coveralls, respirators and masks.

d. A study was made of the possibility of using the transformer cooling medium known as Askarel more widely on the plant. The information obtained looked acceptable and was turned over to Plant Engineering.

e. With the possibility of feed material being transferred by water to Paducah, special precautions necessary for protection and identification while transporting on inland waterways were made to Plant Engineering.

1. Items Requiring Special Attention (Cont'd)

f. With the advise of all concerned, HF saturated sodium fluoride pellets moved from plant operations were sent to the X-10 burial yard for disposal.

g. Continued need for a waste disposal procedure has led to the development of both an SPP, which enumerates in general the divisional responsibilities, and an SP which spells out the safe practices in a more specific manner.

h. In order to assist the Engineering Department to look ahead in their construction of K-33, suggested improvements in the K-31 design were itemized and forwarded to them.

2. General

a. In order to correct the sub-standard electrical conditions in the back of K-1401 Building, a work order has been written to correct these conditions as established in Company Standard Practice Procedure.

b. Following 2 near injuries in which defective cable slings caused loads to fall, more rigid inspection is being made of all such equipment. This will be an important step to preclude such accidents.

c. The Preload Corporation, having finished their repair work on the large water tank, turned in all their equipment along with the man-hours on Wednesday, January 16, 1952. Our association with the Preload Corporation on this particular job has been very pleasant and the cooperation of their supervisor toward making the job safer was more than could be expected.

d. A meeting was held to establish the names for the streets in the K-31 Area and change some street numbers in the K-25 Area. This meeting proved very successful with only minor changes to the original plan.

e. A sample guard is being built in the Sheet Metal Shop for use on the DeWalt Saws now used in the Carpenter Shop. This guard is designed to eliminate the hazards to the operator when the saw is extended beyond the work bench.

C. Protective Equipment and Clothing

1. Through the concerted efforts of all those concerned, plant coveralls are not being mutilated as they were some 6 months ago. In fact, the problem has been practically whipped.

2. U. S. Army Assault Mask lenses were found to be fogging badly and in investigating this problem, it was discovered that high HF concentrations were mainly responsible for etching of these lenses. In order to prevent this sort of condition from re-occurring, thin films of MFL oil deposited from a Freon 114-MFL oil mixture on the lens, are applied before they are sent to the field. This condition not only has caused fogging but will necessitate replacement of the various affected parts in the near future.

3. The HF splash problem, mainly found in the Chemical Division, has led to the design of a special neoprene suit for the operator's protection while working in these areas. A supply of these suits has been requested.

4. Renewed interest in Women's safety shoes has led us to obtain a sample of Saddle Oxford for demonstration. Those women who have seen this sample have been very enthusiastic about its possibilities and want the Company to stock them.

D. Promotion and Education

1. Extensive efforts are being made to create a series of articles for the Carbide Courier in which it will be pointed out to plant employees that unsafe acts are the outstanding cause factor in our injury picture. This same idea will be highlighted throughout the year with the hope that each individual person will evaluate himself in an attempt to discover if he is one of those persons who is responsible of many of these unsafe acts.

2. Following completion of the 1952 calendars, our efforts were directed toward calendar inserts for the coming year in which we are to furnish the Y-12 Plant the monthly insert for the coming year. The C-31 Plant plans to develop their own calendar insert.

3. The employees who transferred to Paducah from the K-25 Plant have not received their safety awards in view of the fact that they have not been received from the vendor. It is expected that these awards will be mailed before February 15, 1952.

4. Notification has been received from the U. S. Bureau of Mines regional offices stating that the K-25 Plant is being recommended for outstanding achievement and the Joseph A. Holmes award for working approximately 75,000,000 man-hours without a fatality. It is expected that we will receive additional information in the near future concerning this award.

C. Protective Equipment and Clothing (Cont'd)

5. The vinyl coated gloves developed at the K-25 Plant have been adopted by both the Y-12 Plant and the G-31 Plant for use as their general service glove.

6. The diversion of protective equipment and clothing from the K-1301 Laundry without inspection, repair or monitoring is becoming an ever increasing problem.

D. Promotion and Education (Cont'd)

5. Several new films were previewed during the month. The one outstanding film of this group entitled "Target U.S.A." has considerable value for use in training the emergency squads.

E. Emergency Planning

1. Two emergency drills were held during the month of January. Both drills were based around explosions and involved an area that had never been used in emergency problems. The drills proved a success and indicated that additional work is needed to achieve proper coordination between the local area and the plant emergency group.

2. Safety and Protection representatives, of which the Safety Group was a part, inspected the Civil Defense Emergency Truck that came to Oak Ridge and brought back various items that need to be considered for the plant emergency truck.

3. In order that the Safety Section members be aware of their particular problem when called out on a plant emergency, a Safety Department Procedure No. 4 has been prepared for approval and issue. This procedure outlines specifically the individual engineers responsibilities when they are called out to assist on such an emergency.

4. An initial supply of 20 first aid boxes was received and it is expected that we will receive this same number approximately every two weeks until completion of the order. With the completion of this order, the first aid problem as far as local areas are concerned will be completed.

5. Following a meeting attended by the groups concerned with emergency planning, several modifications of street numbers were made mainly inside the "U" and north of the "U" and will possibly necessitate changes in the new emergency map. These changes, although minor, may affect some serious emergency problem in the future.

F. Summary of Air Sample Results

1. Routine air sampling for the month covered mainly the following items of importance:

   a. The determination of the pyrolysis products of Freon gases escaping from both welding and cutting operations in the K-31 Area.

   b. Nickel analysis indicates that there is a continued need for improving the dust tight connections in the K-1037 and K-1100 Area. Operators in this area wore dust respirators only while emptying the blender.

   c. Fluorine analyses of K-1131 indicate that various spots in the Generator Room show over-tolerance conditions. Operators and Maintenance Operators working in this area were wearing Army Assault Masks.

2. Non-routine air sampling for the month is as follows:

   a. Analyses were made for carbon monoxide following a complaint of a bus driver that he had suffered an inhalation while driving a bus. Air sampling results indicated that there was no basis for his allegation. (Cont'd)

G. Items of Interest to our Operations

1. Final audit by the AEC Safety Branch of the remaining non-tabulatable major injuries for 1951 is expected to be made in the next 30 days. It is expected that no more than one case will have to be changed to a tabulatable major injury category.

2. It is felt from the reactions of both supervision and departmental conditions that the K-1131 Area is attempting to make an about face in their attitudes toward improving safety conditions. How far this will go, only time will tell, but it is believed by those closely associated with this group that they are endeavoring to come up to plant standards in this regard.

3. The Maintenance Division continues to improve from the standpoint that they are now trying to encourage individual initiative toward preventing accidents. This is being done mainly through safety meetings and on-the-job contacts by the various supervisors of this division.

4. The K-1037 Area is again drifting into a nothing but production attitude. It is felt that this situation can be improved by closer supervisory contacts.

F. Summary of Air Sample Results (Cont'd)

d. Air analyses for oxides of nitrogen were taken in K-1131 Building and indicate that the concentrations were less than plant allowable limits.

G. Items of Interest to our Operations (Cont'd)

5. Considerable progress has been in evidence in the Manufacturing Office Division Safety Program and is beginning to show up in the attitudes of the individual employees of their various departments. This is mainly due to a concerted effort to get the supervisors of this group to planning safety into their everyday work.

S. L. Sullins

S. L. Sullins for
Safety and Radiation Hazards Department

SLS:msp

Date: January 3, 1952

Subject: Highlights of K-25 Plant Accident Experience and Safety Department Progress Report for December, 1951

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	1	22	26
No. of Non-Sub Major Injuries	4	0	33	21
No. of Sub-Major Injuries	2	4	14	25
No. of Non-Sub Sub-Major Injuries	0	0	4	3
No. of Minor Injuries	285	279	3218	2734

Comparative Frequency and Severity Rates:

	BASE PERIOD 1/1/51 - 6/30/51			PREVIOUS SIX MONTHS 6-1-51 - 11-31-51			CURRENT PERIOD December, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	4.18	0.00	2.80	4.18	0.00	1.79	1.21	1.24
Severity	0.09	0.02	0.06	0.04	0.01	0.04	0.02	0.02
Pot. Freq.				7.24	0.00	2.98	7.24	3.71

Last Major Injury occurred December 14, 1951, Man hours and days accumulated since last Major Injury 443,037 Hours 17 Days.

Major and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
	Multiple injuries - Involved in Motor Vehicle Accident	12-14-51	12-15-51	Still Off
	Fracture, 3rd and 4th digit, left hand	12-9-51	-	-
	Fracture, right foot	12-25-51	-	-

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	2	46
Estimated Damage	0.00	$12	$2467
Estimated Frequency Rate	0.00	0.94	1.90

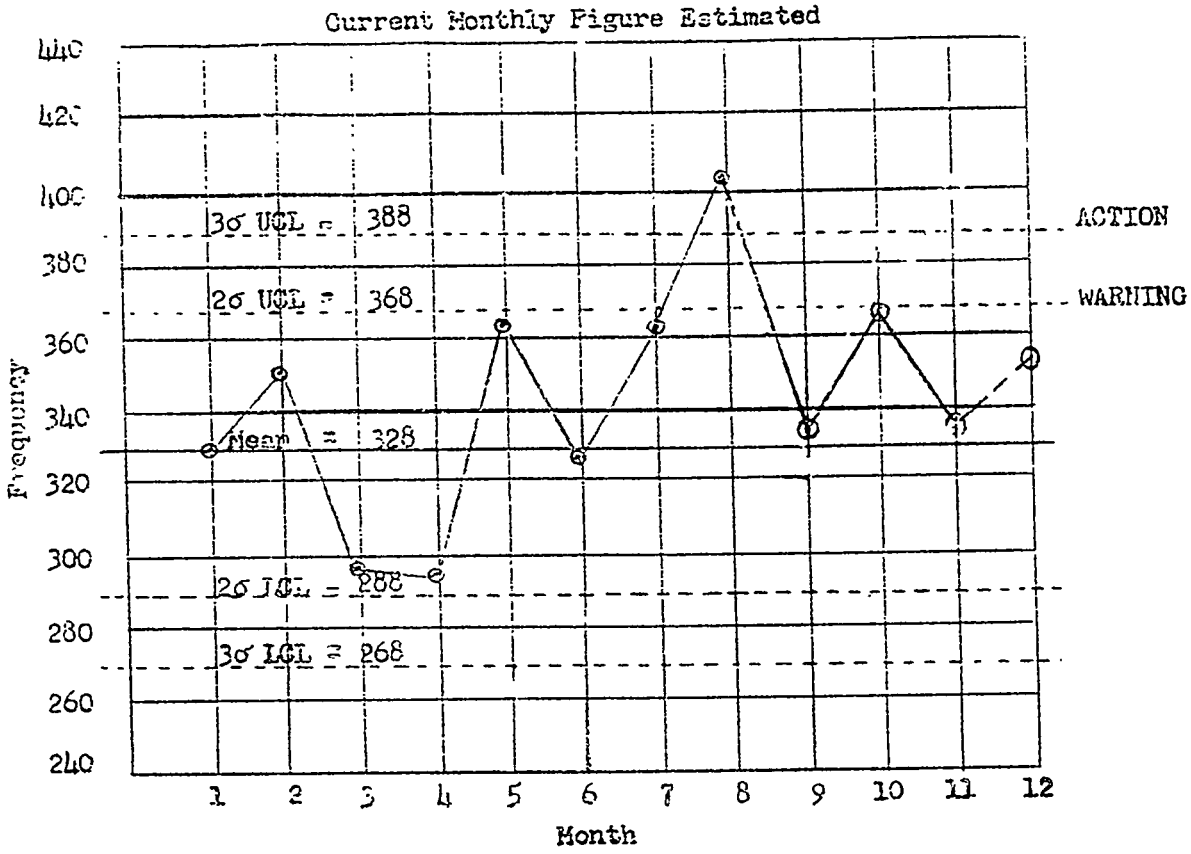
Fires	This Month	Last Month	Year to Date
No. of Fires	1	3	15
Fire Loss (Estimated)	$25	$640	$737
Fire Loss Rate (Estimated)	0.000¢	0.000¢	0.17¢

Other Incidents Due to Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	1	10
Estimated Damage	0.00	$212	$3414

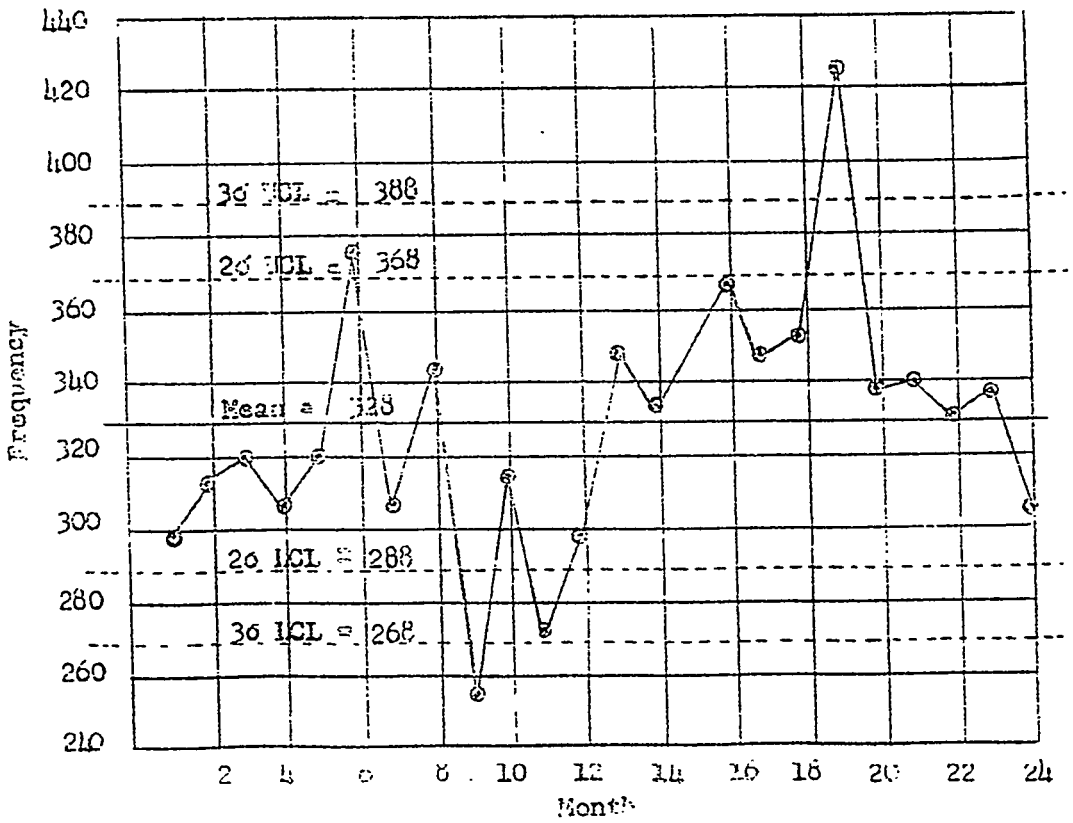
This document has been reviewed for release to the public by: Technical Information Officer, Oak Ridge K-25 Site, Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission

MINOR INJURY CONTROL CHART
MONTHLY FREQUENCIES FOR 1951



MONTHLY MINOR INJURY FREQUENCIES FOR 1949 AND 1950
AND QUALITY CONTROL LIMITS BASED ON THEM



Remarks

There does not appear to be any significant change.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, K-1413, K-1100, K-31, K-1401, Plant Road and Parking Lot conditions.

1. Change in Plant Conditions

a. **X** No Change _____ Improved _____ Retrogressed

Remarks

No significant change in plant conditions is apparent.

2. Significant Types of Items Resulting From Inspections

a. **Abrasive floor coating has been added to K-29 Canteen floors as recommended to correct wet floor conditions.**

b. **A new training program for equipment operators has been set up, as recommended, and is functioning in the Maintenance Division.**

c. **Re-surveyed the Parking Lots to determine additional painting required with representatives from the Paint Department and Engineering. Project 80% complete. Painting delayed due to holidays and weather conditions.**

d. **Completed survey of overhead and side clearance obstructions for LeTourneau 10-ton cylinder handling equipment. Device will not be used at K-25 and will be sent to Paducah.**

2. Significant Types of Items Resulting From Inspections (Cont'd)

e. Road blocks and markers as well as an AEC Patrol Officer have been established at Wheat School to handle the traffic problem at this site.

f. Emphasis at K-1131 has been directed this month through the Job Engineer to get correction before construction order is closed out of such items as:

(1) Moving inaccessible valve

(2) Additional exits from pits

(3) Correctly installed additional electrical outlets

(4) Toe plates on platforms

g. The valve between the chlorine trifluoride recovery and the regular cold trap system was tagged to prevent inadvertent operation, pulling chlorine trifluoride into MFL pumps.

h. Local exhaust lines installed in K-1024 for sander and buffing wheels.

i. Other miscellaneous items corrected include defective stairs, numerous drain covers, defective flooring, etc.

2. Significant Types of Unsafe Acts:

a. Improper use of ladders such as lack of "tie off", use without ladder feet, etc. continues, especially in Electrical Maintenance and Operations. The number of incidents observed, however, appears to be decreasing.

b. Employees were working in an 8' foundation excavation with no shoring. Shoring and bracing were added on same day as observation was made.

c. Intermittent crane handling of long pipe without use of tag lines.

d. Employees, without eye protection, from outside divisions walking through mandatory safety glasses areas in K-1401.

e. Employees operating floor-operated crane standing almost under the suspended load. Load dropped, missed employee by inches.

f. Employee used the lifting mechanism of a Yale Fork Lift to steady himself while standing on the fender. The forks were lowered and the employee's hand was caught in mechanism.

D. Consultant and Engineering Services

1. General.

a. Reviewed the new carbon tetrachloride recovery unit to be located at K-1030 with operators and design group. The installation, as proposed, introduces no additional hazards.

b. A proposed electrical equipment inspection of K-1131 has been reviewed with the Electrical Inspection Group. To date, the decisions have not been made as to whether or not the activity would be within this group's jurisdiction. Action is expected in the coming month.

c. Assisted as representative of emergency snow cleaning committee. Procedures and establishment of priority locations completed. See memo in this regard.

d. Completed recapitulation of waste survey.

e. Developed a picturegraph of divisional accident experience and an accompanying self-evaluation check sheet for divisional use covering other phases of the accident prevention program. This item also aids a supervisor in planning his program for the coming month or year.

f. Searched plant experience and literature for experience in use of static ground chains. No information available; request to Edison Electric to cope with plant problem in switchgear and transformer work.

3. Significant Types of Unsafe Acts (Cont'd)

g. A Power House employee inserted the bare ends of a two-wire conductor into a female receptacle for power connection.

B. Consultant and Engineering Services

1. General (Cont'd)

g. Statistical analyses of Electrical Maintenance Departments were prepared and compared with that of the total Maintenance Division. It is considered significant that Instrument Maintenance has worked over 2 years since their last lost time accident.

h. Air analyses results for Freon, Phosgene, and HF indicate continued improvement in the K-31 compressor change jobs. This improvement results from emphasis on additional air exhaust by use of Lamb Air Movers and improved purging.

2. Items Requiring Special Attention

a. The two-source automatic switching power supply and inherent associated hazards previously reported have been reviewed by the area supervisor with involved personnel. No further action is anticipated since knowledge and recognition of the conditions remains as the last means of protection.

b. Proposed heated box around hydrogen area (K-1131) bellows and screw assembly. Recommended revisions to keep annular space to a minimum, keep heater element temperature to 500 to 600°F, provide chimney effect ventilation, leave air space between box and trays.

c. Working on operating methods where cold trap vent lines are plugged and heater reset buttons are made inoperative by sticks and other miscellaneous items.

d. Investigation of legal aspects of use of sanitary water to process equipment (K-1131 and K-1413 problems).

(1) No specific law prohibiting

(2) Alleged claims would be paid

(3) Where pressure build-up cannot be expected, court would not be likely to uphold allegations.

Trends indicate increased usage of sanitary water in process equipment. No present means except by discouragement to offset this action.

3. Protective Equipment and Clothing

1. Specifications for standard plant coveralls for women have been developed. A supply of coveralls has been requested for use by the women of the Vacuum Test Group when they work with contaminated equipment.

2. Plant coveralls are being cut open at the sides at a decreasing rate. Approximately 3 pairs per day are so damaged as compared with an average of 15 pairs per day last month.

3. An investigation of 115 new U. S. Army M-9 gas masks, allegedly dangerously defective, was conducted. Eighty-five of the masks were located and inspected. No significant defects were found. Later, information from the Army disclosed that the defects, if any, we confined to the adhesive which secures the interior nose cap. Failure of this adhesive would not result in injury to the individual and, at most, would result in slight additional fogging of the interior of the eyepieces during the exhalation phase of the wearer's breathing cycle.

C. Protective Equipment and Clothing

4. A special neoprene-coated bib-front overall and a "skipper" jacket are under test as protection against HF splashes during maintenance of HF lines in K-1131. Preliminary information indicates the items may be desirable.

5. Instrument Maintenance again bringing up jacket idea as cover over coveralls protecting men coming out into cold from cell work. We are taking no part in rehashing this condition and old problem except to point out that purchase of a jacket as a special tool in same manner as Engineering did for K-1405 is OK. Jackets will not be issued under present policy as protective clothing.

D. Promotion and Education

1. The 1952 calendar was completed and distributed to K-25, Y-12, and Paducah. Reception has been good and although 100 extra calendars were printed for each plant, 100 to 200 additional calendars have been requested.

2. The first calendar insert for use at the 3 plants was developed, reproduced and distributed for use in January.

3. An article "Use of Calendar Inserts" was prepared for the K-25 Supervisory Newsletter.

4. 1951 Safety Awards received, separated, packaged and distributed.

5. Promoted widespread use of a good safety film "And Then There Were Four". Approximately 64 showings during December by the various plant groups to approximately 1700 employees.

6. Emphasis was directed to revive the use of plant bulletin boards to include safety posters.

7. Prepared film, "For Safety's Sake", and shipped on loan to Air Force.

8. Prepared 3 calendar insert ideas for future use.

9. Photograph copies of 2 bar awards from UCC have been prepared and are being framed as additions to the safety award plaques in each divisional office.

E. Emergency Planning

1. Two drills, one radiation and one fire, were conducted during the month.

2. An additional supply of HC Smoke Pots was obtained for use in staging drills. Present stock estimated as one year's supply.

3. Completed survey of types and storage locations of miscellaneous emergency heavy equipment. Lefax material prepared for manual.

G. L. Feazell for
Safety and Radiation Hazards Department

GLF:msp

File Copy

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To: [illegible]

Date: December 3 1

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for November 1

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	1	2	20	24
No. of Non-Lab Major Injuries	0	2	27	17
No. of Sub-Major Injuries	4	0	11	23
No. of Non-Lab Sub-Major Injuries	0	1	3	3
No. of Minor Injuries	300	308	2961	2546

Comparative Frequency and Severity Rates:

	Base Period 1/1/51 - 6/30/51			Previous Six Months 5-1-51			10-31-51	Current Period November 1
	Goal	High	Low	Cum	High	Low	Cum	Actual	Estimated
Frequency	4.18	0.00	2.80	5.01	0.00	1.71	2.38	1.39
Severity	0.09	0.02	0.06	0.06	0.01	0.07	0.01	0.02
Pot. Freq.				5.01	0.00	2.57	2.38	6.96

Last Major Injury Occurred November 20, 1951 Man hours and days accumulated since last Major Injury 234,430 Hours 10 Days.

Injury and Sub Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Last Time Began	Days Lost Or Charged
	Aggravation of previous asthmatic condition	11-20-51	11-21-51	1
	Fracture, 3rd digit, right hand	11-8-51	-	-
	Crushing laceration, 4th digit, right hand	11-10-51	-	-

(See back of sheet)

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	2	3	46
Estimated Damage	$12	$208	$2467
Estimated Frequency Rate	0.94	1.37	1.90

Fires	This Month	Last Month	Year to Date
No. of Fires	2	1	13
Fire Loss (Estimated)	$40	$2	$112
Fire Loss Rate (Estimated)	0.000¢	0.000¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	1	0	10
Estimated Damage	$212	$0.00	$3413.56

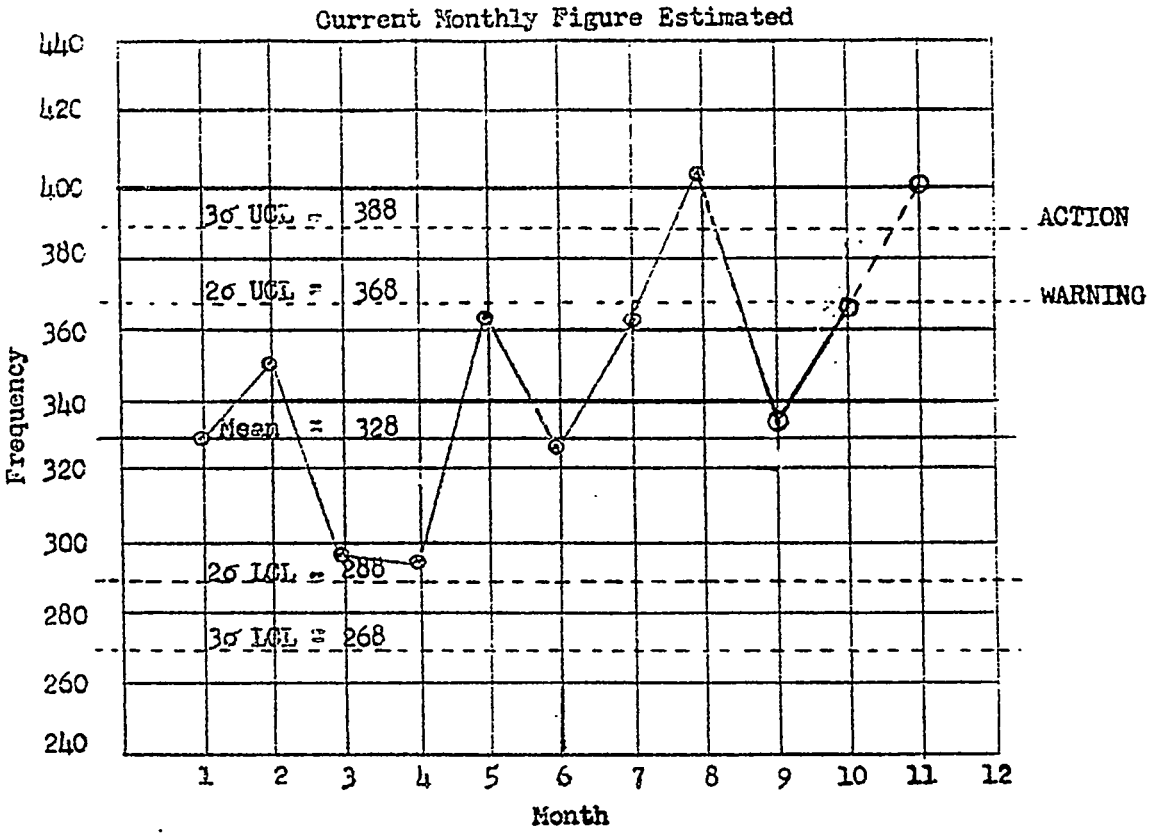
This document has been approved for release to the public by: [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

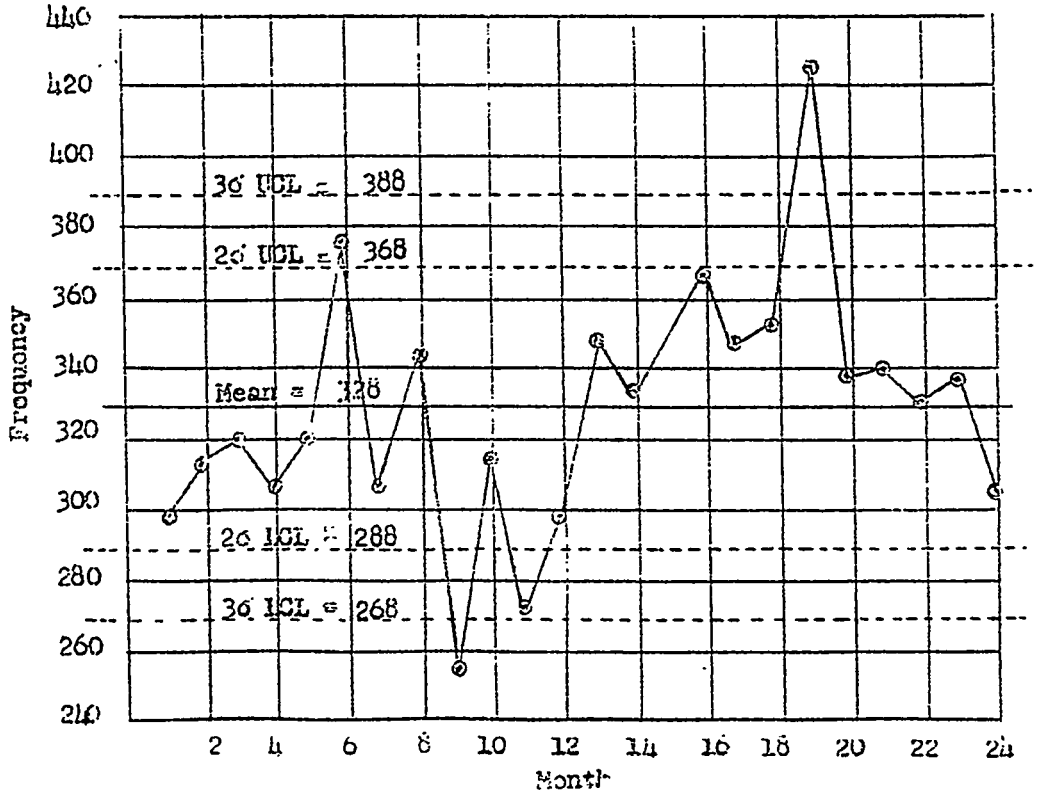
Major* and Sub-Ma[illegible] Injury Summary: (Cont'd)

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost or Charge
	Abrasion and Avulsion of heel	11-14-51	-	-
	Laceration, left shin	11-27-51	-	-

MINOR INJURY CONTROL CHART
(MONTHLY FREQUENCIES FOR 1951)



MONTHLY MINOR INJURY FREQUENCIES FOR 1949 AND 1950
AND QUALITY CONTROL LIMITS BASED ON THEM



Remarks

It may be of interest to note that 3 groups in the Maintenance Division and one in the Production Division have exceeded their best previous record.

A. Masonry Section.....2250 days
B. Roads and Grounds..... 890 days
C. Garage Section..... 605 days
D. Utilities Department.....1140 days

The estimated minor injury frequency rate of 418 for the month represents a significant increase over October's rate of 367, which was considered as high, exceeds the previous 1951 peak of 405 established in August, falls far beyond the 3 year "action limit" of 388 and for the years 1949, 1950 and 1951, is exceeded only by the 426 rate established

(See back of sheet)

II Highlights of Significant Items of Departmental Functions

A Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-31, K-1131, K-1405, K-1100, K-1037 and Process Maintenance cell jobs.

1. Change in Plant Conditions

a. _____No Change _____Improved __X__Retrogressed

Remarks

Due to the accelerated work in the basement and furnace areas of K-1401, K-1405, and the extra maintenance work in K-1131, the general arrangement and housekeeping conditions have temporarily retrogressed from last month.

2. Significant Types of Items Resulting From Inspections

a. Audits with supervisors concerned were completed for the K-31 Building, K-1405, K-1413, and K-1131. Of the locations involved, K-1131 continues as the "mad house".

b. The following items were included in design changes for K-1131 as recommended:

(1) Provision of a vacuum breaker in the sanitary water line to hydrogen pumps.

(2) Additional bracing on the hydrogen preheater platform.

(3) Relocated valves to facilitate better operating conditions.

(4) Provision of explosion-proof or chain hoist centered on beams over hopper to handle UO_3.

Remarks (Cont'd)

in July, 1950. A numerical reduction from 308 minor injuries during October to an estimated 300 for November was more than overcome by the reduction in estimated man-hours due to a 30 day month and the holiday.

2. Significant Types of Items Resulting From Inspections (Cont'd)

(5) Hopper vibration controllers and switches relocated outside the hydrogen area.

c. K-1405 was added to the established high noise level areas following recommendations that tests be made in this area.

d. Installation of guards on numerous pieces of equipment such as the fuel oil pumps in K-631.

e. Power lifts were breaking the floor drains in the new chemical storage warehouse building, and a truck wheel dropping into one of these drains could result in an appreciable acid spill. Steel, as recommended, will be used in replacing the cast-iron drains.

f. Concentration of trichlor has been significantly reduced by the installation of baffles around the degreaser in K-1401.

g. Air contamination has been reduced in the K-31 cells by additional ventilation and the establishment of a new purging procedure.

h. Concrete forms from the Checking Station under construction by Harrison Construction Company had been struck and damaged, creating a traffic and personnel hazard on Poplar Creek Road. These items were corrected through Maintenance Engineering.

i.

j. The emergency electrical systems being installed in the Process Areas are automatically energized when the normal power fails. Since the emergency wiring system is separate from the normal system, it will be necessary to insure de-energization of both circuits when work is being performed on equipment which might be affected. In addition, the diesel units which provide emergency power are likewise subject to automatic operation. It will be necessary to acquaint personnel working in the Process Areas with the hazards inherent in an automatic switching two-source electrical system. This project is underway.

3. Significant Types of Unsafe Acts.

a. Employees have been routinely observed over-reaching, working from top steps, and using some ladders in damaged condition as well as using ladders of sub-standard construction.

b. There is an apparent favorable change in the attitude of some employees in the various sections of the Maintenance Division concerning their willingness to accept their responsibility in preventing accidents. This is thought to be due to supervisory emphasis on this phase of the program during the past month.

c. Instrument mechanics were observed trying to lower a 200 pound valve from approximately 12 feet above the floor in an attempt to invert the valve to repair it. The job was satisfactorily accomplished when Maintenance was brought in to handle the valve. The Instrument Group states that this is the first time they have used these services and found that it was a very desirable way to accomplish such jobs.

d. A pipefitter was seen working from the top of a ten foot step-ladder with one foot on the ladder and the other foot on a 4 inch pipe straddling a 4 foot space.

B. Consultant and Engineering Services

a. Reviewed the proposed hiring of female employees for K-1100 Operations with groups concerned to establish pre-employment physical requirements, to start the ball rolling to obtain protective equipment, and to cover the special items necessary in the establishment of fulfilling special requirements involving facilities, law, etc. See memo.

b. Following previous discussions with Engineering and Chemical Group, the hydrogen preheater will be modified and inconel will be used to replace the SS 304 lines prior to the use of this equipment.

c. The use of a portable hydrogen analyzer has been recommended and will be used in K-1131 facility. The portable analyzer will be in addition to the continuous analyzer proposed for the hydrogen area. Other controls will include air sampling before turning on furnaces and preheaters, and before welding or cutting equipment is started.

d. Commitments have been made by the Design and Development Group to write operating procedures for Phase II during the first few weeks of operation. It now appears that Design and Development, in conjunction with Chemical Operations, will make the start-up with Design and Development carrying the operating responsibilities at first.

3. Significant Types of Unsafe Acts (Cont'd)

e. Employees were observed driving Company vehicles without keeping windshield free of frost and ice.

f. A Maintenance mechanic was noted using a sledge with a broken handle.

g. A Decontamination employee was found using a flexible hose to transfer acid solution and was not wearing protective clothing.

B. Consultant and Engineering Services (Cont'd)

e. Following the supervisor's request, an evaluation of the accident experience of the Instrument Maintenance Group was made. In addition to evaluation of the accident experience, the over-all program of the department was reviewed with the supervisors to aid in establishment of a formalized program in this group.

f.

g. Worked in conjunction with Engineering and Stores Department on ventilation requirements and materials for neutralization pit at the Chemical Storage Warehouse. Concentration of suspected hydrochloric acid, ammonia and chlorine fumes from stored chemicals did not reach the MAC; therefore, additional ventilation at this time does appear necessary. Limestone was recommended for the neutralization pit on the basis that, by the time acid spills reached the pit, dilution would be sufficient to allow the limestone to do the required job of further dilution before the acid reached the plant drainage system.

h. At the request of the Industrial Relations representative, we worked in conjunction with him in formalizing their accident prevention program. See outline.

2. Items Requiring Special Attention.

a. Vapor from the Cooling Towers on "P" Avenue in the K-31 Area has produced one motor vehicle accident and potentially represents a dangerous situation. Efforts to have Maxon relocate the fencing to allow the alternate use of a road on the West side of the Cooling Tower produced no results. The removal of the fence blocking the alternate road has been promised by Maxon in the next week or two.

b. Damaged ladders being used by K-25 employees as well as recent falls from ladders within the plant have been used in acquainting various supervisors with the seriousness of the ladder situation which steadily grew worse for the past few months. The following has been accomplished:

(1) Lafax material has been prepared for supervisors use to point out hazards to be anticipated as well as the recommended practices in using ladders.

(2) Lafax material has been prepared pointing out things to look for when visually inspecting a ladder.

The over-all condition has improved and appears to be satisfactory if present commitments by Maintenance, Engineering, Stores and Purchasing are carried out.

c. In conjunction with Engineering and Process Engineering, purging requirements prior to cutting into freon lines were established including operating controls, allowable concentrations of freon and protective clothing requirements. See memo.

d. Completed parking lot survey and recommendations relative to same. See memo covering recommendations.

C. Protective Equipment and Clothing

1. Life preserver rings were placed at the K-31 Cooling Tower. K-862A tower was inspected and it was determined that preserver rings were not needed at this location.

2. The Purchasing Department is seeking additional sources of Plant coveralls to end the present dependance on a single source.

3. Plant coveralls are being cut open at the sides at the rate of 15 pairs per day. The Tool Department is, at present, collecting information relative to this problem.

4. Additional samples of lead/rubber material have been provided by the Pioneer Rubber Company for test.

5. A brochure explaining the new "Mervac", mercury collecting vacuum cleaner has been received and a survey is underway to determine the Plant requirements for a cleaner of this type. Preliminary results indicate approximately 10 at $500 each.

(See back of sheet)

C. Protective Equipment and Clothing (Cont'd)

6. With the addition of the 1005 department to the regular users of coveralls, the increased rate of willful damage, the present mechanics of issue and cleaning as well as the limited stocks of various sizes, complaints are increasing and the subsequent inability to supply persons needing coveralls is growing as a plant problem. During the past 5 months, a normal year's supply of coveralls has been used.

D. Promotion and Education

1. The film, "Uncle Jim Tells Them", was obtained for use in the plant during the month.

2. Films ordered this month for use at a later date are as follows:

   a. "Fire Fighting For Householders"

   b. "What You Should Know About Biological Warfare"

   c. "And Then There Were Four"

   d. "What You Should Know About Poison Gases"

   e. "Disaster Control"

   f. "Survival Under Atomic Attack"

3. An outline was prepared supplementing the Goals and Purposes of the Safety Group. This outline lists the salient features of the K-25 Safety Department functions.

4. Prepared two rough drafts of Electrical Inspection Program, Safe Practice Procedures.

5. A magnet graph has been completed and the talk outlined to teach the basic philosophy of Heinrich's accident sequence. This graph will be used by the safety engineers in our current drive to reduce unsafe acts.

6. Work on the 1952 calendars during this month has consisted of constant needling of the Paint Shop in order to get the job completed by the necessary date.

G. L. Feasell
Safety Department

GLF:mmp

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tenn.

To: Dr. H. F. Henry
K-1001 Building

CC:

Date: November 1, 1951

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for October, 1951

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	2	3	18	23
No. of Non-Tab Major Injuries	2	3	27	16
No. of Sub-Major Injuries	0	0	8	19
No. of Non-Tab Sub-Major Injuries	1	1	3	3
No. of Minor Injuries	315	241	2688	2291

Comparative Frequency and Severity Rates:

	BASE PERIOD 1/1/51 - 6/30/51				PREVIOUS SIX MONTHS 4/1/51 - 9/30/51			CURRENT PERIOD October, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency		4.18	0.00	2.80	4.18	0.00	1.74	4.18	2.44
Severity		0.09	0.02	0.06	0.06	0.04	0.04	0.04	0.08
Pot. Freq.					6.53	0.00	3.04	4.18	2.44

Last Major Injury occurred October 12, 1951. Man hours and days accumulated since last Major Injury 518,718 Hours 19 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
*	Contusion - Thoracic Area	10/3/51	10/4/51	8
*	HF Burns of Eyes and Face	10/12/51	10/13/51	4

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	3	0	44
Estimated Damage	$208	0.00	** $2455
Estimated Frequency Rate	1.37	0.00	2.02

Fires	This Month	Last Month	Year to Date
No. of Fires	1	2	9
Fire Loss (Estimated)	$2	$45	$72
Fire Loss Rate (Estimated)	0.000¢	0.000¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	0	9
Estimated Damage	0.00	0.00	** $3201

** Revised to correct for previous estimates.

This document has been approved for release to the public by: [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

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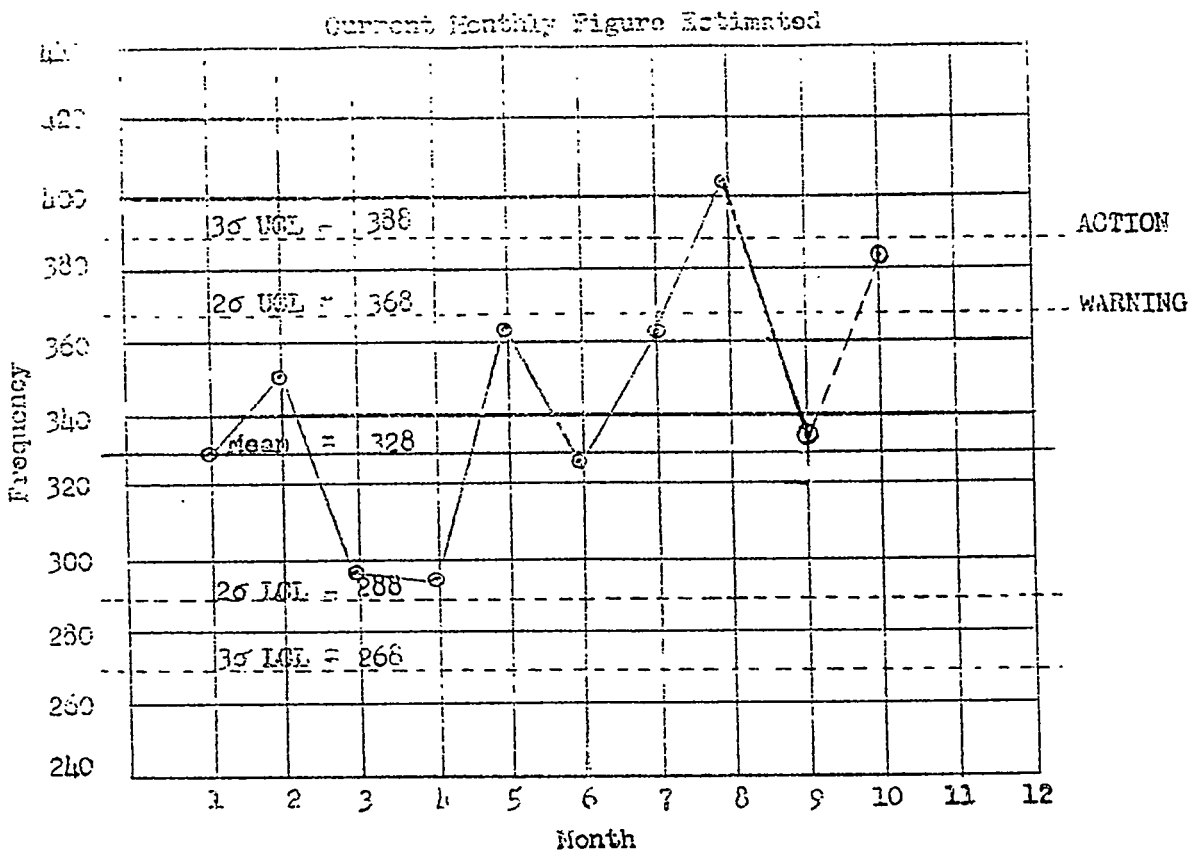
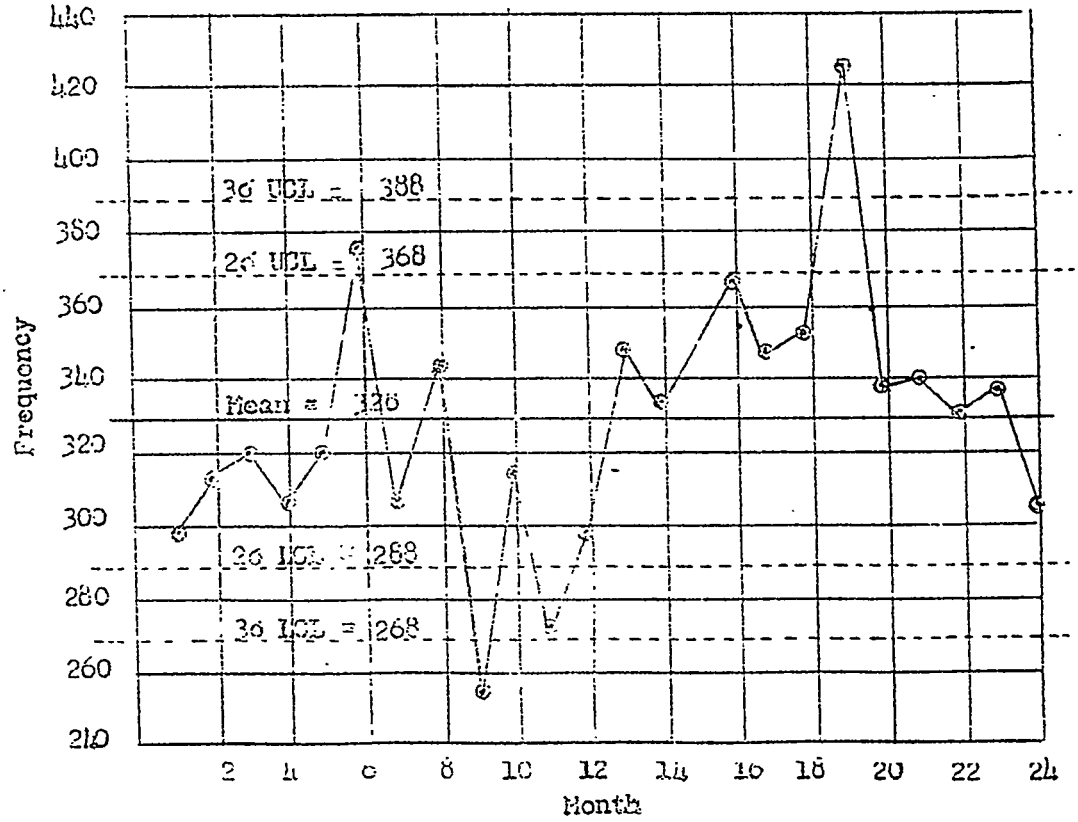
Current Monthly Figure Estimated



MONTHLY MINOR INJURY FREQUENCIES FOR 1949 AND 1950
AND QUALITY CONTROL LIMITS BASED ON THEM



Remarks

A flurry of major injuries, occurring after the extended period of no disabling injuries, appeared to result from a let-down on the part of employees and supervisors since the accidents were primarily caused by unsafe acts by persons.

In spite of the 18 major injuries to date, a statistical review by month this year, versus last year, showed a significant reduction in the major injury frequency over that of last year.

A review of the minor injuries for October shows the number of reported injuries is again upward with an increase in October of 30% over those reported in September, and for the second month during 1951, the number of minor injuries has reached a point outside of warning line on the control chart.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, Area Switchyards, K-31 Construction, Power House Area, K-1400 Area, K-1231, K-1413, Laboratory Section of K-1401, and K-1416.

1. Change in Plant Conditions

a. ____ No Change ___X___ Improved ____ Retrogressed

Remarks

The most significant changes in plant conditions are the major improvements in the outlying area switchyards, the new Engineering Laboratory and the Chemical Storage Warehouse.

2. Significant Types of Items Resulting From Inspections

a. Temporary electrical wiring installations are being changed, as recommended, to permanent installations in Metallurgical Laboratory at K-1401.

b. Correction of unsafe conditions in the K-1131 Building has been extensive. However, several additional unsafe conditions were reported from a recent survey and will be the target for correction this month.

c. The new guardrails for the K-731 Switch House hatchway openings are well made but have proven to be unsafe to install. A hazard has been created with the rails and the switchroom door which will be minimized by modification to the handrail.

d. Guards were not provided for transmission equipment of auxiliaries on the new diesel equipment. Guards for the transmissions are being designed and will be installed by K-25.

e. Numerous new ladders which do not meet Material Specifications have been observed throughout the plant. Very little correction is expected in the near future.

f. Deteriorated trench covers in basement of K-305 and K-306 are being replaced.

g. A special guard is being designed for the security badge punch press.

h. Choker attachment was found being used for welding grounds in the K-1401 Building. This practice was appropriately discontinued.

i. Exhaust systems in K-1024 Cleaning Area have been improved as recommended.

3. Significant Types of Unsafe Acts.

a. At quitting time, several pickup trucks, unequipped for hauling passengers, drive up behind the Administration Building with 14 to 17 employees in the truck.

b. Although many of the plant's lost time accidents occur from spraying or splashing material, employees are still not wearing suitable eye protection.

c. Maintenance employees have been observed by-passing the interlocks of a building elevator.

d. Operators were observed lifting a piece of heavy equipment. Their methods were contrary to all established lifting practices.

e. A mechanic was observed working on a revolving piece of equipment.

f. The general types of unsafe acts, as shown by the examples above, appear to reflect an attitude in various groups where job studies of the more hazardous work methods have not been performed. To cope with the general attitude which fostered these types of acts, a general educational program has been started.

B. Consultant and Engineering Services

1. General.

a. Plant Engineering was given the problem of developing a suitable guard for the disc grinders used by K-31 Maintenance. The Safety Department worked with engineers to advise them in this design and to assist in the subsequent field testing of the guard.

b. Laboratory tests revealed toxic hazards in the K-31 converter changeout jobs. Considerable time was spent with supervision involved to acquaint them with these conditions and the methods which should be used in coping with the conditions.

c. Some supervisors are still in the dark concerning the company's policy toward safety responsibility and voice considerable surprise when this policy is explained to them.

d. The use of plant air by Utilities Maintenance was again discussed with this group to help them establish a procedure to follow when plant air is being used to supply air for masks.

e. Design changes have resulted in various equipment installations in Phase II, K-1131, including hydrogen analyzers, emergency control switches, special guard equipment, and other safety devices.

B. Items Requiring Special Attention.

a. Preliminary audit with appropriate recommendations for significant items of Phase II, K-1131 Building.

b. Fluorine disposal for K-633 Engineering Laboratory for new plants.

c. Continuation of equipment survey in K-1131 Building, Phase I.

d. Proposed parking lot near K-1034 Building and alternate proposals for entrance and exits to Turnpike to reduce vehicular congestion at intersection of Avenue F and Turnpike.

e. Review with Stores, Purchasing, Shipping and Receiving, and Engineering to correct condition of receiving unsafe ladders. No success. Mechanics are OK but practices causing trouble.

f. Breakdown of freon and subsequent potential toxic gas exposures in converter change-out jobs in K-31.

g. Equipment and facilities layout and design, K-1100 Expansion.

h. Chlorine trifluoride equipment and systems, K-31.

i. Detailed survey of electrical installations, K-1401 Basement and Furnace Area.

C. Protective Equipment and Clothing

1. A tentative agreement has been reached with the Chem-Wear Company to supply Vinyon-N coveralls on a special order basis.

2. U. S. Army M-5 Gas Masks are being salvaged at an accelerating rate due to age. By January 15, 1952, the M-9 model will have largely replaced the M-5.

3. The investigation of new types of lead/rubber gloves and clothing continues. Decontamination of the present leather covered lead/rubber gloves is becoming a problem.

4. The effect of the new security fence program on procurement of safety equipment, especially on shifts other than the regular day shifts, has been studied. Only the Laboratory Group will be effected and they can, by advance planning, obtain the necessary equipment.

5. First completed sample of the emergency first aid equipment and box was received and subsequently approved by all concerned, namely, Training, Medical Department, and Safety Department.

D. Promotion and Education

1. Completed calendar insert for November and developed 5 additional inserts for future consideration.

2. Developed a new demonstration device on the sequence of accident factors. This device is now under construction and will be available to the plant next month.

3. Placed order for 4 special emergency training film and for one general safety film titled "Wrong Way Butch".

4. Emphasis has been directed toward instruction of personnel in Maintenance and Instrument Groups as well as Process in the operation of projection equipment to provide operators in the various groups to use safety film.

5. Continued educational phase of the program on handling carbon tetrachloride by a follow-up with the supervisors concerned as instructed by plant management.

6. Staged 2 emergency drills on gas releases.

7. Completed audit of 1951 non-tabulatable major injuries with representatives of AEC. Our handling of all cases reviewed was concurred in as satisfactory by AEC representatives.

8. Needled to completion the fire evacuation procedure and drills at Clayton Hall.

9. Developed a preliminary outline of articles to appear in the Courier on a 16 weeks drive covering unsafe acts as the cause of accidents.

10. An educational drive on the proper use of power tools has reduced a general run of cuts from tool bits in the Machine Shop. This drive is continuing on other specific hand tools to cover each general category.

11. Developed a recap sheet and compiled the information for this sheet on all non-tabulatable major injury cases during 1951.

12. Completed the detailed work and tabulation of 90% of the safety award selection cards.

13. Development of 1952 calendar for K-25, Y-12, and Paducah Plants. has been completed.

C. L. Feazell
Safety Department

CL :mmp

INT -COMPANY CORRES. NDENCE

CARBIDE AND CARBON CHEMICALS COMPANY

Post Office Box P, Oak Ridge, Tenn.

To: Dr. H. F. Henry
K-1001 Building

CC:

Date: October 1, , 1951

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for September, 1951

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated)	Last Month	This Year To Date	Last Year Same Period
No. of Major Injuries	3	0	16	22
No. of Non-Tab Major Injuries	1	4	24	17
No. of Sub-Major Injuries	0	0	8	15
No. of Non-Tab Sub-Major Injuries	1	0	2	3
No. of Minor Injuries	260	325	2373	2064

Comparative Frequency and Severity Rates:

	BASE PERIOD 10/1/47-4/30/48				PREVIOUS SIX MONTHS 3-1-51 - 8-31-51				CURRENT PERIOD Sept., 1951
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.69	0.00	1.68	0.00	3.73
Severity	.10	2.05	.01	.36	.06	.03	.04	0.00	.03
Pot. Freq.					6.53	0.00	3.41	0.00	3.73

Last Major Injury occurred September 26, 1951. Man hours and days accumulated since last Major Injury 101,412 Hours 4 Days.

Major* and Sub-Major Injury Summary:

Name of Injured	Description of Injury	Date Injured	Lost Time Began	Days Lost Or Charged
*	Fracture, condyle left knee	9-14-51	9-15-51	Still Off
*	Puncture, left groin	9-26-51	9-27-51	Still Off
*	Fractures and lacerations, 3rd and 4th digits, right hand	9-26-51	9-27-51	Still Off

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	5	41
Estimated Damage	0.00	$921	$2572
Estimated Frequency Rate	0.00	2.12	2.08

Fires	This Month	Last Month	Year to Date
No. of Fires	2	1	9
Fire Loss (Estimated)	$45	0	$70
Fire Loss Rate (Estimated)	0.000¢	0.000¢	0.000¢

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	0	2	9
Estimated Damage	0	$259	$2976

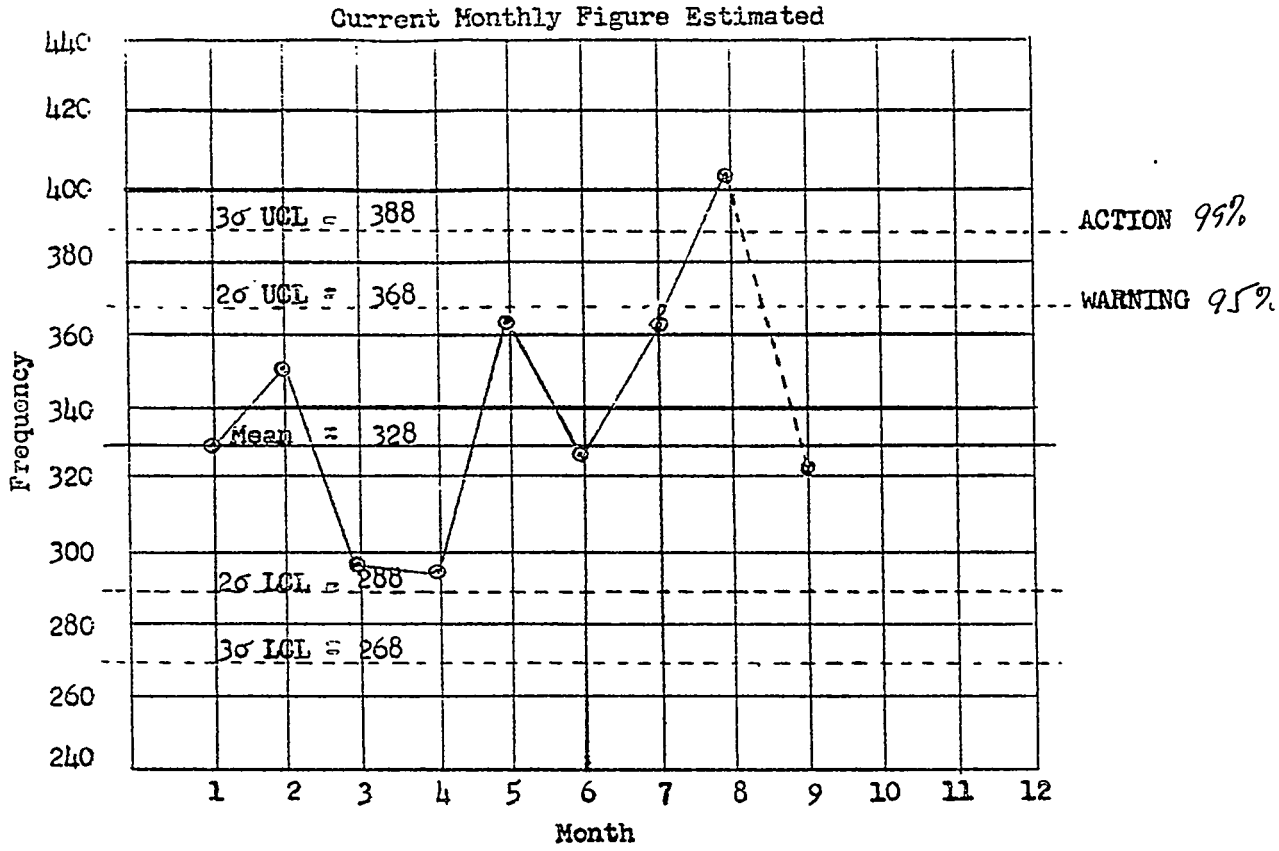
Loss on 2 fires in August not yet available.

45

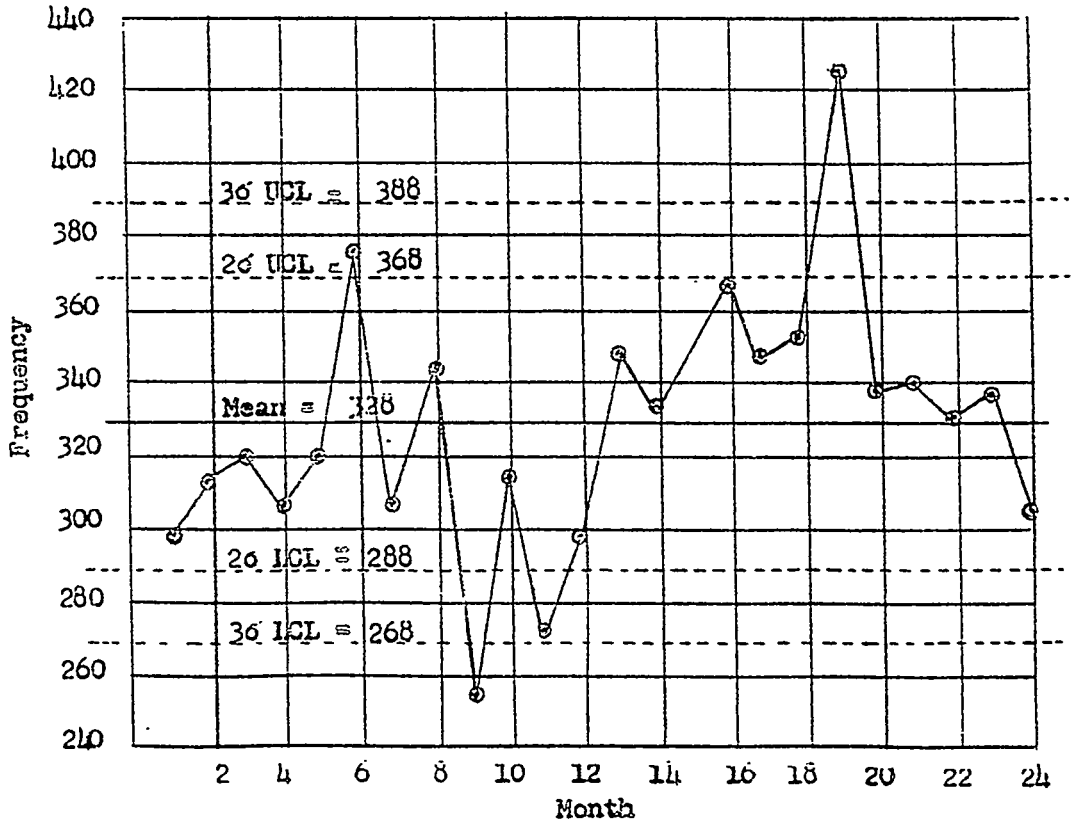
This document has been approved for release to the public by: [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

MINOR INJURY CONTROL CHART
(MONTHLY FREQUENCIES FOR 1951)



MONTHLY MINOR INJURY FREQUENCIES FOR 1949 AND 1950
AND QUALITY CONTROL LIMITS BASED ON THEM



Remarks

A new man-hour record of 2,663,657 hours for K-25 was established between May 30, 1951, and September 13, 1951.

In previous years, the summer months have been associated with ascending K-25 Plant injury rates as is also true of National industrial injury rates. The summer months this year, however, have been associated with our lowest rates. This, we would like to think is due to emphasis on this trend prior to June.

The 3 major injuries occurring during the month were all directly attributable to "unsafe acts". Of the 16 major injuries this year to date, all but 3 have been directly attributable to unsafe acts.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward the following areas and operations:

K-1131, K-1037, Process Maintenance, K-31 Construction, K-1300 Area and K-1400 Area.

1. Change in Plant Conditions

a. _____No Change ___X___ Improved _____Retrogressed

Remarks

In general, the plant conditions are somewhat the same as last month. However, K-1400 Area, including K-1401, K-1405 and K-1407, has noticeably improved in over-all working conditions.

2. Significant Types of Items Resulting From Inspections

a. Shipping and Receiving Department is proud of their progress in rearrangement of stored items. Lesson learned: On other projects of this nature, we will take pictures before and after.

b. Stores stock of variacs were inspected since it was found that the hot wire went to the case of some of the variacs instead of the windings. No troubles were found with the variacs but was traced to the improper wiring of receptacles, and the users properly advised.

c. Handling of HF cylinders at K-1301 with slings and hooks has been changed to brake band type of handling of equipment.

d. Miscellaneous items corrected: For example, Davy Automatic Fire Escapes added to cranes in K-31, guards added to drive shafts in K-31, K-1131, K-1037 and K-1401, passageways provided between crane and loading platform, K-1131, and settled chlorine trifluoride storage in K-29.

3. Significant Types of Unsafe Acts.

a. Employees were observed using Air Line Masks directly from compressors with a pressure gauge of 90 pounds; no filters or reducing valves in the line. This air source was changed to conform with proper supply from plant air.

b. The improper operation of power sanders has resulted in an increase of injuries in the Utilities Department. Operating instructions for training have been written to train operators in shifting the sander from one position to another. Failure to cut off the power when changing work positions has been the prime trouble maker.

c. Operation of the elevator from the lower floor level against posted instructions resulted in a near accident to a carpenter working on a scaffold over the elevator hatch.

d. Employees continued to work outside of special medical restrictions; example, Maintenance Division lifting against restrictions, operating power cutting equipment against restrictions not to do so.

B. Consultant and Engineering Services

1. General.

a. At the request of the department head of K-1131, an evaluation of this facility's accident experience, causes and recommendations for correction was completed and reported.

b. Chlorine trifluoride storage question pushed to completion. A small number of cylinders to be stored on cylinder dock; balance in isolated warehouse. Situation OK.

c. A guard was designed for use on sharp edged window vents in Clayton Hall. The operator likes the design and may install the guards throughout the building.

d. Industrial Hygiene representatives were called in to work with us when the cadmium burning, spraying and sandblasting job was suspected as a source of trouble. Tests later indicated that 1/2 MAC was detectable and the job methods were reviewed and corrected as recommended.

e. The fluorination of uranium metals was reviewed from the purge operations which proved to be satisfactory. The primary problem, other than radiation aspect, appears to be Fire Control.

f. Subsequent to the survey completed by this department covering the use of carbon tetrachloride, a follow-up has continued with the various users of the material to advise them of the additional precautions necessary to comply with the plant's desires in handling carbon tetrachloride. A detailed report has been completed on this project.

2. Items Requiring Special Attention.

a. The K-1300 Area operator feels he has exhausted all efforts to complete the conductivity cell siren and alarm system in his area. Further help is being solicited to push this item to completion.

b. A decision to change design and install extensions on fan housings, guard rails, and other protective devices on the K-31 Cooling Towers has been made, culminating a 4 month's Maxon-Carbide liaison job.

c. A sudden increase in cases diagnosed as occupational dermatitis was involved in a review with AEC representatives, the Medical Department and field investigations. Our present concern is a current tendency to diagnose the various skin eruptions as contact dermatitis. In our opinion, only some 10% of the total 23 recent cases could be considered as true contact dermatitis. For example, one case diagnosed as neoprene dermatitis was changed to non-occupational when the physician's attention was called to the fact that if dermatitis was going to result from neoprene, the man would most likely have it on both hands.

d. K-1100 equipment layout and design have been followed closely with Engineering to include the necessary dust control items. The original designs do not now include our recommendations but modification to include them is expected, subject to negotiations with Engineering.

C. Protective Equipment and Clothing

1. A full coverage polyethylene apron was designed for use by Maintenance men on work involving open equipment in K-1131. Polyethylene tubing for employee's arm and a face shield now provides complete body protection.

2. A rough development model of the new Acme Optical Mask has been provided for review and comment.

3. The first shipment of speaking diaphragm type Chemox Masks has been received. A total of 18 masks are now available.

4. The first shipment of M-9 type U. S. Army Assault Masks has been received. These masks differ slightly in design from the original M-5 but use the same M-11 canister.

5. An improved canvas shoe cover with vinyl coated sole is now in use. This new cover should outwear the old type by a factor of 3 to one.

D. Promotion and Education

1. A "better driving campaign" in the Buildings and Grounds Department has reduced the motor vehicle accidents in the group most frequently involved. The campaign is moving contagiously throughout Maintenance.

2. With the organizational changes moving Fire Department and guards out of Industrial Relations Division, it has been necessary to work out an arrangement with the involved supervisors to get them to handle the safety suggestions and other phase of the safety program since one representative of the entire Industrial Relations Division was doing this work. Considerable progress is being made in this regard.

3. A survey of the types of motor vehicle accidents from 1949 through 1951 was completed and, in general, our experience has improved when compared on a year to year basis. Backing accidents continue to predominate the experience.

4. Six proposals were developed for Fire Prevention Week calendar inserts.

5. Y-12 has indicated an interest in buying our calendar for 1952. We are also proposing to sell them copies of our calendar inserts. This should reduce our cost on both items by approximately 40%.

6. Six new films relative to emergency planning and training are scheduled for preview during the coming month.

7. Two plant drills on gas releases were prepared and staged.

G. L. Feazell
Safety Department

GLF:mmp

CARBIDE AND CARBON CHEMICALS COMPANY — Post Office Box P, Oak Ridge, Tenn.

To: Dr. H. F. Henry
K-1001 Building

Date: September 5, 1951

CC:

Subject: Highlights of the Plant Accident Experience and Safety Department Progress Report for August, 1951

I. Plant Accident Experience

Personal Injury Experience	This Month (Estimated	Last Month	This Year To Date	Last Year Same Prd.
No. Major Injuries	0	0	13	21
No. Non-Tab. Major Injuries	2	6	21	14
No. Sub-Major Injuries	0	1	8	16
No. Non-Tab. Sub-Major Injuries	0	0	1	3
No. Minor Injuries	327	271	2116	1855
Major Injury Frequency Rate	0.00	0.00	2.10	4.04
Severity Rate	0.00	0.00	0.05	0.30

Last Major Injury:

Date Occurred	Days Since	Man Hours Since
May 29, 1951	94	2,306,584

Major* and Sub-Major Injury Summary:

Name of Injured	Payroll No.	Desc. of Inj.	Date Inj.	Lt. Tm. Began	Days L. or Chg.
None					

Motor Vehicle Accidents	This Month	Last Month	Year to Date
No. of Accidents	5 ✓	9 ✓	41
Estimated Damage	$215.00 ✓	$240.00	$2572.00
Estimated Frequency Rate	2.31 ✓	4.15	2.37
Remarks:			

Fires	This Month	Last Month	Year to Date
No. of Fires Reported	1	1	6
Fire Loss	$0.00	$10.00	$25.00
Estimated Fire Loss Rate	0.000¢	0.000¢	0.000¢
Remarks:			

Other Property Damage Accidents	This Month	Last Month	Year to Date
No. of Accidents	2	None	9
Estimated Damage	$234.00	$0.00	$6169.00
Remarks:			

This document has been approved for release to the public by: [signature] 6/15/95 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Emphasis during the month was directed toward K-1300, K-1131, Buildings and Grounds Maintenance and Process Maintenance. There is no significant change in the plant conditions.

1. Items Involved in Inspections

a. Cylinder storage at X-10 has been changed to another building to provide safe loading. K-25 personnel are involved.

b. Use of Guard Towers 16 and 17 has been temporarily discontinued because of K-1131 fumes. A Davis Gas Analyzer is being modified to continuously record concentrations at the above towers and other locations.

c. Evaluations and reports of same for K-1131 and K-1037 were completed.

d. Rearrangement of sheet metal storage in K-1401 is complete, culminating a one year's Stores Department project.

e. Equipment salvage is appreciably reducing large inventories of unused equipment in Vault 31X.

f. A new floor is being installed in K-1212 Building, replacing seriously unsafe flooring.

g. A rubber mat runner will be placed along each hallway in K-1001 Building as a result of approximately 10 near falls during early morning rains.

h. Fans with guards are being installed in K-29 crane cabs. Guards are being added to the fans presently installed in K-31 crane cabs.

i. Significant types of unsafe acts observed during the month are as follows:

(1) Carpenters working from scaffolds without handrails.

(2) Carpenters working on improperly anchored scaffolding.

(3) Maintenance and other employees not wearing eye protection in mandatory areas.

(4) Employees moving top-heavy material without adequate lashing.

(5) Maintenance employee, unassigned to carbon tetrachloride degreasing, was observed degreasing a floor mop with carbon tetrachloride.

(6) Employees hoisting heavy equipment without tag lines.

(7) Operators working in dusty atmospheres without respirators.

Note: The above items were used as specific examples in discussions with supervisors for their use in safety meetings.

B. Consultant and Engineering Services

1. Bomb shelter locations were reviewed. One location near K-1401 was modified because of its proximity to acid storage tanks.

2. Equipment print review for K-1100 and K-1037 involved guards for transmission drives, pinch points and shear points.

3. Diesel fuel storage for emergency generators involved recommendations to use a Power House Area storage tank.

4. Specifications for high temperature identification labels are complete.

   a. Listing of labels needed for Power House piping identification was compiled.

   b. Identification of piping in the Power House can now be started as a result of the completion of 4 and 4a above.

5. K-29 road has been changed to a one-way street removing the traffic hazard.

6. A neutralization pit has been installed in the Nitric acid line between K-131 and Poplar Creek to prevent raw acid pollution.

7. A survey of hazardous chemicals, their use, precautions and other data has been started. Carbon tetrachloride was the first chemical studied. Results are encouraging.

8. The evaluation of equipment design to clean motors in place with carbon tetrachloride appears to be satisfactory. Preliminary tests indicate this project can be performed safely.

9. Items requiring special attention:

   a. Due to the seriousness of the hazards at K-131 Cooling Tower fan openings, special emphasis has been directed toward correction prior to acceptance by K-25. This condition remains uncorrected.

   b. The acid delivery truck, proposed for transporting bulk acids, is to be replaced by a portable tank to be picked up by a Dempster Dumpster, transported to the using area, then the acid transferred to a stationary tank. Adequate design of equipment remains our concern.

   c. Design considerations for HF storage tanks are still in process. Current trend of thinking is toward underground installation. Final decisions may not be completed until the latter part of this month. More meetings scheduled.

   d. With emphasis on the restrictions of the use of carbon tetrachloride by A. E. C., the review of these jobs must be continued in order to assure proper written procedures are prepared.

   e. Design consideration and installation of built-in safety factors have not, as yet, been settled for heating units in use to vaporize feed material. Preliminary design is being followed.

C. Protective Equipment

1. The stretcher box order was awarded to the Safety Equipment Distributing Company.

   a. Delivery promised in 6 weeks.

   b. Extra stretchers and blankets will be delivered prior to first aid meeting, September 15th, to provide equipment needed for the meet.

2. Additional supplies of socks and underwear have been procured. Expansion of this policy to cover other operations expected soon.

3. Tests of sample plastic sheet, proposed by Collier Manufacturing Company as a substitute for the material now used in impermeable suits, indicate that this may be possible. HF and NH_4OH resistance was good. Fluorine and ClF_3 ignited the material in the same manner as it attacks the material now used in impermeable suits.

4. A new lead/rubber material was obtained and tested with a value of 0.38 mm of leak. Heavier samples are on order.

D. Promotion and Education

1. The new safety train and slogan board is 97 percent complete.

2. Test, departmental inspection check sheets covering unsafe conditions have been prepared.

3. The film entitled "A Closed Book" was returned after successful showings to various divisions. This film has appeared to improve employee safety morale more than any one thing since the showing of "The Miracle of Paradise Valley".

4. A preliminary draft of an SD procedure covering accident investigation has been prepared. This procedure will assist in obtaining more uniformity in the engineer's accident investigations. Furthermore, we will have established necessary information for handling clinker cases.

5. SP Number 11, chlorine trifluoride facts, has been issued.

6. Two films, "Hell Wouldn't Have Him" and "Guilty", were previewed for use on the plant. The films were procured to assist in our drive against motor vehicle accidents.

7. Our 7th Street and F Avenue billboards have been "sold" to Plant Security.

8. The September calendar insert was completed and 5 new sketches have been prepared for future consideration.

9. The janitor contractor at Clayton Hall is not using a floor wax acceptable under Carbide's standards. They have agreed to purchase floor wax that meets these standards.

10. Having completed 1,500,000 man-hours without a lost time accident, the employees were notified that each employee would be eligible for a safety award. The mechanism for choosing awards has been established and each division has appointed a representative to assist in the selection of awards.

11. An SD procedure has been established for determining a K-25 accident-free period outlining the steps for auditing and the waiting period before announcing such an award.

12. Non-tabulatable injuries are now being coded on IBM since certain studies cannot be made without their use. Due to ASA and Carbide accident code requirements, many cases are non-tabulatable, although an accident occurred. Such incidents, if known, will help to complete the total accident picture.

G. L. Feazell
Safety Department

GLF:mam

No K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Dr. H. F. Henry

LOCATION

ATTENTION

COPY TO

DATE August 2, 1951

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of July, 1951

I. Plant Accident Experience

Two hundred nineteen personal injuries reported for July is a reduction of thirty-one injuries from last month. Ten no-injury accidents involving damage or loss to Company equipment and/or facilities for July is an increase of five similar type accidents over June's experience.

The experience for July is summarized and compared with June as follows:

A. Personal Injuries

1. Major, none; last month, none.
   Non-tabulatable major, three; last month, six.
2. Sub-Major, one; last month, none.
   Non-tabulatable sub-major, none; last month, none.
3. Minor, two hundred nineteen; last month, two hundred fifty.

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 1/1/51 - 6/30/51			CURRENT PERIOD July, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
ncy	1.50	6.24	1.12	3.62	4.18	0.00	2.80	0.00	0.00
ity	.10	2.05	.01	.36	.09	.00	.05	.00	.00
otential Freq.					6.53	0.00	4.10	0.00	1.41

B. No-Injury Accidents

1. Motor Vehicle Accidents - Six reported; estimated damage $178.00. Estimated mileage 219,000; frequency rate 2.74.

2. Property Damage Accidents - None reported.

3. Material Releases - Four reported involving radioactive material. No apparent injuries recorded.

4. Fires - One reported; no apparent damage. Fire loss ratio for the month is .000 and .000 for the year.

This document has been approved for release to the public by: Technical Information Officer Oak Ridge K-25 Site Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Spot inspections of the various areas in the plant were made and, in general, conditions are improving. The more significant locations where emphasis has been directed were the K-1037 Area, Chemical Operations including K-1300, K-1131, and Process Maintenance projects scattered throughout the area.

1. Stack fumes from K-1131 have concerned guards at Tower No. 16. The possibility of exceeding the maximum allowable concentration is very probable. Gas masks have been recommended and the real necessity for continuing to maintain this post has been questioned.

2. A significant problem in K-31 Area is Maxon and K-25 employees working in the same area with no real division of responsibility for the specific area. Acceptance of responsibility by the K-25 personnel when areas have been released to them has been emphasized.

3. Maintenance supervisors in K-1131 continue with a defeatist attitude toward working conditions in this building. Maintenance employees, working unprotected during a PG release, resulted from the philosophy that the work must proceed, regardless, because of the priority involved. Through a complete evaluation of the entire operation, with recommendations for correction of the more significant items, we hope to see the situation improved.

4. Loosening and tightening Allen head bolts on AC compressors produced a number of bruised arms, elbows, and wrists during the month. A new type impact wrench, now in use on this job, should correct this condition.

5. Canopied pick-up truck beds continue to be involved in backing and turning type motor vehicle accidents. Installation of plexiglass windows in the right hand side wall will alleviate this condition. The number of such installations is increasing slowly, but not as fast as we think it should be.

6. There are numerous locations where broken glass is swept into corners, under boxes, etc. Expansion

of the use of a special can for glass only is being emphasized throughout the plant.

7. Insecticides were stored in unmarked containers in the Janitorial Storage Room. A recent fatality from this same condition at another plant aided in selling the identification of these containers with warning labels.

8. The general types of unsafe acts observed during the month continue to be those which are more common to heavy industry. It is recognized that there are many operations where similar types of unsafe acts are not always apparent; however, the following are significant as generalities:

   a. A K-1401 crane was overloaded with full knowledge of both the supervisor and the operator, a skill saw guard was found tied back, maintenance employees continuing to work from the top platform of step ladders, operators of heavy equipment moving equipment into traffic without allowing time for the air compressor to build up sufficient air pressure for the braking system, extensions being used on ordinary wrenches, employees walking beneath a traveling or suspended load which indicate that inclusion of the safe way, in the normal work day habits, is not yet a condition consistent in most operations at K-25.

B. Consultant and Engineering Services

The more significant items in Engineering design and print review are, in general, already covered by acceptable construction standards which are not followed. Examples of the types of revisions brought about by print review are as follows:

1. A reduction in the stairway angle and a revision of the height of the handrail to conform to regular standard in the K-1037A design.

2. The addition of a base strip, additional chain loops and a tail gate to a new cylinder hauling truck body.

3. Changes in K-1131 design were a mechanical lift to replace manual handling of powder containers, guards to cover electrical connections at the back of the panel board, and inclusion of standard type toeplates around the absorber platform.

4. Engineering consultation with various groups, engaged in planning and modification of plant methods and facilities, resulted in the following significant items:

   a. Installation of lightning rods on the exhaust stack of K-1408.

   b. Completion of an overall waste disposal survey which pointed out; (1) all supervisors are not aware of their peculiar disposal problems; (2) that a general policy for plant waste disposal can now be established on this general basis; a procedure should be written by each group handling routine disposal. The procedure should outline briefly the methods used and precautions to be taken. Any new disposal project, not covered by the procedure, should be referred to the Laboratory Division for consultation and assistance in establishing the procedure which would be followed and written by the group involved. This general policy should apply not only to chemical waste disposal, but to all waste disposed of by the K-25 Plant personnel.

5. As a follow-up on the survey of the general waste disposal, a recapitulation sheet has been developed and will be used for the more significantly hazardous chemicals used on the plant. Carbon tetrachloride is the first such chemical to be studied in the use of this sheet and it will show quantities used on the plant, by whom, methods of handling, general precautions and how disposed of. Ultimately, one sheet for each of the more hazardous chemicals will be available in the Safety Department.

6. The controversy between several groups in the plant concerning the type of neutralizing material to be used to replenish limestone at the HF storage drain, back of K-1131, has been settled and the limestone has been replenished. Also, the MIT project has been completed and although their report is not available, as yet, their findings have been summarized and their recommendations presented to both Engineering and the divisional operator for consideration in the installation of the new tanks. The operator wants to include the items as recommended and will handle the situation with Engineering.

7. Proposed SP-11, Chlorine Trifluoride, has been reviewed by most of the interested divisions and their recommendations

reconciled in the revision which is ready for final approval for plant issue.

8.

9. The design of the new chlorine trifluoride trap for K-31 Area will incorporate the following items in line with our review of the proposals and subsequent recommendations. The cold trap bubblers and pumps will be enclosed with shields, a procedure will be established to warm up the traps while they are being serviced to reduce the possibility of explosion during maintenance, nitrogen purge will be used during the heating process, and the bubbler will be redesigned to allow it to be filled and emptied from outside the protective shield.

10. A project is underway to develop a portable carbon tetrachloride cleaning unit to clean motors, equipment, etc, in place. This project appears favorable and will include recommendations from our phase of the work to improve the equipment for ease in handling; use of a non-porous cloth for the cover, an air mover installed at the bottom of the mobile unit and a regular schedule for air samples.

11. A change-over of product and feed cylinders to larger sizes has involved identification items which represent a change over the existing standards on the plant. In addition to the regular color coding, red stripes will be added to indicate a K-25 container for easy recognition when stacked with a Paducah container.

12.

III. Significant Projects and Status of Same

A. Protective Equipment

1. The stretcher box project was thought to be settled and arrangements made to purchase a SEDCO box. This item has been held up because MSA is submitting an additional

"weatherproof" sample and we have agreed to hold up the closing date for consideration of bids until August 3rd.

2. Locker Room facilities in K-1131 have been modified. Socks and underwear are now being worn in K-1131. This phase of the project is considered complete and the next step is to arrange to procure additional stocks dyed in accordance with Plant Management's desire; however, procurement is being held in abeyance for further instruction.

3. A sample vinyl plastic sheet proposed by Collier Manufacturing Company as a suitable substitution material for impermeable suits has been received and is being tested by the Laboratory. Preliminary results indicate favorable possibilities.

4. Coverall mutilation continues at the rate of ten pairs per week.

5. A new lead/rubber material sample has been received and is being tested by the Radiation Hazards Department.

6. A new respirator, supplied by the MSA Company, was found to deteriorate rapidly in service at K-25. We have reached an agreement with MSA to supply only the old style respirators which have proven satisfactory.

B. Promotion and Education

1. Safety meetings throughout the plant continued with no appreciable increase or decrease over the previous months. It is significant that in some departments, particularly in Maintenance and Operations, information on safety as well as Company business still does not appear to reach below departmental level. We continue our work in this regard in emphasizing to each individual group the need to improve this situation.

2. A series of eight calendar insert sketches have been prepared for future use.

3. The billboard move is progressing slowly. The most significant problem now is keeping the Sheet Metal Group

moving on the fabrication of the safety train. Work has slowed down due to the plant emphasis on higher priority maintenance work. We see no significant interference except to delay completion date goal of September 1st by possibly fifteen to thirty days.

4. A new safety film, "A Closed Book", has been reviewed and obtained for additional showing throughout the plant. This film is being well received by the groups who are showing it and it is far above the average safety film normally available.

5. The design of a 1952 calendar has been completed and mechanics are being set up to print it.

6. A special letter on carbon tetrachloride was prepared and forwarded to the plant.

7. Our work on the Plant Emergency Map is complete. This map, along with the manual, is in Printing for finalization. Due to the seven different colors on the map, its completion will be approximately fifteen days later than the remainder of the manual.

8. Check sheets are being developed by this department to cover major types of unsafe acts and conditions. These check sheets will replace the use of the Safety and Inspection Memo.

9. During this month, revision of the OR-88 Bulletin resulted in the change in our recording methods and classification of temporary partial disabling accidents.

10. Analyses have been completed on approximately fifty percent of the paper work of this department. Our ultimate goal is to reduce such handling to a minimum through the application of findings from this study.

G. L. Feszell
Safety Department

GLF:msm

No K-25RC

INTER-COMPANY CORRESPONDENCE

(ERT ME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION
ATTENTION
COPY TO

DATE July 3, 1951
ANSWERING LETTER DATE
SUBJECT Monthly Progress Report
Safety Department
Month of June, 1951

I. Plant Accident Experience

Two hundred sixty-three personal injuries reported for June is a reduction of thirty-two injuries from last month. Five no-injury accidents involving damage or loss to Company equipment and/or facilities for June is a reduction of five similar type accidents from May's experience.

The experience for June is summarized and compared with May as follows:

A. Personal Injuries

1. Major, none; last month, two.
   Non-tabulatable major, two; last month, none.
2. Sub-Major, none; last month, two.
   Non-tabulatable sub-major, none; last month, one.
3. Minor, two hundred sixty-one; last month, two hundred ninety

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 12/1/50 - 5/31/51			CURRENT PERIOD June, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.92	1.28	2.62	2.50	0.00
[illegible]	.10	2.05	.01	.36	.10	.02	.06	.06	.00
[illegible]ial Freq.					6.53	1.28	4.59	5.01	0.00

B. No-Injury Accidents

1. Motor Vehicle Accidents - Two reported; estimated damage $108.00. Estimated mileage 213,000; frequency rate. 1.41.
2. Property Damage Accidents - None reported.
3. Material Releases - One reported involving radioactive material. No apparent injuries recorded.
4. Fires - One reported; no apparent damage. Fire loss ratio for the month is .000 and .000 for the year.

This document has been approved for release to the public by:

[illegible] 6/15/95
[illegible]ical Information Officer Date
[illegible] Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Routine inspections of the various areas were made by the engineers. The unsafe acts and conditions noted were called to the attention of the supervisors concerned who generally complied with the majority of corrective recommendations.

1. With the construction of catwalks down the entire north side of K-1131, a partial mezzanine structure resulted. Employees walking along this structure are within five feet of the three conductor crane feed wires. Our recommendation to install an enclosed type crane feed rail was accepted and a CR written for the rail installation.

   In order to protect personnel until the new rail is installed, supervision has outlined a power "rack out" procedure for crane operation to keep the conductor wires de-energized except when the crane is in use.

2. The method of supplying lime to the neutralization pond will be changed to comply with our recommendation to chute the lime into pond from a hopper rather than handle each bag and dump its contents over the edge.

3. The bridge rail of Number 2 crane in H Bay of K-1401 was found to clear a 6" steam pipe by a fraction of an inch, and as recommended to prevent damage to this pipe, the rail stop will be changed providing a 4" clearance.

4. The K-29 cell floor hatch covers are built so that one section must be installed ahead of the other to prevent it from falling through opening. This necessary sequence is perfect for an error of judgment and subsequent accident. Operations will identify the hatch cover section to be initially installed.

5. Hatch railings and toeboards have been installed around loading dock hatchway on north side of K-1401.

6. Large openings from corrosion were found in the aluminum siding of K-832 fan housings and were closed up as recommended by work order from Utilities.

7. The K-802 Cooling Tower overhaul was completed without mishap. Each employee and supervisor concerned should be commended for his part in this work.

8. The demolition of the K-1095 Building is complete with the exception of hauling off some of the material to the "hot" scrap yard. In this job it was necessary that the men wear respiratory protection in the rays of the sun during our hottest days and although there were some cases of misuse, the overall job progressed uneventfully, again pointing out the value of prejob planning.

9. Typical unsafe acts observed in the field and called to the attention of supervisors for corrective action follow:

   a. The use of a Yale Hyster to lift 00 converters caused equipment to overturn. Although the damage was slight, the potentialities were great and the first question was, why use this equipment over-loaded? Maintenance supervision realized the problem long before the handling of this size converter became necessary and ordered the required equipment for handling. As of this date, the equipment has not been received and the job had to get started. Close supervision and operation of the boom on short angles will reduce the present accident potentialities.

   b. Employee was discovered using a portable grinding wheel grinding steel material towards his legs. His supervisor corrected the method of handling grinder.

   c. Following up the eye protection program at K-1131, supervision was taken on a tour of building. The flagrant violations observed on this tour prompted a written notice that, effective immediately, written reprimands will be given to building operators who are found violating eye protection rules. Additional precautions in HF handling will be added to the job procedures to incorporate the safe practices found to be advantageous by Sun Oil Company.

   d. A crew of maintenance men was found working off a straight ladder without typing the ladder off. Immediate correction was made by the employees.

10. The established plan for concerted engineer inspections and evaluations, during the month of June, was pointed towards proper protective equipment for the job and proper material handling methods.

11. Power House maintenance work is to be held to a minimum and only those jobs completed that are necessary to keep equipment operating. All other work normally considered preventative maintenance is held until a boiler or turbine outage is necessary, then all related work is completed. This program holds

the power maintenance group to a minimum except during complete overhauls and should provide excellent opportunities for adequate pre-job planning.

12. In order to improve the finished material handling problem, the K-1037 Group has designed an aluminum box frame that saves approximately fifty pounds weight over the old plywood boxes. This box frame is just as sturdy as the plywood box and considerably reduces back strain and hernia hazards.

A proposal was made to maintenance to use the cranes now in use in the K-1401 Building for handling the 000 converters. This will seriously overload these cranes and so we have recommended, in conjunction with Mechanical Test and Inspection, that these cranes not be overloaded, but that the proper size crane be installed for this work.

B. Consultant and Engineering Services

1. Significant items for built-in accident prevention and conformance to plant and national standards were sent to supervision and Engineering for consideration in print review and included the following projects:

a. The K-1100 fixture and machinery prints are not as numerous as a few months ago; however, the nickel smelting problem in this area is fast coming to a climax. An electric arc batch type rocking furnace is planned for this job and a preliminary print was prepared. A hopper, designed to run along a monorail centered over the furnace, is loaded and brought into position over furnace for charging. The furnace melts the scrap and is tilted by an operator to fill the 1000 pound molds mounted on a turntable. The molds are picked up from the turntable and taken to a cooling and storage shed where the molds are removed and ingots loaded on a truck.

The rough outline of job above points out the following safety precautions recommended to the operators and which will be necessary to reduce accident potentials:

(1) Moisture must not be allowed to get into scrap before or during melting and pouring operation.

(2) Spilled molten metal on concrete causes tremendous splashes; therefore, some other type floor is preferable.

(3) Cobalt lense eye protection for metal melters who will look into furnace and protective clothing for smelters, consisting of asbestos leggins, foot shields and aprons, should be worn.

(4) Adequate handling equipment will be necessary in the design to reduce lifting to a minimum.

b. Following the rejection of motorized roll-up doors for Power House Area, Maintenance is straightening some of the supporting members now distorted to allow the doors to work easier.

c. Additional comments on K-1131:

(1) General protective devices, such as handrails, toeboards, emergency crash doors, and stairways, were recommended for various locations of area.

(2) It was recommended to install a mechanical method of transporting the week's accumulation of residual oxide powder from the vacuum bag of the Allen Billmeyer pumps in K-1131, instead of catching material in a can and manually carrying it downstairs.

2. Engineering consultation with various groups engaged in planning and modification of plant facilities led to the following decisions:

a. The study of the fusible link fluorine alarm for the K-1300 indicated that this alarm is of no value at low concentrations of fluorine. Engineering has completed the design of a modified fluorine bridge type conductivity cell, less expensive than the original design, and will probably be used to replace the present lead device.

b. During the past month, comparison of K-25's electrical lockout procedure with that recently distributed by the X-10 Plant was made. Basically, the procedures are similar, but in some of the more definite sections, the K-25 Plant procedure is designed to fit closer to the policy of the supervisor doing the whole job.

c. A Plant procedure on portable electrical equipment grounding was received from the Texas City Plant. Comments, comparing it with K-25 Plant's electrical grounding procedure, were made by this department for plant management's information. For the most part, K-25's procedure incorporates most of the Texas City's procedure and goes further to include necessary equipment to make it work.

d. All electrical testing tags have been turned over to the Electrical Test Group for their use in the Electrical Inspection Program.

e. ~~Some~~ Supervisors are beginning to realize the value of accident statistics. For example, in trying to determine the efficiency of an employee in the Machine Shop, the supervisor requested his safety record to go along with other facts.

f.

g. The adhesive labels to be used on piping with temperatures greater than 150° F. have not, as yet, been purchased. Engineering is reworking the material specifications and engineering standards for future use in purchasing.

h. The Process Engineering Group is experimenting with possibilities of the new cold trapping processes for chlorine trifluoride. We are following this project and furnishing information from our Proposed SP-11 to groups involved in the job.

III. Significant Projects

A. Emergency Training

1. During the past month, the MIT Group studying gas cloud behaviors resorted to aerial photographs for additional information. The engineer assigned on this project made the necessary arrangements to coordinate the work in conjunction with the shift superintendent.

2. Following the "hot" storage yard fire, in which very little was known about the materials and equipment stored there, a survey was made of each division's waste and material disposal. This survey is being made to furnish management with information concerning wastes and material and what methods are being used for disposal, from which a material waste disposal policy will be developed. This project is approximately eighty percent complete.

3. The emergency map, made up to indicate major buildings, roads and portals, is approximately thirty percent complete. It should be complete by the last of July.

B. Protective Equipment

1. The remaining eight emergency equipment boxes have been delivered. Changes were made in the design and fabrication of these boxes to conform to our suggestions.

2. Coverall mutilation continues at the rate of fifteen (15) pairs per week.

3. The Collier Manufacturing Company's sample plastic shoe covers have been ordered by X-10. Y-12 will also use some of these disposable shoe covers. When delivery is made, several pairs will be made available for test at K-25. They also claim to be able to make a heavier type boot which will provide adequate protection against K-25 hazards and conditions. These boots will be tested when samples are made available.

4. The Collier Manufacturing Company is interested in fabricating a modified impermeable suit using a special plastic film supplied by "Bakelite". A square yard sample has been requested for test. It is estimated that such a suit would cost about eight to ten dollars and should be more readily available than the army suit. Y-12 is also interested in this type impermeable suit.

5. The dyeing of the present protective clothing stocks and the purchase of additional stocks of yellow coded socks, underwear and coveralls has been delayed pending final approval. A limited supply of white socks and underwear has been procured from Y-12 and X-10 in anticipation of the start of K-1131 of the revised program.

6. "Ear Defender Lubricant" has arrived and is in Tool Stores. One tube of lubricant will be issued with each issue of ear defenders.

7. A sample "Stretcher Box" was received from M. S. A. When this box was tested by allowing water from a hose to splash over it, approximately four ounces of water leaked into the box in ten seconds. Approximately sixty-five percent of the gasket area and all of the spot welded seams leaked. The box has been returned as undesirable and a better box from SEDCO is being investigated.

8. The long overdue shipment of Impermeable Suits, Gas-Tight Masks and Army Mask Hoods has been delivered. The special hoods for use with "Chemox" and "All-Service" Masks have not yet been delivered; however, delivery is expected in July.

9. The 1951/1952 shoe contract has been awarded to Lehigh Safety Shoe Company who supplied the shoes last year. Safety shoes have increased in price approximately two dollars per pair in the last year. Except in the case of the women's shoe and the military toe shoe, where no old stock exists, the full two dollar increase will not be immediately applied as the method used by Stores to price shoes includes averaging the price between the old stocks and the new stocks.

C. Promotion and Education

1. Supervision of one department of the Maintenance Division is carrying on a widespread supervisory safety training program. Material for much of this training is being provided by the Safety Department, especially in conducting a good safety meeting. The minutes of each meeting are screened and each supervisor is called in and complimented or otherwise instructed how his meeting can be improved.

   This group is starting the supervisors in a program of on-the-job safety contacts with the employees. It is felt that, in this manner, better job instructions can be given.

2. During the past month, the group at K-1085 has been given safety orientation sessions by the Safety Department representative.

3. A film that was shown on the Plant and made quite a favorable impression is entitled "A Closed Book." This film will be purchased as an addition to our safety film library.

4. In order to attain the highest efficiency from the ear defenders now in the Stores Department, a slinger pointing out the do's and don'ts of their use is being prepared.

5. Following our instructions to the Training Department, they are continuing to train maintenance employees in gas mask use.

6. The following SP Bulletins have been completed for review:

   a. Freons
   b. Insecticides
   c. Lead
   d. Albi-R
   e. Revision of SPP-305 on Driver Testing and Accident Investigation
   f. Chlorine Trifluoride and Its Reaction Products

7. Vehicle drivers testing has been very heavy during the past month with a total of 64 persons being tested. On heavy equipment, one permit normally represents three to five tests.

8. The CR for construction of safety train and installation of billboards has been circulated. Work is expected to begin during the week of July 2.

9. The following is a six months' resume of safety meeting minutes received by the Safety Department. Our work in this regard consists of attending some meetings, furnishing material, promoting special projects such as the demonstrating devices known as "Louie Lifter" and "Sam Sparks".

SAFETY MEETING MINUTES
January through June, 1951

Division	Jan.	Feb.	Mar.	April	May	June	Div. Total
Maintenance	43	44	41	55	37	25	245
Engineering	0	6	1	6	4	3	20
Safety and Inspection	7	4	3	2	4	1	21
Operations	12	17	13	18	11	3	74
Laboratory	1	0	0	0	0	0	1
Manufacturing Office	5	6	7	4	4	4	30
Industrial Relations	22	22	21	25	21	19	130
Superintendents	0	0	0	0	0	0	0
Plant Total	90	99	86	110	81	55	521

G. L. Feazell
Safety Department

GLF:lsd

No K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION
ATTENTION
COPY TO

DATE June 4, 1951
ANSWERING LETTER DATE
SUBJECT Monthly Progress Report
Safety Department
Month of May, 1951

I. Plant Accident Experience

An estimated total of two hundred ninety-five personal injuries were reported for treatment; ten no-injury accidents involving damage or loss to Company equipment and/or facilities were reported and are summarized as follows:

A. Personal Injuries

1. Major - two; non-tabulatable major - none
2. Sub-Major - two; non-tabulatable sub-major - one
3. Minor - two hundred ninety

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 11/1/50 - 4/30/51			CURRENT PERIOD May, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.92	1.28	2.47	3.92	2.61
Severity	.10	2.05	.01	.36	.13	.02	.07	.03	.02
Pot. Freq.					7.35	1.28	4.93	6.53	5.22

B. No-Injury Accidents

1. Motor Vehicle Accidents - Five reported; estimated damage $281.56. Estimated mileage 213,000; frequency rate 2.35.

2. Property Damage Accidents - Two reported; estimated damage $4535.00.

3. Material Releases - Three reported; one employee sent to Dispensary for supervisory check - no apparent injury from material.

4. Fires - none reported. Fire loss ratio for the month is .000 and .000 for the year.

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Technical Information Office
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Routine inspections of the various areas were made by the engineers. The unsafe acts and conditions noted were called to the attention of the supervisors concerned who generally complied with the majority of corrective recommendations.

1. Some of the more significant unsafe conditions and how they were handled are as follows:

   a. Sub-standard catwalks, handrails, and fan housings too low to protect personnel from fan blades at the new K-31 Cooling Towers, noted in last month's report, will not be corrected by the contractor. K-25 Engineering Staff has the problem and is expected to complete original recommendations after K-25 accepts facility from contractor.

   b. Inferior sleeve clamps, used to hold compressed gas hose tightly around hose fittings, were found in use. Welding supervision is asking the Purchasing Department for a heavier industrial type sleeve which will provide for crimping to the hose.

   c. The wooden flooring over K-802 Water Flume was found to be rotten and will be replaced.

   d. With the change in traffic flow at the corner of 7th Street and Avenue K, the bus stop was changed back to 7th Street, providing a straight personnel crosswalk across one street instead of across the intersection.

   e. The large vacuum pumps in the converter testing area were discovered running without power transmission guards. Equipment has been properly guarded since then.

   f. Broken slats were found on wooden walkway around K-1401 degreaser. The broken slats were immediately replaced.

   g. The following items were referred to Engineering who indicated they would be corrected before K-25 accepts the K-602-4 Building from the contractor: Motor valve manual wheel 180° out of line, making it necessary for operator to stand on edge of housing when operating hand wheel; motor drive shaft needs guard; temporary stairs need to be removed; temporary wiring presents tripping hazards and should be brought up to plant standards.

2. Typical unsafe acts observed in the field and called to the attention of supervisors for corrective action follow:

   a. Cranemen were discovered failing to give warning signals when moving loads across other workmen. Correction was made immediately.

   b. Mechanics using tools with striking heads in bad condition. Tools will be ground when pointed out to supervisors, but needed emphasis to include correction of these items as a routine practice is lacking.

   c. Maintenance mechanics persist in using the nearest object, such as boxes, garbage cans and waste baskets, to climb upon when working on elevated equipment. Notification brings immediate correction but these safe habits are not lasting. Correction for both item b above and this one is included in our current drive with supervisors to emphasize correction of unsafe work habits when jobs are assigned.

   d. Maintenance employees are wearing safety glasses and other protective equipment, due to the emphasis of supervision. This program has grown to include direct contact between supervisors of K-1401 and service groups, including Maxon, advising them to wear safety glasses when coming to K-1401.

3. During the past month, each engineer set out to inspect his areas according to an established plan. In this concerted effort, each engineer was to inspect for unguarded machinery and work methods which are conducive to sprains and strains of the back, leg, shoulder and wrist.

   Several areas, namely K-1037, K-1131, Power House Boiler Overhaul, parts of K-1401 and K-31, have been inspected as described above. It is expected that with all engineers shooting for one goal, a better overall evaluation of the plant conditions will be made.

4. Inspection of the Boiler Overhaul work revealed that common safe practices again appear to be the ones not followed, such as placing too long a ladder into boiler, using faulty scaffold boards, not nailing cleats on scaffold boards to prevent slipping, and storage of materials over openings to main floor. Supervisors appear to overlook these items and "shots in the arm" are being administered by safety-grams and pictures.

b. Consultant and Engineering Services

1. Significant items for built-in accident prevention and conformance to plant and national standards were sent to supervision and Engineering for consideration in print review and included the following projects:

   a. K-1100 fixture and machinery reviews are being made to determine the answers to the following questions to extrapolate the required built-in accident prevention features:

      (1) What type of electric furnace is to be used for scrap metal melting?

      (2) How are metal ingots to be handled?

      (3) Will smelting building be ventilated by natural draft or by mechanical blowers?

   b. Additional comments on K-1131 facilities:

      (1) Phase II prints continue to come through in numbers with routine comments concerning handrails, toe-plates, emergency escape ladders, emergency crash doors and compliance with National Electrical Codes ~~attached~~.

      (2) The ventilation in absorber room and mezzanine will be increased as recommended.

      (3) The open conductor wires for crane feed will be replaced with patented enclosed wires to preclude employees contacting the wires from a platform which has recently been constructed below the wires.

      (4) While Maintenance employees are working on new platforms pointed out in (3) above, it has been recommended that the crane power switch be racked out when crane is not in use.

   c. Re-evaluation of the refinements in the Chemical Storage Warehouse, to reduce costs involved, reduced lighting drainage facilities and partitions.

d. Prints covering the installation of hoisting davits for handling heavy equipment up and down the side of K-803 and K-832 Cooling Towers, were commented upon. The items of concern were the power supply for electrical hoists and the strength of base plates or davit.

e. Installation of operating power for power house roll-up door was rejected.

2. Engineering consultation with various groups engaged in planning and modification of plant facilities led to the following decisions:

a. Since the last monthly report, the three-plant plans for dispensing sulfuric acid have been rejected and the problem is back to a K-25 Plant problem to dispense acid to K-832, K-802 and K-681 water treatment stations. Our recommendations were to mount an acid tank on a small trailer, fit the tank with a pump, transfer trailer and park it where needed. The acid movement represents approximately 300 gallons/week to three locations at K-25. Our recommendations will be reiterated for the K-25 problem.

b. The splashing problems involved in bottling hydrochloric and sulfuric acid were reviewed with supervision of the Cleaning Area to eliminate acid burns, by requiring that face shields and gloves be worn by the operators.

c. At the request of Stores supervision, the problem of issuing unsafe ladders is being combatted through a series of instructional meetings with Stores personnel. From these meetings, they will be able to recognize the more obvious unsafe conditions before issuing ladders.

d. A final material specification was prepared for purchasing ladders, which includes provision of pencil rods, wood preservative and ladder feet. The Receiving Department will reserve the right to call upon any group to assist them in determining the quality of the ladders.

e. Information concerning the formation of phosgene gas from heated trichlorethylene was prepared and discussed with supervisors concerned in accordance with their request for same.

f. The explosion of a carbon trap in which [redacted] was injured gave rise to extended investigation into the properties of chlorine trifluoride, chlorine oxides and unsaturated hydrocarbons. Following considerable research, interviews and studies, the information was compiled as "what is now known about such material". Furthermore, the precautions necessary when working with such chemicals were listed for general use and will be issued as KS-204.

g. Following the series of cold and carbon trap explosions, Process Engineering is preparing to redesign trapping equipment for safer operation. Considerable information on cold and carbon trap explosions, compiled by our department, was passed on to them for their use.

h. The scope of a property damage or accident, in the future, determines how the report will be presented to plant. If the damage is large, a KS report will be made, giving complete detail such as description, pictures, sketches, and statements. The transformer damage at K-131 was issued as KS-203.

i. Carpentry supervision was taken to a demonstration of the new saw blade manufactured for the DeWalt saw. This blade prevents kickbacks on material while in ripping position. Actually, the blade is a high speed milling cutter. The supervisors concerned were quite impressed with the demonstration and feel that they may have use for it.

j. Design and Development Group installing a hot salt bath heat treating furnace agreed to the following recommendations:

(1) Use solid metal inverted cone in the middle of bath while cooling to preclude liquid exploding when heating.

(2) Use extreme care when adding make-up salt to keep out water.

(3) Use extreme care to prevent material, to be treated, from being damp, dirty or greasy.

III. Significant Projects and Status of Each

A. Emergency Training

1. All preliminary prints on the bomb shelter locations for each area have been forwarded to Engineering. Forty-four shelters are planned at present.

2. The MIT Group, studying gas cloud behavior, is keeping in close touch with the Safety Department when preparing to make conclusive tests. Several times during the past month, contacts were made with the Plant Foreman's Office for proposed tests on HF gas. Engineer arranged for release site, necessary protective equipment, and observation by interested witnesses.

3. An emergency map of Plant Area is being prepared for all supervisors. The map will indicate main portals, major buildings and main avenue and street arteries necessary for quick evacuation. It is expected that this map will be published in the Emergency Manual. Also, for use in the Emergency Manual, a listing of protective clothing and equipment, significant stocks and locations was prepared in chart form.

4. The film, "You Can Beat The A-Bomb", has been shown some eighty times through safety meetings. This does not include other meetings such as training, etc. The film is becoming worn from poor operation and misuse and will not be acceptable for showing much longer.

B. Protective Equipment

1. Following the final transfer of emergency boxes and equipment to operating departments, Electrical Maintenance was notified of the change so that responsible groups would be notified when change-out of electrical equipment is necessary.

2. Coverall mutilation has been reduced but not eliminated. One to two pairs per day are found with slit sides.

3. The Training Department is conducting gas mask training for new Maintenance personnel, after instructors were trained by this department.

4. The swatch samples of plastic film which the Collier Manufacturing Company proposes to use in the X-10/Y-12 plastic boots have been tested for HF resistance. Some of the samples were found to be very resistant while others were only moderately resistant. The plastisizer used was found to influence the HF resistance of the film. This material may have possibilities as a substitute for the Army's impermeable suit.

5. Order points and specifications for protective clothing were reviewed and adjusted to provide for the changes in the protective clothing program.

6. Information on vat dyeing of cotton clothing bright golden yellow was obtained and transmitted to the Tool Department with a request to so identify all plant protective clothing.

7. "Ear Defender Lubricant" was shipped May 28th and is now in transit.

8. The remaining eight Emergency Station boxes are being modified during construction in consideration of our comments. Delivery is expected in June. Modification consists of gasketed hinges, substitution of heavier hardware and extra door catches.

9. Cotton work gloves with bright yellow vinyl coated palms will be provided for use in contaminated areas.

10. The M. S. A. and Safety Equipment Distributing Company bids on the "Stretcher Stations" have been evaluated. Except for the boxes, the quotations are nearly identical. As there is some question as to the adequacy of the M. S. A. box, they have been asked to submit a sample, which has been promised. Safety Equipment Distributing Company is submitting complete specifications for the box they propose to supply.

11. Samples and specifications covering the gloves included in the U. C. C. glove contracts have been received and are being reviewed.

12. The Impermeable Suits, Gas-Tight Masks and Hoods have not yet been delivered. These items are "Government Procurement". The substitution of a plastic suit for the Army-Type Impermeable Suit is being considered.

13. Twelve junior size M-9, Army Assault Masks, have been received and will be used for men with unusually small faces and for women, if necessary.

14. The requisition for the 1951/1952 safety shoe contract has been initiated by the Stores Department and quantities provided were changed to conform to plant needs anticipated in the new protective clothing policy.

C. Promotion and Education

1. Safety policies and instructions were discussed in the following groups:

   a. New employees in training at K-1085.

   b. New guard force employees.

   c. Stores employees located at K-1035.

   We now have five men trained to conduct these orientation sessions, which average approximately seven sessions a month.

2. "Louie The Lifter" has been built and is currently being used by engineers and supervision in the field. It is hoped that the lesson taught by this character demonstration will improve the plant experience regarding back injuries.

3. The Safety Train billboard project is rather slow in reaching completion. A construction request is being drafted and routed to interested department heads for signatures. Until this is complete, no progress will be visible. However, the metal engine and cars are ready to be fabricated and the removable letters for signboard accepted for purchase.

4. The National Safety Catalogues were reviewed for additional promotional material. As a result, one new safetygraph and several safe practice pamphlets were ordered.

5. All division, department, and section safety records are being compiled for a letter of recommendation to the groups that currently have excellent or good safety records.

6. With the assistance of the Electrical Maintenance Department, the April Monthly Report, concerning low voltage electrical shocks, was developed for plant use.

7. The distribution of the "Industrial Supervisor" was cut in half, reducing the cost by approximately one-half. This action makes it necessary for the supervisors receiving this leaflet to route it to his first-line supervisors.

8. The departmental statistics section is working out a compact monthly report for each engineer to have needed information on short notice.

9. The following S. P. bulletins are being written for supervisory information when working with such material: Trichlorethylene - W. L. Jones; Freons including C_8F_{16} - K. P. Moseley; Lead including paint primers - R. F. Thomas; Insecticides - B. F. Shinn; Nitric Acid and higher oxides of Nitrogen - S. L. Sullins; Albi-R (Revision SP-500) - J. C. Worthington; Motor Vehicle Driver Testing and Accident Investigation - J. C. Worthington.

10. The Motor Vehicle Driver Testing Program has been changed by A. E. C. in the form of a procedure. The major changes occur in distinguishing between Regular and Incidental Drivers, and the physical condition of such drivers. The fact that incidental drivers may or may not be given a road test and a written test also brings up considerable discussion. This A. E. C. procedure was commented upon at length in a letter to Mr. Berger, with July 1, 1951, suggested as effective date at K-25.

11. The Safety Department participated in the preparation of two papers to assist in establishing plant policy regarding the issue of socks and underwear as protective clothing: "The protective clothing phase of the K-25 accident prevention program" and "A guide to the use of protective clothing at K-25 Plant."

G. L. Feazell
Safety Department

GLF:SLS:lsd

No K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY: CARBIDE AND CARBON CHEMICALS DIVISION, Union Carbide and Carbon Corporation — LOCATION: Post Office Box P, OAK RIDGE, TENN.

TO: Mr. W. L. Richardson

LOCATION:

ATTENTION:

COPY TO:

DATE: May 2, 1951

ANSWERING LETTER DATE:

SUBJECT: Monthly Progress Report
Safety Department
Month of April, 1951

I. Plant Accident Experience

An estimated total of two hundred sixty-four personal injuries were reported for treatment; eight no-injury accidents involving damage or loss to Company equipment and/or facilities were reported and are summarized as follows:

A. Personal Injuries

1. Major - three; non-tabulatable major - two
2. Sub-Major - two
3. Minor - two hundred fifty-seven

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 10/1/50 - 3/31/51			CURRENT PERIOD April, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.69	1.28	2.05	3.69	3.98
Severity	.10	2.05	.01	.36	.51	.02	.14	.03	.06
Frequency					7.35	1.28	5.02	6.15	6.63

B. No-Injury Accidents

1. Motor Vehicle Accidents - three reported; estimated damage $160.00. Estimated mileage 229,000; frequency rate 1.31.

2. Property Damage Accidents - none reported.

3. Material Releases - five reported involving radioactive materials. Two employees sent to the Dispensary; no apparent injuries recorded.

4. Fires - none reported. Fire loss ratio for the month is .000 and .000 for the year.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspections

Routine inspections of the various areas were made by the engineers. The unsafe acts and conditions noted were called to the attention of the supervisors of the various areas who generally complied with the majority of corrective recommendations.

1. Exemplifications of the more significant items in this function are as follows:

In the K-31 cooling towers, the contractor has installed catwalks with such substandard conditions as lack of handrails, unprotected openings and has strung conduit across the access ladder openings. Other conditions such as unguarded fan housing openings and poorly located motor switches exist. Prints covering these construction items were not located among those routed for comment, however these items are being reviewed with K-25 representatives to accomplish correction. Although it may not be practical for K-25 to make the necessary changes if the contractor is not required to do so, the design is being followed to prevent duplication in C-Plant construction.

2. Failure of the material in the base of the aluminum HF exhaust stack in K-1131 has resulted in a considerable opening through the metal and subsequent leakage of exhaust gases at ground level. The condition will be corrected by replacing a section of the stack and installing a scrubber in the lines from the HF mixing tank. This tank is considered to be the source of most of the exhausted HF. Significant in this item is the fact that the stack has been in use approximately eight months.

3. Disposal of fluorescent light tubes has been transferred from the cascade personnel, as recommended, to the janitor force and has considerably improved the condition in the cascade where tubes have been scattered throughout the building in waste baskets, in corners, on equipment, etc., and proper disposal in Dempster-Dumpsters now reduces handling to a minimum.

4. Replacement of rotten wooden drain covers, as recommended, is progressing slowly. Installation of metal covers is complete throughout the East side of the East leg of the "U". The entire project around the cascade should be complete in the coming month.

5. A case in point of neglect in servicing protective equipment was four M.S.A. All-Service masks observed in stations maintained by operator and out-dated by almost two years. The masks were exchanged as recommended and this item is being used to exemplify to the operators the conditions which can bring about malfunction of protective equipment in cases of emergency when routine servicing is lacking.

6. An overall equipment and facilities inspection of K-1405 was completed covering electrical, mechanical arrangement and equipment operation. Subsequent evaluation report was submitted on WCK-1235. All items on the December evaluation were cleared up except four which were resubmitted in this survey reflecting a marked improvement on some of the more significant conditions.

7. K-1131, K-1037, K-1405, K-1401 and K-1300 continue as the general operations in which our efforts are being most significantly directed at this time to clear up, as practical, conditions and acts most conducive to injury.

8. A cross section of the types of unsafe acts observed and brought to the attention of supervisors for correction follows:

   a. Reviewed the electrical hazards and necessity for special instructions to employees working around the temporary wiring installations at the K-31 test cell.

   b. Chicago couplings were being used by employees on steam manifold in K-1301. To prevent burns, changed to regular steam couplings as recommended.

   c. In materials handling operations throughout the plant, emphasis has been directed toward advising the supervisors of the steady increase of sprains and strains resulting from poor lifting techniques. To accomplish this, actual instances have been pointed out in such locations as K-1037 box loading, K-1401 cleaning areas, pipe loading, K-1401 compressor pit, drill lifting, K-1401 and on field jobs raising and lowering ladders, Stores area handling drums to and from stocks and materials yard, where employees were throwing heavy lumber.

   d. 1300 area mechanic operating drill without eye protection; K-1410 operator working in small enclosure and exposed to chemical fumes without respiratory protection was provided with chemical cartridge respirator as recommended.

B. Consultant and Engineering Services

1. Significant items for built-in accident prevention and conformance to plant and national standards were sent to supervision and Engineering for consideration in print review and included the following projects:

   a. K-1100 fixtures and machinery. Recommendations made with which Engineering has concurred are:

      (1) Equipment guarding on friction drives.

      (2) Varification of the efficiency of the proposed dust collection system.

      (3) In the tube handling project, job specifications have been prepared covering previous recommendations for pallets or skids, electrically-powered stackers and hand-powered lift trucks.

      (4) Modification of proposed elevator door sizes and adequate interlocking devices to facilitate movement of electrical stacker.

      (5) Reinforced glass for swinging doors, safety glass for windows adjacent to machinery and in passageways.

      (6) Additional handrails and modification of the proposed ladder slope, reducing the degree of rise, in the installation of catwalks around the towers

   b. K-1131 revisions and expansions project recommendations:

      (1) Automatic protection by water fog system and alarm devices for anhydrous HF storage tanks. These same recommendations were submitted to cover additional HF storage facilities included in Phase II.

      (2) K-131 modifications were reviewed and recommendations covering conductivity warning devices and methods to minimize emergency valving were incorporated in the design.

(3) Singmaster & Breyer prints, covering details of Phase II of the Feed Plant, are being routed and recommendations have covered such items as installations of additional platform railings, toe plates, modification to bring proposed stairways to plant standards and to add an additional escape ladder from the pit to the operating floor.

c. The chemical storage warehouse was again proposed to plant management. Engineering, desiring to lower the cost of the building, is making the following changes with which we have concurred:

(1) Heat only one room.

(2) Eliminate one proposed partition.

(3) Reduce lighting.

(4) Reduce floor drain openings.

d. A fog system is being designed for emergency protection over ammonia tanks at K-1101. Our major concern was complete water coverage and remote operation of master valves for emergency cut-off.

e. Design for downdraft ventilation of the degreasing sinks in K-1401 was proposed and is being considered by Engineering in lieu of the exhaust hoods originally shown on prints.

f. Preliminary location of a constant pressure hydrogen storage tank has been established at approximately 90 feet north of Building K-1131 in the area presently in grass. We have concurred with this location.

2. Engineering consultation with various groups engaged in planning and modification of plant facilities led to the following decisions:

a. Sulfuric acid handling and dispensing has taken on a larger scope and the Stores Department has revolved the problem into a three plant project of dispensing sulfuric acid from a tank truck, with which this department has concurred.

b. As decided following a recent grass fire at the Callahar Burning Pit, it has been discontinued and all refuse is now being burned in the Quarry Pit which constitutes better facilities for this job.

c. The Safety Department was asked to assist on a committee of Maintenance supervisors to study the Coffing Company's hoist known as "Safety Pulls" to make recommendations for their use by the Maintenance Departments. The hoists were tested by Mechanical Test Shops and proved inadequate. The committee recommendations were:

(1) Discontinue the use of "Safety Pulls" as they have no friction brake on hand lever to prevent it ratchetting.

(2) Put all such "Pullers" on a regular test schedule.

d. The adequacy of the fusible link alarm system in K-1300 area for detecting HF or F_2 was questioned and tests on the equipment indicate that the fusible links are ineffective in fluorine gas. This project is now in the hands of Instrument Engineering to build an HF bridge alarm actuator, work order No. 44064.

3. Following questions as to the practicability of using the existing Material Specifications for purchasing straight and extension ladders, Engineering is revising this Material Specification to attempt to get the ladders into plant ready for issue.

4. Two Equipment Facility bulletins numbers 155 and 156, covering "Test and Inspection of Portable Electric Welding Equipment" and "Test and Inspection of Corded Equipment", were revised for review, to conform to the changes which have been made in administration of this program.

5. A survey is now in progress to determine what mechanical and chemical safe practice procedures are most needed in the plant. The list is being screened to write the most pertinent procedures first.

6. Some of the adhesive labels used for identification of piping in K-29 were found to be curling off pipes. The piping temperatures were in the range of 200° F. and exceeded the vendor's maximum prescribed temperatures of 150° F. Engineering proposes to do the following:

a. Apply some sort of a coating over installed labels.

b. Draw up a material specification to cover high temperature labels.

c. Write an Equipment Facility bulletin to cover the application and use of high and low temperature labels.

7. Information covering the construction and outfitting of the K-25 emergency truck was compiled and forwarded to C-Plant personnel for their use.

8. The Power House Group banded the transformer oil lines in Switch Yards and the color bands they chose did not conform to coding now in use on the plant. They are to change the color identification conflicting with plant codes and re-identify the pipes in accordance with plant standards.

9. The Stores Department requested that their employees be instructed in how to inspect ladders. A short training program, including preparation of Lefax material showing sketches of a good industrial ladder, has been devised for use in this training.

10. Maintenance Engineering was contacted with reference to K-25's administration of sub-contractors and their safety program. The job engineer will be the "operator" in charge of the project and the Safety Department will evaluate the conditions as is done in regular operations at K-25.

III. Significant Projects and Status of Same

A. Emergency Training

1. Bomb shelter locations as described last month are about 95% complete. All of the preliminary prints have been sent to Engineering preparatory to final design, with the exception of K-31 area which will be completed early in May.

2. The determination of gas cloud reactions has been turned over to the Massachusetts Institute of Technology for further study. This study will be the basis for substantiating the theoretical assumptions calculated by this Department.

3. The emergency plot map was completed and forwarded to the General Foreman's Office. This map, showing master and coded alarm boxes, hydrants, security fences, gates and population peaks, in conjunction with a scale "cloud" will be used in the central control office as needed during an emergency.

4. The film "You Can Beat The A-Bomb" is now being scheduled for employee safety meetings, and since released to these groups has been shown in fourteen meetings in April.

B. Protective Equipment

1. Coverall mutilation is again becoming a problem. Most of the damaged coveralls have had two back pockets and two breast pockets. Supervision has been alerted to the conditions and Stores Department is committed to assist in reducing this damage by supplying names.

2. Safety glasses of all types were being dispensed at the general stores office on employee's signature and this condition was called to the attention of the Stores Department and the Medical Department. Safety glasses will be dispensed only after plant Medical has OK'd the issue.

3. The function of servicing and maintaining emergency boxes and equipment has been transferred from this Division to line organization. The operators have signed tool receipts to complete the transfer and receipts have been sent to the Stores Department.

4. Following request for gas mask training for new maintenance personnel, the Training Department was contacted and they will train the group in the use of masks. The Safety Department is training one of the Training Department men for this particular job.

5. The Solo-Marx Boot was discussed on a three plant basis and rejected by X-10 and Y-12 as not applicable to their exposures. Samples of a Collier Manufacturing Company, special plastic boot were examined. Additional samples of this boot and swatch samples of the plastic film will be provided for test, but does not appear to be as satisfactory for our needs as the Solo-Marx Boot.

6. Order points were again reviewed and adjustments made on those items where delivery is delayed in excess of six months.

7. The "Navy" style Comfo Respirators, which represent a very limited number of the total plant stocks of "dust" and "chemical-cartridge" respirators have been withdrawn from service for investigation of premature aging which has resulted in difficulties in obtaining a proper fit across the bridge of the wearer's nose.

8. Chem-Wear, "Vinyon-N" Coveralls are no longer available. The "Dynel" substitute is more expensive and not quite so satisfactory. The reserve stocks are to be used until expended before a decision is made as to future purchases.

9. "Ear Defender Lubricant" has been ordered from the Davis Equipment Company. Delivery is expected in May.

10. Ten Emergency Station Boxes have been delivered and placed in Stores. The remaining eight will be delivered in the near future. Expenditures for these boxes will be credited to the 1041 account.

11. An attempt is being made to secure agreement by all interested Superintendents prior to standardizing on a vinyl coated work glove as a substitute for leather and composition palm gloves.

12. Several new Pioneer Rubber Company gloves are under test as substitutes for the U. S. Rubber Company #123 glove. This glove is "penta-ether" resistant and preliminary tests appear encouraging.

13. The delivery of Impermeable Suits, "Castight" masks and hoods has been further delayed. These items are "Government Procurement" and no committments are available for anticipated delivery dates.

14. Safety shoe stocks are low because of slow delivery, especially on the "special make-up" shoes; however, 280 pairs of Lehigh #1615 (summer oxfords) were delivered last week which temporarily relieved the short stocks.

15. M. S. A. and Safety Equipment Distributing Company are preparing bids on the "Stretcher Stations". The order has not been placed as of this date and delivery may be expected prior to June 15.

C. Promotion and Education

1. The National Safety Council publication "Industrial Supervisor" is now being distributed to approximately 400 supervisors. We are now surveying the mailing list with each Division in order to reduce the subscription by 50%.

2. The calendar insert for the month of May was completed. The thought for the month emphasizes the "premiums" necessary to keep a "safety insurance policy" in effect.

3. A work order was written which will eliminate two of the safety billboards and relocate the safety train board, ultimately providing one display of the train and a safety message at the two main entrances to K-25.

4. The engineers attended a portion of the Industrial Safety Institute held at the University of Tennessee. The opinion of the group was that the institute was well worthwhile, especially the Bureau of Mines demonstration. Resumes of the sessions are being presented in Departmental meetings.

5. One Safety Department meeting was devoted to impress each engineer with the importance of following clinker cases, especially knee, back and elbow cases. More thorough investigations was decided by the group as the answer to the problem.

6. The Electrical Maintenance Department was asked to submit material for a plant monthly report to help awaken some groups to electrical hazards and means of protection which they were very pleased to furnish.

7. Assistance has been afforded the G-Plant safety director toward becoming familiar with the safety program in this plant.

8. The Laboratory Division has scheduled for each section a demonstration of the safety glasses of the employee involved in an explosion to emphasize the value of wearing them. This demonstration has proven to be very forceful.

9. A new addition to the Safety Department will be "Louie the Lifter". A work order to build this character has been issued. Demonstrations with this device should assist supervisors in reducing the frequency of back injuries.

G. L. Feazell
Safety Department

GLF:ld

S & I File - K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY: CARBIDE AND CARBON CHEMICALS DIVISION, Union Carbide and Carbon Corporation — LOCATION: Post Office Box P, OAK RIDGE, TENN.

TO: Mr. W. L. Richardson

LOCATION:

ATTENTION:

COPY TO:

DATE: April 3, 1951

ANSWERING LETTER DATE:

SUBJECT: Monthly Progress Report
Safety Department
Month of March, 1951

I. Plant Accident Experience

An estimated total of two hundred fifty-two personal injuries were reported for treatment; thirteen no-injury accidents involving damage or loss to Company equipment and/or facilities were reported and are summarized as follows:

A. Personal Injuries

1. Major - three; non-tabulatable major - one
2. Sub-Major - two
3. Minor - two hundred forty-six

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 9/1/50 - 2/28/51			CURRENT PERIOD March, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.79	0.00	1.43	2.79	3.62
Severity	.10	2.05	.01	.36	.51	.004	.16	.09	.03
Pot. Frequency					7.35	1.28	4.30	2.79	6.03

B. No-Injury Accidents

1. Motor Vehicle Accidents - six reported; estimated damage $323.00. Estimated mileage 213,000; frequency rate 2.82.

2. Property Damage Accidents - three reported; estimated damage $790.00.

3. Material Releases - three reported involving radioactive materials. No apparent injuries recorded.

4. Fires - one reported; no apparent damage. Fire loss ratio for the month is .000 and .000 for the year.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Routine inspections of the various areas were made by the engineers. The unsafe acts and conditions noted were called to the attention of the supervisors of the various areas who generally complied with the majority of corrective recommendations. The remaining recommendations were routed to other supervisors for consideration.

The Power House Group will move into K-31 Power Buildings on April 7, 1951. This will be considerably long before Maxon is out of area, bringing together in the same facility both Maxon and K-25 employees, requiring closer liaison with the Maxon Safety Department.

B. Consultant and Engineering Services

1. Significant items, such as recommendations for built-in accident prevention and conformance to plant and national standards, were sent to supervision and Engineering for consideration following print review.

   a. K-1100 fixtures and machinery, K-1131 expansion, K-131 fluorine storage, Phase II of Feed Plant, and incidental prints improving or changing present facilities.

   b. New parking lot proposals and traffic facilities at Turnpike.

   c. Ship ladder construction in K-1131 expansion. Divisional guide on this item was established. See memo for details.

2. Engineering consultation with various groups engaged in planning and modification of plant facilities led to the following decisions:

   a. Several seventy degree ship ladders were designed for use in the Phase II portion of K-1131. This condition was brought to the attention of area supervisors and the standard stairway codes reviewed with the operators to determine the extent to which compliance could be made. Final installation will be an evaluated compromise.

   b. The installation of five new HF tanks at K-1132 has been reviewed. Recommendations for their installation consisted of control for emergencies in the form of fog, spacing, cover and alarm signals.

   c. A final check on the guard force firing range revealed that it is near completion and incorporates recommendations made previously.

d. The acid handling problem, prevalent in water treatment at three different locations, was settled by a decision to use a tank truck or small trailer with mounted tank to transport and dispense sulfuric acid.

e. A device to protect personnel against a water level sight glass rupture was designed and sent to Power House supervision for consideration.

3. Departmental engineers assignments were revised during the month following transfer of one engineer to Maintenance.

4. Supervisors of K-1131 Area are endeavoring to improve their safety performance by establishing written regulations, emphasizing reporting and investigating gas releases, and working closely with Maintenance supervision as regards Maintenance personnel assigned to this operation.

5. Increased security measures made it necessary to rewrite SP-11 on Chlorine Trifluoride to declassify it. A proposed SP for handling material releases was also drafted for approval.

6. A joint meeting was held with Process Engineering and Mechanical Test and Inspection to discuss fluorine disposal in case of disc failure and test purging. The objective to allow for pressure relief and complete purging without escape of gas from system was accomplished.

7. Recommendations to ground Polygraph equipment of Russell Chatham, Inc., were made through the Industrial Relations Division. Grounding was accomplished by the operators of the equipment.

8. Surveys, followed by three proposals, were made of the access roads to the new parking lot entrances off the Oak Ridge Turnpike.

9. The use of substandard ladders came to light again when various groups were found using ladders that didn't conform to the requirements for a good ladder. Follow-up produced methods and procedures that should establish a good industrial ladder in the Stores Department stocks.

III. Significant Projects and Status of Same

A. Emergency Planning

1. Six emergency kits were prepared for use by the Safety Department personnel. The kits are maintained in AE-997, AE-1191 and Room 144 of K-1034. In addition to this, an emergency procedure has been drawn up to outline the action of each man under emergency conditions.

2. Contacts were made with vendors of public address systems to determine the type of equipment available for amplifying the emergency director's orders at the scene of an emergency. The general price range of such equipment was established and specifications were prepared.

3. Both the triangular bandages and the compress bandages in first aid boxes were found to be generally unusable. New supplies are being purchased as replacement through the Medical Department, following review of this condition with the Medical Director.

4. The film "Survival Under Atomic Attack" was obtained for review. This film will make a good follow-up of emergency planning possibly in four to six months from this date.

5. Bomb shelter locations have been established for the Administration Area of the plant through liaison with local directors. A continuation of bomb shelter location studies is being made in the Process Area and will be expanded to include the other areas as rapidly as possible.

6. Although a plotting table for determining direction and velocity of a gas cloud has been proposed, further study of the conditions is being made to simplify the scale. United States Army and Air Force Offices have been contacted and additional information has been obtained. The plot map is completed.

B. Protective Equipment

1. A meeting was instigated between supervision of the K-1131 Area and Maintenance supervisors to outline protective clothing usage for service groups. This information was itemized and distributed by Maintenance Division.

2. F_2, HF and NH_4 (OH) tests were made on substitute impermeable suit material routed to us by C.W.S. The material is useful against HF and NH_4 (OH).

3. The Welding Section has made complaints concerning the flamability of coveralls. Mr. V. B. Goddard of Maintenance was asked to study the condition for the Maintenance Division and bring an answer to their staff meeting. We were contacted for our recommendations, which will consist treating the present cotton coverall with flame resistant solutions or obtaining a material for coveralls of flame resistant characteristics.

4. "Harrold" Fluoride Detector requisitioned for test. This sampler is expected to provide "on-the-spot" information as to F_2 and HF concentrations in work atmospheres and, if proven satisfactory, will be transferred to operations.

5. Individual issue, 1/8 ounce tubes of lubricant for use with ear defenders have been requisitioned. The use of lubricant was recommended by Dr. Douglas Wheeler.

6. The Vinyl-coated versus leather palm glove observations have been continued. Cost and usage comparisons were completed for three months of 1951 and forwarded for evaluation by this division.

7. Safety Equipment and Protective Clothing order points have again been reviewed and revised. Overall stock pile proposal was forwarded for consideration.

8. Dark grey or olive-drab, cotton coveralls have been established as standard for welders.

9. "Vinyl-N" coverall usage has been surveyed. "Vinyl-N" coveralls are no longer obtainable from Chem-Ware Corporation. They have substituted "Dynel". No current orders of "Dynel" are anticipated.

10. "Dupor" nose respirators were obtained and are now under test by Medical Department to determine value in preventing nose irritation among workers in K-29.

11. The Tool Department has been instructed to convert all old style M.S.A. All-Service and Chemox Masks to speaking diaphragm type.

12. Special M.S.A. All-Service canisters with C.W.S. #6 paper particulate filters were obtained and are under test at Y-12.

13. Additional work was done with the Solo-Marx boot. Consideration is now being given to three plant purchase of this boot on a trial basis.

14. The muff type ear defender research was stopped on the advice of Dr. Douglas Wheeler. The available plug type defenders were reviewed and the M.S.A. type at present in use, retained as best.

15. Additional goggle cleaning stations were requisitioned. A sample of the Dow/Corning silicone tissue dispenser was requisitioned for test.

16. A new type cap was requisitioned for test. It is thought that this new type will provide greater coverage than the present Surgeon's Cap.

17. Shoe complaint investigation and adjustment has been transferred to the Stores Department.

18. Delivery of safety shoe stocks has been slow especially on Special Order Shoes (yellow-toe), however, Lehigh has held to the contract price in spite of several general price increases.

19. The M.S.A. disposable Vinyl Chloride clothing was obtained and tested satisfactorily.

20. The research on dipped lead/rubber clothing was stopped. "Wolfe" brand sewed lead/rubber clothing may be substituted.

C. Promotion and Education

1. Preliminary art work was completed in the development of our 1952 safety calendar.

2. Quality control comparisons on accident experience was continued and charts were made to reflect the minor injury experience for 1948-1950, 1951 is being kept current by this department.

3. Inventories were made of all plant emergency boxes preparatory to transferring the boxes and equipment to the divisions concerned. Transfer to the operaters is eighty percent complete.

4. The calendar insert for the month of April was completed, printed and distributed. This month emphasized "Hazard Detector".

5. Several articles were prepared for the "Courier". These articles have pinpointed eye protection first but also have covered the interest shown in one department to stop back injuries.

6. A survey of trunk sprains was completed. The survey covered 1948, 1949, 1950 and 1951 experience.

7. Design of emergency call cards was completed. They were printed and set up in Stationary Stores for plant use.

8. An "Accidentgram" was devised and put to successful use. Significant accidents are summarized immediately on the accidentgram and sent out for information to division heads. This report is proving useful also to call attention to major accidents occurring in other plants.

9. The orientation program at K-1085 is continuing and Maintenance supervisors are wanting a complete gas mask training program. The Safety Department concurs that such is advantageous and is attempting to sell it in the overall training program.

10. Tentative locations for safety train displays have been staked off awaiting final decisions to continue project.

11. Preparation of Safety Department Goals and Purposes was completed.

G. L. Feazell
Safety Department

GLF:mam

S & I File - K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE March 1, 1951

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of February, 1951

I. Plant Accident Experience

An estimated total of two hundred fifty personal injuries were reported for treatment; eleven no-injury accidents involving damage or loss to Company equipment and/or facilities were reported and are summarized as follows:

A. Personal Injuries

1. Major - one; non-tabulatable major - one
2. Sub-Major - none
3. Minor - two hundred forty-eight

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 --- 4/30/48				PREVIOUS SIX MONTHS 8/1/50 - 1/31/51			CURRENT PERIOD February, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.97	0.00	1.45	1.28	1.39
Severity	.10	2.05	.01	.36	.51	.004	.17	.02	.02
Pot. Frequency					7.25	1.28	4.59	1.28	1.39

B. No-Injury Accidents

1. Motor Vehicle Accidents - six reported; estimated damage $78.00. Estimated mileage 213,000; frequency rate 2.82.

2. Property Damage Accidents - one reported; estimated damage $100.00.

3. Material Releases - three reported involving radioactive materials. Two with no apparent injuries recorded and one resulting in eleven days loss of time.

4. Fires - one reported; no apparent damage. Fire loss ratio for the month is .000 and .000 for the year.

This document has been approved for public release by
[signature] 6/15/95
Technical Information Officer Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

WCX-80 (1-50)

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Engineers routinely inspected their respective areas and made recommendations for correction of unsafe acts and unsafe conditions. On the spot, correction was obtained for the majority of the recommendations with the remainder being presented to supervision concerned for evaluation.

B. Consultant and Engineering Services

1. Significant items, such as recommendations for built-in accident prevention and conformance to plant and national standards, were sent to supervision for consideration following a print review of the following jobs:

   a. C-31 prints (now being routed elsewhere), K-1100, K-1413, K-1131 expansion, K-1416, K-1414 since canceled, Phase II of Feed Plant, catwalks for K-1531 and Power House Coal Bunker.

   b. The new security fences and installation of crash gates.

2. Engineering consultation with various groups engaged in planning and modification of plant facilities led to the following decisions:

   a. Continued service to all groups on Power House coal bunker repair to keep their work safe.

   b. Faulty mica is believed to be the cause for rupture of boiler sight glasses in Power House. As a result, an interlocking device was recommended to protect personnel.

   c. Fire lanes for access to K-1001 Building were designated and marked.

   d. General recommendations were made to Engineering regarding the installations in Phase II of Feed Plant. These included such things as code designation, ventilation, walls and electrical installations.

   e. Preliminary recommendations on proposed fluorine storage at K-131 revealed a need for more adequate ventilation. This project is in the planning stage at present.

3. Dr. Bolt, the consultant on noise levels, made his report to a joint meeting of divisional representatives. He made several recommendations such as building insulation, equipment isolation and personnel protection. Another consultant is expected in the near future to give his opinion.

4. The problem of filling cylinders, containing mixtures of various gases, was passed on to this department by the Instrument Department for recommendations. The Instrument Department is equipped to fill certain inert and non-toxic gases but when such gases as oxygen, hydrogen and ethane are in mixture, special precautions are necessary. Recommendations were made to redesign equipment, fill cylinders in an isolated area and use a substitute for oxygen and hydrogen mixtures.

5. The Y-12 fatality is being used very effectively by carrying the story into various safety meetings and picturing similar conditions at K-25. Emphasis is being placed on job planning and better rigging techniques.

6. A continuous maintenance job involving tightening a jamb nut on a 4" shaft has presented a serious fall and strain potential. An improved method incorporating the use of the auxiliary hoist on a Bridge Crane was devised and recommended.

7. A shipment of twelve 12' step ladders was accepted for use on the plant.

8. The Y-12 Safety Department was contacted with reference to the condition of sulfuric acid carboys that are sent to K-25 for refilling. As a result, we were requested to return defective equipment unfilled.

9. The trap explosion in K-312-2 furnished additional material for Laboratory study of causes and facts involved in this and similar explosions. These facts need to be pieced together for corrective action. A central committee has been recommended to study this problem.

III. Significant Projects and Status of Same

A. Emergency Planning

1. Revision of names for streets and avenues within the K-25 Area. Status: It is being made up in Engineering for distribution.

2. Design of posters for emergency calls and fire zones. Status: Completed.

3. Preparation of check sheets, evaluation sheet and record for tabulation of practice drills. Status: Completed.

4. Study to determine the best method of presenting to the plant the potentialities involved in gas releases has revealed that considerable work has already been done on this sort of thing. The "Beaufort Scale" has been worked up to give estimated wind velocities by observation of smoke, leaves. etc. A plotting table, for determining the area affected by a gas release, has been prepared and proposed for use.

5. A film "You Can Beat The A Bomb" was obtained for plant use on loan during week of February 12, 1951. The film has also been purchased and received.

6. A rough draft was prepared for Mefax material on general emergency information.

7. Reprints of the section devoted to Disaster Control, from the November Issue of the "American Machinist", were taken to each division head to further his thinking of Emergency Planning.

8. Engineers attended early sessions of the Emergency Planning Conferences in order to become fully acquainted with plant outlook and policies on emergency.

9. The department has developed a smoke generator to add a more realistic touch to future emergency problem drills. In addition to this, each drill has been evaluated to improve plant and local facilities.

B. Protective Equipment

1. A search to obtain a gas mask canister for emergency use against all plant contaminants. Status: Four canisters were obtained for testing and proved inadequate. Additional samples have been shipped for further study and testing.

2. To obtain an all-purpose plant work glove to replace a leather palm glove. Status: Vinyl coated gloves obtained will do the job. Plant acceptance on test samples not unanimous. This project is complete and report is being prepared.

3. Ear muffs for use in K-29. Status: Samples designed by this department appear to be good. Currently searching for method to adequately test the samples. Additional sample equipment ear plugs being sought from M. S. A. and Army.

4. Project to determine the status of protective equipment and items necessary for procurement in view of increased emergency demands. Status: Available equipment, location and number compiled. Order points adjusted on all major items to provide a normal one year supply. A determination of emergency needs has been completed and report prepared.

5. New style emergency boxes have been ordered and are being fabricated. This box is made of porcelainized steel for long life and attractiveness. It is expected that this style box will eventually replace the present wooden boxes that are now in use.

6. Electricians' protective gloves being used in the K-1131 Building are being misused. Apparently the gloves are being used for all types of work from the condition they are received in the Electrical Test Shop. Action has been taken by supervision concerned to correct this condition.

7. Flashlights - A partial shipment of the approved three-cell flashlights has been delivered. The approved two-cell lights have been delayed.

8. Electric Lanterns - Samples have been received for inspection and approval.

9. The Solo-Marx Boot sample has been submitted for approval.

10. A sample of special coated cloth, submitted by the Army for approval prior to fabrication of Impermeable Suits, has been tested and approved. The fluorine resistance of this sample appeared to be less than that of the 1949 sample.

C. Promotion and Education

1. The monthly calendar insert for March was designed.

2. For the third consecutive month, motor vehicle drivers' tests have increased. The total number of tests for the month was fifty nine, representing an increase of twelve percent over last month. The increase seems to be a result of C-Plant personnel permits.

3. Increased efforts to gain additional safety publicity in the "Courier" has paid off. During the month, safety publicity has been given preference by the editor.

4. Assistance was given Radiation Hazards Group on a proposed radiation detection device poster.

5. The safety display cabinet at K-1401 was cleaned and an exchange made of some safety equipment.

6. A slinger was distributed to supervisors advertising the use of safetygraphs.

7. The yearly calendar was accepted in plant to such a degree that 125 additional calendars were made up to handle the demand.

8. The Power House has started a drive to improve their housekeeping. They are evaluating areas and placing a character called "Dirty Dan" in the area where the worst conditions are established.

G. L. Feazel
Safety Department

GLF:msm

S & I File - K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE February 1, 1951

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of January, 1951

I. Plant Accident Experience

An estimated total of two hundred sixty-two personal injuries were reported for treatment; six no-injury accidents involving damage or loss to Company equipment and/or facilities were reported and are summarized as follows:

A. Personal Injuries

1. Major - one*
2. Sub-Major - none
3. Minor - two hundred sixty-one

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 -- 4/30/48				PREVIOUS SIX MONTHS 7/1/50 - 12/30/50			CURRENT PERIOD January, 1951	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.69	0.00	2.00	1.42	1.39
Severity	.10	2.05	.01	.36	.51	.004	.20	.004	.02
Pot. Frequency					12.52	1.63	6.49	5.67	1.39

B. No-Injury Accidents

1. Motor Vehicle Accidents - four reported; estimated damage $149.62. Estimated mileage 195,670; frequency rate 2.04.

2. Property Damage Accidents - none reported.

3. Material Releases - two reported involving radioactive materials. No apparent injuries recorded.

4. Fires - one reported; no apparent damage. Fire loss ratio for month is .000.

* Indefinite status at present.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Departmental Functions

A. Inspection of Facilities

Comprehensive inspections of plant facilities and recommendations for correction of substandard conditions were made. In general, the majority of the recommendations have been either included in the operations or have been considered favorably by supervision.

B. Consultant and Engineering Services

1. The significant items include review, recommendations for built-in accident prevention features and conformance to plant standards on the following jobs:

   a. C-31 prints, K-1100, K-1513, K-31 Switch Yard, Phase II - Feed Plant, K-1131 expansions and K-1414.

   b. Modifications to parking lanes in plant parking lots.

   c. Tilting table for dismantling converters.

2. Engineering consultation with various groups engaged in planning for modification of plant facilities and operations including such items as:

   a. Special precautions during repair to bunkers in Power House.

   b. Substitution of a cradle for transporting converters, replacing temporary scotch boards.

   c. Completion of arrangements with vendor through representatives of Engineering to strengthen the lashing of converters to prevent break-away in transit and subsequent rigging problems at K-25.

   d. Program underway, as recommended, to replace rotten double doors with new ones in the basement area of the Cascade.

3. Modification of the design of automatic control cabinets for emergency power supply generators was recommended to include a disconnect switch in the emergency bus providing protection for personnel during maintenance work on individual control cabinets and eliminating the necessity to block the start-up control of the emergency generators.

4. Additional ventilation is being installed to remove welding smoke and fumes from K-1085.

5. Work has been started, as recommended, to cut down the high bank on the northeast corner at the intersection of the Boulevard Road and Oak Ridge Turnpike to provide adequate visibility.

6. A lighting survey and recommendations were made for specific minimum foot candles necessary in the machinery and equipment areas of K-1037.

7. Review and recommendations were made to improve job methods and procedures on the following items:

   a. Sampling methods and procedures in K-101.

   b. Disposal of chemical wastes involving uranium control in the Laboratory Division.

   c. Removing material from cold traps in K-1131.

   d. Operation of the Brown and Sharp Screw Machine in K-1401.

   e. Establishment of procedure for handling injuries in the Purchasing Group operating in Clayton Hall in Oak Ridge. This procedure will follow the one established for the Communications Group now working in the Administration Building at Townsite.

III. Significant Projects and Status of Same

A. Emergency Planning

1. Revision of names for streets and avenues within the K-25 Area. Status: Ready for divisional review.

2. Design of posters for emergency calls and fire zones. Status: Design complete. Final draft of poster being made; due for printing February 2, 1951.

3. Preparation of check sheets, evaluation sheet and record for tabulation of practice drills. Status: Preliminary draft completed; ready for divisional review.

4. Study to determine the best method of presenting to the plant the potentialities involved in gas releases. Status: Date computed on ammonia, hydrogen fluoride, fluorine, chlorine trifluoride and uranium hexafluoride. Method of presentation including scale of wind velocity versus time complete; ready for divisional review.

5. Plant population peak survey. Status: Complete. Use of this data is underway determining possible locations of bomb shelters. Use of data to determine possible locations of emergency equipment depots is also underway.

6. A film "You Can Beat The A Bomb" was obtained for plant use on loan during week of February 12, 1951. Purchase of film has been requested.

B. Protective Equipment

1. A search to obtain a gas mask canister for emergency use against all plant contaminants. Status: Four test canisters were obtained for test, Project fifty percent complete.

2. To obtain an all-purpose plant work glove to replace leather palm glove. Status: Vinyl coated gloves obtained will do the job. Plant acceptance on test samples discouraging. Project fifty percent complete.

3. Ear muffs for use in K-29. Status: Samples designed by this department appear to be good. Currently searching for method to adequately test the samples.

4. Use of Radiant Heat Suit. Status: Ninety-five percent complete. Maintenance departments are being urged to get the heat suit sizes and quantity needed to Stores. Suits will be fabricated and placed in Stores.

5. Project to determine the status of protective equipment and items necessary for procurement in view of increased emergency demands. Status: Available equipment, location and number compiled. Order points adjusted on all major items to provide a normal one year supply. Demands for emergency use yet to be determined.

C. Promotion and Education

1. Monthly calendar insert for February was designed.

2. Motor vehicle operators' tests given during the month totaled fifty-two. Status: Tests for these permits are practically doubled and continue to increase due to increased number of new employees and additional personnel being tested due to re-assignments in connection with the C Plant. Previously, we could test one day per week. Current trends indicate a second day will be regularly required.

3. Emphasis on safety meeting organization and conduction at department level has increased total plant meetings for the month and improved the quality of the meetings held.

G. L. Feazell
Safety Department

GLF:msm

S & I File - K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE January 3, 1951

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of December, 1950

I. Plant Accident Experience

An estimated total of two hundred twenty-two personal injuries were reported for treatment; eight no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - one
2. Sub-Major - three
3. Minor - two hundred eighteen

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 — 4/30/48				PREVIOUS SIX MONTHS 6/1/50 - 11/30/50			CURRENT PERIOD December, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.69	.00	2.53	1.47	1.42
Severity	.10	2.05	.01	.36	.51	.12	.21	.04	.004 0.10
Pot. Frequency					12.52	1.63	6.58	7.35	5.67

B. No-Injury Accidents

1. Motor Vehicle Accidents - three reported; estimated damage $48. Estimated mileage 195,117; frequency rate 1.54.

2. Property Damage Accidents - none reported.

3. Material Releases - two reported; employees were not referred to the dispensary for examination.

4. Fires - three occurred with an estimated loss of $25,020, making a cumulative loss of $196,499.13. Fire loss ratio for the month was $005 and $392 for the year.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Major Departmental Functions

A. Inspection of Facilities - Includes a cross section of the type items brought to the attention of supervision for correction.

1. K-25 workmen were observed using cotton in their ears during a construction job in K-29. Supervision was contacted and ear defenders were secured for the employees.

2. Floor operating controls for the 10T London overhead crane in the Welding Shop are so located that operators often work under the load. Recommendations were submitted which included re-location of the controls; engineering is studying re-arrangement.

3. The majority of Maintenance employees are complying with recommendations to wear ear defenders on the cell floor in the K-25 Area; however, employees of other departments are observed working in K-29 without ear defenders. These groups have been advised of the conditions and a second memorandum has been issued by the Medical Department to the groups involved.

4. Inspection of converter unloading in the north end of the K-1401 Building resulted in temporary correction of a condition wherein a hooked eye of a sling was being used over a 2" lug to raise converter head to allow rigger to get partially under the suspended load to place a choker around the flanged intake. An I screw was screwed into the handling lug to which a shackle was attached as recommended.

5. Inspection of the K-1037 fire water line installation revealed two employees using air tampers without wearing goggles; supervision corrected the condition on the job.

6. An inspection of the K-1300 Area continues to reveal (a) acute lack of storage area; (b) lack of safety consciousness by operating foremen and personnel; (c) very limited maintenance service and coordination between various crafts. A program has been recommended and will be initiated to allot ten minutes per day to safety inspection and employee training.

7. Unsafe conditions and work methods pertaining to operation and equipment, especially electrical, radioactivity and housekeeping were reviewed with supervision in the K-1405 Area. Equipment operation and electrical hazards were recommended for first attention in correction.

8. An inspection of the K-27 Area revealed overloaded electrical receptacles and broken conduits which were corrected by work order issued by supervisor for replacement with new fixtures.

9. Supervision has been contacted relative to a clean-up job in the burning pits, dump areas and the new firing range. Little progress is expected on the latter item; however as it appears to be at a standstill pending work by an outside contractor.

10. An inspection was made of a standard refrigerator which had been altered to comply with our previous recommendations for storage of flammable liquids. The alterations appear to be adequate.

11. Recommendations were made to Area IV supervision that pedestrian walkways be kept cleared of materials, etc. in Buildings K-303-7 and 8 during the CCR job currently underway.

12. Several rotten stairway handrails in the K-27 Area were reported to supervision, who issued a work order for repair.

13. An inspection of the Cascade Service Area, K-131 Building, revealed improved housekeeping conditions. Recommendations were made to have a frame constructed around unsecured carboys suspended from overhead.

14. Items contained on the K-1131 check list were inspected for completion. Several items on the check list had been completed and most of the remaining items will be corrected as soon as maintenance is available. Several new items were observed, including the failure to use existing guards during operation and were included in an evaluation report of unsafe conditions and work methods to supervisor of K-1131.

15. Items on the K-29 inspection check list were discussed with supervison. Correction is progressing satisfactorily. The guards for the compressor motor shafts and brakes were not in place. It is felt that during this time of excessive maintenance when employees work on and around the compressors more than at any other time, the provision and use of guards on moving parts is very important; supervision agreed to have the guards placed in position as soon as possible.

16. The K-413 job was inspected and resulted in supervision issuing a work order to change the chlorine trifluoride cylinder valves from Crane to Kerotest. Maintenance Engineering will have the safety shower put in good operating condition, maintain operating tests; and have crash hardware installed on the double doors leading out of the south side of the cold trap room.

17. A no-injury accident in Laboratory L, K-1401 Building, was investigated in which a heavy glass tube of a rotometer ruptured with explosive violence throwing pieces of 1/4" glass around the room. The pressures involved were not excessive; however, the

instrument had been removed from another location on the preceding day and it is believed that the tube may have been damaged during the change-over or installed in a bind. The new instrument will be inspected by the Mechanical Inspection Department prior to installation as was indicated advisable on all such installations.

18. An inspection of all ladders in the K-1131 revealed eleven ladders unsafe for use; supervision was advised and the damaged ladders were replaced.

19. An extensive survey and evaluation report was completed covering the equipment, facilities and work methods in K-1037.

B. Consultant and Engineering Services

1. Maintenance employees working in the K-131, K-1131 and K-1410 Buildings were not being allowed to leave with contaminated coveralls which they were wearing upon entering the building. Arrangements were completed with the divisions wherein Operations will put in their local stocks, marked with the location and "Maintenance", sufficient coveralls to cover maintenance operators. These coveralls will be laundered with the local area coveralls and returned to the work location.

2. Follow-up and operating tests resulted in recommendations that the Davy Automatic Fire Escapes be installed in the K-29 cranes within easy arm reach of the crane exit and mounted above head level 12" to 18" from the crane cab to prevent falling against the cab on the way down.

3. Numerous contacts were made with the MIT Practice School relative to the problems arising from their current chlorine trifluoride projects. The first run was made and all reactions controlled but they were not entirely successful due to inability to get a sufficient flow of chlorine trifluoride from the cylinder. This will require warming the cylinder; they were advised regarding the conditions involved when applying direct heat to the cylinder.

4. Numerous complaints have been received from employees relative to failure of Tool Room Attendants to check electrical hand tools on the "test panel" prior to issuance. This was reviewed with Tool Department supervisors for correction.

5. A joint meeting was held with representatives of the Tool Department, Mechanical Tool Repairs and the Electrical Maintenance Division relative to inadequate repairs to tools. Based on facts presented to the group, a more thorough repair job will be made to correct these conditions.

6. Additional work was completed on material storage and handling problems in the K-1037 and K-1100 Operation. A proposal to correct the problems was developed and submitted.

7. General recommendations covering items of personnel safety in preliminary drawings for the K-1100 facility were made to Plant Engineering for incorporation in the final prints.

8. The K-1300 Area fluorine evacuation alarm system was destroyed as a result of the fire in the K-1409 Building. A request for consideration to tie this alarm system into the present fire alarm system was reviewed with the Fire Control Department, and approved.

9. Fabrication of dollies for use in conveying commercial deep-freeze units between K-25 and Y-12 was reviewed with supervision concerned, and more rigid bracing was recommended and incorporated into the design.

10. The majority of the small Welch pumps in intermittent use are not equipped with guards inasmuch as the guards would have to be removed to start the pump in operation which is normally done by a person kicking the large pulley with his foot. A proposed guard designed to be hinged to the base on the small end of the guard and provided with a handle for lifting was submitted to supervision who are now considering the proposal.

11. Inspection of cell conditions during change-out revealed that shoes and gloves which were contaminated below plant tolerances were being destroyed and shoes are issued in several cases where they are not needed. These items are being reviewed with the Radiation Hazards Department to correct the condition.

12. Preliminary prints for the dry fluorination system to be installed in Laboratory have dealt primarily with shielding. Additional design prints include recommendations previously made relative to arrangement and layout of operating equipment.

13. Other major items in this category include recommendations relative to safety aspects involved in design and construction projects as follows:

a. Engineering Laboratory

b. K-1100 Extension

c. Phase II Feed Plant

d. K-1131 Facility expansions

e. New Purchasing Department Offices - Townsite

f. K-31

g. 1300 Area Change House

For details, refer to memoranda covering specific items.

C. Protective Equipment

1. Ear Muffs - all commercial samples of muff-type protectors failed to give greater than 10 db reduction when tested by means of "sound-proofed" box and sound-level meter at K-29. Leakage at edges is the primary cause of this low efficiency. The McDonald, "Stewart" and "Moseley" designs appear to give better protection than these readings would indicate. The "Stewart" design is now at the "Miltron" Company plant for the application of a formed foam rubber pad and an extra neoprene coating. The Surgical-Mechanical Laboratory external ear plugs were tested and are fairly effective but are as uncomfortable as the present "Ear Defender".

2. The So-Lo Farm Company reports progress on the new design latex dipped cover boots. Samples will be provided in the coming month.

3. The International Shoe Company is investigating a plastic coating process for coating leather shoes. They are also providing a sample pair of 6 inch shoes with a vulcanized rubber sole and heel. This sole has been tested for "decontaminatibility" at K-10 and should prove advantageous in some specific operations at K-25.

4. A requisition has been written to obtain one pair of coveralls, one jacket and one mask hood from the Miltron Company. These items will be coated with a lead/rubber mixture to equal 1 mm of lead.

5. The special insulated tools dipped by the Miltron Company for use at the K-1131 facility are being followed closely. There are some signs of beginning failure of the plastic coating.

6. The Acme Protection Equipment Company reports progress on the design of a commercial mercury collecting vacuum cleaner.

7. Rx lens plate has been received from the American Optical Company for test in a plant assembled optical mask. From a vision standpoint this mask and plate is acceptable. An initial order is being held up pending receipt of an Acme Protection Equipment Company optical mask, which may be more comfortable to wear over long periods of time.

8. A supply of two and three cell "Eveready", "permissible" flashlights is being procured by the Tool Department following test results obtained from various samples. Samples of "permissible" hand lant[illegible] are being procured for similar test.

9. The U. S. Rubber Company No. 123 glove has been tested as a substitute for the U. S. #113 glove. The #123 has been found satisfactory. This change was made necessary by shortages occasioned by the present "national emergency".

10. Specifications for procurement of the U. S. Army Gas Masks have been modified to procure the M-9 mask as a replacement for the M-5 now used. The M-9 is an improved model.

11. A small supply of "junior" size U. S. Army Gas Masks are being procured to provide a better fit for workers with exceptionally small faces. These may also be used by women.

12. A newly developed metallic coated cloth is being investigated for use in the radiant-heat suit. Such a cloth may improve the efficiency of these suits by twenty-five percent.

D. Promotion and Education

1. 1951 calendars were distributed throughout the plant area and a calendar insert depicting "safe practices for '51 will improve the score for everyone" was developed and distributed for the month of January.

2. Supervisors are being contacted relative to a "daily meditation" program to improve housekeeping and working conditions in their respective areas. Also to cope with the increase in new personnel.

3. The film entitled, "No Use Skidding", was used generally during the month to promote safe driving under icy conditions.

4. A locker survey was made during the month in order to substantiate installation of steel lockers and to impress employees with the necessity of keeping only essential articles in their lockers.

5. A "question and answer" proposal relative to emergency planning was developed and will be available for use by persons involved in local planning.

6. New-employee orientation covering highlights of the Plant Safety Program is continuing with maintenance employees, "general service groups", and new supervisors of Process Maintenance.

7. The "Safety Train" cars have been revised to coincide with the recent organizational changes.

8. A survey of bulletin boards currently being used jointly with divisions concerned revealed dance posters and other miscellaneous bulletins displayed on the "safety poster side" of the board. This condition should be cleared up in the coming month.

9. Proposed rules were prepared for use in connection with storage in plant lockers to be used on a divisional basis.

10. Considerable time was spent by all engineers in getting acquainted with new supervisors and new areas to which they are currently assigned. This re-arrangement appears to be working satisfactorily.

11. Surveys have been completed covering protective equipment and population peaks in emergency planning.

12. Goals of the department and methods by which they are accomplished were outlined during the month. These methods will represent departmental procedure when completed.

13. A survey was made and completed covering the purchase problems of wooden ladders. Recommendations submitted should complete this project for the present.

14. A total of twenty-six motor vehicle operator applicants were tested during the month of December.

G. L. Feazell
Safety Department

GLF:msm

S & I File - K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION
ATTENTION
COPY TO

DATE December 1, 1950
ANSWERING LETTER DATE
SUBJECT Monthly Progress Report
Safety Department
Month of November, 1950

I. Plant Accident Experience

An estimated total of two hundred forty personal injuries were reported for treatment; five no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - one
2. Sub-Major - four
3. Minor - two hundred thirty-five

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 -- 4/30/48				PREVIOUS SIX MONTHS 5/1/50 -- 10/31/50			CURRENT PERIOD November, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.69	.00	2.55	1.45	1.34
Severity	.10	2.05	.01	.36	.17	.007	.12	.007	.04
Cot. Frequency					12.52	.00	5.87	7.24	6.72

B. No-Injury Accidents

1. Motor Vehicle Accidents - four reported; estimated damage $101. Mileage was 197,915, and a frequency rate of 2.02.

2. Property Damage Accidents - none reported.

3. Material Releases - none reported.

4. Fires - one minor fire with negligible damage was reported. Total reported to date, 22; cumulative fire loss ratio for year to date is $.00009.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Major Departmental Functions

A. Inspection of Facilities

1. The chlorine trifluoride installation in the K-413 Building was followed closely. Inspection prior to operations start-up indicated recommendations previously made had not been followed; these were again called to the attention of supervision. In addition, installation of an outside shower was recommended.

3. Inspection of the ladders received from the Patent Scaffolding Company, following modification in our shops, revealed them to be adequate for plant use.

4. As recommended, pre-exposure audiometer tests will be made of employees who will be assigned to the K-29 Plant.

5. A satisfactory substitute for Goodyear "Grip-tread" for use on wooden stairs has not been found. Present treads worn and uneven in the K-1001 Building will be replaced to correct conditions as recommended.

6. A check on the new bus schedules effective this month revealed that insufficient time was allocated for the Power House route, causing the driver to exceed safe speeds in order to make the run. The bus was re-scheduled as recommended.

7. Pre-job-planning of the repairs at the K-802 Building has emphasized the value of such a program in that there has been no interruptions on an unusually hazardous job.

8. A spot inspection of the electrical power tools in tool cribs revealed that faulty equipment was being issued. The supervisor was contacted, and each of the tool crib attendants cautioned against issuance of such equipment.

9. Anticipated problems in the storage and handling of barrier scrap were reviewed, and mechanical hand ling of this material was recommended.

10. An inspection of construction work at the K-709 switch yard revealed an eight foot excavation which was not braced or shored; this was called to the attention of supervision for correction. It is significant that in the interim before correction, the excavation caved in.

11. Following an allegation of HF inhalation, investigation revealed a turbine pump containing anhydrous HF had been moved from the K-1131 Building and opened for repairs without proper precautions being taken. Better work methods, including wearing of protective equipment, will be included as recommended.

12. A joint study with the Mechanical Inspection Group is underway on replacement of existing disc flanges on a cold trap unit in the K-1401 Building due to continued leaks. The pressure vessel (mist filters in cold traps) will be strengthened and the system hydrastatically tested to twice the reading of the proposed alternate rupture disc.

13. A survey and report of the K-1037 Building and equipment was made to assist supervision in the correction of unsafe acts and conditions due to the increased number of injuries occurring within this facility.

14. Inspection of the K-1004-C Laboratory facility revealed some abnormal disorder due to removal of equipment to facilitate construction of the new dry fluorination system. This construction is being followed closely.

15. General inspections were made of the K-1401 Building "R" Section and the K-1405 Building. The K-1405 Building is undergoing the most complete clean-up in its history - floors have been cleaned; all equipment painted gray; a new policy adopted regarding clean-up of UO_2 and UF_4 spills, rather than shellacing over as in the past.

16. Inspection of one of the mandatory areas for safety spectacles revealed employees without eye protection on two occasions during the month. This group indicated their next safety meeting would emphasize "eye protection".

17. Thirty-one motor vehicle operator's tests were given during the month.

18. Work orders were issued for the sixth inspection of the year 1950 for electricians' protective rubber gloves.

19. The FY '51 inspection program of corded equipment was begun. Work orders were issued for the K-1029 and K-1034 Buildings; statistics are being compiled on these buildings for the years 1949 and 1950 for comparative purposes to determine if such inspections should be continued.

20. An emergency inspection of extension cords and adaptors used in the K-29 Plant was necessitated following report of electrical shock to a mechanic from using an ungrounded grinder. The equipment was found to be generally in bad condition and was corrected.

21. Inspection of the cold trap exhaust fan switches in the K-302-3 and K-302-4 Buildings revealed that switches which were marked "dead" had been re-energized and extension cords had been run from the cell floor to the basement. As recommended, a work order was issued to correct the condition.

B. Consultant and Engineering Services

1. As a result of complaints from various operating units relative to Welch pumps received without being tapped for guards, arrangements have been made with the Vacuum Pump Shop to have pumps tapped as specified on work orders.

2. Current plans are underway to change the angle of parking to 75° and reduce width of each parking space to eight feet in order to permit more parking space in the Edenfield Parking Lot. As recommended, previous plans to park at 90° were shelved in lieu of the 75° angle to reduce potential number of backing accidents.

3. Observation of job methods used in stacking and transporting tube boxes revealed poor coordination of the employees. As recommended, the employees are being specifically trained in safe methods of handling materials.

4. The ladder problem is fast approaching stabilization through revisions in the plant specifications and determination of available models on the vendor market. Mechanic's type platform ladder, to further improve safe platform surfaces for working above floor level, have been recommended.

5. Following the accident wherein an employee's ear drum was punctured from annealed wire, a "Reel Safe" device was purchased to preclude winding the wire around the employee's shoulder; however, a winding device is now needed for winding the annealed wire. Following inspection of such a device which Maxon Construction Company employs, details were forwarded to group's involved.

6. Prints and preliminary procedures for decontamination of K-27 and K-29, and the cold trapping of reaction products in the K-413 Building were reviewed and recommendations submitted.

7. Review of the proposed chlorine trifluoride storage shed resulted in decisions to use a closed shed with full length louvers at the bottom and west side and the top on the east side; cylinders to be stored on east side, loaded on west side, and platform floor to be at truck bed level.

8. As recommended, supervision of the K-1131 facility will cap off all open pipe lines where it is possible for HF to escape through leaking valves.

9. Following a meeting with representatives of the Design and Development Department, and the Singmaster and Breyer Company relative to Phase II of the feed plant, construction prints and specifications will be forwarded through regular channels for review by the Safety and Inspection Division. Specific safety aspects are pending preliminary modification to the proposed flow sheets.

10. Recommendations relative to the safety factors involved in the proposed procedure for decontamination of cells with chlorine trifluoride in the K-29 Plant included shielding, valving and job methods, which were incorporated in the procedure.

C. Protective Equipment

1. The radiant heat suits were completed and flameproofed for use by instrument mechanics. Extensive tests were conducted in cooperation with the Medical Department to determine time limits and health aspects of personnel wearing such suits. These suits proved satisfactory for employees to work one and three-fourths hours within a cell, with a fifteen minute rest period following egress from the cell. Ten suits have been fabricated and are available from Stores, Catalog No. B-434.

2. Insulated tools for K-1131 operations have been received and tested -- electrically, satisfactory; however, insulation is softer than samples. This condition may reduce service life, however, only experience can determine the seriousness of this condition. This problem has been brought to the attention of the Miltron Company, and adjustment will be made should early failure occur.

3. A contract has been arranged with the Safety Equipment Distributing Company for the sum of one dollar to allow extension of a priority to the Miltron Company to procure flake lead for experimental work on lead/rubber clothing and gloves. The So-Lo Marx Company and the Pioneer Rubber Company are also working on this project. Several sample lead coated leather gloves received from AEC have been inspected and found useless.

4. Forty-three pair of fluorothene gloves have been received. Strength is adequate until after the initial break, then strength is very low. These gloves, while not complete protection against chlorine trifluoride, are the best protection available.

5. Winter liners for hard hats have been made available to outside crews. Chin straps are on order for use by crews re-building cooling towers to prevent loss of hats in flume.

6. MacDonald ear muff samples and Surgical-Mechanical Research Company samples have been tested and neither is adequate for protection against noise levels in the K-29 Plant.

7. Order points for protective equipment have been reviewed and adjusted to bring stocks to adequate levels on a six month's supply basis. Masks, coveralls, neoprene gloves and respirator stocks, previously low, are now adequate.

8. "Gra-Lite 20" boots have been added to emergency equipment for the K-1131 and K-1132 Buildings.

9. "The Life-tilt" resuscitator is being tested by the Medical Department and an operating procedure is being developed for its use. Additional units for plant use are being considered.

10. Information was provided to guide the So-Lo Marx Company in their work with latex dipped cover boots. They are working on a boot for the U. S. Army which may be used at K-25 as a substitute for the commuter boot, overshoe rubbers and canvas bootees, which would result in a reduction of three types and eleven sizes of foot protection to one type and four sizes.

11. Flashlights were tested to determine best brands for plant use and a report was prepared for guidance of the Tool and Purchasing Departments.

D. Promotion and Education

1. The films, "Safe as You Think" and Miracles in Paradise Valley", two outstanding films in the safety field, were shown in most of the divisions and were well received.

2. The phraseology of one section of the "cause code" (5-3) has been the source of considerable criticism, inasmuch as the employees are reluctant to accept the statement "lack of desire to prevent personal injury". Use of the code "5-3" is being accompanied with an explanation to indicate the infraction of safe practices, safety rules, and lack of attention to the job.

3. The orientation program for the Maintenance Division training school continued with emphasis on use of respiratory protective equipment. The orientation program for the new employees of the Guard Department was started this month.

4. Standard Practice Procedure No. 366 was revised, and a check sheet for use in connection with this procedure was prepared and forwarded for review.

5. Potential emergency spot maps were prepared.

6. A calendar insert was prepared for the month of December, emphasizing "safety, quality and production" as one objective.

7. Relocation of the plant billboards and "safety train" display was reworked, however, further work on this project is pending approval.

8. A proposed Safe Practice Bulletin on "lithium" was prepared for review.

9. A plant chart outlining safety meeting schedules and organization was prepared to evaluate and/or emphasize "weak spots" in the overall plant program.

10. The 1951 calendar was designed and a work order initiated for its completion for early distribution to the plant.

11. A silhouette was designed and constructed to demonstrate protection afforded by properly grounded electrical tools, as well as route of current through the body from using ungrounded tools. This silhouette will be used in safety meetings and put on display in various areas of the plant to stimulate the "grounded electrical equipment" program.

G. L. Feazell
Safety Department

GLF:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY: CARBIDE AND CARBON CHEMICALS DIVISION, Union Carbide and Carbon Corporation — LOCATION: Post Office Box P, OAK RIDGE, TENN.

TO: Mr. W. L. Richardson
LOCATION:
ATTENTION:
COPY TO:

DATE: November 2, 1950
ANSWERING LETTER DATE:
SUBJECT: Monthly Progress Report
Safety Department
Month of October, 1950

I. Plant Accident Experience

An estimated total of two hundred thirty personal injuries were reported for treatment; eight no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - one
2. Sub-Major - four
3. Minor - two hundred twenty-five

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 -- 4/30/48				PREVIOUS SIX MONTHS 4/1/50 -- 9/30/50			CURRENT PERIOD October, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.69	.00	2.60	.00	1.51
Severity	.10	2.05	.01	.36	.18	.08	.13	.00	.008
Frequency					12.52	.00	5.98	.00	7.53

B. No-Injury Accidents

1. Motor Vehicle Accidents - three reported; estimated damage $76. Mileage 181,306; frequency rate 1.65.

2. Property Damage Accidents - one minor accident involving $24 damage was reported.

3. Material Releases - one reported; no apparent injuries.

4. Fires - three reported involving loss of $27; fire loss ratio for month is $.00005; year to date $.00009.

This document has been approved for release to the public by:
Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights of Major Departmental Functions

A. Investigating and Reporting Accidents

A preliminary report was issued covering the basic facts involving a disabling injury occurring during the month in order to give the plant immediate notification of the significant factors involved in this accident. This type of report is planned on all future disabling injuries, with a follow up of a detailed report upon completion of the formal investigation. The goal of this report is to have a completed item in the hands of the division superintendents as soon as possible following a major accident.

B. Inspection of Facilities

The following items represent a cross section of the type conditions observed and corrected during the inspection phase of the Safety Department functions.

1. The general housekeeping condition of the plant is much improved due to the general clean up emphasized in each division during this month. One of the projects in this fuction is to stimulate the continuance of these improved conditions, emphasizing continued improvement in those facilities which appear to be below the general plant standard.

2. A revised job method was brought about in painting the "O-type" converters as a result of observed potentiality of falls by employees working on top of the converters stooping to paint the sides. This condition has been corrected by the use of platforms as recommended.

3. Unguarded vent fan shafts in the Fluorine Plant were reported and adequate guards recommended.

4. Safety showers in the K-1300 Area were found to be in need of repair. A few of the showers are no longer needed and were recommended for removal. Repair of the defective showers is included in the modification program.

5. During a routine inspection an overheated motor was discovered and through supervision, averted a fire in the K-310-3 Building.

6. Recommendations were made to lag bare HF lines off the hydrofluorination trays in the K-1131 Building at locations where these lines can be contacted by personnel. Correction of this condition is included in the punch list of items to be completed by Carbide.

7. Plexi-glass will be installed, as recommended, in the K-1131 crane cab to prevent injury to employees leaning out the front of the cab.

8. Insulation of the K-1131 Building crane busses at locations where personnel can contact them was recommended and will be applied.

9. Due to the close clearance between the overhead crane and operating equipment in the K-1131 Building, a warning alarm to indicate approach of the crane was recommended. This item, which must be an automatic device, has not been completely worked out as of this date but such is expected during the coming month.

10. During the valve change program in the K-29 Plant, the exposure of personnel to additional hazards with the stairs and valve platforms removed were reviewed with the supervisors, and extra caution was emphasized to the employees by the supervisors during the period these conditions exist.

11. A broken section of the floor over an air duct in the K-1401 Building was found to be protected by a thirty-gallon GI can. As recommended, proper barricades were provided.

12. An increase has been observed in the guards installed on the Kinney vacuum pumps as a result of recent emphasis on guarding of drive shafts and belts.

13. The metal grill over the loading pit adjacent to the south side of the K-1004-A Building was found to be partially uncovered to permit evacuation through this pit in the event of an emergency. Re-design to protect personnel subjected to the falling hazard was recommended, which is being considered for correction.

14. The facilities of the MIT Practice School were found to require such items as warning signs, re-arrangement of equipment and material to prevent accidents. Also significant unsafe acts, such as using machines without wearing safety goggles; improper method of disposal of fluorescent lamps, etc., were reviewed with the operators of the school and are being included in instructions to the practice school personnel.

15. A broken stair tread was observed in the K-1401 Building, and a work order has been issued by the supervisor for correction.

16. Stacked converter tops were found to be tilting and was corrected, as recommended, by using an additional piece of cribbing.

17. During unloading and transporting converters from shipping cars, the heads clamped in place have broken loose. This condition has been corrected and the joint strengthened by use of additional clamps as recommended.

18. Replacing the rotted sections of the cooling towers was started and constitutes an extremely hazardous project which will extend over a period in excess of one year. Recommendations on scaffolding were included in job plans but close follow up by supervisors is being emphasized by intermittent job evaluation.

19. Consistent bumping by trucks and cars and subsequent false alarm at the alarm box at the west end of the K-29 Plant, have been eliminated by erection of barricade posts as recommended.

20. The annual inspection program of corded equipment was started with work orders issued for the K-1034 and K-1029 Buildings, and the laboratory facilities in the K-1401 Building. A three day inspection was made in the laboratory facilities of the K-1401 Building to determine the condition of the equipment and prepared report for the division superintendent's use in correction of the sub-standard equipment itemized as a sample spot check.

21. A program is underway with the Tool Department to have three wire cords installed on all portable electric hand tools with a three pole Hubbell plug and to place in stock adaptors from two-wire duplex receptacles to three-pole Hubbell plugs. Completion of this project should considerably reduce the problem of ungrounded portable hand tools. This program would also require a few other adaptors which each using department could stock as their own equipment.

22. An inspection of all corded equipment assigned to the K-25 Area personnel working in the K-25 Plant was completed. Prior to this instance, an employee received an electrical shock from an ungrounded electric tool, which evidenced the necessity for an immediate evaluation and correction of the sub-standard condition of these electrical tools.

23. The stocking, handling and servicing of safety equipment in the Tool Rooms has been reviewed during frequent inspections. Improvement in Tool Room operations has resulted from this activity.

24. The contaminated laundry operations have been inspected and some progress made, as recommended, toward improving the quality of the work.

C. Protective Equipment

1. Ten radiant-heat suits have been completed and are now under test. Tests are being made jointly by the Medical, Instrument and Safety Departments.

2. Shoulder length Pb/rubber gloves, rubber covered have been received and made available to the Radiation Hazards Department for test. A "preliminary inquiry" has been initiated to seek information re: dipped type Pb/rubber gloves. Several manufacturers have expressed a desire to attempt manufacture of this type glove. Decisions will be based on test results of the present samples.

3. Goatskin gloves have been received and are replacing the Napa No. 164 and Walrath No. 2100 in plant use.

4. The "Vinyl" coated work gloves currently in test to replace the leather palm and the Edmont glove, have not proven too satisfactory due to lack of flexibility. Samples of the same glove with a thinner "Vinyl" coating are being procured for further test.

5. The Vinyon-N coveralls are in use by Decontamination, K-1131 and a few pair in the cleaning area. These coveralls have met with employee approval and have proved economical in that they do not deteriorate from dilute acid exposure. This substitution represents elimination of previously damaged cotton coveralls by the acid solutions.

6. Insulated tools for the K-1131 facility have been received (partial shipment). Electrical test is scheduled during the coming month.

7. Davy fire escapes have been ordered for overhead crane cabs. Delivery should be within two or three weeks. The Mechanical Inspection Department will test same when received for acceptance, and will modify safety belt attachment at that time.

8. Two "emergency stations" have been moved to provide one station at the K-1131 Building and one at the K-1132 Building.

9. The Lifetilt resuscitator has been repaired and found to work very well. Operation has been reviewed with representatives of the Training Department. The Medical Department has not reviewed operation as yet, but will be requested to prepare procedure for its use.

10. New type "flameproof" duck spats have been received for use by welders and are now being tested.

11. Specifications for plant asbestos gloves were reviewed and modified to assure procurement of gloves with chrome leather palm and wool lining.

12. Chrome leather welders' overalls, sleeves and helmets and the special fiber glass radiant-heat suit have been supplied the Y-12 Plant for "molten metal" project.

13. Fluorethene cover gloves have been received and are being tested.

14. An "optical" mask has been developed and sample Rx lens plates are being ground by the American Optical Company for test use in this mask.

15. A sample muff type ear protector will be supplied by the E. F. McDonald Company, who appear to be the only source of this type ear protector.

16. A black, military toe safety oxford has been requested by the Guard Department, and will be purchased on special order. They are presently collecting information as to the number of pairs needed and the sizes. The Electrical Maintenance Division "linemen" have requested 16" high safety shoes to wear with "climbers". This item is being evaluated.

17. A rubber dipped boot which is being developed by the So-Lo Marx Rubber Company for the U. S. Army has been tested for decontaminatibility. This boot may replace the several types of shoe covers currently in use, reducing this item to one type.

18. The "canister tester" has been field tested and appears to accurately measure the pressure drop across MSA All-Service canisters and M-11 canisters. Further work is being done to determine the exact limits of acceptability of canisters with respect to pressure drop.

19. The Chemox mask recently delivered are of the new "speaking diaphram" type, allowing conversation between men while wearing these masks.

D. Consultant Services and Engineering

1. Worked with the Paint Department, reviewing the job involving spraying of teflon finish to a specific type of baffle. Results of surveys required moving job to a different location and increasing protective equipment for personnel.

2. Working in conjunction with material specification section to derive a workable specification for purchase of ladders to accomplish the following:

   a. Further decrease costs by providing a more lenient, yet adequate specification.

   b. Provide a material specification by which an adequate ladder can be purchased on the vendor market.

   c. Determine manufacturer's supply of a safe wooden ladder.

   d. One experimental shipment produced a sound ladder requiring modification by adding pencil rungs, but cost reduction from the method previously followed and increased ladder life resulted. This project will continue into the coming month to stabilize and correct the problem.

3. In a meeting between representatives of the Electrical Engineering Section, Instrument Engineering Section, and the Safety and Inspection Division, a decision was reached to expand circuit identification to include instrument circuits.

4. Progress is evident in scattered sections of the plant in the use of the new type adhesive lettered labels to replace the original color coding of piping. Replacement is complete in the Works Laboratory of the K-1401 Building. Expanded use is underway in sections of the restricted area in the K-1401 Building and is being considered in other locations. In this project also it was found that duplicate color coding for both hydrogen and pyrofax presented a problem in some sections where the two gases were used in the same building. Each division has been advised of the conditions and replacement of the color code by the worded sticker will be used for correction.

5. The mandatory eye protection program has been expanded in the Cleaning Area, Carpenter Shop and Paint Shop in the K-1401 Building, resulting in practically a complete mandatory area in this building.

6. Preliminary discussion of guard design, location and construction was completed to protect the tie line between K-25 and K-27, and will be included in the prints for the project.

7. The problem of determining the potential hazards involved and the potential equipment damage from proposed blasting at the sight of the new water treatment plant was reviewed. See memorandum report prepared on this for details.

8. Vacuum cleaners contaminated with mercury and being returned to the Stores Department is being handled jointly with the Industrial Hygiene Section. A routine check has been established to include these cleaners to prevent their re-issue from the cribs. Also, cleaning those units prior to return is being stressed with supervisors using the equipment.

9. A work order to modify a room in the K-601 Building for chlorine trifluoride storage and cylinder valve testing was changed after consultation to construct a shed for this purpose north of the K-1025 Building. This arrangement will provide isolation, alleviate evacuation of the immediate area, and a pressure gauge and manifold will facilitate periodic examination of the pressure of individual cylinders. See memorandum prepared on this subject for detailed recommendations.

10. A satisfactory substitute for the previously recommended metal post sleeves sunk into the concrete floor to provide guards around the hatchways of the K-29 Plant has been worked out, resulting in bolting the existing chain posts to the floor.

11. Reviewed the K-27 decontamination proposals and safety precautions involved in the project. Appropriate recommendations were included in the proposed job methods and are being considered in the preliminary design of the equipment.

12. Compiling available information on the safety aspects of handling lithium. This information is limited and as specific data is obtained, will expand this material to a Standard Reference Information bulletin.

13. Proposed plans for the new Engineering Development laboratory were reviewed for includion of recommendations as regards safety and conformance to plant standards. This project remains at present in the preliminary design stage and more specific comment will be forwarded upon completion of the revised design specifications.

14. Proposed transportation of samples via bus presented undue exposure to personnel and was satisfactorily worked out by substitution of other means.

15. A proposed project to machine P-10 with isopropyl alcohol as coolant and lubricator was revie wed to evaluate exposure problems to vapors. Recommend ations for ventilation are being considered by the operator.

16.

17. A study was made with the supervisors to determine the most efficient method of cleaning boiler feed pump motors. Lamb air movers and the motor canopy, together with flexible canvas tubing, will be used to exhaust carbon tetrachloride. Employees will be provided with adequate respiratory protective equipment and air analyses will be made during the job.

18. Previously reported plans regarding restacking and storing bar stock and sheet metal using improved racks for the material is being partially held up due to a reversal of decisions to surplus some material as a result of the current emergency. This does not reflect an absence in improvement of the issue room however, but will delay the re-arrangement of the overall storage.

19. Some difficulty has been experienced in the inconsistency of print routing from groups originating design other than those in the Plant Engineering Division. As a result of these prints arriving after items have been fabricated by outside contractor and arriving at K-25 simultaneously with the prints, various items of sub-standard design and construction are installed. In coping with this condition, a standard routing method has been tentatively outlined with the various sections of the divisions involved, and the situation is improving as far as future construction is concerned. If this method can be maintained consistently, a considerable savings in money expended for correction can be effected.

20. The need for handling on a routine basis the re-examinations required for Chemox mask users has been reviewed with the Medical Department. This problem will become more prevalent as chemox users in emergency preparations increase and it would be desirable to include this item in the annual health check. A method of handling this situation will probably be worked out on a plant wide basis at an early date.

21. The problem of "waste disposal" has been reviewed with the Laboratory Division representatives of the Works Laboratory. This group is currently preparing a procedure to cover this function.

22. A previous proposal outlining the construction items relative to safety aspects of a chemical storage warehouse was revised and re-submitted.

E. Promotion and Education

1. Fire prevention activities in conjunction with Fire Prevention Week Programs was emphasized in the safety meetings held throughout the plant. A total of ninety-three were reported from scheduled meetings with a considerable number, unreported by minutes, being included in regular staff meetings.

2. Engineers furnished sessions on safety in employee orientation programs. This was the second of three sessions for the employee level and two sessions were held with new supervisors being trained in conjunction with the Training Department.

3. The plant slogan board rehabilitation program is now ninety percent complete.

4. Prepared design of calendar insert with fire prevention theme for October - "Don't Fiddle Around With Fire Prevention; Decide How and Do It Now".

5. Prepared design of posters for Fire Prevention Week, "Beating the Drum During Fire Prevention Week".

6. Prepared design for the November calendar insert, "Sitting on an Uncalculated Risk May Hatch an Accident".

7. The 1951 calendar, as proposed, is in production by the Paint Department.

8. Case histores of accidents occurring in Oak Ridge Operations were compiled for maintenance supervisors for thier review in that practically the entire group were applicable to this plant.

9. The new safety graph, "Does Your Accident Show", was publicized for general plant use.

10. Conferred with various groups on using skids for storage of product and to include this phase of materials handling in planning expansions to K-1037.

11. Preliminary sketches for two billboard faces were prepared and a work order issued to replace the existing "vacation theme", emphasizing winter driving hazards. Avenue F and Oak Ridge Turnpike.

12. Two films entitled "Are You Safe At Home", and "Pressure Vessels" were reviewed and found to be satisfactory for plant use. Also the film, "Miracles in Paradise Valley", the all time "best" safety film, has been obtained for use during November.

~~13.~~ A safety committee in the new field crew of the Electrical Maintenance Department, Power Division, was organized, which included election of a chairman and secretary; a safety suggestion follow up man, an accident review committee, and a housekeeping and hazards committee.

~~14.~~ A project to outline by chart the existing organizations for safety meetings throughout the plant has been started. This item is at presently only approximately twenty-five percent complete, but it is expected to be completed in the coming month.

G. L. Feazell
Safety Department

GLF:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION Union Carbide and Carbon Corporation LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE October 2, 1950

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of September, 1950

I. Plant Accident Experience

An estimated total of two hundred thirteen personal injuries were reported for treatment; eight no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - none; no non-tabulatable major injuries
2. Sub-Major - none; one non-tabulatable sub-major injury
3. Minor - requiring first aid treatment only - 212

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 -- 4/30/48				PREVIOUS SIX MONTHS 3/1/50 -- 8/31/50			CURRENT PERIOD September, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	5.84	1.48	3.57	1.48	.00
Severity	.10	2.05	.01	.36	.16	.08	.12	.02	.00
Pot. Freq.					12.52	2.97	7.15	2.97	.00

B. No-Injury Accidents

1. Motor Vehicle Accidents - Two reported involving damage or loss estimated at $60. Estimated mileage was 207,340; frequency rate .96.

2. Property Damage Accidents - One reported; estimated damage $52.

3. Material Releases - Three reported; no apparent injuries resulted.

4. Fires - Two reported; estimated damage $150. Fire loss ratio for month is $.00005; year to date $.00009.

This document has been approved for release to the public by:
6/15/95
Technical Information Office
Oak Ridge K-25 Site
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights

A. Promotion and Education

1. The job evaluation surveys in the General Maintenance Division are resulting in more thorough and better job planning.

2. Photographs and a descriptive account of an accident in which safety glasses prevented a serious eye injury were prepared for publicity. In addition, this material was used in safety meetings as the number of eyes saved by wearing safety glasses, and the number of toes saved by wearing safety shoes are salesmen of safety in the plant.

3. General Maintenance Division supervision are emphasizing the importance of reporting injuries as a result of a near major injury resulting from an employee's neglect to report a minor injury.

4. Emergency squad training for the Power Division is continuing with the complete training of two squads from the Electrical Maintenance Department and one in the Mechanical Maintenance Department. A test run conducted by the "C" shift squad revealed that the emergency alarm system was not audible throughout the Power Division facilities. Corrective measure is included in the overall emergency planning.

5. Background material for use in divisional safety meetings emphasized (1) "Do the job right", and (2) causes of falls.

6. A calendar insert and a poster were designed and prepared, which featured Fire Prevention Week.

7. Standard Reference Information bulletin, No. SP-400, "Safety Equipment and Protective Clothing - General", was revised and forwarded for review prior to issuance. An EF procedure, "Test and Inspection of Electrically Driven Portable Hand Tools, Extension Cords, and Adapters", was outlined and submitted for review.

8. The Safety Department has recommended the issuance of detailed operating procedures for hazardous operations. Job studies are being made and detailed instructions are being prepared. Those completed so far include chlorine trifluoride operations, filling UF_6 cylinders, and evacuating overfilled UF_6 cylinders.

9. The safety program in the Electrical and Instrument Maintenance Division is being evaluated. Work to date has included the safety meeting minutes and foreman's accident reports.

10. In the review of safety films, "Partners in Production", "Pressure Vessels", and "Handle with Care", all were found to be good for general plant use. "Life Lines" is a well presented educational film on water safety and is good for selected group showings.

11. The general reaction throughout the plant to the changes in reporting "Significant Accident Facts" is very favorable.

12. A general outline of safety education has been prepared for use by supervisors in training new employees during the security clearance "waiting period".

B. Protective Equipment

1. Deteriorated life jackets in the Tool Room stocks have been replaced.

2. The canister tester for MSA All Service Masks has been completed and preliminary tests were satisfactory.

3. Four radiant heat suits have been completed; workmanship appears good and the modified design is effective.

4. The U. S. Army Assault Mask and canister testing program conducted by the U. S. Army in cooperation with the Atomic Energy Commission was completed with the following tests:

a. 1500 masks from Stores stock;
b. 450 masks from active stock;
c. Random samples from 1098 canisters from Stores stocks.

There were no rejects and a very limited number of repairs. For details see report.

5. Two pairs of Pb/rubber shoulder length gloves are on order from the General Electric X-Ray Corporation. These gloves are equivalent to 1.0 mm of lead for 85 KV X-Ray. A covering of natural rubber is being provided to aid in decontamination. Delivery will be late in October.

6. "MSA" and "Sedco" have been contacted without success in regard to "muff type" ear protectors. A preliminary inquiry to other vendors has been prepared in an effort to locate a supply source of this item.

7. The Pioneer Rubber Company, manufacturers of the N-31, N-51 and R-28 gloves, have submitted samples of gloves which represent the modifications which may be made necessary by the fifteen percent reduction in rubber and chemical rubber required by Government order. These samples are currently under field tests to determine their limitations.

8. The "Lifetilt" resuscitator has been deliver and was short the flashlight and had poorly designed hinges. The flashlight and heavier stainless steel hinges have been received; a work order has been issued for the hinge replacement.

9. Mr. J. T. Walsh, American Optical Company, is working on a means of providing Rx lense for men wearing gas masks. A U. S. Army Assault Mask facepiece has been provided for experimental work. No progress has been reported to date. The problem is growing with additional requests from the Instrument Department, General Maintenance Division, and the K-1131 Groups.

10. An all rubber (neoprene, butyl, or combination of natural and chemical rubber) or a vinyl shoe covering is being investigated in conjunction with ORNL to replace present bootees and over-the-shoe rubbers. A considerable saving is anticipated.

11. Preliminary inquiries were prepared to obtain a standard battery light for emergency use. These lights are to be Underwriters' Laboratories approved on the basis of expanded use of flammable gases within the K-25 Plant.

C. Inspections

1. The proper disposal of fluorescent light tubes is being emphasized as a result of mishandling of the tubes in several plant areas.

2. The fluorine feed lines from the 1300 Area to the K-1401 Building will be guarded with heavy channel iron to prevent possible damage from vehicular traffic.

3. The general ladder inspection has been completed and the results of the last inspection was emphasized by the decrease in rejections from thirty percent for the January inspection to seven percent for the July inspection.

4. A "Request for Engineering Service" was initiated to replace wooden storage area platforms outside the Manufacturing Offices Division warehouses, as a result of a Safety Department recommendation. Also, replacement was requested for rotted manhole covers and platforms by the Power Division.

5. The slippery tread conditions on the stairs in the K-1001 Building was referred to the Plant Engineering Division with recommendations that Goodyear "Grip-tread" be used.

6. General unsafe working conditions existing in construction jobs handled by the General Maintenance Division were corrected immediately following on-the-job recommendations by Safety Department representatives.

7. The segregation of oxygen cylinders from flammable gas cylinders in the laboratory facilities of the K-1401 Building will be completed in the near future.

8. A rigger was observed riding a crane load and immediate follow-up with the supervisor resulted in corrective action.

9. The absence of guard rails on the landings on the supporting structure for the K-1131 fluorine plant exhaust stacks was discussed with Chemical Operations' supervision. Since supervision has not taken positive corrective action, it was recommended that the hazards be reconsidered.

10. In view of the difficulties resulting from single valving in the fluorine plant, it was recommended that double valving be included in future installations involving hazardous gases.

11. FY 51 inspections of electrical corded equipment were started during this month. Facilities involved include K-1401 restricted areas, the K-1034 and K-1029 Buildings.

12. The outstanding items in the check list of recommendations involving modification of K-1131 have been reduced by approximately eighty percent. All items are expected to be completed within the next two weeks with the exception of the change of equipment design at the bellows connection between the traps and the ash receivers in the feed plant.

13. The locations and probable extent of possible major emergencies, including fire and explosion, material releases, etc., were pin pointed on a K-25 Plant Area map for use in emergency planning.

D. Consultant Services

1. A design change recommendation to eliminate the possibility of personnel fal ling against a cell from a K-1131 fluorine plant work platform was made and included in the prints.

2. As recommended, windows will be installe d in the swinging metal doors to the new mixing room in the K-1037 Building to prevent accidents resulting from "blind" door operation.

3. The following recommendations were made and will be included in color coding the K-1131 Feed Plant pipelines:

a. HF liquid - two purple stripes on yellow background;
b. HF vent and evacuation - three purple strips on yellow background;
c. All fluorine vent and evacuation lines coded according to specifications for UF_6 lines;
d. All other lines according to ESP 6.6-1, "Piping Label and Color Code".

4. The overall picture of ladder costs is being studied to compare the relative costs involved in the current ladder program versus that prior to the change to purchasing ladders on the open market. A revision in the specifications is also underway to provide a more flexible standard from which purchase can be more readily accomplished.

5. A hood was recommended to the Power Division for use in cleaning motors and other electrical equipment with carbon tetrachloride. The hood was constructed, tested and proved satisfactory for use in washing motors. In addition, as recommended, the operator will wear an MSA All-Service Gas Mask when removing the motor from the hood.

6. As recommended, only vacuum cleaners utilizing the "Hopcalite" filter will be used for future cleaning where mercury is present. This will eliminate intermittent use of standard vacuum cleaners for such operations. An absorbing chemical cleaner is being tested in conjunction with the Industrial Hygiene Section as an additional means to reduce vaporized mercury from spills.

7. In coping with the problem of handling leaking chlorine trifluoride cylinders, the following was recommended:

a. In the future if the leak is through the valve seat, the cylinder will be emptied by the operator using a special adaptor and special operating precautions;

b. If the valve bonnet or cylinder neck leaks, the cylinder will be disposed of by the Mechanical Inspection Department;

c. In order to prevent possible accidents from routine handling of unchecked chlorine trifluoride cylinder valves, a special cylinder checking and storage facility has been set up in the K-601 Building. All cylinders will be checked for leaks before and after use.

8. As recommended, a work procedure is being written to cover the operation and the unit is being re-designed and shielded to protect personnel during cobalt trifluoride sampling.

9. A proposed Worthington fluorine pump test installation was reviewed. It was recommended that the pipe trough be covered in the immediate working area and that the pump be positioned so that the doorway will not be blocked.

10. Studies have been made in conjunction with the Industrial Hygiene Section of the high level noise problem in the K-29 Plant. Tests have been completed to determine the limitations of the K-25 Plant standard ear defender. Tests to date indicate that with the use of the plant defender, the wearer will be exposed to near danger range of noise. Further tests of additional devices will continue in an effort to obtain the best possible protective device.

G. L. Feasel
Safety Department

GLF:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY: CARBIDE AND CARBON CHEMICALS DIVISION, Union Carbide and Carbon Corporation — LOCATION: Post Office Box P, OAK RIDGE, TENN.

TO: Mr. W. L. Richardson

LOCATION:

ATTENTION:

COPY TO:

DATE: September 5, 1950

ANSWERING LETTER DATE:

SUBJECT: Monthly Progress Report
Safety Department
Month of August, 1950

I. Plant Accident Experience

An estimated total of two hundred fifty-one personal injuries were reported for treatment; eight no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - one reportable which occurred during August; in addition, three cases not previously reported were accepted as tabulatable.

2. Sub-Major - requiring temporary assignment to other duties - one reportable.

3. Minor - requiring first aid treatment only - 249.

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 2/1/50 - 7/31/50			CURRENT PERIOD August, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	5.84	1.61	3.88	4.69	1.49
Severity	.10	2.05	.01	.36	.16	.09	.13	.13	.08

B. No-Injury Accidents

1. Motor Vehicle Accidents - Two reported involving damage or loss estimated at $80. Estimated mileage was 186,470; frequency rate 1.07.

2. Property Damage Accidents - One reported; estimated damage $65.

3. Material Releases - Three reported; no apparent injuries resulted.

4. Fires - Two reported with negligible damage; fire loss ratio for month is .000, and year to date $.0006.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer, Oak Ridge K-25 Site
6/15/95
Date

II. Significant Highlights

A. Promotion and Education

1. The crane operator's qualification program is working in the General Maintenance Division and the Process Division (1131 Facility) with minor modifications in handling the program. The prospective operator's supervisor will give the final examination and issue the operator's permit. To date four Process supervisors and two General Maintenance employees have been qualified.

2. The use of the "Employee's Safety Suggestion Form" in the Process Division has been emphasized, resulting in initiation of several suggestions to correct hazardous conditions in this area.

3. Standard Reference Information prepared during the past month included the following: (1) Safe Practice bulletin on "compressed gas cylinders", and (2) an EF procedure covering the inspection of electrical driven portable hand tools.

4. Local Emergency Squad training in the Power Division continued with emphasis on the following: (1) medical approval for Chemox training; (2) fire training on operating shifts; (3) first aid training scheduled to begin during the week of September 4th, which was held up during the month of August due to training for the First Aid Meet; (4) protective equipment; (5) hazardous materials; (6) atmospheric contaminants measuring devices.

5. The job evaluation program is being widely publicized in the General Maintenance Division with good results to date. A complete evaluation of numerous maintenance jobs will be made in the future.

6. Calendar inserts and a bulletin board display was prepared covering "falls". In conjunction with this, the safety graph entitled "Falls" has been used in numerous safety meetings and is being well received. This item is being emphasized generally as six of eighteen major injuries in 1950 have involved falls.

B. Protective Equipment

1. Electricians' protective equipment inspections included the fourth period inspection of rubber gloves, which was completed; and the semi-annual inspection of hot line equipment.

2. The radiant heat suit was re-tested on an individual basis, and approval of all concerned resulted in the initiation of a work order for completion of ten additional suits.

3. Carpenters who were assigned to work in contaminated areas where coveralls are worn experienced difficulty in carrying hand tools and nails. The Tool Department has agreed to furnish carpenter's aprons for use with the coveralls.

4. Employee groups of the K-1131 facility were given instructions on "hazardous materials and protective equipment peculiar to the new fluorine and feed plant". A total of seventeen employees have been given these instructions.

5. Insulated hand tools for K-1131 - a double thickness hand dipped cellulose acetate butyrate coating has been found to be satisfactory and gave high insulation even after rough handling treatment. A supply of the necessary insulated tools prior to October 1st is expected.

6. F_2 Cell Blankets - the "Gra-lite 20" blankets originally proposed for use in the fluorine plant were considered to be too expensive as quoted price was approximately $100 each. Although a large number of manufacturers were contacted, none can supply, at the present time, a seamless neoprene blanket in the size necessary. Two cemented seam blankets have been requisitioned by the Tool Department and should be available for use prior to October 1st.

7. "Gra-Lite" Boots - have been approved for use with impermeable suits in conjunction with the K-31 operations.

8. ~~All other protective~~ equipment proposed for use at the K-1131 with the exception of the "Pb Suit"* is now on the plant. Chem-Weak coveralls, rubber safety shoes, ~~Surity No. 74~~ Gloves, Stanzoil #N-51 gloves, and Stanzoil R-18 hot 'n cold gloves are in adequate supply.

9. Employee complaints regarding lack of cleanliness of coveralls washed at the decontamination laundry have been investigated. The Power House coveralls, which are heavily covered with flyash, have not been adequately cleaned. These coveralls are now sent to the regular laundry where better cleaning of this material is acco mplished.

10. Laundering of work gloves in the decontamination laundry has fallen behind with the decontamination of Edmont No. 62 type work gloves. As a result, glove shortages have occurred. The situation has not been completely eliminated, how ever, some progress is being made in handling the backlog.

11. Leather Gloves (Goat Skin) - A source of suitable goat skin glove has been found in the Wash-Rite No. 4998. These gloves will be substituted in large part for the Napa No. 164, Napa No. 1168 and Walrath No. 2100. An annual savings of approximately $3,000 is anticipated by substitution of the goat skin gloves.

12. Testing of a new type Vinyl-coated palm, elastic knit work glove has been arranged. A supply of these gloves have been ordered for tests to determine the suitability of this glove on various maintenance jobs.

13. Designation of and specifications for safety equipment and protective clothing carried as a stores item has been reviewed. The Stores Department will prepare a new catalog for 33 class items, which included all items of safety equipment and protective clothing. The Tool Department was provided with the information necessary to correct and complete their records prior to the preparation of the new catalog.

* See Section III, paragraph 1

14. Substantiation of "no substitute" specifications of special safety equipment - In the past, substantiation of "no substitute" specifications was made by letter following receipt of vendor bids. This resulted in considerable delay, confusion and required the preparation of numerous letters of justification. Data was compiled for the Purchasing Department's files, and will be used to justify "no substitute" specifications prior to advertising for bids.

15. The gauges for the MSA Gas Mask Canister Tester have been received; construction progress is being held up due to high priority jobs now being carried on by the Instrument Department.

16. A new sound emergency communication system offered by the Mine Safety Appliance Company was inspected and tested, which is not applicable to plant needs.

17. The use of Chem-Wear "Vinyon N" coveralls has been extended to a few employees engaged in acid cleaning operations in the K-1401 Building. The use of these coveralls will result in considerable savings in that "Chem-Wear" is unaffected by the acid.

18. The fluorothene covered gloves developed as protection against chlorine trifluoride have been requisitioned; delivery is expected by October 1st.

19. A suitable shoulder length neoprene glove for use in the dry-box at the K-1131 Feed Plant has been found. The X-31 glove developed by the Continental Rubber Company and the Pioneer Rubber Company on a development contract with Hanford Operations is usable for this purpose. The gloves are only available by transfer from the Hanford Operations Office, and have been requisitioned.

20. The Tool Department, upon recommendations from the Safety Department, have revised their specifications covering rubber boots - knee, half hip and hip - to provide for safety toes.

21. The special sale of ventilated summer safety shoes was concluded; total sales approximated 750 pairs.

C. Inspections

1. The semi-annual ladder inspection was begun, with inspections being made during routine inspections of the area. Approved ladders are being identified with white "E-Z Code" stickers, which were surplussed after completion of the last electrical inspection program.

2. Follow-up on the hazardous electrical receptacle outlets found in the K-1401 Building, in which Hubbell three pronged male plugs could be used in the Russell and Stoll female receptacle, revealed that the Russell and Stoll receptacles are being removed and replaced with straight pronged three pole receptacles.

3. Chlorine trifluoride experiments and operations are being closely followed. Significant items inspected and for which job procedures have been recommended are as follows:

a. Chlorine trifluoride transfer unit in K-1303 currently being

used for separation of chlorine trifluoride and UF_6 mixtures; a refrigeration unit in lieu of dry ice slush is being used for cooling the spray cylinder.

b. The unit in the basement of K-1401 is being restored to service to conduct experiments on K-29 converters.

c. Inspections of chlorine trifluoride operations are being made regularly and a "daily" log of significant items recommended was established and maintained by engineers associated with Process, Laboratory and Engineering Development Divisions.

d. The Process Engineering Department and Design Development Depa rtment will forward prints on all proposed installations relative to chlorine trifluoride operations for our review and comment.

X 4. Pyrofax cylinders, which had been used for materials other than pyrofax, were located. The groups requisitioning and using the cylinders were contacted and appropriate recommendations were made and followed for handling the cylinders.

X 5. The exhaust lines from the pressure relief systems from the hydrogen and fluorine absorbers in the feed plant absorber were tied together, which could have resulted in an explosion. This condition was reported to the Plant Engineering Division and operating supervision for correction.

X 6. Inspection of the ammonia cylinder cradle at the K-1037 Building resulted in recommendations for construction of a new cradle. A work order has been written to cover this item.

X 7. An inspection of all warehouses and outside storage yards made in conjunction with supervision concerned is nearing completion. Some corrections have been made by immediate supervisors, and items of major importance are being referred to the department heads.

X 8. A general clean up in the 1300 Area has resulted from recommendations covering various items of housekeeping and re-arrangement of excess equipment and materials.

X 9. Following a near accident due to "worn out" tires on vehicles, the Garage Department has made an inspection as recommended, and are replacing those tires which were worn "slick".

10. All chain hoists, blocks and similar rigging equipment have been placed on a regular schedule of inspection. Repairs, as necessary, will be made to reduce the possibility of defective equipment remaining in service. The above was instigated as corrective measures following failure of an I-beam clamp, which resulted in a disabling injury.

X 11. Catalogs have been ordered to assist the Stores Department in selection of adequate racks for storage of rod and bar stock.

12. Following discussion of cleaning electrical equipment in the Power Division by use of plant air and carbon tetrachloride, it was recommended that MSA All-Service masks be worn by all personnel performing this job, and other personnel exposed to the fumes for protection against a potential concentration of 1500 ppm of carbon tetrachloride.

13. Investigation was made of an atmospheric condition prevalent at Elza No. 2 sub-station. Phenol from zirconium salicilate operations was the source of the fumes. As recommended, chemical cartridge respirators will be worn by operators and maintenance crews at this facility for protection.

14. Following recommendations, emphasis is being made by the Janitor Department to control black widow spiders and ants, which have been increasing throughout the plant.

15. Recommendations covering traffic conditions have included crosswalks striping on 8th Street, 7th Street and Avenue F; guard rail posts at two locations on Power House road, and cross over striping at the west end of the K-1032 Building to prevent busses traveling north and vehicular traffic traveling south from meeting head on at the crossover islands.

D. Consultant Services

1. A study is being made concerning the removal of garbage and trash from the K-1300 Area. Several cases of hand contamination of janitorial personnel have occurred recently from supposedly "cold" material.

2. Worked jointly with the Mechanical Inspection Group to determine the cause of electrolyte spraying from flanged joint, and to ascertain if a leak in the steam jacket would cause this condition. No findings of significance were apparent.

3. It was recommended that a Davis Vapotester analyzer for hydrogen be used to check the hydrogen concentrations in the K-1131 Fluorine Plant, cell rooms and absorber room. An analyzer will be procured by operations supervision and used before entering these rooms.

4. It was recommended that Feed Plant supervision conduct dry runs on the electrical switching and removal of fluorine cells in conjunction with a Safety Department representative, and as soon as proficiency in dry runs is obtained, follow the same procedure with hot runs.

5. Following a meeting with Process Engineering Department to discuss a chlorine trifluoride unit for charging a complete building, it was recommended that facilities for freezing down leaking cylinders be provided; guarding sight line of gauges; bracing connections, etc., which were accepted, as well as having such equipment tested and approved by the Mechanical Inspection Department.

6. Preliminary prints on a proposed design and development laboratory were checked and arrangements made to review the preliminary design memorandum with engineers. This preliminary design has also been reviewed with the Medical Department.

7. Following rupture of a small sample cylinder containing UF_6, it was determined that the incident probably resulted from overfilling of the cylinder. This was discussed with Process and Laboratory supervision responsible for sampling cylinders of this type. It was determined that Process would take steps to preclude overfilling cylinders; the Laboratory Division would take additional precautions to determine the volume content of the cylinders prior to processing them.

8. A study was made of a proposal to store acid in Room 4-A, K-1004-D Building, and in view of the potential hazards involved and substitutions recommended, the bulk storage was abandoned.

9. As recommended, ventilation for the cleaning area is being provided to remove acid fumes from crane cabs and vent carbon monoxide from vehicle exhaust.

10. Twenty-one motor vehicle operator's tests were given during the month and with two emergency exceptions scheduling was continued on a one day a week basis.

11. The specifications and codes covering plant standards for wooden ladders were reviewed and interpreted for application to purchase requisitions submitted by Keith-Simmons Company.

12. Work orders have been issued to fabricate signs for refrigerators, calling attention to hazards of storing flammable materials as a result of recommendations made in this regard.

13. Completed installation of standard traffic signs to replace the numerous speed signs located throughout the plant. This should substantially reduce maintenance costs on many small traffic signs.

III. Significant Problems Underway or Completed

1. A "Pb Suit" to be used as protection against high level beta activities anticipated during bellows replacement at K-1131 Feed Plant has been discussed with the Radiation Hazards Department. A design of such a suit is quite complicated as the suit must give complete body protection including head, hand and foot protection, be readily decontaminatable and allow the wearing of an Army Assault Mask. It has been calculated that in order to be effective against the high energy beta particles which may be encountered, a protective suit of this type would weigh approximately 100 pounds. A Pb/Rubber impregnated fabric distributed by the General Electric Company has been proposed for this suit. This fabric, sold under the designation of XRP material is, by manufacturer's specification, equal 0.5 mm of lead in shielding against x-rays. By calculations, it is estimated that three thicknesses of XRP material will be necessary to provide the required protection. A high energy beta source has been requested from Y-10 to be used in testing XRP material prior to further development work. Estimated cost of the XRP material only for one suit is $300. Also remotely operated devices to aid in maintenance and operational work are being developed to reduce shielding by protective clothing to a minimum. (Stewart; Moseley; Sullins)

2. Development, installation and operation of a safe method and equipment to by-pass fluorine cells in K-1131. (Stout; Thomas)

3. Working with design engineers to develop a method of lifting large chlorine feed cylinders to hold them safely in a vertical position. (Sullins; Moseley)

4. A study is being made to determine the answer to the rag salvaging problem in order to salvage greasy contaminated rags. Preliminary findings indicate a tumbler to launder greasy rags prior to routine laundry would be economical. (Sullins; Jones)

G. L. Feazell
Safety Department

GLF:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS DIVISION, Union Carbide and Carbon Corporation LOCATION Post Office Box P, OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE August 3, 1950

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of July, 1950

I. Plant Accident Experience

An estimated total of three hundred thirty-two personal injuries were reported for treatment; thirteen no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized as follows:

A. Personal Injuries

1. Major - two reportable; one non-tabulatable.
2. Sub-Major - requiring temporary assignment to other duties - five reportable; no non-tabulatable cases.
3. Minor - requiring first aid treatment only - 325

Comparative frequency and severity rates are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 1/1/50 - 6/30/50			CURRENT PERIOD July, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.58	1.61	3.35	4.58	3.12
Severity	.10	2.05	.01	.36	.13	.02	.09	.10	.12
Potential Fre.					8.04	4.38	5.92	6.10	10.93

B. No-Injury Accidents

1. Motor Vehicle Accidents - reported ten, involving damage or loss estimated at $1407, an increase of five over the previous month. Estimated mileage was 189,664; frequency rate 5.27.

2. Property Damage Accidents - none reported.

3. Material Releases - two reported involving radioactive materials. No apparent injuries resulted.

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Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

4. Fires and Explosions - one fire involving $200 loss or damage; fire loss ratio for the month $.000004; year to date $.00005.

II. Significant Highlights

The following is a resume of the significant items promoted by the Safety Department during the month of July, 1950:

A. Promotion and Education

1. Training was continued with the operators of the K-1131 facility and Process Maintenance personnel to complete the phase covered by the Safety Department. This item is approximately ninety-five per cent complete. (Stewart)

2. Training sessions were started with the local emergency squads of the Power Division. The Safety Department conducted training in the use of protective equipment; this program will require the remainder of August, and possibly a short time in September to cover the five shift. (Stewart; Worthington)

3. Promotional material was prepared and pictures used to emphasize the safety shoe program currently in progress. Sales continue high with approximately 400 pairs sold to date. (Shinn; Stewart)

4. The Safety Award Presentation originally scheduled for July 7th was completed on July 21st. The Safety Department completed the preparations for the presentation, which was generally considered successful. (Shinn; Stewart; Stout)

5. Calendar inserts, monthly report covers and other promotional material was prepared for the coming month, featuring the factors necessary for a safety program to "click". (Shinn)

6. Follow up was continued to completion of the billboard display emphasizing vacation safety. (Shinn)

7. Slingers were prepared and distributed covering vehicular traffic flow on the newly widened turnpike. (Departmental)

8. Comparative graphs were prepared covering injury rates and no-injury accidents plus cost figures involved for the safety program history. (Shinn)

9. A Safe Practice bulletin covering "Safety Equipment and Protective Clothing, General" (SP No. 400) was prepared and forwarded for review. (Stewart)

10. The Standard Practice Procedure covering "Plant Emergency Plans" was revised to coincide with the EMP series, and forwarded for review. (Feazell)

11. A safety film entitled "Danger is Your Companion" was reviewed and recommended for general plant use. Several showings were made in the plant safety committee meetings. (Shinn; Worthington; Sullins)

12. The safety graph entitled "Falls" was received, adding to the supply of vis ual aids used for promotion in safety committee meetings. (Departmental)

13. Decreases in scheduling of plant safety committees was due to plant emergency work; however, those scheduled continued to emphasize job studies in correcting unsafe conditions, and emphasis has been started on machine guarding; surveys of operations involving machines improperly guarded to cover the current accident trend in which unsafe conditions are contributing factors; unsafe acts are being reviewed as reported from field inspections; emphasis of divisional experience and corrective measures recommended to reduce motor vehicle accident frequency. (Departmental)

14. Operation procedures for the K-1131 plant were reviewed for incorporation of safety aspects as previously reported. This job has been completed. (Thomas; Feazell)

15. Promotion of the second portable hand tool inspection was conducted during the month, using slingers previously prepared, and follow-up with divisions involved to stimulate issuing work orders for correction, with particular emphasis on the General Maintenance Division. (Sullins; Shinn; Stout)

16. Class room training has been completed in the crane qualification program originally scheduled for process personnel. A meeting was also attended to outline the program for qualification of crane operators in the General Maintenance Division. Follow up continues in this program to complete the details and make minor revisions, as necessary, in the first application of the procedures. (Stout)

B. Protective Equipment

Development and field tests of special items of protective equipment continued during the month. The usage of many items of protective equipment increased sharply over normal usage as a result of the plant emergency. Order points will be increased on some items to better prepare the plant for future emergencies. The following is a specific outline of the safety equipment and protective clothing development and test work now in process:

1. Radiant Heat Suit - additional tests under medical supervision have been made. Information collected on these tests indicate the suit to be of considerable value; ten additional suits of like design have been requested by the Medical Department to allow broader tests. (Stewart;Stout)

2. Fluorine Cell Blanket - no progress; U. S. Rubber Company only source of seamless neoprene blanket. Cost and delivery information not yet received; delayed due to vacation of Company. (Stewart)

3. "Gra-Lite 20" Boots - design approved by Process. This boot will be made available for emergency HF protection in conjunction with the impermeable suit. (Stewart; Thomas)

4. The store's stock of plant piping code adhesive labels has been ordered by the Engineering Division, using the multi-colored system as originally proposed. (Stewart; Feazell)

5. A visit and study of the Wash-Rite Company, Inc., glove cleaning and repair methods was made at the Indianapolis, Indiana plant. Report being prepared. (Stewart)

6. Vinyl coated glove samples have been received from two manufacturers and will be rested in the field to determine suitability as a replacement for present leather and composition coated palm gloves. These vinyl coated knit cotton gloves have not been manufactured prior to this time. Their advantages include good fit, comfort, cost reduction, ease of decontamination, good heat insulating properties and improved padding for the hands. They are also reasonably non-slip, should wear well and will resist solvent action of oil. (Stewart)

7. Hot N' Cold Gloves - after test, a supply of these gloves has been made available for use in handling electrolyte at temperatures approaching 200°F; in addition, they are HF resistant. (Stewart)

8. Two manufacturers have been found who will make fluoroethene mittens to be used as "cover gloves" when handling chlorine trifluoride. (Stewart)

9. The "Lifetilt" resuscitator has been shipped. Delay was occasioned by model changes; we will receive the improved model. (Stewart)

10. Liaison continues with the Medical Department and Purchasing Department on safety spectacle standardization and purchase on a contract basis. (Stewart)

11. Leather glove usage is currently under study with a view of substituting "napa tanned goat" glove for several of the present types. (Stewart)

12. Study of anticipated radiation problems and protective equipment for the K-1131 Feed Plant continues in conjunction with the Radiation Hazards Department. (Feazell; Stewart)

13. Insulated tools for Fluorine Plant - samples of rubber, neoprene and rubber-neoprene combination have been tested, (failed both mechanically and electrically). Plastic samples are now under test, which appear to be more satisfactory. (Stewart; Stout)

14. Optical Mask - Sample mask ordered from U. S. Army by ORNL; has not been received. Dr. Russell's experiments with pince-nez spectacles have proven generally unsatisfactory. T. J. Welsh, Manager, American Optical Company, Industrial Vision Department, is interested in problem and is carrying on experimental work. (Stewart)

C. Inspection Activities

Inspection of the plant indicated the conditions, in general, were satisfactory; however, numerous unsafe conditions and unsafe work methods were observed and brought to the attention of the responsible supervisor for correction. The following are highlights of these items:

1. Excessive arcing was observed when 440 V supply to welding equipment was disconnected. The proper methods of performing this job were outlined to the supervisors, who in turn passed the information to the employees. (Sullins)

2. It was discovered that the supervisor of a machinist was unaware of protective measures necessary to preclude injury from flas burn. A review of the eye protection program and its place in accident prevention was made with the supervisor, and follow up will continue to determine other similar cases where supervisory training is needed. (Sullins)

3. Following the discovery that regular, straight pronged "Hubbell" three-pronged plugs would fit into any position of the Russell and Stoll receptacles, supervision involved was warned of the hazards, and follow up of the steps taken to correct the condition continues. Work orders covering the majority of the locations where these items are installed have been issued. (Departmental)

4. Inspection of one hundred forty ladders used in the Power Division resulted in rejection of thirteen. This represents a substantial decrease in the number of unsafe ladders found in operation as compared with the first inspection conducted during January, 1950. A system has been formulated by the Power Division to reduce the ladder requirements and provide for better control of the ladders. This plan is being recommended to other plant divisions. (Worthington; Departmental)

5. In a survey of the mercury handling throughout the plant it was found that used mercury residue continues to be accumulated in substandard containers. This item has been brought to the attention of supervision of the various divisions involved. Since the problem involves many locations, control is being recommended in the Stores and Process Groups. (Sullins)

6. A 1,000 pound monorail used for lifting 500 pound drums was found to be improperly suspended. This item was corrected by recommendations for improving the unit by adequate bracing. (Shinn)

7. Inspection and follow up of the chlorine trifluoride operations in the K-1300 Area, Cascade, and the K-1401 Building continues. Recommendations covering these installations are being handled jointly with Process and Engineering Development Divisions on a daily basis. Items involved at present consist of unsafe work practices which are being brought to the attention of the supervisors as noted. Cooperation, in general, in these functions has been good. (Shinn; Thomas)

8. Cylinder storage and transporation has been surveyed with improperly stacked cylinders, work methods used in transporation and transporting cylinders minus valve caps brought to the attention of the supervision of the various divisions. Correction of these items continues with good results to date. (Shinn; Sullins; Thomas)

9. No. 1 boiler and K-701 overhaull jobs have been followed on a daily inspection basis with recommendations limited to job methods. These projects have progressed satisfactorily. (Worthington)

10. Recommendations for ventilation in the "Preload water tank" job have been followed to completion. (Worthington)

11. A survey was made throughout the Power Division of locations where hazardous materials are handled and types of materials in preparation for training of the emergency squads. (Worthington; Stewart)

12. Recommendations were made involving the chlorine system in the Power Division wherein a special type wrench was suggested to preclude exposure of operators in event of release. (Worthington)

13. Follow up of storage of materials in refrigerators was made in the Power Division. Food only was found to be stored in these refrigerators. (Worthington) A spot survey is being conducted throughout other plant divisions. (Departmental)

14. Follow up of the chlorine trifluoride program has indicated that hydro-carbon oil can be stabilized by fluorination with dilute chlorine trifluoride. Field experiments were followed wherein chlorine trifluoride was frozen by carbon dioxide in the form of snow to evauluate its effectiveness in emergency releases. It was found that this snow, if applied immediately on a limited quantity of chlorine trifluoride, is a satisfactory extinguishing agent. This information has been used throughout the chlorine trifluoride projects and supervisors informed of these developments. (Shinn; Sullins; Thomas)

15. Progress continues in completion of the recommendations covering the barstock and sheet metal storage in the K-1401 Building, and electrical pole storage east of the "U". (Sullins)

16. A cross section of unsafe conditions noted with recommendations to supervision on routine inspections included:

a. A short exhaust on an air compressor engine allowed exhaust to enter an open manhole; exhaust extension recommended and installed.

b. Crane motor arcing from electrical wiring failure was observed and called to the attention of the supervisor involved.

c. Stimulation of the vacuum pump guard program and other machine guarding has been started through the Engineering Department, and inspections throughout the plant.

d. Inspection of burning pits, dumps, salvage yards and water tanks resulted in recommendations for correction of minor unsafe housekeeping conditions.

e. Inspection of Elza Nos. 1 and 2 revealed three rotten wooden platforms to be corrected by supervision.

f. An inspection in conjunction with supervision of the K-1300 Area has resulted in replacement and/or removal of all temporary and substandard electrical installations.

g. Installation of an eye bath was recommended and will be installed in the K-1301 Building adjacent to the electrolyte mixing room.

D. Consultant Services

1. The experiment in K-305-3 for converter decontamination and UF_6 recovery was followed continuously for six days. Initially the theory, proposed procedures and equipment were reviewed to evaluate protective measures. The fabrication process of the unit was followed to completion and re-assembling at location. Recommendations were compiled and arrangements made with Process for their inclusion in the operating procedure. Safety equipment was provided at the scene of the operation to be used in the event of an emergency. Instructions were given to personnel in the use of this equipment, and stand-by service was provided throughout the first complete cycle of operation. For further details, refer to memorandum to files, dated July 18, 1950, Subject: "Cell Tests with Chlorine Trifluoride, K-305-3 Building". Follow up of the refining equipment and operations, including equipment design, materials handling and operating procedures continues. (Shinn; Sullins; Feazell; Thomas)

2. Review of prints and work orders for K-29, K-31 and 1131 facilities continues as the major item in this category. (Departmental)

3. Crane qualification program is underway with personnel of both Process and General Maintenance Divisions. A group of three representatives from Maintenance and four from Process are being instructed, who in turn will instruct personnel to be qualified. A proposed program is being outlined to cover other industrial equipment in which operators should should be qualified. (Stout)

6. Motor vehicle operator testing continued on a one-day-week schedule. Plant demands were more near normal during this month as compared to the unusually high number of requests in the preceding month. (Sullins; Sanders)

7. A meeting was attended with vendor representatives to review and evaluate the safety aspects of the gas production equipment for the K-1037 Building. (Thomas)

8. A meeting was attended with Tool Department personnel pertaining to grounding of portable tools. It was recommended that approximately fifty per cent of the tools be changed from two-wire to three-wire plugs during this inspection cycle, with the blance to be changed over during the next test cycle, approximately January 1, 1951. In addition, arrangements were completed to stock approved adapters to relieve hardships on operations where two-pole receptacles are numerous. (Stout)

9. A meeting was attended with General Electric Company representatives to discuss the new safety lock fluorescent lamp sockets. Preliminary evaluation indicates the new socket could be adapted to existing installations to permit removal of guard wires now being used. Samples are being forwarded for evaluation by the Safety Department. (Stout)

10. A study was made of a conversion tower in the K-1405 Building to evaluate the corrective measures proposed to eliminate a potential electrical hazards involving 440 V shorting to exposed personnel. The condition was corrected by insulation, additional grounding, and instruction to technical personnel and operators. (Shinn; Stout)

11. Follow up continues with job engineer on completion of items previously recommended for modification of equipment and protective devices to incorporate adequate safety features in the K-1131 installation. (Thomas)

12. Preparation of evaluations of divisional programs was continued during the month, with emphasis on the General Maintenance and Electrical Maintenance Divisions. (Sullins; Worthington)

G. L. Feazell
Safety Department

GLF:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE July 5, 1950

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Monthly Progress Report
Safety Department
Month of June, 1950

I. Plant Accident Experience

An estimated total of two hundred nineteen personal injuries were reported for treatment; nine no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized below:

A. Personal Injuries

1. Major - two reportable; one non-tabulatable
2. Sub-Major - requiring temporary assignment to other duties - one.
3. Minor - requiring first aid treatment only - two hundred sixteen.

Comparative frequency and severity rates for the years '49 and '50 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS ~~12/1/49 - 5/31/49~~ 1/1/50 -- 6/30/50			CURRENT PERIOD June, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.54	1.61	3.08	3.11	2.97
Severity	.10	2.05	.01	.36	6.78	.02	1.24	.11	.10

B. No-Injury Accidents.

1. Motor Vehicle Accidents - five reported involving damage or loss estimated at $139.80. Estimated mileage was 185,464; frequency rate 2.70.

2. Property Damage Accidents - One reported resulting in damages of $5.00.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

wcx-so

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

3. Material Releases - three reported involving radioactive materials. No apparent injuries recorded.

4. Fires and Explosions - no fires reported for this period. Fire loss ratio for the month $.0000 and year to date $.000025.

II. Significant Highlights.

The following is a resume of the significant items promoted by the Safety Department during the month of June, 1950.

A. Promotion and Education

1. Training was continued with the operators of the K-1131 facility and Process Maintenance personnel assigned to the area as well as supervision involved, acquainting them with the items as reported previously. S T

2. Operational procedures for the fluorine plant were reviewed for incorporation of safety aspects, rules and etc. This function was a continuation of the project previously reported. T

3. Emergency procedure for the Engineering Development Division of the restricted area, K-1401, was reviewed, reworked and submitted for approval. L

4. The following Safe Practice Bulleting were issued during the month: M. S.A. All-Service Gas Mask, a proposed EF Bulletin covering Boatswain's Chair Scaffold and an SP Bulletin, Safety Equipment and Protective Clothing, General, have been routed for review. S W S

5. Bill boards and poster displays during the month of June emphasized the following topics: Safety shoes, Achieving a Safety Program is Balance, One Objective, Safety, Quality and Production. A work order was initiated to repaint the bill board at 7th Street and Turnpike using the theme, "Vacation Safety".

6. Emphasis through the Plant Safety Committees on routine job studies to correct unsafe conditions and acts has been promoted successfully. Plant reception in this regard has been good and application of the idea through demonstration of the safe way to perform the routine job has "Caught On". For example, the pictures of an unsafe ladder being used by a carpenter as well as the ladder have been demonstrated; similarly, routine jobs such as using a paper cutter, and how to cut glass tubing have been demonstrated in Committee Meetings. Demonstrations of this type are planned to be used to a greater extent in the future.

7. The Safety Award Presentation Program has been prepared and a work order initiated to frame the award plaques. Presentation is scheduled for 4:00 P.M., July 7, 1950.

8. A promotional campaign covering safety shoes has been conducted satisfactorily using various means of advertisement such as the Courier, posters and check stub slingers. The first shipment of the woven type safety shoes received on the plant were sold within a very short time and a second shipment was delivered June 27, 1950, which should satisfactorily meet the employee demands.

9. A review of safety film continues in an effort to obtain a group of films considered satisfactory for recommendation by this department. The following films reviewed this month proved to be in this category; "Easy on the Eyes", "Traffic with the Devil", and "You'r Driving 90 Horses".

10. Promotion of the second portable electrical hand tool inspection for 1950 was initiated with bulletins routed through the divisional offices. The bulletin emphasized the proper means of handling "Pet" tools charged to individuals and one hundred percent inspection in each division is being stressed.

11. In preparing for safe handling of the new Axial Flow Pumps to be used in K-29, the radiation problems have been reviewed with each supervisor emphasizing the supervisors responsibility in this regard. Also proper protection against radiation was outlined and recommended.

12. Photographs were made of the employee whose eyes were saved by safety glasses for use as promotional material in the Courier.

13. Operating procedures covering the K-132 Acid Pumping Station were prepared and reviewed and will incorporate recommendations involving protective clothing, methods of clean-up of spills and safe work practices during maintenance.

14. Preparation for the training program for the emergency squads in the Power Division has been continued during the month and an outline covering the program has been prepared.

15. Heavy equipment safety including cranes, hoists, shovels and etc. is being emphasized in the divisions concerned using the 35 MM slide film, "Construction Equipment Safety".

B. Protective Equipment

1. Work was continued on modifications of an air supplied harness for use of instrument repairmen in cell work. Re-design to apply the harness to outside surface of coveralls was completed and the garment tested preliminarily under field conditions. Successful application of this suit to the cell jobs appears to be practical. Additional modifications have been completed and the suit will be tested on long term tests by Instrument, Safety and Inspection and Medical during the coming month.

2. The mercury type vacuum cleaner, as previously reported, has been re-built and final test results were acceptable, however, costs were found to be excessive.

3. Adhesive labels for process gas, chlorine trifluoride mixtures and chlorine trifluoride were designed, ordered and stock has been received. These labels are currently in use on the systems in K-1401.

4. A sample glove is being developed by Milburn Company as a replacement for the all purpose plant glove, Edmont 62. Field tests will be made to determine the merits of this glove when it is received. Replacement is being sought on the basis that the Edmont 62 is not completely satisfactory since oil resistance and fit are producing complaints in the field.

5. One pair of Vinylite coated cotton fabric gloves is in the field and studies are underway to determine its merits.

6. Coveralls - Standard Plant coveralls are being dyed grey for use as welders coveralls and will be made available through K-1401 Tool Room after July 5, 1950. Coverall shrinkage was traced to high washing and drying temperatures. The conditions were corrected and no further trouble is evident.

7. The "Gra-lite 20" Blanket for fluorine cell work was considered too expensive at $100.00. Information is being solicited on neoprene blanket with one bid to date. Also "Gra-lite" boots for use over rubber shoes in conjunction with Impermeable Suits, has been discussed and the design was reviewed with Process personnel and appears to be satisfactory.

8. A fluoroethane mitten is being investigated and probably will be proposed as a cover glove for use in handling chlorine trifluoride.

9. Field tests will continue on the Hot N' Cold Glove to determine the merits of this item in protection against high temperature of electrolyte handling as well as the outside coating being HF resistant.

10. Negotiations are progressing in standardising styles of safety spectacles stocked on the Plant and purchasing these items on a contract basis.

11. Arrangements have been completed for obtaining extra heavy chrome tan leather for leather coats, hoods and bib front coveralls for tests with high energy Beta source in preparation for the radiation hazards anticipated in the K-1131 Feed Plant.

12. No further information has been made available covering the "Eye Attachment" previously reported. It is assumed by the Atlanta Office that this item is out of production.

13. Three canisters were supplied Y-12 for testing (Military Type, Acme No. 15). The canisters were modified to provide a greater filter area and in one, the charcoal fill was replaced with "Whiterlite". Tests will be conducted upon completion of adapters to attach the canisters to the test equipment.

14. Samples of insulated tools using a combination gum rubber/neoprene dipped have been mailed. Electrical tests on the original samples proved unsatisfactory, however, the incoming samples are considered an improvement.

C. Inspection Activities

1. Inspection of the plant during the month indicated that conditions, in general, were satisfactory. The following major items are highlights of those which were called to the attention of supervisors and for which corrective action has been satisfactorily taken.

2. As a result of calling the attention of the supervisors to the substandard construction proposed for the fluorine expansion in K-1401, the project was channeled through Engineering for adequate design.

3. Laboratory D is, in general, involved in investigation of chlorine trifluoride. A review of the hazards involved was made with the major supervisors and a general survey of job method was recommended. This study is in progress and is being applied.

4. Lubrication of motors in the Laboratory facilities is a function assumed by the building services supervisor of this division. A review of the job hazards involved resulted in recommendations for job methods planning prior to beginning this work. Safe access to the equipment and job methods are being included in the job planning with the functions scheduled to begin July 1, 1950.

5. As a result of recommendations covering exhaust facilities for a process gas and barrier study in K-1401, the exhaust equipment is being designed and installed through regular Engineering channels.

6. In line with the recommendations by this department, the process of reclaiming the material from chlorine trifluoride, UF_6 mix recovery from converters has been completed by the Laboratories relative to the investigation of the problem and the project is now being developed by a section of the Design Development Group working on Pilot Plant scale.

7. The No. 2 phase of conversion from UO_3 to UF_6 has been set up in K-1405. Recommended exhaust facilities are being expanded to cover the weaker sections of the Pilot Plant and the entire set up is tighter than the systems used on previous experiments.

8. During preparation for fluorination of the manifold system for treating cylinders with chlorine trifluoride, tests were run on the MFL Oil to be used in the pumps and this oil exploded under controlled conditions in Laboratory experiments. This explosion delayed the chlorine trifluoride experimental work in K-1401 and a concentrated investigation of the reactions between MFL Oil and chlorine trifluoride was started. It is presently considered that the contaminant in the MFL Oil in the form of a hydrocarbon unreacted, is the controlling factor in which chlorine trifluoride and MFL Oil may successfully or unsuccessfully be combined. Inertness values based on the reaction of MFL Oil with UF_6 were investigated and it was recommended that immediate notice of this situation be made to personnel involved in the use of chlorine trifluoride. Conformation of this notice and experimental data will be compiled and routed when completed.

9. Recommendations covering mandatory safety glasses area, proper installation of signs marking off the area indicating the master control valves in the vicinity of K-1401 chlorine trifluoride project are being followed.

10. Correction of the unsafe conditions in the bar stock and sheet metal storage is underway with the excess material for surplussing being moved to the material yard and vaults for intermediate storage prior to surplus sales.

11. Recommendations were made in regard to rearrangement of electrical pole storage to prevent rolling. The poles are being probe tested, the unsafe ones pulled out for salvage, excess will be surplussed and the remainder re-stacked in a proper manner.

12. Recommendations were submitted and followed in re-arranging storage and movement of materials in the Cleaning Area to improve the condition of the area in general.

13. Recommendations were submitted and followed in regard to cleaning up carbon monoxide produced in the Cleaning Area. Recommendations involved closer motor maintenance and proper vehicle storage to eliminate this condition.

14. The drive on manhole and drain cover program is progressing satisfactorily with orders being submitted for replacement. Temporary covers are being used to correct the conditions immediately in some cases until the work orders are completed.

15. Emphasis has been placed on the electrical inspection program adding an additional inspector to complete the inspection schedule with the exceptions of Laboratory buildings by June 30, 1950. The number of rejections and hold tags are increasing due to shortage of time in which ordinarily work orders would have been obtained from the operator of the facility for repairs. Follow-up continues to promote work orders from operators to complete the necessary repairs.

16. Recommendations were submitted and followed during Turbine and Boiler overhauls in the Power House. These recommendations included such items as use of air manifold to eliminate unnecessary hose, field inspection and follow-up of the construction of scaffolds on the smoke stacks, eye protection, ventilation and protective equipment during use of carbon tetrachloride for generator cleaning.

17. Recommendations were submitted in regard to the unsafe conditions existing in the Preload job at the Sanitary Water Tank. These recommendations are being followed by the Plant Engineering Division.

18. Recommendations were submitted and followed resulting in a change of decision for storage of tube boxes. Preliminary storage is still being investigated to provide adequate facilities for handling. A study to determine feasibility of changing box sizes to allow for greater capacity and mechanical handling is underway.

19. With the increase in activities in preparation of the equipment for the new plants, recommendations in job planning have been submitted and followed to eliminate insofar as practical unsafe conditions resulting from over-crowded areas, pressure and speed in work completion schedules and the materials handled.

D. Consultant Services

1. A compilation of traffic counts and parking lot counts was used with Engineering Division in checking final plans for modifications and traffic flow on the turnpike.

2. A design of a locking chain and its application to the rear door of a van trailer assigned to the Transportation Department was made to prevent the door being open while the vehicle was in transit.

3. Assistance in job planning on the use of chlorine trifluoride has been given to groups handling small amounts for sample purposes. Recommendations, as outlined, are being followed.

4. Recommendations were submitted and assistance given in the construction of a boatswain's chair for tube welding in a Power House Boiler.

5. Considerable improvement has been made in degreasing jobs by modification to the degreasers and substituting perchlorethylene for trichlorethylene. Trial runs were very satisfactory in degreasing vapors released from this operation. Follow-up of this project will continue.

6. Establishment of storage areas for such gases as HF, propane, chlorine trifluoride and other hazardous gases, with groups expanding usage of these materials was followed. Proper storage and associated protection was incorporated.

7. A second unit for chlorine trifluoride treatment of converters is being modified. Simultaneously, construction is underway on a demountable unit for application to the Cascade. Work continues with the development engineers in liaison with other groups of this division to satisfactorily follow this project.

8. Review of drawings for the new facilities at K-1131 was continued during the month. A punch list of items recommended by the Safety Department was prepared and is scheduled for review on July 5th. The delay in completion of many of the items has been due to delay by Maxon Construction Company. A majority of the items covered by the Safety Department recommendations are to be completed by Carbide, however, some items, specifically, special painting, equipment modifications and some building modifications have been included in specifications and revised prints.

9. The accident history of several employees of the Process Division have been reviewed with supervision and recommendations for concerted action in regard to accident prevention involving these employees was made.

10. The use of the "Safety Suggestion Form" continues to be emphasized throughout the divisions of the plant. Although some reluctance is evidenced on the part of a minority, the general use is progressing slowly.

11. The work order covering parking striping and traffic control signs is being held up due to emphasis on road work completion within K-25; however, the work is approximately sixty percent complete.

12. Driver testing is continuing on a one day week schedule with exceptions made for emergency cases. Since the emergency cases are increasing in number, it is planned to issue a plant bulletin announcing the one day schedule.

13. Assistance was given in the design of a shield to protect the operators from potential shrapnel in the event of an explosion in the cold traps, mist filter or receiving cylinder on the chlorine trifluoride system in the K-1401 Building.

A. F. Becher
Safety Department

AFB:mrh

S & I File K-25RC

INTER-COMPANY CORRESPONDENCE

(HERBERT YANCE) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE June 1, 1950

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report
Safety Department
Month of May, 1950

I. Plant Accident Experience

An estimated total of two hundred four personal injuries were reported for treatment; thirteen no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summerized below:

A. Personal Injuries

1. Major - two reportable; none non-tabulatable
2. Sub-Major - requiring temporary assignment to other duties - two
3. Minor - requiring first aid treatment only - two hundred

Comparative frequency and severity rates for the years '49 and '50 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 11/1/49 - 4/30/50			CURRENT PERIOD May, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.54	1.52	2.81	1.61	3.14
Severity	.10	2.05	.01	.36	6.78	.02	1.22	.05	.11

B. No-Injury Accidents

1. Motor Vehicle Accidents - five reported involving damage or loss estimated at $61. Estimated mileage was 18C,277; frequency rate 2.77.

2. Property Damage Accidents - thr ee reported resulting in damages of $109.

3. Material Releases - two reported involving radioactive raterials. No apparent injuries recorded.

4. Fires and Explosions - three fires with a loss of $7 reported; Fire loss ratio is $.00000, and year to date $.00002

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/50
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

WCK-80 THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

II. Significant Highlights

The following is a resume of the significant safety items promoted during the month of May:

A. Promotion and Education

1. Training was started with operators of the K-1131 facility and Process Maintenance personnel assigned to the area and supervision involved to acquaint them with the use of the various types of protective equipment required, as well as a review of the hazards involved in the operation of the Feed Plant and the Fluorine Manufacturing Facility. Arrangements have been completed to schedule employees of the Electrical and Instrument Maintenance Groups in subsequent meetings. Arrangements are also under way and an outline of training being prepared for employees assigned to emergency squad duty in the Power Division. Initiation of this program is expected during the month of June.

2. A meeting was held with a group of newly appointed supervisors of the Process Division to acquaint them with Company policy as regards safety and some of the administrative procedures in connection with the application of such policies. Interest by all concerned was excellent and it is unfortunate that additional time could not be spared for follow up on this type of meeting. Efforts will be made to establish this on a formal basis for the future.

3. A trip was made to the Armco Steel Corporation, Middletown, Ohio, to obtain information relative to training and qualification of crane operators. Report has been submitted on the results of this trip; it is expected a training program can be initiated shortly for qualification of Process and Maintenance personnel.

4. "Construction and Maintenance Safety Talks" were reviewed and copies distributed to interested supervision in the General Maintenance Division.

5. Operations procedures for the fluorine plant were reviewed for incorporation of safety rules and procedures therein. Comments were forwarded to supervision concerned.

6. Proposed emergency procedure for the Engineering Development Division, K-1401 Area, is being reviewed; issuance is expected as a plant procedure during the month of June.

7. The following Safe Practice bulletins were issued during the month: Chlorine Trifluoride and Hazardous Chemicals. A proposed EF procedure covering test and inspection of portable electric welding equipment is in the field for review. In progress are bulletins covering boatswain's chair scaffold and various items of personal protective equipment. No further action has been taken by the Plant Engineering Division on material specifications for safety equipment.

8. Final report on results of the Mask Testing Program conducted by the Laboratory Division and the Safety Department has been issued.

9. SP procedures covering various types of scaffolds were issued during the month.

10. Billboards and poster displays during the month covered such topics as driver's courtesy, rules of the road, pedestrian safety, plant clean-up and housekeeping, and proper lifting methods.

11. Stocks of safety films and posters and other promotional materials were inventoried. Surplus spare parts and obsolete materials were disposed of. Orders were initiated for the procurement of new films for preview prior to purchase of new stocks.

12. Safety shoe campaign material was completed which included display board, billboard copy, poster materials and cuts for release in the Carbide Courier, which will be put into effect as soon as stocks of shoes are available for plant distribution.

13. Work orders were initiated for the rehabilitation, re-location and removal of certain billboards and slogan boards. Preliminary inquiry was initiated to determine price quotations on relocation of two billboards on the turnpike, as well as maintenance thereof, so that a comparison could be made with plant costs. Final copy is being prepared on this new display incorporating changeable letters for approval.

B. Protective Equipment

1. An order was placed for a supply of 20 KV rubber gloves for electricians' as well as inspection patches for use in identifying such gloves.

2. Mercury type vacuum cleaners built according to our design and specifications were re-tested and due to leakage again rejected. They are being rebuilt and final test results are not yet available.

3. Preliminary inquiries were initiated in an attempt to secure supplies of fluorothene heat-seal gloves as a replacement for the present Koroseal type due to increased resistivity of fluorothene versus Koroseal for use in the Fluorine Plant. Preliminary inquiry was also initiated for procurement of tools with insulated handles (neoprene) and blankets. Quotations received from the Standard Safety Equipment Company on Cra-Lite cloth blankets were rejected due to prices on blankets too high, and need for re-design of bootees.

4. Specifications for letting of new contract for men's type safety shoes for the next fiscal year were reviewed and submitted to the Stores Department for initiation of purchase orders. This will include new woven type safety shoes for summer use.

5. Order still pending receipt of information on "eve" resuscitator from vendor concerned.

6. Possible use of Teflon enamel coated fabric, etc. was investigated and no apparent plant application for use of this material is forseen at this time.

7. A new hook was devised for the removal of man hole covers which avoids the need for unnecessary straining of personnel and exposure to foot injuries.

8. Problem of cleaning Pro Stone filters for use in air supplied sand blast helmets was disposed of when it was found that an acid bath accomplished satisfactory cleaning.

9. Design was completed for a test apparatus to be used to determine pressure drop across MSA canisters in storage to assure of their safe use on the plant.

10. Work was continued on modification of air-supplied harness for use of instrument repairmen in cell work. Re-design to apply the harness to the outside surface of the coveralls is underway.

11. Samples of Napa-goat gloves were recieved and comparative field studies are underway to determine relative merits of this glove as a replacement for Napa 164, 1168 and Walrath 2100.

12. Specifications were forwarded to the Plant Engineering Division for purchase of adhesive labels for plant pipe identification prior to placement of orders for stores stocks.

13. RX lens in Pince-nez frames are being tried experimentally to determine suitability for use with mask equipment.

C. Inspection Activities

1. An inspection of the plant during the month indicated general conditions to be satisfactory. The following major items were called to the attention of supervision and action thereon is satisfactory:

a. Burning and disposal facilities at the quarry location;
b. Dumping of contaminated items at the burning pit;
c. Rejection of a new shipment of step ladders due to light construction and poor workmanship. An error in material specifications which allowed for this were called to the attention of personnel involved and representatives of the Receiving Department instructed in major points to consider in making such inspections.

2. Installation of new fluorine lines to Laboratories X and Y, K-1401 Building, were called to the attention of supervision concerned to prompt their consideration of requirements in this regard.

3. Perchlorethylene has performed satisfactory as a degreasing agent except in hot degreasing and its use is being substituted for trichloroethylene on cold jobs.

4. Preliminary report on converter conditioning with chlorine trifluoride was reviewed with representatives of the Engineering Development Division to insure the incorporation of necessary safety precautions prior to start up of this work.

5. Spot surveys of work performed by the electrical test group at the K-1037 Building and by the electricians in the K-1401 Building were performed prior to closing out work orders.

6. Work orders were initiated to inspect corded equipment in Plants I, II and III.

7. Due to shortage of MD cylinders at Harshaw, transfer of crude feed was commenced from 120 of these cylinders to one ton chlorine cylinders in the K-413 Building. The operation was reviewed with supervision concerned and recommendations submitted for incorporation of safety features.

8. Storage of bar stocks of sheet metal in the K-1401 Building is being followed with supervision concerned to eliminate hazardous stock piles of such items.

9. Use of carbon arc process in the Photostat Section of the Printing Department was reviewed with supervision concerned and recommendations for provision of fire resistant screen and relocation of the disconnect switch were made.

10. Storage and use of chlorine trifluoride by the Instrument Engineering Group in working up a standard sample was brought to the attention of operators of this facility. They were familiarized with necessary precautions to be observed in the handling thereof.

11. Recommendations were submitted to provide an independent exhaust system and relocation of control switches for the recirculating systems in Laboratory Y to avoid contamination of the regular ventilating system in case of a material release.

12. Recommendations were submitted to the Power Division to provide emergency switch cut-off on the turbine floor of the K-702 Building for the 60 T Whiting crane to be used as a dead man control.

13. Treatment of floors in the cafeteria facility work areas with acid was recommended, and isolation of areas being cleaned and scrubbed by use of signs and ropes, as a result of several sprains and falls noted during the month.

14. Delivery of over-tolerance cylinders by the Uranium Control Section to various parts of the plant was discussed with supervision concerned. It is expected this practice will be eliminated.

15. Relocation of a chlorinator at the K-802 Pump House was completed to avoid occasional heavy concentrations of chlorine.

D. Consultant Services

1. Review of drawings for new facilities at the K-1131 Area goes forward and a resume of uncompleted items is to be submitted to the job engineer during the month of June, based upon advice from him that at this time the contractor will be asked to complete such items.

2. Medical Restrictions - four cases were reviewed with Maintenance Division supervision due to limitations of personnel which indicated they could not safely perform a days work.

3. The accident history of an elderly female employee of the cafeteria was reviewed with supervision as a result of continuing falls, strains, bruises, etc. which resulted in prolonged medical treatment. It was recommended that her case be reviewed with the medical director to determine physiological factors involved, if any.

4. Use of the Safety Suggestion Form is being promoted throughout the plant, particular emphasis being placed upon use of same in the Plant Protection Division in an effort to eliminate function of safety coordinator by one of the security groups by emphasizing the need for supervisors to handle their own suggestions. Our efforts in this regard are continuing.

5. Crosswalks, parking striping and traffic control signs were reviewed and a list of changes prepared and a work order initiated to accomplish this work.

6. A review of operations in the Chemical Operations Department is scheduled to be made in conjunction with the Department Head concerned on a job breakdown basis to assure that necessary safe practices and job instructions are included on routine, as well as the unusual jobs. It is expected to extend this to other areas in the Plant in an attempt to cut down the garden variety type of accidents.

6. Evaluation work is continuing. Work is underway to complete the General Maintenance, and the Electrical and Instrument Maintenance Division evaluations. Completion of the Power Division is held up, pending receipt of information from Mechanical Inspection, Fire Protection and the Electrical Inspection Departments.

7. Driver testing continued on a one day a week basis with one or two exceptions; a total of thirty-eight applicants were tested during the period.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. E. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE May 1, 1950

ANSWERING LETTER DATE

SUBJECT Monthly Progress Report, Safety Department, April, 1950

I. Plant Accident Experience

An estimated total of two hundred twenty-three personal injuries were reported for treatment; nine no-injury accidents involving damage or loss to Company equipment and/or facilities were reported. These are summarized below:

A. Personal Injuries

1. Major - one reportable; none non-tabulatable.
2. Sub-major - requiring temporary assignment to other duties - four; also one non-tabulatable.
3. Minor - requiring first aid treatment only - two hundred eighteen

Comparative frequency and severity rates for the years '49 and '50 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 10/1/49 - 3/31/50			CURRENT PERIOD April, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.54	1.45	2.76	2.92	1.58
Severity	.10	2.05	.01	.36	6.78	.02	1.20	.13	.05

B. No-Injury Accidents

1. Motor Vehicle Accidents - three reported involving damage or loss estimated at $81. Estimated mileage was 195,926 and a frequency rate of 1.53 was recorded. This is the lowest recorded number of accidents for the year in spite of the mileage estimated at approximately 25,000 miles over the previous report period.

2. Property Damage Accidents - one reported resulting in minor damage estimated at $18.00.

3. Material Releases - three reported involving releases of radioactive materials. No apparent injuries recorded.

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Technical Information Officer
Oak Ridge K-25 Site
Date 6/1/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

4. Fires and Explosions - two minor fires with a loss of $2 associated therewith were reported. Fire loss ratio for the month was $.00000; year to date $.00001.

II. Significant Highlights

The following is a resume of significant items promoted by the Safety Department during the month of April, 1950:

A. Promotion and Education

1. Completion of emergency training for Fire Department personnel and hazards associated with plant operations was effected at the close of the month. No action has been initiated by the Plant Protection Division relative to continuance of problem training for officer personnel of the Fire Department.

2. Poster materials, plant-hand-out materials and billboards were completed in promoting the plant Spring Clean-up Campaign.

3. A survey was made of all plant billboards and work orders initiated to accomplish repairs necessary to rehabilitate same. In addition thereto, preliminary inquiry was initiated to determine cost involved of re-locating and replacing message face on two billboards, which would be located on the turnpike with a view in mind of eliminating all intra-plant billboards as well as the safety train display, with the exception of the one on Avenue F and 7th Street intersection.

4. Slogan board locations and signs were surveyed; work orders initiated for necessary maintenance work as well as removal of some nine slogan boards.

5. Department stocks of plant poster materials and safety films were inventoried and a new file set up to keep an accurate accounting of the types and quantities available. Requests were initiated for several new safety films to determine acceptability for plant use prior to purchase.

6. Preliminary inquiry was initiated for purchase of a new ventilated type safety shoe for plant use and promotional materials ordered to conduct a sales campaign in connection with display of the new shoe when delivered. Delivery date estimated at end of May.

7. With completion of re-location of all plant bulletin boards by the Industrial Relations Divisions, steps were completed to surplus all stocks of existing bulletin board display cases which were formerly stocked by this department.

8. Standard Reference Information bulletins were completed for issuance on Hazardous Chemicals, showing properties, use, storage and emergency handling methods. A "SP" bulletin on chlorine trifluoride has been completed in cooperation with the Engineering Development and Laboratory Divisions; final draft ready for issuance. Material

specifications for purchase of personal protective equipment, plant ladders, and an EF bulletin on inspection, test and repair of portable electrical welding equipment were completed and turned over to the Standard Reference Information Section as proposals for issuance.

B. Special Problems

1. High sound levels at converter assembly were found during use of air tools; work was re-located to avoid discomfort to adjacent operators.

2. Recommendations were made to Engineering Division to eliminate two small rooms within the change house facilities presently being changed over for tube storage. This will provide for easier handling of boxed material, as well as enhancing storage space.

3. Follow-up on the use of perchlorethylene as a degreasing agent indicates that it is a desirable medium for accomplishing degreasing in the liquid phase. We are continuing to have trouble due to high concentrations of trichlorethylene during operations involving degreasing and cleaning of rags. Contact has been made with a vendor and a five-gallon sample is being forwarded on a new type material, which it is claimed will do the job; investigation is continuing.

4. Plans are underway to change several overhead cranes in the K-1401 Building for floor level operation. The job was reviewed with operations and Engineering Department personnel to assure that proper safety precautions are provided by such a change over. If these prove satisfactory, no doubt extension of such will go forward in the future.

5. A meeting was held with operations supervision to outline a training course, job procedures and personal protective equipment requirements for the feed plant and the new fluorine generating plant. Training course is being conducted under supervision of the line organization involved, assisted by the Training, Safety and Radiation Hazards Departments. Training is being extended also to maintenance personnel involved.

6. A new purge line and slight equipment changes are being developed for use in the Conversion Room, K-1301 Building, the change over of which should minimize the frequency of over-tolerance HF samples currently being recorded.

7. Job methods were reviewed with maintenance groups for the painting and cleaning of the Process Building exhaust outlets on the roof. The Radiation Hazards Department were contacted to survey the area for possible contamination.

8. The use of personal shoes by Process Maintenance Department personnel in contaminated areas was discussed with the Radiation Hazards Department and maintenance supervision concerned. It was determined that employees misunderstood plant rules governing the tolerance levels allowed for personal shoes.

9. Supervision concerned in various plant areas where wearing of eye protection is mandatory were contacted relative to necessity for enforcing rules for visitors passing through the area without provision of safety spectacles.

10. A study was made in cooperation with the job engineer to determine relief of congestion at the portals at the parking lot on the hill. Re-routing of parking to provide for a loading and unloading zone has closed this problem.

11. The storage room in the K-1005 Building has been cleaned as recommended and strict regulations involving storage of combustibles, etc. in this room are being enforced by operators concerned.

12. As a result of needling by this department, the Engineering Development personnel are preparing operating procedures and job breakdown sheets insofar as practicible for those operations which can be established at this time for the new feed plant facility.

13. A study was made to determine the need for installation of a monorail for handling cylinders at the storage dock as a result of a recommendation made by the General Maintenance Division. Handling of cylinders at this location was reviewed with the department head submitting the recommendation and it was agreed that truck monorails could adequately handle the situation; however, our recommendations were to the effect that lights be installed and a cradle fabricated for handling cylinders when a monorail is used.

C. Inspection Activities

1. Inspection of all plant tools is essentially complete with some minor odds and ends to be picked up.

2. Emphasis was placed during the month on unsafe work practices and acts of individuals. Supervision and employees involved were notified in all cases and a summary report of all unsafe acts noted during the month submitted to the divisional safety committee.

3. Inspection of corded electrical equipment was completed in the K-1300 area and approximately seventy-five percent of the work in the K-1401 Building was completed. Work stopped in the K-1401 Building to complete three-months inspection cycle for electrical welding equipment.

4. Identification completed on all electrical equipment in the north area of the K-1401 Building and the K-1402 Control Room. Mr. Barker's group is following up on work performed by the painters to bring this facility up to standard.

5. Checked shipment of three-wire cords and junction boxes purchased for the grounding of variacs in the plant. No specifications were prepared for purchase and when received it was determined that the plugs were improperly polarized in that the conductor normally identified as

equipment ground (green) was being used as a circuit lead. The Engineering Division was contacted and they "froze" issuance of same by Stores and a work order has been issued to have polarity reversed.

6. Plant emergency station locations were inspected during the report period and replacements made as necessary.

7. Schedule for driver testing was revised with one day a week (Wednesday) being set aside specifically for this purpose. Results to date indicates this will work satisfactorily.

8. A meeting was held with the Engineering Development Division with representatives of this department to discuss resumption of investigative work in connection with the use of chlorine trifluoride in converter conditioning. A report of the committee's recommendations and a outlined procedure is being prepared by the Engineering Development Division and will be submitted to this department for review.

9. Emphesis was placed throughout the plant by all divisions on the Spring Clean-up Campaign with excellent results as evidenced by the large amount of materials being returned to stores, surplus stocks and removal of trash and debris from various operating units. A final report and inspection is to be made by the plant safety committee two weeks following close of the campaign.

10. Inspection and evaluation work continues for all plant divisions. A rough draft of the evaluation report for the General Maintenance Division was completed during the month.

D. New Design

1. Plan and work order review for new facilities continued during the month with the major problem involving the new feed plant and fluorine plants, and the K-29, K-31 Plants. Specific items included guarding for crane trolley rails; toe boards on operating platforms; increased head room in crane cabs; and guards for drives.

E. Emergency Planning

1. Several new items of equipment were placed on the emergency truck which included portable field phone set, sound powered; new microphone equipped masks and amplifiers. A purchase requisition was initiated for procurement of one "Lifetilt" resuscitator.

F. Protective Equipment

1. Preliminary design completed on new air-supplied harness for use underneath coveralls while working in "on stream" cells. Tests scheduled for next month.

2. A glove suitable for protection against both high temperatures and the chemical action from the electro-lyte in the fluorine generators was obtained and field tested. Orders are being placed for plant stocks.

3. P-10 sheet was procured from the Engineering Development Division as replacements for plexi-glass windows in chemical face shields for use in connection with chlorine trifluoride. This material will offer complete protection against liquid splashes to the face from chlorine trifluoride.

4. Design of the new "Gra-Lite" shoe covers was reviewed with the vendor at the plant site and pertinent recommendations made; new samples are to be submitted.

5. Discussion was held with representative of the Wash-Rite Company to determine possibility of rehabilitating leather work gloves which are contaminated from plant use. A trip to the plant site at Indianapolis is scheduled sometime during the next month.

C. General

1. An analyses was made of all alleged injuries involving sprains, strains and herniae to plant employees for the years 1948 and 1949 and a report prepared pointing up preponderance of cases which fall into a doubtful or non-occupational classification due to inherent physical deficiencies of the employee with little or no job connection being established, with recommendations made for supplementing the present plant physical examinations on both annual and pre-employment examinations.

2. Contact was established with "Armco" at Middletown, Ohio to review test and qualification procedures in effect at their facility for crane operators. It is expected a trip will be made to Middletown sometime this month so that a plant standard can be established for physical examinations and on-the-job qualifications for crane operators.

3. Investigative work is underway to determine possibility of using fluorescent oil in connection with use of ultra-violet light source as a means of promoting interest in contamination spread.

4. An employee in the General Maintenance Division [redacted] recently sustained two sub-major injuries within a three-day period. A review of his injury record indicates the employee stubbornly insists on taking chances and has had a very unfavorable accident experience and an uncooperative attitude. His record has been reviewed with the department head concerned and it has been determined that his work record is about of the same quality, with two reprimands on file. A summary of our findings is being prepared for the division head concerned.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE April 4, 1950

ANSWERING LETTER DATE

SUBJECT Safety Department Monthly Progress Report - March, 1950

I. Plant Accident Experience

Two hundred forty-four injuries reported for treatment (estimated); sixteen no-injury accidents involving damage or loss to Company equipment or facilities were reported. Summary follows:

A. Personal Injuries

1. Major Injuries - two reportable; three non-tabulatable
2. Sub-Major Injuries - one
3. Minor Injuries - requiring first aid treatment - 241

Comparative frequency and severity rates for the years '49 - '50 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 9/1/49 - 2/28/50			CURRENT PERIOD March, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	4.54	1.45	2.54	3.23	2.93
Severity	.10	2.05	.01	.36	6.78	.02	1.22	.13	.06

B. No-Injury Accidents

1. Motor Vehicle Accidents - Ten reported involving damages in the amount of $171.89; estimated mileage was 171,249 resulting in a frequency rate of 5.84.

2. Property Damage Accidents - One reported; estimated loss $15.00.

3. Material Releases - Three reported; two involving radioactive material and one toxic material; no apparent injuries reported.

4. Fires and Explosions - Two fires with negligible damage were reported. Fire loss ratio for the month $.000, and year to date $.000.

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Technical Information Officer 6/15/95 Date
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

II. Significant Highlights

The following is a resume of the significant safety items promoted during the month of March:

A. Promotion and Education

1. Continuance of emergency training for Fire Department personnel with emphasis upon the completion of course in fundamentals for all shifts during the first week of April. We have reviewed the training course with Mr. J. J. McCarthy and have recommended a continuance of training in the handling of simulated emergency problems by officer personnel only. A sample of one such problem was prepared for Mr. McCarthy and he has agreed to call a meeting with interested personnel to determine extension of this type of training for all shifts. We recommended that this be handled by departmental personnel in the future with advice as needed from the Safety and Inspection Division.

2. An outline of training objectives for local emergency squads as well as a schedule for training for the FY '50 was prepared and submitted for divisional approval. No further action has been taken on this matter.

3. Special ladder safety posters were developed and posted throughout the plant area. Several safety topics were furnished to Mr. J. Riordan for release in the Courier. Some work was done in the hopes of establishing a better working relationship with this group to assure coverage of safety and fire topics.

4. Standard reference information was prepared on hazardous chemicals showing properties, use, storage and emergency handling methods; preliminary work has been done on a safe practice bulletin on Chlorine Trifluoride.

5. Plant billboard displays were directed toward traffic safety; calendars and report covers slanted toward personal factors in safety.

6. Preliminary work was begun to determine preventive maintenance requirements in connection with plant billboards and preliminary inquiry was placed for a design using AR-type letters for a billboard display in front of the plant, as well as completion of preliminary plans for a new display of the plant safety train.

B. Special Problems

1. Experimental work being forwarded by the laboratory groups in connection with chlorine trifluoride has been followed closely; reports of progress distributed to keep pace with new developments in this regard.

2. Proper storage and identification of conversion cylinders containing ClF_3 and UF_6 completed.

3. Handled disposal of small pieces of apparatus used for experimental purposes involving use of tellerium salts.

4. Completed survey of cylinder filling operations throughout the plant area and prepared summary thereof; following up to correct some deficiencies noted during survey.

5. Completed survey of road signs, traffic signs, bus stops, etc. during the month; work order is being initiated to make changes as recommended.

6. Temporary eye bath facilities are being provided throughout the laboratory as a result of our recommendations. Feasibility of providing permanent installation of bubblers in strategic areas is being considered.

7. Collaborated with the Fire Protection Department for recommendations on stack gases at the K-1401 recommendations forwarded to Mr. Harmon.

8. An experimental hood remodeled in the K-1005 Building in line with the window framing type of arrangement employed by Y-10 and the Oak Ridge Institute of Nuclear Studies. The efficiency of the existing square faced hood was increased at low face velocity across the opening, however, difficulty is being experienced due to short circuiting caused by wall fans, air conditioning outlets, etc.

9. Survey of mercury handling and cleaning was made throughout the plant area; appropriate recommendations made pertaining thereto.

10. Handling of ammonia cylinders and re-filling facility were reviewed with Process Division personnel and recommendations made for provision of suitable storage and handling facilities. These have been complied with.

11. Survey was made of all large basement doors in the Process Division in cooperation with the Process Engineering Department and recommendations submitted to Mr. J. P. Murray relative to repairing, re-hinging, and re-hanging doors.

12. Review of operations of the K-1410 Building were discussed due to premature failure of coveralls worn during acid cleaning jobs. This has been handled by provision of "Vinyon" coveralls.

13. All operations throughout the plant employing the use of chlorine trifluoride were reviewed to assure that compliance was being effected with Mr. Humes' instructions to confine activities to experimental investigation.

14. Various samples were taken of air contaminants for the insulating job on the cross over job; results indicated only minute quantities of rock wool dust.

15. Review of the ladder situation on the plant was made with divisional representatives and the Plant Engineering Department to determine reason for shortage; as a result Planning Department is setting up order points and initiating requisitions to take care of shortages. Plant ladder standards were expedited with Mr. McQuilkin to get the material specifications for purchase. Arrangements were made with Receiving Department to inspect ladders upon arrival at the plant, which will be spot-checked by this department.

16. High incidence of dermatitis cases noted resulted in a study of each individual case to determine possible source of contaminant. It has been difficult to secure Medical Department's cooperation on ruling out employee complaints as being simple allergy or welfare in nature without detailed investigation.

C. New Design

1. Plans and specifications were reviewed for new feed plant, fluorine plant, and recommendations made relative to protection for valving operations, provision of catwalk facilities, neutralizing pits, etc.

2. K-29 and 31 drawings were reviewed with particular reference to painting specifications for K-29 and cell layout for K-31. In this regard, Process had requested permission to increase maximum purge to 10 p.p.m. HF, which we agreed with.

3. Installation of a rack for unloading facilities for trucks at the burning pit were completed in accordance with recommendations previously submitted. Design was approved for exhaust facilities for nitric acid dissolving unit by provision of a cold trap blower unit and installation of a stack around the discharge pipe from the unit, which will provide a venturi for removal of the stack gases as well as a much higher dilution factor. Heating controls were also provided on the unit which will minimize mis-operation.

D. Inspectional Activities

1. Inspectional activities during the month were directed towards completion of field tool box surveys. The high incidence of rejects found both in the field and in tool cribs has more than justified the program. In addition, promotional material with special emphasis directed toward return of portable tools during our semi-annaul test period which was scheduled during March. We not only found a large percentage of rejects but a higher total of tools were submitted for re-test; also completed arrangements with Mr. Crymes for replacement of two-wire cords on this equipment, which will enhance the installation of three-pole receptacles as time goes on.

2. Inspection and identification of the K-1401 Furnace Area and circuits feeding from the K-1402 Control Room was completed. Index cards were prepared for the various station panels in the control room and identification provided for the junction box and disconnect switches on each circuit. Work order was initiated by the Engineering Development Division to accomplish permanent painting; follow-up by Safety and Inspection to assure of proper identification is being continued.

3. The emergency power supply system was reviewed with interested personnel in the Electrical Maintenance and Engineering Development Divisions to acquaint them with the operation as it was found that field changes had been made since the original installation and the prints were not in accordance with the actual sequence of operation. Single line diagram is being prepared by Electrical Maintenance for educating and training field personnel.

4. A survey to determine compliance with recommendations for provision of guards on vacuum pumps throughout the plant area indicated progress is slow.

5. Inspected grounding facilities provided in the cafeteria and recommendations were made for replacement of sub-standard equipment to bring them up to plant standards. These items were brought to the attention of the Electrical Maintenance Division to minimize recurrence of sub-standard installations. Electrical inspection of office machinery and portable electrical equipment continues. At the close of the month approximately twenty-one buildings had been completed with an estimated cost of $2773 expended this year to date. This includes the bulk of the equipment with the outlying sections to be completed during the remainder of FY-50. In this connection, we have slowed down our schedule by cleaning up all rejects prior to leaving the job. This is done by bringing the items to the attention of supervision concerned, when they are of a significant nature, and a work order is requested to bring them up to par. Upon completion of this program we expect to have all equipment up to standard with no "hold" tags left in the field.

6. Follow-up on ladder inspections to include items returned to the shop for repair and items returned to stores was completed. Approved ladders are identified with a metal stenciled tag and emphasis was placed on proper identification by department to assure that responsibility could be tacked down to the department concerned.

E. Safety Meeting Activities

1. During the month the safety meeting schedule, as well as the quality of the meetings, were reviewed with Mr. J. P. Murray of the Process Division. Recommendations made for improvement thereof, and results to date indicate some progress has been made in this direction.

2. A series of films were ordered for review to determine acceptability for plant use; results to date indicate no outstanding films available, however, this is still continuing.

3. Rough draft of Power Division evaluation was completed and request made of Fire Control, Mechanical Inspection and Electrical Inspection Departments for their portions of the report.

F. Emergency Training

1. Several items of various types of emergency equipment were added to the emergency truck, including block and tackle, and first aid supplies.

2. Specifications for a new type resuscitator forwarded to the Medical Department for their consideration and recommendations relative to inclusion as emergency apparatus.

G. Protective Equipment

1. Samples of the Edmont gloves received from the vendor were reviewed with the general sales manager of that Company to determine reason for premature failure and discrepancies in sizes. It was agreed that the vendor would check the specifications on the gloves used, and it was determined that an increase in sizes had resulted from customer requests for new cuff and new design. He assured us that they would make every effort to ship us items in accordance with our original samples and would accept for return any quantity of those failing to meet our specifications at his expense.

2. A new type shoe cover fabricated from Gra-Lite material was received from the Standard Safety Equipment Company at a cost price of $10 each for use in connection with the new impermeable suits.

3. Expedited order for amplifiers for use in connection with gas-tight army assault masks; delivery is expected during first part of April.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE March 2, 1950

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Plant Accident Experience Month of February, 1950

Two hundred eight injuries reported for treatment (estimated); fifteen no-injury accidents involving damage or loss to Company equipment or facilities were reported. Summary follows:

A. Personal Injuries

1. Major Injuries - Two
2. Sub-Major Injuries - One
3. Minor Injuries - requiring first aid treatment - 205

Comparative frequency and severity rates for the years 1949 - 1950 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 8/1/49 - 1/31/50			CURRENT PERIOD February, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.03	.00	1.74	3.03	3.22
Severity	.10	2.05	.01	.36	6.78	.02	1.30	.02	.13

In addition, three first-reported major injuries which occurred during 1949 were recorded. Two of the above involved loss of time which first occurred in 1950, while the remaining one was accepted as a result of a ruling by the ASA Committee of Judges.

B. No-Injury Accidents

1. Motor Vehicle Accidents - seven reported involving damages in the amount of $518; estimated mileage was 185,469 resulting in a frequency rate of 3.77.

2. Property Damage Accidents - three reported with a loss of $458.

3. Material Releases - five reported; employees involved referred to dispensary. No injuries reported.

4. Fires and Explosions - none reported.

Attachment:
"Fire Run" Report
AFB:mrh

A. F. Becher
Safety Department

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Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

WCX-80 THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. F. L. Richardson

DATE February 1, 1950

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Plant Accident Experience Month of January, 1950

Two hundred twenty-two injuries reported for treatment (estimated); twelve no-injury accidents involving damage or loss to Company equipment or facilities were reported. Summary follows:

A. Personal Injuries

1. Major Injuries - Two
2. Sub-Major Injuries - None
3. Minor Injuries - requiring first aid treatment only - 220

Comparative frequency and severity rates for the years 1949 and 1950 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 7/1/49 - 12/31/49			CURRENT PERIOD January, 1950	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	.99	1.50	3.02
Severity	.10	2.05	.01	.36	6.78	.03	1.19	6.78	.02

B. No-Injury Accidents

1. Motor Vehicle accidents - six reported during the month involving damages or loss in the amount of $82.00; estimated mileage was 192,259 - frequency rate 3.12.

2. Property Damage - none reported.

3. Material Releases - two; employees involved referred to dispensary. No apparent injuries resulted.

4. Fires and Explosions - three fires with negligible damage. One explosion involving $25.00; narrative follows:

While attempting to clean residual asphalt and aggregate from an asphalt mixing unit, the operator inadvertently used a mixture of kerosene and gasoline as a solvent. He agitated

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Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

the liquid and aggregate in the unit and dumped the contents. He lighted a cigarette and then opened the loading hatch to check the interior, as he did, vapors in the unit exploded, blowing the cover from the mixer a distance of approximately twenty-two feet. Fortunately the operator had his head to the side of the opening and escaped the force of the explosion.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE January 4, 1950

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Plant Accident Experience Month of December, 1949

Two hundred twelve occupational injuries reported for treatment (estimated); in addition, seven no-injury accidents involving damage or loss to Company equipment or facilities were reported. Summary follows:

A. Personal Injuries

1. Major Injuries - One
2. Sub-Major Injuries - requiring temporary assignment of the injured to other duties due to severity of the injury - Two
3. Minor Injuries - requiring first aid treatment only - Two hundred nine

Comparative frequency and severity rates for the years 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48			PREVIOUS SIX MONTHS 6/1/49 - 11/30/49			CURRENT PERIOD December, 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	.74	.00	1.48
Severity	.10	2.05	.01	.36	.16	.03	.07	.05	6.72

A total of 617,843 man hours have been worked since the last major injury on December 2nd.

B. No-Injury Accidents

1. Motor Vehicle Accidents - four reported during the month involving damages or loss in the amount of $31.00. Estimated mileage was 190,637; frequency rate 2.10.

2. Property Damage Accidents - none reported.

3. Material Releases - one reported; employees involved referred to dispensary. No apparent injuries.

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6/15/95
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WCX-80

4. Fires - two recorded with an estimated loss of $100.00; fire loss ratio $.024 for the month, and for year to date $.016.

    a. Trash and rubbish fire; no damage.

    b. A process involving anthracene was being vacuum-sublimed in a bath of Fisher bath wax heated upon an electric hot plate with input voltage controlled by a variac. While the experiment was left unattended, it is assumed that the cooling jacket failed either through breakage of a pyrex sleeve or a leak occurring in the gaskets, allowing water to drip into the heated paraffin. The presence of moisture apparently caused it to boil over onto the hot plate and ignite. Damages to the equipment, and blistering and smoke discoloration to the paint on the walls and ceiling of the room were estimated at $100.00.

A. F. Becher
Safety Department

AFB:mrh

copy

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO
LOCATION

ATTENTION
COPY TO

Mr. W. L. Richardson-

DATE December 2, 1949

ANSWERING LETTER DATE

SUBJECT Plant Accident Experience
Month of November, 1949

One hundred seventy-five occupational injuries reported for treatment (estimated); in addition, thirteen no-injury accidents involving damage or loss to Company equipment or facilities were reported. Summary follows:

A. Personal Injuries

1. Major Injuries - None

2. Sub-major Injuries - requiring temporary assignment of the injured to other duties due to severity of the injury - One

3. Minor Injuries - requiring first aid treatment only - One hundred seventy-four

Comparative frequency and severity rates for the years 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 5/1/49 - 10/31/49			CURRENT PERIOD November, 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	1.46	1.45	.00
Severity	.10	2.05	.01	.36	.06	.02	.06	.05	.05

Two non-tabulatable major injuries recorded; subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work environment.

A total of 821,530 man hours have been worked since the last major injury on October 24th.

B. No-Injury Accidents

1. Motor Vehicles - nine reported during the month involving damages or loss to Company property in the amount of $131.50. Estimated mileage was 186,439; frequency rate 4.83.

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Technical Information Officer
Oak Ridge K-25 Site
6/5/45
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

2. Property Damage - Two property damage accidents with an estimated loss of $145.00; total number to date seventeen with an estimated loss of $1,370.

   a. Portable air compressor tipped over when tow hitch came loose, damaging radiator, cowl, etc; damages $35.00.

   b. Coolant drum being fabricated in shop ruptured when welder over-pressured equipment by applying a 90# air test to check for leaks - instead of routing equipment for vacuum test as prescribed; damage estimated at $110.00.

3. Fires - Two fires recorded; fire loss ratio for month of November $0.12, and year to date $0.02.

   a. Grass fire resulted from welding sparks while welding on overhead pipeline; no damage.

   b. Considerable damage (estimated at $500.00) to equipment and facilities in an experimental laboratory was incurred when an experimental furnace was left energized on top of a wooden work table at the close of the shift. Insufficient space was provided between the combustible surface and the furnace; subsequent heating ignited the table top. Fire was discovered and reported by employee checking facility at 11:30 P.M. Fire Department responded and extinguished with water stream.

4. Material Releases - two reported. Employees involved referred to dispensary for supervisory examinations; no apparent injuries.

/s/ A. F. Becher
A. F. Becher
Safety Department

AFB:mrh
(copy 2-1-50 by BFB, WLR office)

INTER-COMPANY CORRESPONDENCE

(INSERT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE November 2, 1949

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Plant Accident Experience Month of October, 1949

An estimated total of two hundred nineteen occupational injuries reported for treatment; in addition, nine no-injury accidents involving damage or loss to Company equipment or facilities were reported. A summary of accidents recorded during the month of October is listed below:

A. Personal Injuries

1. Major Injuries - One case pending decision by the attending physician as to extent of disability; chargeability undetermined.

2. Sub-Major Injuries - requiring temporary assignment of the injured to other duties due to the severity of the injury - Two.

3. Minor Injuries - requiring first aid treatment only - two hundred seventeen.

Comparative frequency and severity rates for the years 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 4/1/49 - - 9/30/49			CURRENT PERIOD October, 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	.96	.00	.00
Severity	.10	2.05	.01	.36	.06	.00	.06	.05	.03

In addition to the above reported occupational injuries there was one non-tabulatable sub-major injury. Subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work environment.

A total of 2,021,603 man hours have been accumulated since the occurrence of the last major injury on July 31, 1949.

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Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

B. No-Injury Accidents

1. Motor Vehicle Accidents - There were five motor vehicle accidents involving damage or loss to Company property in the amount of $674.25. Estimated mileage was 189,549; frequency rate, therefore, is 2.64.

2. Property Damage Accidents - Two property damage accidents with an estimated loss of $291.65; one of which resulted in damages of $275.65. This occurred when a mechanic drilling a hole for a drive screw in the end bell of an electric motor allowed the drill bit to slip as it broke through the motor housing, contacting the motor winding; the resultant flash over short circuited the stator winding.

3. Fires - One minor fire with negligible damage ($5.00) was reported; fire loss ratio for the year to date is $.006.

4. Material Releases - There were two material releases reported during the month. Employees involved were referred to the dispensary for supervisory examinations; no apparent injuries resulted.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(DRAFT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION
ATTENTION
COPY TO

DATE October 5, 1949
ANSWERING LETTER DATE
SUBJECT Plant Accident Experience Month of September, 1949

An estimated total of one hundred seventy-eight occupational injuries were reported to the K-25 Dispensary for treatment during the report period. In addition thereto, thirteen no-injury accidents involving damage or loss to company equipment or facilities were reported. A summary of all accidents recorded during the month of September is listed below:

A. Personal Injuries

1. Major Injuries - None
2. Sub-Major Injuries - requiring temporary assignment of the injured to other duties due to the severity of the injury - Four
3. Minor Injuries - first aid treatment only - one hundred seventy-four

Comparative frequency and severity rates for the years 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 3/1/49 - 8/31/49			CURRENT PERIOD September, 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	1.17	.00	.00
Severity	.10	2.05	.01	.36	.06	.00	.03	.06	.005

Severity charge for the month of September was a carry-over case which occurred on July 25, 1949; loss of time of thirty days reported for the month. In addition, the cumulative severity reflects an additional eighty-eight day time charge for permanent partial disability involving previously reported as a temporary total case in February of this year.

Two late reported cases involving employees who were injured in 1948 were accepted on the record due to loss of time in one case during 1949 for diagnostic study which revealed a compression fracture of the vertebrae as a result of the injury, and in the other, due to acceptance of 10% permanent partial disability of the arm. In this case no loss of time was involved but

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6/15/95
Date
WCX-80

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

a 450 day penalty was assumed as a result of the injury. In addition to the above reportable cases of occupational injuries, there were three non-tabulatable cases reported. One of the above cases was a fatality which occurred while in the course of employment but death was attributable to natural causes; in the second case (hernia) subsequent investigation revealed that the allegation did not fulfill the requirements of the ASA Code for the reporting of industrial hernia; in the last case, investigation and medical diagnosis revealed no facts wherein the complaint could be referred to the employee's work enviornment and was subsequently classified as welfare in origin.

An estimated total of 1,369,355 man hours have been accumulated since the occurrence of the last major injury on July 31, 1949; this record is continuing as of this date.

B. No-Injury Accidents

1. Motor Vehicle Accidents - There were four motor vehicle accidents involving damage or loss to company property in the amount of $179.00 and $5.00 to third party property, or a total damage of $184.00 reported. Estimated mileage was 211,752 miles; frequency rate therefore is 1.89.

2. Property Damage Accidents - One property damage accident involving damage to a 10 HP DC motor in the amount of $100.00 occurred when an operator failed to disconnect the source of supply to the field of the motor, subsequently resulting in burn out of the winding.

3. Fires - One minor fire with negligible damage ($2.00) was reported.

4. Material Releases - There were seven material releases reported during the report period. Employees involved were sent to the dispensary for supervisory examinations; no apparent injuries resulted.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE September 1, 1949

ANSWERING LETTER DATE

SUBJECT Plant Accident Experience Month of August, 1949

Safety

An estimated total of two hundred sixty-two occupational injuries were reported to the K-25 Dispensary for treatment during the month of August. In addition thereto, nine motor vehicle accidents with a loss or damage estimated at $276.00 associated therewith were reported. There were no reportable property damage accidents, fires or material releases. A summary of all accidents recorded during the report period is listed below:

A. Personal Injuries

1. Major Injuries - None
2. Sub-Major Injuries - Two
3. Minor Injuries - 260

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 2/1/49 - 7/31/49			CURRENT PERIOD August, 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.08	.00	2.01	3.08	.00
Severity	.10	2.05	.01	.36	.05	.00	.02	.03	.06

In addition to the above reported occupational injuries, there were two non-tabulatable major injuries reported. Subsequent investigation and medical diagnosis in one case revealed no facts wherein the complaint could be referred to a plant accident or the employee's work enviornment. In the other case the loss of time was for observation period only and no disability to the employee was involved.

An estimated total of 683,231 man hours were recorded during the month for a total of thirty-one days since the occurrence of the last major injury. This record is continuing.

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6/15/95

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

E. No-Injury Accidents

1. Motor Vehicle Accidents

A sharp increase in the number of motor vehicle accidents was noted during the month, which in the main, involved minor metal damage to the vehicle body. However, in one case considerable damage was done to the front end of a vehicle when the operator lost control and crashed through the partition in the garage. Total estimated damage for the nine motor vehicle accidents was $276.00, and mileage during this period was estimated at 204,155; frequency rate is 4.41.

2. Property Damage Accidents

One property damage accident involving damage to a security gate which was struck by a Southern Railway locomotive was reported. Damage was estimated at $40.00.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(SHEET USE) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE August 2, 1949

ANSWERING LETTER DATE

SUBJECT Plant Accident Experience Month of July, 1949

Safety

During the month of July, 1949, an estimated total of two hundred and four personal injuries were reported to the dispensary for treatment by K-25 employees. In addition thereto, seven accidents with no personal injuries associated therewith, but involving damage or loss to Company equipment or facilities were reported. A summary of all accidents recorded during the report period is listed below:

a. Major Injuries - resulting in disability to the employee - 2
b. Sub-Major Injuries - requiring temporary assignment to other duties due to severity of the injury - 2
c. Minor Injuries - requiring first aid treatment only - 200

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 1/1/49 - 6/30/49			CURRENT PERIOD July 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.83	.00	1.36	.00	3.15
Severity	.10	2.05	.01	.36	.05	.00	.02	.05	.03

In addition to the above reported injuries there were three non-tabulatable major injuries reported wherein injury was alleged by the employee but not admitted by the Company. Subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work enviornment.

As of July 24th the plant had operated 1,244,988 accident free man hours (58 days - since May 28th). However, this record was broken by acceptance of a disabling injury on July 25, 1949. This marks the third time the K-25 Plant has operated in excess of 1,000,000 man hours without a disabling injury during the calendar year.

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Oak Ridge K-25 Site
WCX-80
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

Individual safety awards were distributed during the month of July in recognition of the record previously established during the period March 15th to May 16th, at which time the plant operated 1,502,012 man hours without experiencing a disabling injury.

1. Material Releases - Three material releases were reported; employees involved were referred to the dispensary for supervisory examinations. No apparent injuries resulted.

2. Motor Vehicle Accidents - Two motor vehicle accidents with an estimated loss or damage associated therewith in the amount of $71.13 to Government property, and $38.37 to a private owned vehicle were reported. Recorded mileage for this period was estimated at 216,943, resulting in a frequency rate of 0.92.

3. Property Damage Accidents - No property damage accidents involving loss or damage in the amount of $50.00 or more were reported.

4. Fires - One fire with an estimated loss of $3.00 was reported. The loss ratio for the year to date is .004.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. B. Humes K-1001 Building

DATE July 5, 1949

ANSWERING LETTER DATE

ATTENTION COPY TO Mr. A. P. Huber

SUBJECT Highlights Report for June 1949 - Safety and Inspection Division

Safety

During the month of June 1949 an estimated total of two hundred sixty-nine personal injuries were reported to the dispensary for treatment by K-25 employees. In addition thereto seven accidents with no personal injuries associated therewith, but involving damage or loss to company equipment or facilities were recorded. A summary of all personal injuries recorded during the report period is listed below:

a. Major Injuries - None
b. Sub-Major Injuries - Two
c. Minor Injuries - Two hundred sixty-seven

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 12/1/48 - 5/31/49			CURRENT PERIOD June 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.83	.00	1.55	2.80	.00
Severity	.10	2.05	.01	.36	.03	.00	.01	.03	.00

In addition to the above reported injuries there were three non-tabulatable major injuries reported wherein injury was alleged by the employee but not admitted by the Company. Subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work environment. The status of one non-tabulatable case previously reported as a sub-major was changed to a major injury when the employee lost time as a result of surgery to correct a pre-existing physical deficiency.

At the close of the month the K-25 Plant had operated a total of 740,118 man hours since the last major injury on May 27, 1949.

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6/15/95
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Safety awards were submitted to a employee committee for selection of three items from which plant employees would make their individual selection. Purchase orders were initiated for purchase of the items selected and delivery is expected during the month of July.

During the report period seven no-injury accidents involving damage or loss to company equipment or facilities were recorded. These are summarized as follows:

1. Material Releases - Two material releases of a minor nature were reported, and employees involved referred to the dispensary for supervisory examination. No apparent injuries resulted.

2. Motor Vehicle Accidents - A total of three motor vehicle accidents with an estimated loss or damage associated therewith in the amount of $72.00 were reported. Recorded mileage for this period was estimated at 251,619, and the frequency rate therefor is 1.19. This is the lowest frequency rate recorded for the year '49, and reflects a considerable improvement in the record.

3. Property Damage Accidents - Two property damage accidents were recorded, one of which was in excess of $50.00. These involved the following:

   a. Damage to approximately six square feet of masonry at north penthouse at southwest corner of K-704 Building was incurred due to lightning on June 8, 1949. Damage was estimated at $400.00.

   b. Rupture of a sample ~~manifold~~ MIXING CAN resulted in damage to tubing glassware and transite w[illegible]s in the sample manifold in the Maintenance Shop. Damage was estimated at $25.00.

4. Fires - No reportable fires were recorded during the month, reflecting continuance of the excellent cooperation of all employees in minimizing fire hazards. The loss ratio for the year to date remains at .004.

INTER-COMPANY CORRESPONDENCE

(SHEET WARE) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE June 2, 1949

ANSWERING LETTER DATE

SUBJECT Plant Accident Experience - Month of May, 1949

An estimated total of two hundred thirty-three personal injuries were reported to the dispensary for treatment by K-25 employees during the report period. In addition thereto, sixteen accidents with no personal injuries associated therewith, but involving damage or loss to company equipment or facilities were recorded.

A summary of all personal injuries recorded during the report period is listed below:

a. Major Injury - Resulting in disability to the employee - Two
b. Sub-Major Injury - Requiring temporary assignment to other duties - One
c. Minor Injury - First aid Treatment only - Two hundred thirty

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 11/1/48 - 4/30/49			CURRENT PERIOD May 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.83	.00	1.53	.00	2.77
Severity	0.10	2.05	0.01	0.36	.05	.00	.02	.00	.02

In addition to the above mentioned injuries recorded, there were two non-tabulatable major injuries, and two non-tabulatable sub-major injuries reported wherein injury was alleged by the employee but not admitted by the Company. Subsequent investigation revealed no facts wherein the complaint may be referred to a condition of employment.

As of midnight May 16th the K-25 Plant had operated 1,502,012 man hours without experiencing a disabling injury. The period covered by the above mentioned record began March 15, 1949 and was concluded by acceptance of a disabling injury on May 17, 1949.

The month of May produced one additional disabling injury and an increase in all accidents was noted. Emphasis on reducing accident causes and prompt investigation to minimize recurrence was initiated. During the past two weeks the high incidence of serious accidents was brought to the attention of the Superintendent's Group in an effort to direct the attention of supervision upon the increasing problem.

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Technical Information Officer Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

During the report period sixteen no-injury accidents involving damage or loss to company equipment or facilities were recorded. These will be summarized as follows:

1. Material Releases - Employees involved in the three material releases were referred to the dispensary for supervisory examinations. No apparent injuries were sustained.

2. Motor Vehicle Accidents - A total of eight motor vehicle accidents with an estimated damage associated therewith in the amount of $110.00 were reported. Mileage for this period was estimated at 210,451 miles; the frequency rate, therefore, is 3.73.

3. Property Damage Accidents - No reportable property damage accidents were recorded; however, during this period two minor accidents involving damage to:

   a. Fire hydrant on patrol road east of Gate No. 45; estimated at $15.33;

   b. Right section of private vehicle broken; damage estimated at $10.00.

4. Fires - Four minor fires with an estimated loss of $15.00 associated therewith were reported for May. The loss ratio for the year to date remains .004, ($221.50).

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

Mr. W. L. Richardson

DATE May 2, 1949

ANSWERING LETTER DATE

SUBJECT Accident Experience for April

An estimated total of two hundred thirty (230) personal injuries were sustained by K-25 employees during the month of April. In addition thereto twenty (20) accidents with no personal injuries associated therewith but involving damage or loss to Company equipment or facilities were recorded.

The personal injuries experienced for the month of April may be summarized as follows:

1. Major Injury - Resulting in disability to the employee - None
2. Sub-Major Injury - Requiring temporary assignment to other duties - Three
3. Minor Injuries - First Aid Treatment Only - Two hundred twenty-seven (227)

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 10/1/48 - 3/31/49			CURRENT PERIOD April 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	3.72	1.21	2.14	1.27	0.00
Severity	0.10	2.05	0.01	0.36	0.05	0.001	0.02	0.003	0.00

A continuing reduction in the overall accident experience is reflected in the summary of accident experience for the month of April. The severity of injuries as well continue to show a downward trend, reflecting the excellent cooperation of all concerned in effectively removing accident causes with the exception of those involving operation of motor vehicles. Here we note a continuing high rate of accidents which will require continued emphasis by all concerned in eliminating faulty driving habits of individuals, and closer enforcement of driving regulations.

During the report period twenty (20) no injury accidents involving damage or loss to Company equipment or facilities. These may be summarized as follows:

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Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

WCK-80

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1. Material Releases - Four material releases were recorded during this period. Employees involved were referred to the dispensary and no injury other than slight respiratory irritation was noted.

2. Motor Vehicles - Seven (7) motor vehicle accidents with a monetary loss or damage in the amount of $49.50 associated therewith were reported, resulting in a frequency rate of 3.03.

3. Property Damage - Five (5) property damage accidents involving: (Total estimated damages $345.00)
   a. Roll type vehicular door, K-1401 Building, struck by unknown piece of equipment, $150.00 damage;

   b. Over-turned Willamette Hyster, $2.00 damage;

   c. Broken cab glass on Gradall shovel occurred when boom struck guy wire; guy wire slid off and bumped against the cab glass, $18.00 damage

   d. Buckled frame and bent hoisting piston on flatbed type dump truck occurred when a combination of wind force and load shift caught the bed of the vehicle as it was raised and tilted one side of the frame, allowing the bed to shift and bend the hoisting piston; estimated damage $175.00;

   e. Water release, K-1001 Building (late reported occurred March 30th) occurred when maintenance erroneously concluded that system had been properly drained; as pipe plug was removed to complete what they thought to be drainage of the system, line pressure was released into interior of the building due to improper isolation of system worked on.

4. Fires - A total of five (5) fires with an estimated damage of $74.50 associated therewith were recorded. Fire loss ratio for the month of April was .001; year to date .004.

A. F. Becher
Safety Department

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE April 1, 1949

ANSWERING LETTER DATE

SUBJECT Accident Experience for March

During the month of March approximately two hundred fifty-seven (257) industrial injuries were sustained by employees at the K-25 Plant. In addition thereto, twenty (20) accidents with no personal injuries associated therewith, but involving damage or loss to Company property or facilities were recorded.

Personal injury experience for the month of March may be summarized as follows:

1. Major injuries resulting in disability to the employee - One (1)
2. Sub-Major Injury requiring temporary assignment to other duties - None
3. First aid treatment only - two hundred fifty-six (256)

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	1948 Cumulative
Frequency	1.28	2.83	1.77	3.35
Severity	.003	.007	.01	.03

The number of disabling injuries experienced by the plant remain at a fairly constant level for the past six (6) months; however, there is a decided decrease noted in the potential frequency rate as reflected in sub-major injuries experienced and totals of all injuries including minors for the same period. The severity of injuries experienced is also remaining at a very low level. During the month of March two (2) days were lost and for the year to date twenty-nine (29) days, indicating that the disability experienced by the employee as a result of major injuries might be minimized by a more lenient return to work policy.

Of the twenty (20) accidents involving no personal injuries, five (5) were classified as material releases. Employees involved were referred to the Medical Department for examination. No apparent injuries were recorded.

Ten (1) motor vehicle accidents with a monetary loss or damage associated therewith in the amount of $319.00 were reported, resulting in a frequency rate of 4.91. Emphasis on this phase of the accident prevention program is going forward with an effort made to reduce the number of accidents occurring as a result of failure to comply with Plant and local regulations for the safe operation of motor vehicles.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

Technical Information Office Oak Ridge K-25 Site
Date 6/15/95

Subject: Accident Experience for March

April 1, 1949

Five (5) fires with an estimated damage of $112.00 associated therewith were reported. Fire loss ratio for 1949 is as follows:

$$\frac{\$112.00 \times 10{,}000}{500{,}000{,}000.} = .002$$

~~February~~ March 1949	Year to Date
.002	.003

No reportable property damage accidents occurred during this period.

A. F. Becher
Safety Department

AFB:mrh

Approximate number of injuries for month - 257

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year To Date
Frequency	1.28	2.83	1.77	3.35
Severity	.003	.007	.01	.03

Material Releases - 5

Motor Vehicles - ~~15~~ 10 Est. Damage ~~$256.00~~ 319.00 Mileage (Est.) 203,748 Freq. Rate (Est.) ~~2.94~~ 4.91

No. of major injuries - 1

No. of sub-major injuries - 0

Minor Injuries - 256 (169 of these are completed as of 3-31-49)

782,905 Est. Exposure Hours for March

Number of days lost - March - 2 Year to date - 29

Property Damages - 0

Fires - 5 Est. Damage $112.00

~~FIRE LOSS RATIO~~

Fire Ratio - $\frac{112.00 \times 10,000}{500,000,000.} = .002$

Feb.,1949	Year to Date
.002	.003

MOTOR VEHICLE ACCIDENTS FOR MARCH

3-10-49	AE-789	$206.00*	Northwest Ramp - Plant 3. 1948 Ford Sedan.

* Estimated cost repair AE-789 $106.00 Including labor and parts.
Estimated damage to fence - $100.00
$206.00 Total damage

3-11-49	AE-2171	$ 30.00	Vehicle door southwest corner of K-1037. No damage to vehicle. Roll type door broken loose from track or side slot.
3-17-49	AE-3004	$ 5.00	Driveway at rear of K-1001 Building. 1948 Ford Stake canvas cover. Left cab door bent at bottom.
Occ. Jan., 1949 Reported March, 1949	AE-3701 AE-3709	$ 15.00 $ 0.00	In parking area intersection Ave. K and 18th street. # 1 Vehicle, 1949 Reo Van, # 2 Vehicle, 1948 Stake. # 1 Vehcile damaged - two rear doors of van body damaged. No. 2 not damaged.
3-28-49	AE-3585	~~Unknown at this time.~~ $ 30.00	Driveway rear of 1088 building. Power House Area. Damage to can cover and iron frame of cover fo bed of truck.
3-28-49	AE-667 AE-2035	$ 3.00 3.00	Ave. K. adjacent to south end of K-1029 Building. No. 1 Vehic '47 Ford Sedan, right front fender scratched, right headligh rim bent. No. 2 Vehicle '48 Int. Pick-up. Left rear hub cap bent, Left rear fender bent.
3-22-49	AE-663	$ 4.00	Power House Area. Right rear fender scratched and moulding bent.
3-27-49	AE-2063	$ 5.00	Northeast ramp, K-25 Plant Right front fender bent and scratched.

3-28-49	AE-2324 AE-2320	$ 5.00 $ 5.00	Ave. k, adjacent from withdrawal alley No. 5. Left headlight damaged, left end front bumper dent. left front fender dent.damage to No. 1 Vehicle, '42 Int. Bus. Left end front bumper dent, Left front light damaged. '42 Int. Bus, No. 2 Vehicle.
3-28-49	AE-889	$ 8.00	'49 Ford Sedan Sanitary Water Tank Road Right front door and right back door scratched.
		$319.00	Total Est. Damage.

FIRES AND EXPLOSIONS

March, 1949

3-7-49	Cold Trap of a Sampling Unit Exploded. Room 19 Building K-1004-A.	Est. Damage $ 20.00
3-9-49	Wiring of Vehicle (Ford Sedan) AE-757 burned.	Est. Damage $ 10.00
3-11-49	Two Tarpaulins and the Insulation from an Extension Cord Burned.	Est. Damage $ 52.00
3-22-49	Smouldering fire in rear cushion of plant vehicle (Ford Sedan AE-893)	Est. Damage $ 10.00
3-25-49	Class A Fire involving paper filter baffles of 4 type PL-24 Airmat filters.	Est. Damage $ 20.00

INTER-COMPANY CORRESPONDENCE

(WESTERN UNION) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE March 1, 1949

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Accident Experience for February

A total of two hundred forty-four (244) industrial injuries were experienced at the K-25 Plant during the month of February, and in addition, seventeen (17) other types of accidents involving damage or loss to Plant facilities and/or equipment were recorded.

The man hour record accumulated at the K-25 Plant since the date of the disabling injury on December 23rd was broken due to acceptance of a January case which involved disability to the employee a week following the accident. This case was thus chargeable against the January record and is included in the frequency rate for last month.

Comparative frequency and severity rates for 1948 - 1949 are listed below:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	1948 Cumulative
Frequency	2.86	1.29	2.03	2.82
Severity	.007	.001	.01	.02

Of the two hundred forty-four (244) personal injuries, two resulted in disability to the employee, four required the employee be temporarily assigned other duties due to the severity of the injury, and the remainder required first aid treatment only.

Of the seventeen (17) accidents involving no personal injuries, seven were classified as material releases. Employees involved were referred to the dispensary for examination; no apparent injuries resulted.

Eight (8) motor vehicle accidents were reported during the period with an estimated damage of $162.00 associated therewith, resulting in a frequency rate of 3.50.

Two (2) fires of a negligible nature were reported, with an estimated damage of $20.00. Cumulative loss ratio for 1949 continues at .00, as compared with a loss ratio of .04 for the year 1948.

No reportable property damage accidents were recorded during this report period.

This document has been approved for release to the public by: [signature] 6/15/49 Date
Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

A. F. Becher
Safety and Inspection Division

AFB:mrh

K-25 PLANT ACCIDENT EXPERIENCE

1944 - - - - - 1948

	Frequency	Severity	No. of Major Injuries	Days Lost	Man Hours
1944	9.44	0.36	35	1,342	3,706,005
1945	8.22	1.24	182	27,340	22,132,797
1946	4.05	0.67	70	11,611	17,295,194
1947	2.93	0.38	35	4,598	11,951,902
1948	3.67	0.24	37	2,442	10,094,708

MONTHLY EXPERIENCE
1948

January	3.26	0.02	3	22	920,095
February	2.34	0.01	2	11	854,116
March	4.37	0.04	4	35	914,495
April	4.61	0.04	4	38	868,510
May	5.95	0.60	5	506	840,591
June	2.39	0.08	2	65	836,585
July	11.16	0.14	9	114	806,928
August	1.19	0.09	1	74	840,872
September	2.48	1.87	2	1611	806,332
October	3.72	0.02	3	14	806,720
November	1.30	0.05	1	36	768,836
December	1.21	0.02	1	18	828,678

MONTHLY EXPERIENCE
1949

January	1.29	0.001	1	1	774,635

INTER-COMPANY CORRESPONDENCE

(WRITER'S NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE January 31, 1949

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Accident Experience for January

A sharp decrease in the total number of plant accidents was experienced during the month of January - an estimated total of two hundred forty-two (242) occupational injuries were sustained, and in addition thereto, eight (8) other types of accidents involving damage or loss to plant facilities and/or equipment were experienced.

A total of 1,042,509 man hours was accumulated at the K-25 Plant without a disabling injury since the date of the last disabling injury on December 23rd. Cumulative frequency and severity rates for 1948 and 1949 are listed below:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	1948 Cumulative
Frequency	.00	1.21	.00	3.67
Severity	.00	.02	.00	.24

The two hundred forty-two (242) personal injuries may be summarized as follows:

Major injuries resulting in disability to the employee 0
Sub-Major injuries requiring the employee be temporarily assigned to other duties 1
Requiring First Aid treatment only 241

Eight (8) accidents with no personal injuries associated therewith were experienced during the same period. These are summarized as follows:

1. Material Releases - Two (2) material releases were reported during the month of January, with no personal injuries associated therewith.

2. Property Damage - No reportable property damage accidents were recorded.

3. Motor Vehicles - Five (5) motor vehicle accidents were reported, with a total estimated damage of $158.00 associated therewith.

4. Fires - One (1) fire was experienced during the monthly with negligible damages. Cumulative loss ratio for 1949 - .00; 1948 - .04, reflecting a total of twenty-seven (27) fires with a loss or damage of ~~$1,864.50~~ $2,657.07.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer 6/15/95 Date

A. F. Becher
Safety and Inspection Division

WCX-80

AFB:mrh

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

INTER-COMPANY CORRESPONDENCE

COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE January 4, 1948 *

ANSWERING LETTER DATE

SUBJECT Accident Record for December

* This letter should have been dated January 4, 1949; this date is incorrect.

A continuance in the downward trend of all Plant accidents is reflected in the December experience. An estimated total of three hundred and four (304) occupational injuries were sustained by K-25 employees during this period. During the period November 1st through December 23rd, 1948, K-25 Plant employees operated a total of 1,328,720 man hours without a disabling injury. This period of accident free man hours, however, was broken by the occurrance of two plant injuries of a disabling nature at the end of the month.

Comparative frequency and severity rates for the years 1947 and 1948 are as follows:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year to Date
Frequency	2.52	1.30	3.78	3.01
Severity	.04	.09	.10	.38

The three hundred and four (304) personal injuries sustained by employees can be summarized as follows:

Two (2) major injuries resulting in disability to the employee;
Two (2) sub-major injuries requiring the employees be temporarily assigned to other duties;
Two hundred and ninety-nine (299) required first aid treatment only.

Twenty-two (22) accidents with no personal injuries associated therewith were experienced during the same period. These are summarized as follows:

1. Material Releases

Eight (8) material releases were reported and employees involved were referred to the dispensary for supervisory examination; no personal injuries reported.

2. Property Damage

One property damage accident resulting with an estimated damage of $30.00 occurred when a vehicle operator attached a choker sling to the front end of the vehicle around the metal apron, when a strain was applied to tow the vehicle away, the choker sling cut through the apron, resulting in metal damage.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by: [signature] 4/15/95 Technical Information Officer Date Oak Ridge K-25 Site

WCX-80

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

3. Motor Vehicles

Twelve (12) motor vehicle accidents were reported during the same period with a total loss or damage associated therewith in the amount of $248.00, reflecting an estimated frequency rate of 5.54 per 100,000 vehicle miles. None of the above resulted in damage of $50.00 or more, all being of a minor nature.

4. Fires

No reportable fires with a loss of $50.00 or more were reported during this period.

The cumulative loss ratio to date is .037¢ per $100. investment, reflecting a total of twenty-seven (27) fires and a loss or damage associated therewith in the amount of $1,864.50.

A. F. Becher
Safety and Inspection Division

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(NEW MEXICO) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE December 2, 1948

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Accident Record for November

Continuing improvement in the plant frequency rate is gratifying and reflects the emphasis placed on supervisory responsibility for the control of accidents and the maintenance of safe operations. Not only is this improvement reflected in the frequency rate of major injuries, but also in the decreasing number of total plant injuries, and when this is compared with the potential frequency rate established by the accumulation of temporary partial and temporary total cases it is noted that the severity of the injuries being sustained is also continuing to reflect an improvement in the record. An estimated total of three hundred (300) industrial injuries were sustained by employees of the K-25 Plant during the month of November.

Comparative frequency and severity rates are as follows:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year to Date
Frequency	1.28	3.72	3.88	3.00
Severity	.08	.37	.11	.40

Of the three hundred (300) personal injuries one was of a major classification resulting in disability to the employee. The remainder were of a minor nature, requiring first aid treatment only.

Seven (7) accidents with no personal injuries associated therewith were experienced during the same period. Classification thereof is as follows:

1. Material Releases

Three (3) material releases were reported; employees involved were referred to the dispensary for supervisory examination only.

2. Property Damage

No property damage accidents with a loss of $50.00 or more associated therewith were reported during this period.

3. Motor Vehicle Accidents

Three (3) minor motor vehicle accidents were reported during this period, with an estimated loss or damage in the amount of $34.00.

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Technical Information Officer
Oak Ridge K-25 Site
Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

WCK/dc

4. Fires

One fire with an estimated loss of $1000.00 occurred in the laboratory. Cause of the fire is unknown, but the most likely source of ignition was an electric, glass-col heater mantel, which was used in a distillation process. The work bench top was badly charred at a point immediately under the Glass-Col heater mantel which had been placed on top of a piece of one inch air vented corrugated asbestos, which in turn was in direct contact with the table top. The fire was discovered in the early part of the evening and had gained considerable headway before it was discovered and the Fire Department alerted. Damage was confined to the work bench, small tools, instruments, laboratory equipment, electrical wiring, and building partitions.

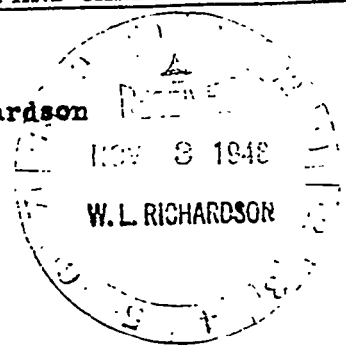
The cumulative loss ratio to date is .037, representing a total of twenty-six (26) fires and a loss or damage associated therewith in the amount of $1,864.50.

A. F. Becher
Safety and Inspection Division

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.



TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE November 2, 1948
ANSWERING LETTER DATE

SUBJECT Accident Record for October

During the month of October approximately three hundred and twenty-four (324) personal injuries were sustained by K-25 employees during the course of their employment. Ten (10) motor vehicle accidents resulting in $163.00 damage and one fire with an estimated monetary loss of $700.00 were also reported.

Comparative frequency and severity rates are listed below:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year to Date
Frequency	4.80	2.48	4.22	3.16
Severity	.12	.02	1.18	.44

Of the three hundred and twenty-four (324) personal injuries, four were of the major classification, resulting in disability to the employee; two (2) were classified as sub-major, necessitating temporary assignment of the employee to other than his regular duties. The remainder were of a minor nature, requiring first aid treatment only.

Classification of the various types of accidents resulting in no injury to the employees were as follows:

1. Material Releases

During the reporting period, six (6) material releases were reported. Employees involved were seen at the dispensary for supervisory examinations. No apparent personal injuries resulted.

2. Property Damage

No accidents in this category were recorded during the report period.

3. Motor Vehicles

A total of ten (10) motor vehicle accidents were experienced, with an estimated damage or loss in the amount of $163.00 associated therewith. Estimated frequency rate, per 100,000 miles is 3.88.

Special emphasis have been placed upon this phase of the accident prevention program in an attempt to minimize the number of accidents due to carelessness and inattention in the

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Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

handling of Company equipment.

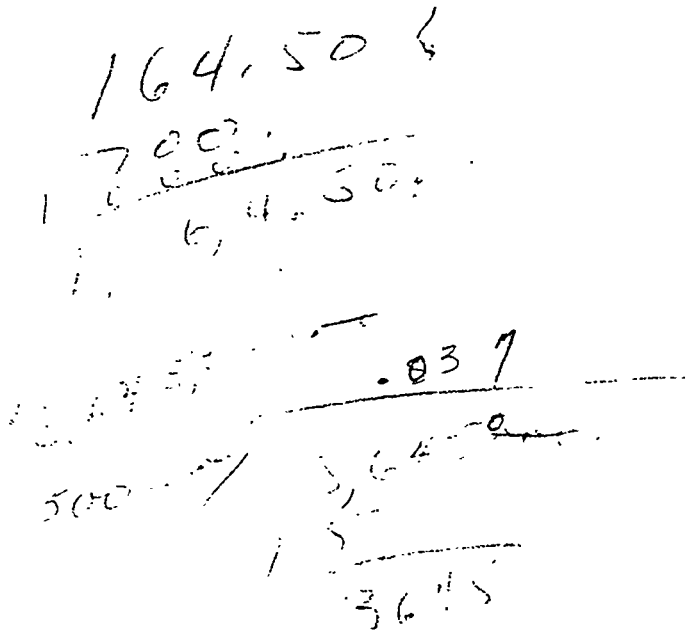
4. Fires

Eight (8) fires were reported during October, which is the highest for any month during the past year. A major fire resulting in an estimated loss of approximately $700.00 was reported during this period, and seven (7) fires with minor damage amounting to $46.00.

Due to the prompt action of the Fire Department, in handling of the one major fire the resultant damage was kept to a minimum.

A. F. Becher
Safety and Inspection Division

AFB:mrh



INTER-COMPANY CORRESPONDENCE

UNION CARBIDE) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE October 1, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for September

Accident Experience

The continuing improvement in the frequency rate is gratifying which reflects the increasing emphasis placed on responsibility of supervision in maintaining safe operations. Approximately two hundred and eighty-three (283) personal injuries were sustained by Carbide employees at the K-25 Plant during the month of September. Comparative frequency and severity rates are listed below:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year to Date
Frequency	2.46	1.19	4.16	2.84
Severity	.02	.09	.08	.27

Eighteen (18) accidents with no personal injuries associated therewith were experienced during the same period. Classification of the various types of these accidents is as follows:

1. Material Releases

Five (5) material releases were reported. Employees involved were referred to the dispensary for supervisory examination only.

2. Property Damage

Three (3) property damage accidents with a total loss associated therewith in the amount of $152.00 were reported. These are summarized as follows:

a. The roof of a trailer was damaged during unloading operations performed by the Allis-Chalmers Company at Milwaukee, Wisconsin. While picking up a load with a crane, it became unbalanced, causing the hook to swing catching the cab of the trailer, resulting in damage or loss in the amount of $82.00.

b. While attempting to drive a bull dozer through a security gate, the operator caught the post with the blade of the dozer, bending the fence post and breaking the lock, resulting in damages in the amount of $34.00.

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Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

c. While moving a side-boom tractor on the turnpike, the operator allowed the machine to get ahead of the flagman provided to check clearances with overhead wire crossings. As he approached a 13 KV feeder crossing over the turnpike, he thought he had sufficient clearance; however, did not wait for a check by the flagman and proceeded to go under them when the boom struck the feeder, flashed across the three phases, burning them down. Damage was estimated at $36.00.

3. Motor Vehicle Accidents

A total of ten (10) motor vehicle accidents were experienced during the month with an estimated damage or loss in the amount of $144.00. The majority of the accidents were the result of inattention on the part of the operator and failure to check clearances with fixed objects and other vehicles prior to backing up equipment which had limited vision to the rear.

4. Fires

No fires were reported during the month of September, continuing to reflect the excellent job being done by all levels of supervision in fire prevention. The Plant cumulative loss ratio to date is .00, representing a total of seventeen (17) fires and a loss or damage due to same in the amount of $164.50.

A. F. Becher
Safety and Inspection Division

AFB:mrh

INTER-COMPANY CORRESPONDENCE

(DEPT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO

DATE September 2, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for August

SAFETY

During August 1948, there were approximately three hundred and eleven (311) personal injuries sustained by K-25 employees in the course of their employment. The accident rates are as follows:

	This Month (Estimated)	Last Month	This Year to Date (Estimated)	Last Year to Date
Frequency	1.24	11.15	4.38	2.79
Severity	.09	.14	.08	.29

The decided improvement in frequency rate is gratifying, following as it does, the increased emphasis placed on supervision's responsibilities for safe operations.

Eleven (11) no-injury accidents were reported during the same period. Classification of the various types of no-injury accidents is as follows:

1. Material Releases

Two (2) material releases were reported, with no apparent personal injuries associated therewith.

2. Property Damage

Four (4) property damage accidents were reported with an estimated damage of $542.50.

a. One property damage accident involved an explosion of a small cylindrical reactor in Room 15 of the K-1004-D Building, damaging the hood in which it had been placed. Damages to the laboratory hood and surrounding fixtures were estimated to be $450.00.

b. The second property damage accident occurred as a result of two and three-quarter inch (2 3/4") cutters of a type not previously used being installed on a shimmer cutter head of an Oliver Shaper. When the machine was started, the cutters apparently bit into the fence guard, fractured and broke, throwing pieces of the cutter and bolt around the work area. Damages to the equipment was estimated at $30.00.

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Technical Information Officer
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

c. The third property damage accident involved a Turna-Dozer east of the old Salvage Yard. As the operator backed up to get the Turna-Dozer in position to push the pan to load it with top soil, the left rear wheel struck a thirty-five foot (35') line pole, breaking it off level with the ground. Damages were estimated at $50.00.

d. The fourth property damage accident occurred as a patrol car was crossing the Poplar Creek Bridge, when in some manner a stone pierced the oil pan. Damages were estimated at $12.50.

3. Motor Vehicle Accidents

Four (4) motor vehicle accidents were experienced during the month, with an estimated damage of $127.26.

4. Fires

One (1) fire of a minor nature was reported; damages were negligible. The Plant cumulative loss ratio for the year to date is .0, representing a total of seventeen (17) fires, and a loss or damage in the amount of $164.50.

for A. F. Becher
Safety and Inspection Division

AFB:mrh
/RFP

INTER-COMPANY CORRESPONDENCE

COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. A. P. Dunlap
LOCATION

DATE August 4, 1948

ANSWERING LETTER DATE

ATTENTION Mr. W. L. Richardson
COPY TO

SUBJECT Accident Record for July

SAFETY

During July 1948, there were approximately three hundred and eleven (311) personal injuries sustained by K-25 employees in the course of their employment. The accident rates are as follows:

	This Month (Est.)	Last Month	This Year to Date - (Est.)	Last Year to Date
Frequency	9.23	2.39	4.63	2.61
Severity	.13	.11	.08	.32

A sharp increase in frequency for the month of July reflects the continuing high ratio of minor injuries per capita. Plant emphasis is being placed on the elimination of the causative factors of all accidents.

Nine (9) no-injury accidents were reported during the same period. Classification of the various types of no-injury accidents is as follows:

a. Material Releases

Four (4) material releases were reported with no apparent personal injuries associated therewith.

b. Property Damage Accidents

One (1) property damage accident involving replacement of a Robbins Conveyor Belt, 3'6" x 722' on the No. 2 conveyor at the Power House coal field resulted when three top bolts broke off at junction of weld and stud. This allowed a Manganal wear plate, 31" x 49" x 3/8" to fall to the bottom of the transfer chute, cutting through the belt and wedging, splitting the belt the full length as it traveled over the tail pulley at bottom of number 2 conveyor. Estimated damages were $3,155.37.

c. Motor Vehicle Accidents

Two (2) motor vehicle accidents were experienced with negligible damage to equipment.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

d. Fires and Explosions

Two (2) fires of a minor nature were reported; damages were negligible. The plant cumulative loss ratio for the year to date at the K-25 Plant is .0, representating a total fo sixteen (16) fires and a loss or damage in the amount of $164.50.

AFB:mrh

A. F. Becher
Safety and Inspection Division

PRINTED IN U.S.A. U.C.&C.36-A

INTER-COMPANY CORRESPONDENCE

(DEPARTMENT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE July 2, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for June

ACCIDENT CONTROL

1. A frequency rate of 2.46 (2 major injuries), and a potential frequency rate of 4.92 (2 major and 2 sub-major injuries), with an estimated severity of .11 were experienced at the K-25 Plant during the month of June.

2. Corrected frequency and severity rates for the month of May:

Frequency Rate - 5.95 (5 major injuries)
Severity Rate - .09 (38 man days lost)

This is due to acceptance of a late reported case for the month of May.

3. Cumulative rates for the year 1948 as compared with 1947 are listed below:

1948 Cumulative Plant Total through May

Frequency Rate - 4.09
Severity Rate - .04

1947 Cumulative Plant Total through May

Frequency Rate - 2.42
Severity Rate - .07

The cumulative rates for the year 1948 continue with an approximate 100% increase over the accident record as established during the year 1947. However, the reduction in the potential frequency rate would indicate a gradual decrease in the overall accident experience involving certain cases of serious injuries.

Seventeen (17) no-injury accidents were reported during the same period. Classification of the various types of no-injury accidents is as follows:

a. Four (4) material release reports; no personal injuries associated therewith.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

6/15/95
Date

b. One (1) property damage accident involving replacement of a wooden pole on an overhead pipe line which occurred when a bulldozer operator through a miss operation in steering mechanism swung the bulldozer around and broke off the pole. Damage estimated at $50.00.

c. Eight (8) motor vehicle accidents involving a total estimated damage of $127.00.

d. Four (4) fires with a monetary loss of $14.00 associated therewith. The cumulative loss ratio for the year to date at the K-25 Plant is .00, representing a total of fourteen (14) fires and a loss or damage in the amount of $164.50.

AFB:mrh

A. F. Becher
Safety and Inspection Division

INTER-COMPANY CORRESPONDENCE

(INSERT ME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE July 2, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for June

Safety

During June 1948, there were approximately three-hundred and fifty-six (356) personal injuries sustained by K-25 employees in the course of their employment. The accident rates are as follows:

	This Month (Est.)	Last Month	This Year to Date (Est.)	Last Year to Date
Frequency	2.46	5.95*	4.09	2.42
Severity	0.11	.09*	0.04	0.07

The cumulative rates for the year 1948 continue with an approximate 100% increase over the accident record as established during the year 1947. However, the reduction in the potential frequency rate would indicate a gradual decrease in the overall accident experience involving certain cases of serious injuries.

Seventeen (17) no-injury accidents were reported during the same period. Classification of the various types of no-injury accidents is as follows:

a. Four (4) material release reports; no personal injuries associated therewith.

b. One (1) property damage accident involving replacement of a wooden pole on an overhead pipe line which occurred when a bulldozer operator through a miss operation in steering mechanism swung the bulldozer around and broke off the pole. Damage estimated at $50.00.

c. Eight (8) motor vehicle accidents involving a total estimated damage of $127.00.

d. Four (4) fires with a monetary loss of $14.00 associated therewith. The cumulative loss ratio for the year to date at the K-25 Plant is .00, representing a total of fourteen (14) fires and a loss or damage in the amount of $164.50.

This document has been approved for release to the public by: Technical Information Officer Oak Ridge K-25 Site 4/15/95 Date

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

AFB:mrh

A. F. Becher
Safety and Inspection Division

* Revised due to acceptance of late reported case.

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO LOCATION Mr. W. L. Richardson

DATE June 3, 1948

ANSWERING LETTER DATE

ATTENTION

COPY TO

SUBJECT Accident Record for May

A. Accident Control

1. A frequency rate of 4.46* (4 major injuries) and a potential frequency rate of 5.57* (4 major and 1 sub-major injury) with an estimated severity of .04 were experienced at the K-25 Plant during the month of May.

2. Corrected frequency and severity rates for the month of April are as follows:

Frequency Rate - 4.61 (4 major injuries)
Severity Rate - .04 (38 man days lost)

Cumulative rates for the year 1948 -

Frequency Rate - 3.65
Severity Rate - .03

The above rates when compared with the 1947 cumulative frequency rate of 1.83 and a severity rate of .11, indicates a continuance of major and sub-major injuries in excess of those experienced during the year of 1947; however, a comparison of the severity rate would indicate that many of the cases involved nominal loss of time (1 to 2 days), and this could be attributable to more rigid control of "return to work cases" with medical restrictions applied.

Twenty-one (21) no-injury accidents were reported during the same period, twelve (12) of which were classified as material release. Several employees involved were referred to the dispensary for supervisory examination with no personal injuries involved. Four (4) remaining cases are still under investigation to determine cause and affect.

One (1) property damage accident resulted in an estimated damage of $208.31 to electrical and fire alarm equipment which occurred when a direct lightning stroke hit a transformer vault on feeder #308 at the Southern Railway Shops burning down two (2) sections of overhead 13 KV line and damaging auxiliary equipment.

* Estimates

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

The second property damage accident involving a damage or loss in the amount of $329.64 occurred when a Phase B 13.8 KV distribution cable faulted just outside of transformer vault #3. The fault is attributable to a mechanical damage which occurred either prior to/or coincident with the installation of cable at the time of plant construction. Progressive loss of oil and accumulation of moisture led to insulation deterioration with the resultant fault being experienced.

Fire Control

One (1) fire of minor nature with negligible loss associated therewith was experienced during the month of May. Cumulative loss ratio for the year to date for the K-25 Plant is .00, representating a total of fourteen (14) fires and loss or damage in the amount of $150.50.

AFB:mrh

A. F. Becher
Safety and Inspection Division

INTER-COMPANY CORRESPONDENCE

(UNION CARBIDE) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson

LOCATION

ATTENTION

COPY TO

DATE May 4, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for April

Accident Control

A frequency rate of 4.37*(4 major injuries) and a potential frequency rate of 8.75*(4 major and 4 sub-major injuries) were experienced at the K-25 Plant during the month of April.

The cumulative frequency rate for the first three (3) months of 1948 was 3.35 and a severity rate of .03 which indicates a considerable increase over the 1947 cumulative rates, which were -

Frequency Rate - 1.19
Severity Rate - .12

however, the cumulative rates for the year 1947 are subject to revision due to acceptance of several cases not previously reported as a result of settlement on the basis of permanent partial and permanent total disability arising out of occupational injuries. Of more significance is the continuing high potential frequency rate which could due to some slight circumstance result in an actual frequency rate of the same magnitude being controlled only by the severity of the injury.

Nineteen (19) no injury accidents were reported, twelve (12) of which were classified as material releases. Several employees involved were referred to the Dispensary for supervisory examinations and no personal injuries involved.

One property damage accident resulted in an estimated damage of $1349.08 due to a lightning stroke on a TVA transmission line, the resulting volting fluctuation due to switching involved caused burn-out of three (3) stage pump motors due to over-load and one (1) DC generator due to flash over.

The second property damage accident resulted in an estimated damage of $25.00 to a truck fender, hood and head light when the truck which was re-fueling a Crawler Crane at the Power House coal field was struck by the cab of the crane. The crane operator had not allowed sufficient time for the truck to complete the operation and pull in the clear nor had he received any signal to resume operations. The truck had been stopped within 18" of the track of the crane and when the operator swung his cab, he caught the front end of the truck.

* - Estimates

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site

6/15/95
Date

The third property damage accident resulting in an estimated damage of 1500-2500, occurred when the furnace which had been left to complete a run over the week end unattended, overheated due to loss of instrument control resulting in disintegration of the fire brick lining of the furnace and warping of the muffle track and assembly.

Fire Control

Three (3) fires occurred during the same period and the resultant monetary loss associated therewith was $105.00. Loss ratio for the month - .00. Three (3) additional fires were covered by the Fire Department within the area outside of the plant. No damage or loss was experienced for these three (3) fires.

AFB:mrh

A. F. Becher
Safety and Inspection Division

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION

ATTENTION
COPY TO File

DATE April 5, 1948

ANSWERING LETTER DATE

SUBJECT Accident Record for March

During the month of March a frequency rate of 4.68* (four major injuries), and a severity rate of .04* (thirty-five man days lost), were experienced at the K-25 Plant. The potential frequency rate for the same period was 7.02, (four major injuries and two sub-major injuries).

The cumulative rates for the year 1948 are as follows:

Frequency	3.42
Severity	.03

which compared with the same period of 1947 when a frequency rate of 1.19 and a severity rate of .12 were experienced, indicates a considerable increase in the frequency of major injuries experienced at the Plant.

Thirteen (13) no-injury accidents were reported, ten (10) of which were classified as material releases with no personal injuries associated therewith. Several employees involved were referred to the Dispensary for supervisory examinations.

One property damage accident involved a General Supercrane, Model 307, which occurred when the brakes failed on the equipment and and the operator lost control, which allowed the crane to leave the highway, crash through a barricade post and turned over on its right side in a pool adjacent to the highway. Labor and materials necessary to remove the crane from the pool with subsequent repairs to the motor at the garage resulted in an estimated damage of $1088.88.

The second property damage accident involved a Northwest Crawler Crane which was being transported on a low-boy on the Oak Ridge Turnpike. The accident occurred when the flagman stationed at the top of the crane gantry attempted to clear the neutral wire of a 13.8 KV distribution line over the top of the crane boom with a stick, resulting in the neutral wire contacting the 13.8 KV distribution circuit which burned down two sections of wire. Damage was negligible.

* Estimates

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:
Technical Information Officer
Oak Ridge K-25 Site
6/15/95
Date

The third property damage accident occurred when the cab of a Northwest Crawler Crane stationed at the Power House coal field caught the front end of a tank truck which had pulled up along side the crane to re-fuel. Resultant damage to the equipment was minor, involving repair to right fender, grill panel, and headlight.

AFB:mrh

A. F. Becher
Safety and Inspection Division

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. B. Humes
LOCATION K-1001 Building

DATE March 11, 1948
ANSWERING LETTER DATE

ATTENTION
COPY TO Mr. W. L. Richardson

SUBJECT K-25 Accident Experience for 1948

Attached hereto is a detailed listing of the accident experience at the K-25 Plant since January 1, 1948. They fall in the following general classifications:

1. Foot Injuries - (Three Major and three Sub-Major)
2. Hand Injuries - (Two Major, Seven Sub-Major and two Serious Minor)
3. Eye Injuries - (One Major, and one Serious Minor)
4. Back Injuries - (Two Sub-Major and one Serious Minor)
5. Miscellaneous Injuries - (One Major, Seven Sub-Major, Three Serious Minor)
6. No Injury Accidents - (Three Material Releases, one potential radium exposure, and four property damage)

Due to the increasing incidense of serious and potentially serious accidents occurring on the plant as evidenced by the plant injury frequent rate, potential and actual, and the several property damage accidents it might be desirable that a special Central Safety Committee Meeting be called to review the matter and determine what remedial steps should be taken.

An analyses of the total accidents experienced on the plant from January 1st to the present indicates that approximately 60% of the accidents incurred may be attributed to poor safety moralo and lack of close supervision. This has been determined by supervision at the various investigations conducted where it has been definitely established in many cases that the attitude on the part of both supervision and employees has indicated a lack of extreme care and desire to prevent accidents.

Please advise what your wishes are in this regard.

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

APD:AFB:mrh

A. P. Dunlap, Superintendent
Safety and Inspection Division

Attachment:

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95

F INJURIES, (MAJOR)

Date of Injury	Name of Injured	Job Classification	Department	Type of Injury
2/21/48		Welder	Maintenance	Fracture, Distal Phalanx, Right Great Toe
3/2/48		Material Expediter, (Carpenters)	Maintenance	Compression Fracture, distal phalanx, first digit, right foot
3/5/48		Laborer	Maintenance	Fracture, left foot

FOOT INJURIES, (SUB-MAJOR)

2/15/48		Utility Man	Maintenance	Sprain, left foot, first metatarsal
2/23/48		Stores Clerk	Stores	Sprain, right foot
2/28/48		Rigger	Maintenance	Fractured first digit, right foot

HAND INJURIES, (MAJOR)

1/5/48		Maintenance Mech. Group Leader	Power	Partial amputation of the right index finger
1/28/48		Fabrication Helper		Laceration on palmar surface, mid phalanx, 3rd digit, right hand; also multiple evulsions on both 3rd and 4th digits; chip fracture distal phalanx, 4th digit, right hand

HAND INJURIES, (SUB-MAJOR)

1/7/48		Group Leader, Maint. Mech.	Maintenance	Laceration of web between thumb and right fore finger, right hand
1/29/48		Insulator		Second degree burn radial aspect, 2nd digit, right hand
2/10/48		Rigger	Maintenance	Sprain left wrist
2/16/48		Operator	Process	Dorsal dislocation o mid phalanx on proximal phalanx, 5th digit, right hand

'ND INJURIES, (SUB-MAJOR, Cont'd.)

Date of Injury	Name of Injured	Job Classification	Department	Type of Injury
2/18/48		Mechanic Helper	Maintenance	Sprain, right wrist
2/23/48		Welder	Maintenance	Laceration left index finger
2/25/48		Maint. Mech.	Maintenance	Shelving lacerations on dorsal surface of terminal phalanges 3rd and 4th digits, right hand

HAND INJURIES, (SERIOUS MINOR)

Indefinite		Maint. Mech.	Maintenance	Alleged contact dermatitis
2/10/48		Material Expediter		Laceration and simple fracture distal phalanx, 3rd digit, left hand

'E INJURIES, (MAJOR)

1/22/48		Welder	Maintenance	Foreign body, left eye

EYE INJURIES, (SUB-MAJOR)

NONE

EYE INJURIES, (SERIOUS MINOR)

1/13/48		Development Engineer	Laboratory	Chemical conjunctivitis of left eye

BACK INJURIES, (MAJOR)

NONE

BACK INJURIES, (SUB-MAJOR)

1/5/48		Utility Man		Alleged back sprain
1/8/48		Janitor		Alleged back sprain

BACK INJURIES, (SERIOUS MINOR)

1/19/48		Helper		Alleged back sprain

MISCELLANEOUS INJURIES, (MAJOR)

te of njury	Name of Injured	Job Classification	Department	Type of Injury
3/9/48		Shift Foreman	Process	Head Injury

MISCELLANEOUS INJURIES, (SUB-MAJOR)

1/8/48	Material Handler		Chest injury, left side
1/8/48	Rigger	Maintenance	Head, and/or neck injury
1/12/48	Welder	Maintenance	Alleged knee injury, left
1/19/48	Welder	Maintenance	Severe twist of right knee
2/24/48	Maint. Mech.	Maintenance	Tenderness over right right inguinal region; ext. abd. enlarged, but no hernia
2/26/48	Crew Leader	Process	Acute strain, left shoulder
2/24/48	Operator	Process	Strain, right knee

MISCELLANEOUS INJURIES, (SERIOUS MINOR)

1/16/48	Welder	Maintenance	Severe contusion, outer portion, upper part of left leg
1/26/48	Stores Clerk	Stores	Alleged acid burn
1/16/48	Group Leader, Inst. Mech.		Alleged soreness around shoulder blades, under arms and chest muscles

NO-INJURY ACCIDENTS

1/11/48	Property Damage Report Involving Northwest Crawler Crane, No. 17-3518
1/8/48	Potential Radiation Exposure, K-1024 Electronic Shop
1/31/48	Material Release, K-651 Shipping Room
2/3/48	Material Release, K-131, Failure of Kerotest Type Valve
2/6/48	Material Release, K-131, Failure of 1" Crane SMP Type Valve
2/23/48	Property Damage Report of International Tractor with High-Lift Shovel
-, 4/48	Property Damage Report of Supercrane, Model No. 307
3/8/48	Property Damage Report of Northwest Crawler Crane, No. 17 3518 - A - CC

(3)

T INJURIES, (MAJOR)

Date of Injury	Name of Injured	Job Classification	Department	Type of Injury
2/21/48		Welder	Maintenance	Fracture, Distal Phalanx, Right Great Toe
3/2/48		Material Expediter, (Carpenters)	Maintenance	Compression Fracture, distal phalanx, first digit, right foot
3/5/48			Maintenance	, Fracture, - W
FOOT INJURIES, (SUB-MAJOR) (3)				
2/16/48		Utility Man	Maintenance	Sprain, left foot, first metatarsal
2/23/48		Stores Clerk	Stores	Sprain, right foot
2/26/48		Rigger	Maintenance	Fractured first digit, right foot
HAND INJURIES, (MAJOR) (2)				
1/15/48		Maintenance Mech. Group Leader	Power	Partial amputation of the right index finger
1/28/48		Fabrication Helper		Laceration on palmar surface, mid phalanx, 3rd digit, right hand; also multiple evulsions on both 3rd and 4th digits; chip fracture distal phalanx, 4th digit, right hand
HAND INJURIES, (SUB-MAJOR) (7)				
1/7/48		Group Leader, Maint. Mech.	Maintenance	Laceration of web between thumb and right fore finger, right hand
1/20/48		Insulator		Second degree burn radial aspect, 2nd digit, right hand
2/10/48		Rigger	Maintenance	Sprain left wrist
2/18/48		Operator	Process	Dorsal dislocation o mid phalanx on proximal phalanx, 5th digit, right hand

'AND INJURIES, (SUB-MAJOR, Cont'd.)

Date of Injury	Name of Injured	Job Classification	Department	Type of Injury
2/18/48		Mechanic Helper	Maintenance	Sprain, right wrist
2/23/48		Welder	Maintenance	Laceration left index finger
2/25/48		Maint. Mech.	Maintenance	Shelving lacerations on dorsal surface of terminal phalanges 3rd and 4th digits, right hand

HAND INJURIES, (SERIOUS MINOR) (2)

Indefinite		Maint. Mech.	Maintenance	Alleged contact dermatitis
2/10/48		Material Expediter		Laceration and simple fracture distal phalanx, 3rd digit, left hand

'E INJURIES, (MAJOR) (1)

1/22/48		Welder	Maintenance	Foreign body, left

EYE INJURIES, (SUB-MAJOR) (0)

NONE

EYE INJURIES, (SERIOUS MINOR) (1)

1/13/48		Development Engineer	Laboratory	Chemical conjunctivitis of left eye

BACK INJURIES, (MAJOR) (0)

NONE

BACK INJURIES, (SUB-MAJOR) (2)

1/5/48		Utility Man		Alleged back sprain
1/8/48		Janitor		Alleged back sprain
1/19/48		Helper		Alleged back sprain

BACK INJURIES, (SERIOUS MINOR) (1)

MISCELLANEOUS INJURIES, (MAJOR)

Date of Injury	Name of Injured	Job Classification	Department	Type of Injury
3/9/48	[illegible] (1)	Shift Foreman	Power Maint	Head Injury

MISCELLANEOUS INJURIES, (SUB-MAJOR) (7)

1/8/48		Material Handler		Chest injury, left side
1/8/48		Rigger	Maintenance	Head, and/or neck injury
1/12/48		Welder	Maintenance	Alleged knee injury, lef
1/19/48		Welder	Maintenance	Severe twist of right knee
2/24/48		Maint. Mech.	Maintenance	Tenderness over right right inguinal region; ext. abd. enlarged, but no hernia
2/26/48		Crew Leader	Process	Acute strain, left shoulder
2/24/48		Operator	Process	Strain, right knee

MISCELLANEOUS INJURIES, (SERIOUS MINOR) (3)

1/16/48		Welder	Maintenance	Severe contusion, outer portion, upper part of left leg
1/26/48		Stores Clerk	Stores	Alleged acid burn
1/16/48		Group Leader, Inst. Mech.		Alleged soreness around shoulder blades, under arms and chest muscles

NO-INJURY ACCIDENTS (8)

1/11/48	Property Damage Report Involving Northwest Crawler Crane, No. 17-3518
1/3/48	Potential Radiation Exposure, K-1024 Electronic Shop
1/31/48	Material Release, K-631 Shipping Room
2/3/48	Material Release, K-131, Failure of Kerotest Type Valve
2/5/48	Material Release, K-131, Failure of 1" Crane SIP Type Valve
2/23/48	Property Damage Report of International Tractor with High-Lift Shovel
3/4/48	Property Damage Report of Supercrane, Model No. 307
3/8/48	Property Damage Report of Northwest Crawler Crane, No. 17 3518 - A - CC

The Plant injury frequency rate for the months of January and February was 2.88 (3 major injuries), and 1.17 (1 major injury), respectively. The potential frequency rate for this same period was 10.87 (8 sub-major injuries), and 15.22 (11 sub-major injuries). A review of the 1947 record indicates a similar relationship - frequency rate 2.68 (32 major injuries), and a potential frequency of 12.97 (123 sub-major injuries). It is apperent therefor that the actual plant record is influenced largely by circumstance rather than careful planning.

Outstanding among the causes of the total accidents since January 1st experienced on the plant are the following:

1. Lack of extreme care and desire to prevent injuries:

January - 35.71%

February - 59.48%

An analysis of the twenty-nine (29) accidents investigated develops the following causative factors accountable therefor:

a.	Failure to wear protective equipment	2
b.	Assuming unsafe work position	2
c.	Unsafe work methods	10
d.	Working at unsafe speed	2
e.	Inattention and improper attitude	2
f.	Aggravation of an unknown physical deficiency	2
g.	Insufficient job training	1
h.	Poor housekeeping	1
i.	Failure to instruct	1
j.	Failure to follow through on previous recommendations	1
k.	Equipment failure due to inadequate design	5
l.	Lack of guarding	1

The above mentioned causes account for 100% of the major accidents incurred and in the majority of cases it is evident that supervision should have determined that -

1. The employee understood safe work practices associated with his job;

2. The instructions given were followed;

3. The importance of eliminating unsafe work conditions is understood by all employees and is continuously emphasized by all levels of supervision;

The unsafe conditions and acts involved in the reportable accidents for the year 1948 have not developed over-night but have been ever present and were an analysis made of our past experience it is certain that the high ratio of supervisory failure and the lack of extreme care to prevent accidents on the part of employees would be present. More intensive safety education and close supervision of the individual employee to ascertain that safe work practices are being adhered to should be initiated. A sincere desire to prevent accidents can best be encouraged by putting into practice the established plant policy wherein it is stated that the responsibility for safe work performance is an integral part of each plant job.

INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Mr. W. L. Richardson
LOCATION K-1034

DATE March 3, 1948

ANSWERING LETTER DATE

ATTENTION

COPY TO File

SUBJECT Monthly Report of Safety Activities

During the month of February a frequency rate of 1.14*, (one major injury), and a severity rate of 0.009*, (eight man days lost), were experienced at the K-25 Plant.

During the same period, eleven (11) sub-major injuries were incurred and one (1) sub-major injury was carried over from the January record not previously reported, resulting in a potential frequency rate of 14.84.

Nine (9) no-injury accidents were reported, eight (8) of which were classified as Material Releases with no personnel injuries associated therewith. Several employees were referred to the Dispensary for supervisory examinations.

One (1) property damage accident involving an International High Lift Tractor with a shovel loader attachment occurred when the tractor was turned over while negotiating a left hand turn at a street intersection which resulted in approximately $150.00 damage.

A. F. Becher
Safety and Inspection Division

AFB:mrh

* - Estimates

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release to the public by:

Technical Information Officer, Oak Ridge K-25 Site — Date 6/15/95