

PLAINTIFF'S EXHIBIT

ASA-1544

RON CHESLIK

**SAFETY RULES
and REGULATIONS**
of the
EL PASO SMELTING WORKS



**AMERICAN SMELTING AND
REFINING COMPANY**

EL PASO, TEXAS

REVISED 1956

**ASARCO ELP
0015473**

**Your Job is Only
as Safe as
YOU
Make It**

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**of the
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FOREWORD

The purpose of this book and all the safety activity of the Company is to help you to prevent injury to yourself as an employee of the Company. You are required to observe these safety rules and you will find that their observance will impose no hardship on you.

The Company aspires to eliminate all injuries to its employees, because, as you know, an injury to you would result in loss of time and money to both you and to the Company and cause suffering to you and your family. For this reason the Company has prepared safety rules and regulations which it feels, if absolutely observed, will prevent injury to its employees. Deviation from these rules only invites injury — the more the deviation, the more the chance of injury. So when you are working, please bear this in mind.

The Company does not intend to state that these safety rules are perfect, because it realizes that new situations arise that may require additions or deletions from the rules. For this reason it welcomes any suggestions regarding the safety of its employees. Suggestions pertaining to one's own department should be first offered to the foreman of that department. All such suggestions will receive consideration.

These rules are prepared for you to read and study. Discuss them among yourselves and ask your foreman or someone in the Safety Office about anything you do not understand. Observe them carefully each day and make for yourself each day another "perfect day."

CONDITIONS OF EMPLOYMENT

Every employee in the plant production or maintenance departments is strongly advised to provide for himself a pair of steelcapped safety shoes to be worn while he is working.

Principles of good conduct and decency are expected of all employees. The following causes combined or singly will be sufficient for dismissal:

- Repeated absenteeism without permission.
- Dishonesty or falsification of records.
- Punching another person's time card.
- Loafing or sleeping on the job.
- Gambling in the plant.
- Leaving the premises during shift without foreman's approval.
- Insubordination or other serious misconduct.
- Reporting for work in an intoxicated condition.
- Bringing intoxicating beverages into the premises of the plant.
- Consumption of intoxicating beverages on the plant premises.
- Soliciting funds, selling of commodities, and distribution of literature are forbidden without the approval of the Plant Superintendent.
- Excepting personal effects such as clothing and lunch boxes nothing may be taken out of the Plant premises without a permit signed by a department head and approved by the Assistant Superintendent or the Superintendent.

SMELTER CLINIC

The Smelter Clinic is open from 7:30 A.M. to ~~3:30 P.M.~~ Monday through Friday and ~~on Saturdays from 7:30 A.M. to 9:30 A.M.~~ During these hours a Registered Nurse is present and a Doctor is present from 12:00 noon to 2:00 P.M. on Monday through Friday and from 7:30 A.M. to 9:30 A.M. on Saturdays. The Clinic provides limited free treatment for non-occupational illnesses and injuries to members of the Employees Hospital Association and unlimited free treatment for accidents and illnesses arising from employment at the El Paso Smelting Works. Persons visiting the clinic for non-occupational illnesses while on duty must have written permission from their foreman.

INJURIES

It is the policy of this company to make sure that every employee who is injured while on the job shall receive the best medical and surgical attention available.

An employee who incurs a minor injury during the hours that the Clinic is open must receive treatment for the injury at the Clinic as soon as possible. Employees incurring minor injuries when the Clinic is not open must be given First Aid as soon as possible. First Aid Kits are located at the following places: Scale House, Mill #1, Sample Mill, Blast Furnace, Yard Foreman's Office, Reverberatory, Wedge Roasters, Converters, Zinc Plant, Cadmium Plant, Machine Shop, Power House, and Safety Office. After First Aid has been given, the injured must report to the Clinic

the following day for further treatment.

In case of a serious accident your first duty is to take care of the injured person. Have someone notify a Doctor or the Smelter Clinic, or call an ambulance. Then notify the injured's foreman and the Safety Inspector or the Supervisor of Safety and Welfare. Stretchers and blankets are located at strategic places throughout the plant to be used for serious injuries or illnesses.

PHYSICAL EXAMINATIONS

The Company provides for periodic check-ups for its employees and reserves the option of requiring other such examinations which may pertain to the worker's employment.

SAFETY EQUIPMENT

The Company will provide you with any necessary safety equipment other than shoes and gloves without cost to you. You will be expected to use it when necessary, to take good care of it while you have it, and to return it when you no longer need it. The Company reserves the right, however, to deduct from your wages the cost of any equipment which you lose or wilfully destroy.

SAFETY MEETINGS

A workmen's safety meeting is held once each month in the Safety Meeting room. Each department sends a workman to represent its department, and he will bring to the meeting any of his or his fellow workmen's safety suggestions. Different men from each department will attend

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each month in order to afford everyone an opportunity to attend one of these meetings. At these meetings are discussed safety suggestions, past injuries, and working practices.

The foremen and supervisors hold a meeting once a month also. All available foremen and supervisors on duty attend these meetings where they discuss past injuries and suggestions from previous workmen's meeting and offer new suggestions.

**REPORT ALL INJURIES NO MATTER
HOW SMALL, TO YOUR FOREMAN,
AS SOON AS POSSIBLE.**

GENERAL

SAFETY RULES AND REGULATIONS

1. Foremen and Supervisors are responsible for the enforcement of safety rules and regulations in their respective departments. They must be conversant with all rules and regulations applicable to the work under their control and be sure all employees in their charge are instructed in, and understand the rules.

2. Protective clothing and equipment are furnished by the Company and must be worn when required. The foreman or supervisor must see that the employees have and use the proper safety equipment or protective clothing.

3. All injuries, no matter how small, must be reported to your foreman at once.

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4. Get First Aid for any and all scratches and bruises. It is to your advantage to avoid infection.

5. Wash your hands thoroughly before eating.

6. Your personal help in keeping drinking fountains, toilets, wash rooms, and bath houses clean and sanitary is vital to the safety and health of all employees. Observe the rules of decency.

7. Avoid wearing loose fitting or ragged clothing.

8. Do not take dangerous "short cuts." They can be short cuts to the hospital.

9. Obey warning signs and tags. Their purpose is to point out dangerous hazards.

10. Report any dangerous condition, defective equipment, or unsafe practice to your foreman or strawboss.

11. Never use compressed air to blow dirt from clothing. Do not fool with or blow compressed air at any person.

12. Never push or lift more than you safely can. Ask for help.

13. When lifting, the large muscles of the legs should be used instead of the small muscles of the back.

14. Do not jump on or off of fast-moving cars, trucks, or motors nor crawl under, over, or between cars.

15. Before crossing tracks, STOP — LOOK — LISTEN. Use the crossings provided for this purpose. Allow at least eight feet clearance when going around or crossing in front of cars or pots that are standing still.

16. No one is permitted to ride on equipment except those authorized to do so in their regular line of duty.

17. Horns and bells on moving vehicles are to be used as a warning. If you drive such a vehicle, use these warning devices; if you are on foot heed them.

18. Never operate any equipment unless you are familiar with its operation and have been authorized to do so. Before starting it, be sure everything is clear.

19. Do not light gas equipment unless instructed to do so by your foreman.

20. All electric wiring shall be regarded as dangerous; the insulation is not a guarantee of safety. No unauthorized person shall tamper with electric wiring or equipment.

21. Never throw or toss tools or materials. Hand them or use a line.

22. When working above floor level, use caution to prevent falls and do not leave tools or material on any elevated place from which they may fall.

23. Stand and walk clear of overhead loads.

24. Use ropes or hooks and stand in clear when guiding material or machinery being handled by cranes or hoists.

25. Keep all aisles, platforms, stairways, walkways, exits, and fire equipment clear of obstructions at all times.

26. Do not jump off platforms, ramps, or loading docks. Use the ladders or stairs provided.

27. Do not run unless necessary.

28. Keep all safety guards in place.

29. When handling material in wheelbarrows see that the load is properly balanced, and use care in going through narrow openings to avoid injuring hands between wheelbarrow handles and sides of opening.

30. Never use a ladder which is defective in any respect, such as broken side rails or rungs. Report such tools to your foreman at once.

31. When using a bar and hammer, man holding bar must stand on opposite side of bar from man striking and keep his hands a safe distance from end of bar. Use tongs to hold a short bar.

32. When pouring hot metal be sure molds are dry. When pouring babbit the mold should have a hole or vent other than the one used for pouring.

33. Do not at any time, even in case of fire, turn water or foam type fire extinguisher on electrical lines or equipment.

34. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

35. Never walk on or climb over conveyor belts except where passageways are provided.

36. Never apply belt dressing to a belt while it is in motion.

37. Keep all tools and appliances in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

38. Riding on elevators is prohibited.

39. Never leave gasoline motors running idle in a place that is not well ventilated.

40. Don't take chances. When in doubt, see your foreman.

41. Always use a fuse puller to remove or replace fuses.

42. When working in the converter building or passing in front of the building and the crane siren sounds a warning, get in the clear because the ball may be dropped or there may be danger from material being handled by overhead cranes.

43. When carrying long bars or other long material under trolley wires, caution must be used to avoid striking the wires with this long material.

44. Do not enter any flue, dust chamber, bag-house, furnace, or tunnel of any sort unless your duty requires it.

45. Do not get careless when you get familiar with your work.

46. Remember, when water comes in contact with molten metal an explosion may occur. Caution must be used when wetting down hot material.

47. Good housekeeping is necessary to safety. A job is not completed until everything is cleaned up.

48. Remember — the right clothing, the right tools, the right precautions, and the right attitude mean a job done the right way — the safe way.

49. Any conduct which may be deemed "horse-play" such as wrestling, boxing, running when going off shift, throwing pieces of ore or other loose material is forbidden.

50. Do not stand too close to loaded slag pots or streams of molten slag or matte as the molten material might splash on you.

51. Rings worn on fingers are always a hazard around moving machinery.

**ADDRESSES, TELEPHONE NUMBERS
AND INSURANCE BENEFICIARY
SHOULD BE CORRECT . . .
ARE YOURS?**

HAND TOOLS

1. Use small tools for the job for which they were intended — no other.

2. A hard hammer must not be used to strike a hardened tool or machine part. Use a soft-face hammer.

3. Tools having burrs, cracks, mushroomed heads and broken, loose, or splintered handles must not be used. Report such tools to your foreman.

4. Put a wrench on in the right way so jaw will not be spread.

5. Pipe wrenches and chain tongs must have shap jaws. Chain links must be watched closely for defects.

6. When using a wrench above floor level take care that it does not slip and cause you to fall.

7. Stand to one side when pulling down on wrenches above your head.

8. No pointed or sharp-edged tools must be in pockets or on belts unless points or edges are fully protected.

9. Avoid the use of a screw driver with a bent, dull, or rounded bit or broken handle.

10. All files in use must be provided with handles. Files must not be used as chisels, punches, or drifts.

11. All portable electric tools which are held in the hand while in operation, regardless of voltage, must have the non-current carrying metal parts grounded. Mechanics using these portable tools must check the cords at regular intervals.

12. Hand tools, especially screw drivers, chisels, and files must not be used while you are in such a position that, should they slip, they might strike your face or body.

13. A skilled mechanic knows there is a proper tool for every job and makes it his business to use the correct tool. Many serious accidents may happen when this rule is violated.

14. Goggles or face shield must be worn when any tool is used head high or overhead.

15. Enough tools of each kind should be kept in stock that when a defective or worn tool is taken out of service it can be replaced with a safe one.

16. Impact and shock tools should be equipped with hardwood handles free from splinters and securely fastened to the tool.

17. Do not lay tools or bars on railings, iron work, moving parts of machinery, or where they are apt to fall or be knocked off and injure someone.

18. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

When working with abrasive materials proper respiratory should be worn

YOU MAY HAVE SOME SWELL SAFETY IDEAS, BUT THEY WON'T STOP ACCIDENTS IF YOU KEEP THEM TO YOURSELF

GENERAL SAFETY RULES MECHANICAL DEPARTMENTS

1. Do not remove or make ineffective any safeguards unless authorized. Safeguards removed for repairs must be replaced promptly or temporary guards installed.

2. Machines must be shut down before cleaning or repairing.

3. A chuck or face plate should never be put on a lathe by power operation.

4. Keys or other adjusting tools must never be left so they may creep, be thrown, or fall when machine is started.

5. When drilling, tapping or reaming material, see that it is securely fastened by blocks or clamps so that it cannot spin or climb the drill. In no case should the operator rely on his hands to secure the material from turning.

6. Use a brush, special tool, or hook to remove chips, shavings, or other material from work.

7. Transparent guards must be kept clean.

8. Grinding wheels must be equipped with tool rests secured firmly not more than one-eighth inch from the stone.

9. The side of an emery wheel must not be used for grinding unless it is a special type wheel for that purpose.

10. Drill presses, reamers, etc., must never be forced by exerting pressure on the feed lever. Tools may break and cause injury.

11. Do not reach through or over machine so that cutters or revolving parts may contact parts of your body or clothing.

12. Keep fingers clear of point of operation of machines by using special tools or devices such as push sticks, hooks, pliers, etc.

13. Revolving shafting, although apparently smooth, will catch loose or ragged clothing, hair, or wiping rags. Proper clothes and caution are always necessary when working around any revolving machinery.

14. Goggles or face shields must be worn whenever flying chips or particles may cause eye injury.

15. Never wear gloves when working on a machine which has moving or rotating parts.

16. Keep the working space around your machine clean and orderly.

17. Before you move a lever or push a button on any machine be sure you know what is going to happen.

18. Passageways, aisles, etc., must be kept clear and in safe condition for passage at all times.

push sticks

19. Do not use boxes, kegs, or other insecure footings. Use safe horses, ladders, or scaffolds.

20. Covers on drop pits, manholes, or other similar openings must be kept in place. When necessary to remove them for any purpose, protect the opening with a proper guard.

21. All moving machinery or equipment that is being repaired must have the control switches locked ~~out~~ in the OFF position and must not be started by the regular operators or by any other person until the lock ~~out~~ is removed by the person who placed it.

22. When work is being done overhead, rope off area or place signs warning of danger from above.

23. Pipefitters must wear acid resistant clothing when emptying acid cars.

24. Before starting a job in the various departments make sure that the foreman of the department is notified about the job.

25. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

26. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

IT HURTS TO GET HURT!

DRILL PRESS OPERATIONS

1. Never attempt to hold the work under the drill by hand; clamp it securely to the table before starting machine.

2. When tightening drill in chuck of drill press remove release key before you start machine or your arm may be twisted around spindle. Never leave key in chuck.

3. Use drills properly sharpened to cut to the right size.

4. Run the drill only at the correct speed; forcing or feeding too fast may cause broken drills and result in serious injury.

5. If the work should slip from the clamp, never attempt to stop it with your hands. Stop the machine to make any adjustment or repairs.

6. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

GOGGLES WILL SAVE YOUR EYES

LATHE OPERATIONS

1. Make sure all gear and belt guards are in place.

2. Keep hands off chuck rims when lathe is in motion.

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3. Steady rests on lathes should never be left extended over passageways.

4. Do not attempt to screw chuck on lathe spindle with power on as it may get cross-threaded and cause an accident. Stop the machine, place a board under the chuck, then screw it on by hand.

5. When filing work in lathe, file with the right hand over lathe instead of the left hand, and face the head stock. If you are left handed, reverse lathe and file from back side of lathe.

6. See that tail stock, tool holder, and work are properly clamped before turning on power.

7. Do not attempt to adjust a tool while the lathe is running.

8. Never apply a wrench to revolving work or parts.

9. Always use a brush to remove chips — never the hands.

10. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

ACCIDENTS DON'T ALWAYS OCCUR to the OTHER FELLOW

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WELDING AND CUTTING

1. Gas containers must be stored in a place where they will not be subject to excessive variations of temperature. Keep them away from inflammable substances such as oil, gasoline, waste, paint thinner, etc.

2. Keep all gas containers or tanks in a secure position so they will not fall and damage the valves or gauges.

3. Never drop gas containers or permit them to strike each other violently.

4. Never use compressed air for blowing out welding or cutting equipment as air may contain oil or moisture.

5. Gas containers must at all times be kept a safe distance from the work being done with the torch. Caution must be used to avoid dropping sparks or material on the tanks or gas containers when working overhead.

6. Never cut or weld a container that has held explosive material such as gasoline, paint thinner, etc., until such container has been thoroughly cleaned and ventilated or flooded.

7. Arrange for adequate fire protection when welding or cutting in places where there is danger of fire.

8. When working with gases in a confined space always have someone present to render assistance in case of emergency.

9. Do not use oxygen for ventilating purposes.

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10. All welding and cutting hoses and gauges must be inspected often for defects.

11. When cutting or chipping do not cut in the direction of any person. Always use a shield when possible.

12. All arc welding operations must be done behind a protective shield or curtain when possible.

13. Acetylene gas should never be used at more than 15 pounds per square inch pressure.

14. If valve caps or valves are covered with snow or are frozen, they should be thawed in a warm room or with warm water — never with boiling water or steam.

15. Report defective cables on arc welders to your foreman.

16. Make sure that the helmet used for arc welding is lighttight and adequately protects the eyes and skin, because the electric arc produces ultraviolet and infrared rays of high intensity that have a temporary harmful effect on eyes and skin.

17. Air line masks should be worn when welding on equipment contaminated with cadmium oxide.

18. Before welding or cutting on tanks, lines, or equipment at the Germanium plant, purge or wash them free of ammonia. Blank off lines — do not depend on shut-off valves.

19. All tools and appliances must be kept in good condition and stored in their proper places.

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Never leave such equipment in walkways to create a stumbling hazard.

20. Before starting a job in the various departments, make sure that the foreman of the department is notified about the job.

SAFETY has no QUITTING TIME

ELECTRICAL

1. When stopping motors for repairs pull the switch and then open switch box, and make sure that the switch is out before locking switch in off position.

2. Never do any work on equipment where its operations might injure you, until the power is turned off and you have pulled and locked the switch.

3. Never handle electric wires while standing or sitting in wet places without first taking the necessary precautions to obtain insulation from the ground.

4. Never work on live circuits unless so instructed by your foreman and then use all safety equipment required for the job.

5. Helpers must never stand directly under electricians working overhead. Tools or material may fall on them.

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6. Do not believe a wire is dead because others do so. Test it yourself to make sure.

7. Never depend on tape on handle of screw drivers or pliers for insulation.

8. Conduit pipes must not be left ungrounded or improperly supported.

9. Use fuse pullers when removing or replacing fuses.

10. Linemen must always wear safety belts when working overhead.

11. Always pull switch on circuit before changing fuses.

12. Do not take unnecessary risks even though voltage is low. Avoid even slight shocks when in high places as a shock might cause a fall.

13. When working overhead, never throw tools or parts — use a hand line.

14. Caution must be used when working from ladders. The helper must support or hold the base of the ladder to prevent it from slipping.

15. Where there is danger where wires are down, block off the area or post someone to warn others.

16. Linemen's belts must be inspected at least every three months by the foreman. Defective belts must be destroyed.

17. Rubber gloves shall be checked frequently for any defects and must be destroyed when signs of deterioration appear.

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18. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

19. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

20. Before starting a job in the various departments make sure that the foreman of the department is notified about the job.

**BE SAFE YOURSELF
and
OTHERS WILL FOLLOW YOU**

**WOOD WORKING MACHINERY
CARPENTER SHOP**

1. Employees working around machinery must not wear gloves, hand leathers, or unsuitable clothing such as sleeves, loose coats, ties, or jackets.

2. Experienced persons only are permitted to operate wood working machinery except under the direct supervision of the foreman.

3. Wood working machinery must be checked frequently by the foreman for defects.

Example:

A. Band saws, test for tension, back thrust, twist, and kinks.

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B. Saws must be sharp, not cracked, and properly mounted.

C. Check planer, shaper, jointer knives, bolts, nuts, and clamps.

4. A dull saw is dangerous. It retards speed and may break.

5. Stop your machine before leaving it. Another person might be hurt by it.

6. All machines must be stopped to be oiled.

7. Learn to stand out of line of possible "kick back." Pieces of wood are frequently shot away from the machine. This can cause serious injury.

8. Never machine short pieces less than 18 inches long.

9. Never oil the saw or change the gauge while the machine is running.

10. Always use a brush to remove dust or particles of wood from the saw table or the work.

11. When shutting off power never stop the saw quickly by thrusting a piece of wood against it. Be sure the machine has stopped before leaving it.

12. Do not allow material to accumulate on saw table; keep the floor free of slipping and stumbling hazards.

13. In using hand jointer never allow hand to pass over knives while on material being jointed. Use both hands keeping them back from

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kind around to be knocked off and fall on someone below. Post warning signs below.

13. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

THINK SAFETY

OILERS

1. Examine the machinery under your care when you first come on duty to see that everything is in order.

2. Do not remove guards on running machinery to enable you to do your oiling. Extension oilers will be fitted wherever possible.

3. When a piece of machinery is shut down to be oiled make sure that the switch is locked in the off position or that the valve is locked in the closed position.

4. Watch out for obstructions on the floor as such things may cause you to stumble or fall into the machinery.

5. You are particularly instructed to refrain from scattering oil about machinery and floors. Oil on floors, platforms, or stairs makes them slippery and dangerous.

6. Never climb over moving machinery; be safe — go around it.

7. Do not wear loose or ragged clothing. Keep shirt or jacket buttoned and never have sleeves unbuttoned while performing your work.

8. When cleaning grease from converter crane rails, wear safety belts.

9. The degreasing of crane tracks must be done only when the Zinc Furnace is down at which time the converters if operating will be pulled out of the stack, and the main circuit breaker for cranes in the power house will be opened and tagged and each main switch on the cranes must be pulled and tagged before men are permitted to get on the crane tracks. Track cleaners will begin work at the south end of the building and work north. When the tracks have been cleaned past the location on tracks which will permit resumption of operations in the copper department, the following will be done in order: (a) safety stops will be placed on rails between workers and south crane. (b) the main circuit breaker in the power house will be untagged and thrown back in. (c) the main switch on the south crane will be untagged and thrown in.

10. Before pulling knife switches be sure corresponding circuit breakers have been opened.

11. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

SIGNS MEAN WHAT THEY SAY TAKE THEM SERIOUSLY

POWER HOUSE AND BOILERS

1. Never go into a boiler until you have closed and padlocked steam, feedwater, and blow-down valves. Do not depend on non-return valve to close off steam.
2. Before sealing up boilers make absolute sure there is no one or any debris in the drum.
3. Bars and tools must not be left on walkways and platforms as they might fall or cause a stumbling hazard.
4. Special extension cords of low voltage must be used when working inside boilers.
5. Before working on power equipment be sure that necessary switches have been opened and necessary steam valves closed.
6. Before pulling knife switches be sure that corresponding circuit breakers have been opened.
7. No one must ever open or close valves without consulting the departmental foreman.
8. Goggles must be worn when handling acid.

+ Face Shields + Rubber Gloves.
A CLEAN PLANT IS A SAFE PLANT

PNEUMATIC (AIR) TOOLS

1. Before turning compressed air into a hose, be sure the discharge end is fast.
2. Before removing an air hose from an air pressure line, make sure that the valve on the pressure line is closed and that the pressure in the hose has been released.
3. When using an air motor or rotary drill, keep a firm hold on the handles at all times, so they cannot fly around and strike you.
4. Never leave a pneumatic tool such as a motor, riveting or chipping hammer, grinder, paving breaker, or jackhammer without first shutting off the valve on the pressure line and releasing pressure from the hose.
5. Men operating pavement breakers and jackhammers should stand so that if the gad or drill should break, the hammer or drill would not injure his foot or leg.
6. When using jackhammers or pavement breakers, goggles should be worn by all men working with or near them.
7. Line oilers should be connected on line before machine is used.
8. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

**THINK BEFORE YOU ACT
Before You Louse Something Up
THINK**

YARD AND TRACK DEPARTMENT

1. Groups of men carrying tools should not walk close to each other as one is apt to be struck by a tool carried by another.

2. When clearing dump for track shifting always be sure that you are standing on solid slag to avoid slipping and rolling down the dump.

3. When working on slag dumps always stay in the clear of slag trains.

4. When handling rails, use tongs where possible.

5. When working on tracks and close to another worker, always see that he is in the clear before you swing your pick, hammer, or shovel.

6. When starting to drive a spike hit it lightly the first two or three times so that it will not fly from a glancing blow and strike someone.

7. Never drive a spike by using one spiking hammer as a punch and hitting the face of it with another. The driving faces of these hammers are hardened and chips fly off which may cut you.

8. All excavations must be properly guarded to prevent persons from falling into the open holes. Place barricades around an excavation and set flares around it at night. Properly brace all excavations which show indications of caving.

9. When stripping sides from settler boxes, make sure there is no slack in the chain that connects the sides to chain blocks.

10. When cleaning tracks, keep a sharp lookout for approaching motors, and stand clear of moving motors and pots.

11. When cleaning the apron of bridge at the graveyard, use caution to avoid slipping or falling into cars below.

12. Before lighting gas burner used to melt out lead ladles be sure air vents are closed. When lighting burner stand to one side of burner, turn on a small amount of gas, and light it with a piece of oily waste or a piece of paper.

13. When working in the converter building be careful not to pass under loads being carried or lifted by overhead cranes.

14. When the ball is being dropped to break material in the converter pit, always keep a safe distance from this as some of the flying pieces can cause serious injury.

15. When push car is using main line dump track the signal lights must be used.

16. When making repairs on tracks where there is danger from approaching traffic, protect yourself by a warning flag placed a safe distance on each side of the work.

17. Safety belts should be worn by men taking samples on the face of the copper dump.

18. Experienced persons only are permitted to operate the track shifter except under the direct supervision of the foreman.

19. Read section on Pneumatic Tools for rules on paving breakers, jackhammers, etc.

20. Do not attempt to clean pug mills at boilers with bars or any other implement while they are running.

21. Before pulling knife switches be sure that corresponding circuit breakers have been closed.

22. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

**BE CAREFUL ALWAYS
YOU WILL NEVER REGRET
BEING TOO CAREFUL**

EXPLOSIVES

1. Dynamite and blasting caps must be stored in separate magazines, and each magazine must be plainly and properly marked with Danger signs.

2. The use and handling of explosives must be done by authorized and experienced persons only.

3. Remove only the dynamite and caps required for the job and return excess as soon as possible.

4. Dynamite and blasting caps must be transported and kept in separate containers. Store these containers a safe distance apart.

5. Charges or shots must be made up as they are needed. At no time leave a made-up charge or shot lying around unguarded.

6. The battery or magneto must not be left attached to the shooting cable. This should be attached only when the shot is ready to be fired.

7. When connecting shooting wires be sure all connections are tight and none are grounded.

8. When shooting hot holes shoot only one hole at a time. Use every safety precaution and don't forget that in loading hot holes, time is the greatest factor.

9. When a hot hole misfires, keep everyone in the clear until the shot goes off. Heat will fire the shot in a short time.

10. When shooting hot holes the charge must be covered with or dipped into a thick mixture of wet adobe or silica sand (slurry) before it is put in the hole. Use dry sand which will pour freely to tamp the charge.

11. Use a wooden tamping stick only. A piece of broom handle will make a good tamping stick.

12. The cap should be inserted in the center of the end of the stick of dynamite and the blasting cap wires looped around the stick with a half hitch about one inch below the top of the stick and made secure so they will hold the weight of the charge and not pull the cap out of position when charge is lowered into the drill hole.

13. Always use a sharp piece of wood to make the hole in the end of the stick of dynamite where the cap is to be inserted.

14. All persons not actually needed must be in the clear before loading operations start.

15. When there is danger of flying pieces causing damage, it is a good practice to cover the shot with a piece of boiler plate.

16. Before firing the shot make certain everyone is in the clear, and have someone guard each approach to this area to warn others of this danger.

17. Shooting must not be done during electrical storms or windstorms.

18. Warning sound signals must be used before each shot.

19. Remember — explosives are dangerous and a mistake may prove fatal.

20. Before starting to blast in the various departments make sure that the foreman of the department is notified about the blasting.

21. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment on walkways to create a stumbling hazard.

**SAFETY EQUIPMENT
IS ISSUED FOR YOUR PROTECTION
TAKE CARE OF IT!**

MOTOR VEHICLES

1. Driving vehicles at an excessive rate of speed is prohibited.

2. Trucks must use extra caution when crossing or driving beside main line slag tracks when red danger signal light is on.

3. No unauthorized persons are permitted to ride in or on trucks or any other motor vehicle.

4. Drivers or operators of all vehicles must sound warning when necessary.

5. Payloader operators are cautioned to be careful when handling material. An overload may cause the payloader to upset.

6. Payloader, Bakerlift, or Easton buggy operators must use caution when traveling or working in narrow places or in places where head room is low.

7. When loading or handling material in the converter aisle, dozer shovel operator must be on alert for danger from loads or material being handled by overhead cranes.

8. Only those assigned to the job will operate motor vehicles.

9. Operators shall not back trucks into confined places unless being signalled by someone designated to give him signals.

10. When operators must move their vehicles into places where visibility is poor or blocked, they must have a signalman who is out of the way of the truck guide them in.

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0015492**

11. Operators and mechanics must never leave dozers with buckets or blades raised unless locking pin is in place.

12. Shovel and payloaders operators should use extreme caution when cleaning up after a furnace runaway. Explosions may occur.

13. Payloaders must not be driven across tracks in blast furnace yard when slag motors are approaching.

14. Operators of dozer shovels must make sure that power switch to the trolley wire in the reverberatory tunnel is off and locked in that position before going in to clean the tunnel.

15. Vehicles must not be refueled in places where there is danger of igniting the fuel.

16. Gasoline tanks shall not be opened, filled, or left open while anyone is smoking in the vicinity or when the vehicles are around molten metal or furnaces. Stop motor while filling with gasoline.

17. The sweeper must not be driven at an excessive speed.

18. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to obstruct passageways.

19. Drivers must learn the capacity of their vehicles and lift no loads above that capacity.

**FROM
THE CARELESS ACTS OF OTHERS
THE WISE MAN CORRECTS
HIS OWN**

HAULAGE MOTORS

1. All employees are forbidden to ride on motors except those authorized to do so in line of duty.

2. Slag motor crews must use and obey signal lights when using main line tracks.

3. It is not permissible for slag motors to back trolley pole when traveling on main line tracks.

4. Motorman must allow switchman time to throw switches before proceeding.

5. Lantern signals must be used at night by slag motor crews when switching in yard, slag dumps, or back side tracks.

6. Flying switches are not permitted.

7. Motorman will take signals from one designated person only who must be in plain view. Normally this person will be the switchman.

8. Switchmen are not permitted to ride on step of motor which is next to a pot filled with molten metal or slag and at no time to ride between pots or cars.

9. Do not line couplers while motor or cars are in motion. Absolutely do not line couplers with feet or hands as motor couples up.

10. Stand outside of rails while stepping onto footboard of motor.

11. Warning must be sounded when motor is approaching all crossings. Motormen must have their equipment under control at all times and not travel at an excessive rate of speed.

12. Motormen must be in the cab of motor to put the motor in motion. They must never stand outside of motor to work the controls or move the motor.

13. When spotting cars on elevators, be sure that cars are properly spotted and blocked or dogs are in place before giving a signal to move the elevator.

14. Do not jump on or off motors or cars unless they are standing or moving at a very slow speed.

15. Motormen must not move motors down-grade with trolley pole down.

16. Never leave equipment on safety track near gallows.

17. Never stand on rails to connect reach cable on trolley wire.

18. Always hook reach cable on motor first before hooking the other end to the trolley wire.

19. Motormen must see that control handle of motor is in the off position before they permit the switchmen to connect the reach cable.

20. Never leave reach cables on the ground where they may become soaked with water.

21. When uncoupling pots from the motor make sure the wheels of the uncoupled pots are properly blocked to prevent the pots from rolling away.

22. Switchman should wear goggles when checking slag pots under blast furnaces.

23. Switchmen and motormen must wear hats that will not conduct electricity.

24. Do not bump a car into another car in which men are or may be working.

25. Do not connect an engine or a car to another car having a blue flag on it and when a blue or red flag is placed on a track, do not go beyond the flag on the track.

26. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

TRY HORSE SENSE NOT HORSE PLAY

LOCOMOTIVES AND LOCOMOTIVE CRANES

1. All employees are forbidden to ride on locomotive cranes except those who are required or authorized to do so in their regular line of duty.

2. Crane must be going slow enough (or come to a stop) to allow switchman ample time to get off crane, throw switch, and get on crane.

3. Crane operator must not attempt to lift weights beyond the capacity of the crane. Rail clamps or outriggers must be used when making a heavy lift.

4. When traveling, cranes must have booms lowered to a safe height to avoid tearing down electric wires or other overhead structures.

5. Flying switches are not permitted.

6. The crane operator must have his equipment under control at all times and must not travel at an excessive rate of speed.

7. Switchman must be in plain view of operator when giving signals.

8. Crane operator will take signals from only one designated person.

9. Lantern signals must be used at night.

10. Warning must be sounded when locomotive crane is approaching all crossings.

11. When setting car in clear track, handbrake must be set tight.

12. Do not align couplers with your foot on cranes, cars, or slag pots.

13. Do not align couplers when cars or motors are in motion.

14. Do not bump a car or motor into another car in which men are or might be working.

15. Do not connect engine or cars to another car having a blue flag on it, and do not drive a motor or a car beyond the point where a blue or red flag is on the track.

16. When unloading logs from a car do not lift a pole until men hooking the pole are completely out of the car.

17. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment on walkways to create a stumbling hazard.

DON'T GAMBLE WITH YOUR LIFE

UNLOADING — SAMPLING CRUSHING — CONTRACT

1. No one will be permitted to remove obstructions from crusher or rolls except those authorized, and then only when ordered to do so by the foreman.

2. Do not try to clean pulleys, belts, or gears while they are in motion. Beware of moving machinery.

3. Do not clear or adjust automatic trippers while in motion.

4. Riding on conveyor belts or trippers is forbidden.

5. Before working on sample cutters, rolls, crushers, or screens, be sure that they have stopped and that the switch is pulled and locked in the off position.

6. When machinery of any kind has been stopped for repairs, cleaning, or other purposes, do not start up until you are sure that everyone is in the clear.

7. Never place your face or head directly over grinders or crushers while they are in motion. Pieces of ore may fly out and hit you.

8. When using saw to cut copper bars or pies, always wear gloves and goggles or face

shield. Handle the bar or pie with pliers, as it may be hot.

9. Be sure that bails are securely hooked on trunnions before hoisting cars or sample cans with crane.

10. Safety belts must be worn by men working the brakes when cars are dropped to and from the mill hopper. Only men with experience should do this job.

11. Never dump a railroad car until you have thoroughly inspected the dumping device. A new man should not be allowed to dump cars until he becomes familiar with the different dumping devices and has been properly instructed in their use. Always stand back or to the side of the dump lever while dumping a car. These levers often get caught and unexpectedly fly up. If the lever strikes you it can cause a serious injury.

12. A wooden brake stick must be used to set brakes on cars having staff brakes.

13. Do not crawl under or between cars — go around. An engine may be attached, cars may be approaching, or you may slip and fall into a bin or hopper below.

14. Do not stand on load when a car is being dumped.

15. Do not throw tools or other material carelessly into or out of cars, but give warning and see that everyone is in the clear.

16. Before dumping cars be sure that no one is below in the bin or hopper.

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17. Do not insert bars or shovels through openings in elevator housing when elevator is running.

18. When switching cars with the car puller keep away from the cable and sheave.

19. Do not jump from car to car. You might slip and fall.

20. When a group of men are working in the same car, care should be used so that one is not struck by a tool.

21. Be sure that everyone and everything is in the clear before starting conveyors or elevators.

22. Men handling lime must wear goggles and protective clothing.

23. Safety belts must be used when there is danger of men falling through dump or hopper cars into the X-bins or the 300 ton bin.

24. When working inside of cars always place a blue flag on the end of a car from which an engine might approach.

25. When cutting pieces shorter than 4 inches in length on the Sample shears, always use a pair of pliers to hold the pieces.

26. Pipes and wire should be precut into lengths of about 2 feet before being fed into the sample shears for sizing.

27. Only authorized persons will operate the sample shears and drill press.

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28. Before pulling knife switches be sure that the corresponding circuit breakers have been opened.

29. Goggles must be worn at all times when using high pressure air for cleaning equipment. Do not use for cleaning clothes.

30. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment on walkways to create a stumbling hazard.

CONVEYORS AND ORE BIN

1. Do not step on or climb over or under conveyor belts, either moving or stopped, unless drive motor switch is locked out.

2. Never start conveyor belts until you have received the proper signal or order and then see that everything is clear before starting the belts.

3. Do not use defective extension cords.

4. Never work in a bin without sufficient light.

5. Keep a safe slope on face of mix when pulling charge from ore bins and look out for overhanging or loose material on tracks overhead. Overhangs or other overhead material must be barred down before entering the bin.

6. Never take out more floor ties or boards in bottom of bin than is necessary to work the charge. Keep the floor closed and clean behind you as you may need to run back out of danger in case of a slide or cave in.

7 files

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7. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

8. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment on walkways to create a stumbling hazard.

REGULAR INSPECTION PREVENTS TROUBLE

LABORATORY

1. Acids and chemicals must be carefully stored, preferably in an isolated room or building and must be labeled plainly and conspicuously. So far as practicable, the most dangerous substances should be kept under lock and key. No person should be allowed to enter any place where dangerous chemicals are stored or used unless his work requires him to do so.

2. Wear the proper protective apparel when handling ~~acid bottles~~ *bulk acid*

3. Do not pour water into sulphuric acid.

4. Never leave acid or ammonia bottles on shelves in front of hot plates — explosion danger.

5. Filter all poisonous gases under a hood.

6. Do not mix or handle any acid or chemical until you have been properly instructed in its use.

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Thorium nitrate

7. Always use a beaker brush in cleansing beakers — never use the hand.

8. When removing hot solution from plates always use beaker tongs or clamps.

9. Keep in the clear of any one pulling material from muffle furnaces.

10. Use ~~hydrated lime~~ ^{sodium carbonate} to absorb acid spills on floors.

11. Use sodium bicarbonate (~~baking soda~~) to absorb spills on clothing.

12. Use every precaution in handling H₂S gas, Potassium Chlorate, and Sulphur Dioxide.

13. Wear safety glasses when cubing lead buttons ~~working in wet lab and~~

dispensing acid 14. The burette tops and tops of the reagent bottles in matching colors as follows:

are coded Sulfuric Acid Yellow

Nitric Acid Red

Hydrochloric Acid Blue

Acetic Acid Brown

Hypo White

Ammonia Green

15. Burettes must also be marked with the chemical formula for the reagents they carry.

16. Burettes should not be refilled until they are empty. This will eliminate the possibility of two explosive chemicals being mixed in one burette.

17. Use safety showers when large amounts of acid is spilt on anyone

17. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment on walkways to create a stumbling hazard.

SAFETY BEGINS WITH GETTING A CLEAR VIEW OF RULES

FURNACES

DROSS REVERB — BLAST FURNACE

REVERBERATORY — ZINC

1. All men working around furnaces must be especially informed about the hazards of pouring water on hot slag, matte, or metals. Moisture or water along with the molten matte or metals will cause explosions.

2. Do not tap with wet bars.

3. Never cut off tapping bars until safety screen is in position to stop flying pieces.

4. When tapping, tappers must wear sleeves, leggings, aprons, face shields, and gloves for protection against flying molten metal.

5. Do not tap matte into a wet ladle because an explosion will occur.

6. Keep the ladle, matte, or slag launder hoods down and suction fans running when tapping or skimming.

7. When repair men are working around the reverberatory or dross reverberatory furnaces, the skimmer or furnace man must warn them to get in the clear before charging the furnace.

8. Keep oxygen tanks in a secure position so they will not fall and damage the valves or gauges.

9. Regulators must be used on oxygen tanks at all times.

10. Never expose oxygen tanks to excessive heat. Do not drop them or allow them to strike against each other violently.

11. Never transport oxygen tanks in wheelbarrows. Use the carts provided for this purpose, and always have tanks capped while they are being transported.

12. Before lighting gas burners be sure the air vents are closed, and stand to one side when lighting burner.

13. When burners under gas-fired kettles have gone out allow fire box or chamber time to clear itself of unburned gas before relighting burner. Vent to kettle setting must be open.

14. Do not fill slag, matte, or lead pots too full. They may slop over and burn someone.

15. Be sure that molds are dry before casting lead bullion blocks.

16. Keep area around lead kettles clean and free of stumbling hazards.

17. Do not walk on edge of lead kettles or launders. When decrusting lead kettles use the screen provided for this purpose.

18. When pouring molten material into the slag charge hole at the copper reverberatory, the crane operator will receive signals only from the man at the slag charge hole.

19. Do not attempt to stop leaks in slag pots, and etc., by forcing adobe into them with your hands. Use an iron bar or dolly.

20. Do not work on lead pumps or stirring machines when they are suspended from a crane. Put them on racks provided for this purpose.

21. Caution must be used when hooking, unhooking, and handling heavy loads with cranes. Do not get between these loads and any object as any pinch will be serious.

22. When taking lead bullion eye hooks from rail cars do not throw them out — drop them from the side of the car where you can see where they will fall.

23. Cranemen must sound alarm when breaking sows or charging wet material into the lead kettles.

24. When using a hose to wet the area around the lead tracks, use caution that the stream of water does not touch the trolley wires.

25. Keep blast furnace not in use covered with the safety screens.

26. Turn off the power on the trolley lines when the blast furnace is being dynamited, and

post men at all stairways to keep anyone from coming into the area.

27. Dogs on dross reverb crane must be kept in good operating condition and must not be "blocked up" during operation of the crane.

28. Put adobe in inlet and outlet of settlers when pulling them from furnace.

29. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

30. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

**A GLASS EYE WON'T MAKE
THE WORLD LOOK ROSY
WEAR YOUR GOGGLES**

ROASTERS

Wedge - D & L - Cadmium

1. Before lighting gas burners be sure air vents on burners are closed. When lighting burners stand to one side of burner and light with a torch. Never turn full pressure on burner when you light it. There is danger of a flash back.

2. Do not put hot calcine samples in a wet sample bucket.

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3. Do not stand on feed deck or step on mixing tables when knocking down charge in feed hoppers.

4. When plowing the feed deck on a Wedge Roaster be sure that someone is stationed at the safety switch to stop the roaster if needed.

5. When repairs are being made on a roaster or D & L machine be sure that the switch is pulled and locked in the off position.

6. Whenever necessary to go on top of flues, always stay on walkways provided for this purpose. Never step on brick arches.

7. Keep guard rails in place at all elevator landings when landings are not in use.

8. When a roaster or machine has been shut down for any reason, make sure that everything is clear before starting up.

9. Never try to hold a drive belt on a pulley with a stick or bar.

10. When cleaning disintegrators, stop the motors, then pull the main switch and make sure both cages have come to a complete stop before starting the cleanup job.

11. Never throw material of any kind from or out of roaster buildings unless someone is posted below to warn others of this danger.

12. Do not insert bars or shovels into openings of elevator housing when elevator is running.

13. Do not use a shovel to clean any pulley while it is running.

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14. Do not step on pallets at feed end of machine while machine is moving.

15. Use safety belts while cleaning out storage tank.

16. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

17. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

18. Loose bars must not be carried on the highline motors.

**IF YOU WANT TO DIE
WHILE STRONG AND YOUNG
CLIMB DOWN A LADDER
WITH A BUSTED RUNG.**

CONVERTERS AND ANODE CASTING

1. All employees are cautioned not to pass under loads being moved or lifted by cranes.

2. Skimmers must examine tuyere valves and connections frequently and report defects to the foreman.

3. When ball is being dropped to break up material, keep a safe distance as some of the flying pieces can cause serious injury.

4. Before dumping a settler block in the converter aisle or pit be sure everyone is in the clear.

5. When breaking settler blocks, the gates at south end of the converter building must be closed and latched.

6. All men are to be warned of the danger of pouring water on hot slag, matte, or metals. Remember, water coming in contact with molten matte or metal will cause explosions.

7. Skimmers must see that everyone is in the clear before moving converter up or down.

8. Do not use openings under converter platforms as passageways.

9. Do not sit on hand rails.

10. Anode loading floor should be kept free of oil and water.

11. When trimming anodes, never step between stack of anodes and loaded truck.

12. All anodes must be stacked at a safe angle.

13. Caution must be used at all times when handling anodes to avoid mashed or broken fingers.

14. Never step on or off of casting wheel while it is in motion.

15. Men must not be under anode poles when they are being handled by the crane.

16. Blue flag must be attached to railroad car when being loaded with anodes.

17. Never put fingers between shims and molds to adjust or remove shims when leveling molds.

18. Towmotor operator must always look in the direction the motor is moving.

19. Keep out of converter aisle unless your job requires you to be there.

20. When loading car keep outside door closed enough to prevent motor going through.

21. Do not blow copper through receiving spout on anode furnace.

22. Do not stand on furnace platform rail when working copper charge.

23. Before pulling knife switches be sure that the corresponding circuit breakers have been opened.

24. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

DARK SPOTS ARE DANGER SPOTS

OVERHEAD CRANES

1. Do not carry a load over persons; if it is necessary to carry the load in their direction, warn them and be sure they are well out of the way before proceeding.

2. Do not depend on limit switch — stop before your load hits the switch.

3. When breaking in new men, remain in cab with them.

4. Do not allow others whose duties do not require it to ride in the cab or on crane.

5. Allow only those properly authorized to relieve you from duty or to operate any part of the crane.

6. Under no consideration permit your crane to bump into another crane.

7. Always pull main switch before leaving crane.

8. One crane must not be pushed along with another crane except as an emergency measure.

9. The crane operator shall recognize signals from one designated person who shall use standard signals. The exception to this rule is that emergency stop signal given by any person shall be instantly obeyed.

10. Never drag slings, chains, hooks, or load along the floor.

11. Never move load while swinging. Before starting to hoist, if possible, place carriage directly over load to avoid swinging load. Don't raise loads on the slant if it can be avoided.

12. Crane operators shall use great care in watching the chaining and hooking to see that the chainman's fingers are not caught.

13. The safety switch on crane must be handled only by an electrician or a crane repairman. If it is found out, leave it out.

14. In all conveying, hoisting, or loading operations, no person shall be carried on any device not intended for such purpose.

15. When pouring converter slag, lead slag, or matte into reverberatory or zinc slag charge holes, the crane operator will take signals from the person at the slag hole.

16. Crane chaser must see that both sides of bails are securely hooked on ladle before giving signal to take ladle away.

17. Crane operators must sound sirens when necessary to warn persons of danger from movement of crane when repair is completed, or when shift begins.

18. Before starting crane be sure that no one is on the running board or carriages.

19. Never hook tail chain on bottom of ladle for dumping except at dumping place.

20. After a crane has been down for repairs see that there are no tools or material left which may fall when crane is put in motion.

21. When breaking material with ball warning must be sounded before ball is released.

22. When unloading poles at anode casting crane man shall not lift a pole from the car until men hooking the pole are out of the car.

23. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

24. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

25. Caution must be used when hooking, unhooking, and handling heavy loads with cranes. Do not get between these loads and any object as any pinch will be serious.

TRUST A MACHINE ONLY WHEN YOU CONTROL IT

COTTRELL PLANT

1. Because very high voltages are in use in the cottrell plants, caution must be used at all time. No one is allowed inside the cottrell building except the regular employees of the department or other employees making repairs in their regular line of duty.

2. Report any defective equipment to your foreman at once.

3. Do not enter or reach into the screened enclosures of a rectifier while a machine is running.

4. Before working around any rectifier unit or transformer stop and ground machines on both sides of it.

5. It is forbidden for any man to work on a treater unit, treater switches, rectifiers, or other cottrell equipment without first making a personal check on safety devices. He will not take anyone's word for this, but will do it himself.

6. Before inspecting or doing any work on or in any part of a treater unit the switch to that unit must be open and the unit must be grounded with grounding bar to high tension frame. Ground bars should be checked frequently to see that they are not corroded or stuck.

7. After working in a unit remove all bits of wire, sticks, loose bolts, and tools before closing switch.

8. Do not use defective extension cords. If an extension light is used in a unit, it must be removed before switch is put in.

9. Never try to clean or repair pug mill or screw conveyor while running.

10. Remember — in all cases when working on rectifiers, in units, or whenever it is necessary to open any switches, the switches must be pulled and locked in the off position.

11. Use a fuse puller to remove or replace fuses.

12. Covers must be kept on screw conveyors.

13. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

14. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

SAFETY PAYS

CONDITIONING PLANT

1. When working on flue or top of conditioning chamber always stay on walkways provided for this purpose.

2. A face shield and protective clothing must be worn when opening or adjusting valves on acid lines.

3. If acid comes in contact with the skin, wash it off immediately with plenty of clean water.

4. In an emergency do not take time to remove clothing, but get under the water shower as quickly as possible.

5. Emergency showers should be turned on each day to see that they are in good working condition.

6. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

THE GREATEST SAFETY DEVICE

IN THE WORLD

IS A CAREFUL WORKER

ZINC PLANT
1. Furnace crews must remain in safe place when furnace is being charged by the crane.

2. Do not walk on arch of settling furnace.

3. Do not leave loose material on cooling tube floors and stairs such as air hose, lances, bars, hammers, and material left from repairs.

4. The removable grizzly covers over the coal hoppers must be put in place when there is no car over the hoppers.

5. Smoking, lighted matches, or lights other than explosion proof electric lamps are prohibited in or near the coal pits. Explosion proof electric lights must be kept covered and bulbs must be replaced by electricians only.

6. When welding or cutting must be done in the coal pit, walls and ceiling should be washed down. Do not strike an arc or a flame while fine dust is accumulated in the air in the pit. Clean and wash with water the coal dust off the material being cut or welded. If possible, material to be welded or cut should be removed from the pit.

7. Blue flags must be placed on first cars out on A & B tracks at all times. They should be removed only by the man placing them there when he has finished his work or when he is going off shift, or when requested by switchmen.

8. Check to see that brakes are tight on cars to be loaded or unloaded.

9. Do not throw brooms, shovels, or bars out of coal cars without first checking to see that they will not fall on someone.

10. Do not move a boxcar with the boxcar loader inside.

11. Before moving a car by hand car mover set brakes so that they will have a slight drag and place a stopping block in front of the car so that it will not roll too far.

12. Coal pit operator must check to see that no one is working on any machinery inside before he starts operation.

13. Covers on screws, drag conveyors, elevators, and belts may be removed only when absolutely necessary for cleanup or repairs, and then covers must be replaced immediately upon finishing cleanup or repairs.

14. Whenever a motor, conveyor, or any moving mechanism is to be worked on a safety tag or padlock or both must be placed on the switch to tag or lock out the switch.

15. Do not try to remove a bar or anything that is caught in a conveyor until the conveyor has been shut off.

16. Do not open doors of switchbox controllers to reset overloads unless necessary — use push button on side of switch box door. Doors and covers on switch boxes and electric circuits must remain closed. Notify your foreman about faulty switches.

17. Do not turn on any switch until you are certain that everyone and everything is in the clear.

18. Do not walk or stand on conveyor covers for any purpose.

19. No hammers, bars, or foreign objects shall be put in or around moving machinery.

20. When digging inside of kilns use extreme caution to prevent loose accretions from falling on you.

21. Whenever working in boilers be certain that proper precautions and safety equipment are used.

22. Whenever the boiler gas burner is being used a man must be placed on watch at the burner to see that it remains lighted. This man must not leave until so instructed by someone in authority.

23. Whenever the burner goes out, a reasonable length of time before relighting must be allowed to permit the boiler to be cleared of unburned gases.

24. Wet dust or coal must never be poured into the furnace unless authorized by foreman and then extreme caution must be used to prevent a flashback.

25. When using a 2 inch bar for barring out furnace shells tie a rope to the end of the bar to keep it from falling into the furnace and take care that you do not become entangled in the rope.

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26. When using the sledge hammer be sure you hit what you are aiming at and not the man standing behind you.

27. The zinc slag train must be stopped after throwing derail switch at the lunch room and switchman must walk ahead of the train to check for clearance in converter aisle before giving motorman signal to proceed.

28. Before uncoupling pots be sure the brakes are set, pots are securely blocked, and the safety chains are unhooked.

29. Clean up track after re-railing pots or motor, as blocks, frogs, and etc., left in or near track will create a stumbling hazard.

30. The motorman is in charge of the motor and will be held responsible for the operation of motor and crew.

31. When motor is traveling, the warning bell must be ringing and whistle signals must be sounded when motor is approaching crossing or blind spots. Whistle must be sounded before leaving or entering the converter building. Caution must be used when traveling through main yard.

32. Rules listed under "Haulage Motors" shall also apply to zinc motor crews.

33. See rules under "Baghouses" for zinc baghouse.

34. When hauling cleanup material to the dump in a slag pot, if possible use a slag pot

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having a shell in it. Check pot and never replace it under furnace until the pot is completely empty.

35. The dust around the kilns is very slippery when wet, so use caution to prevent a fall.

36. Before pulling knife switches be sure that corresponding circuit breakers have been pulled.

37. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

38. Do not clean pug mill with a bar or any other implement while the mill is running.

GET

THE

SAFETY

HABIT

GERMANIUM PLANT

1. Anhydrous ammonia is a strongly irritating chemical to the skin, mucous membrane, respiratory tract and eyes. Direct exposure by contact can cause severe burns.

2. Tanks, lines, and equipment should be purged or washed free of ammonia before cutting or welding by any means. Blank off lines, do not depend on shut-off valves.

3. In case of contact with ammonia immediately flush skin and eyes with plenty of water for at least 15 minutes. Call a doctor at once in case of burns, especially to the eyes, nose, and throat, or if the patient is unconscious.

4. When tank car is discharging ammonia, blue and white sign "Stop — Tank Car Connected" must be on car. Switch to spur must be thrown to disconnect spur and locked.

5. Acid proof clothing and hoods should be worn when unloading ammonia from tank car. Canister type gas masks should be available to those unloading the car.

6. Do not search for ammonia leaks with a flame.

7. Emergency showers shall be checked each day to insure proper operation.

8. Each employee in the Germanium department shall know how to use the emergency respiratory equipment.

9. Safety glasses must be worn at all times.

10. When charging concentrated acid into leaching tanks, face shields must be worn.

11. Rubber boots must be worn while working in the basement and rubber gloves and boots must be worn in the presence of acid or ammonia.

12. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

13. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

Anything ALMOST RIGHT Is Wrong

BAGHOUSES

1. Always use air mask and wear baghouse suits when working in baghouse chambers.

2. Before entering chamber make sure air lines are not obstructed and there is a good supply of clean air.

3. Keep air hose connections to air mask tight.

4. Keep air hose and extension light cords straight so they can be moved freely.

5. Avoid turning around several times in the same direction when using air mask. This will prevent air hose from becoming twisted.

6. When unhooking bags, the man on shaker floor should give warning to avoid dropping bells or hooks on the man working below.

7. Do not hand extension lights against bags as this may cause the bags to catch on fire.

8. When revising bags always lock out shaker switch for that section.

9. When firing Blast Furnace, baghouse dust always take a small sample outside and try it first. This may prevent an explosion or serious fire.

10. Take a shower bath after working inside of bag house chambers.

11. When working or walking on top of flues always stay on the walkways provided for this purpose.

12. Remember — never close the door to a baghouse chamber without FIRST making absolutely certain that no one is inside of that chamber.

13. When Mancha train is going past the baghouse office the bell on the train must be ringing.

14. Keep one man on the outside walkway for each man inside.

15. Keep one man supplied with portable air supply when men are inside of the Blast Furnace Baghouse.

16. Use telephone equipment between men inside and outside when working inside the Blast Furnace Baghouse.

17. All tools and equipment must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

18. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

LEACHING PLANT

1. Do not clean the chute from the drag conveyor to the ball mill scoop hopper while the mill is running.

2. Goggles and respirator must be worn when handling soda ash or flue dust.

3. Be careful while walking on the floor of the leaching plant to prevent slipping. The mud is very slippery.

4. When unloading cars be sure that you have blue flag on the first car out.

5. When moving leach cake cars with payloaders do not push cars on the drawhead. Push them on the corner of the car by grab iron or step.

6. Before pulling knife switches be sure that corresponding circuit breakers have been opened.

7. All tools and appliances must be kept in good condition and stored in their proper places. Never leave such equipment in walkways to create a stumbling hazard.

THE COST OF SAFETY IS ONLY A THOUGHT

WATCHMEN

1. Patrolmen while patrolling the various parts of the plant must always be on the lookout for safety hazards, such as uncovered pits or holes, broken or dangerous stairs, steps, walkways, or fire hazards, and must report same to the Safety Office as soon as possible.

2. Patrolmen are authorized to eject from the plant premises anyone who is under the influence of intoxicating liquor.

3. Patrolmen at the west gate must make sure that all persons, not employees of the company going through the plant to the hospital or offices are properly warned and directed.

4. Visitors must have a pass signed by some authorized person. This pass must be given to a patrolman upon demand and he will escort the party to the department, person, or tour of the plant as requested on the pass.

5. If an emergency or something unusual arises the patrolman should contact the Safety Office, the Employment Manager, or the Safety Inspector.

OBEY DANGER SIGNS FOR YOUR OWN SAFETY

FIRE ALARM SIGNALS AND LOCATIONS

1. Lead Baghouses
2. Lead Baghouses
3. Construction Tracks

- 1 - 4 Crushing Plant
- 2 - 1 Reverberatory
- 2 - 2 Zinc Plant
- 2 - 3 Cadmium Plant
- 2 - 4 Warehouse
- 3 - 1 General Office
- 3 - 2 Carpenter Shop
- 3 - 3 Hospital
- 3 - 4 Smelter Hill
- 4 - 1 Smelter Terrace
- 4 - 2 Blast Furnace

Alarms will be sounded 3 times.

To turn in an alarm go to the nearest alarm box, pull handle down once, and let go.

Wait at the alarm box to direct members of the fire brigade to the fire.

Learn the location of the two fire alarm boxes nearest your working place.

When an alarm is turned in and there is no response in a reasonable length of time, go to the next nearest fire alarm box and turn the alarm in again.

Do not at any time turn water or foam type fire extinguishers on electrical lines or equipment.

Fire fighting equipment shall be used for fire fighting only.

Unless actually engaged in fighting the fire stay away.

Smoking is prohibited in and around the following places: Gas House, Paint Storage Room,

Gasoline Pump, Diesel Fuel Pump, Acetylene Tank Storage Shed, Acetylene Generator House, Zinc Coal Pit, Blast Furnace Baghouse, and Cooling Towers. All areas or places where smoking is prohibited are posted with NO SMOKING signs.

The plant fire brigade consists of a man from each of the following departments: Blast Furnace, D & L, Copper Reverberatory, Converter, Zinc, Anode, Carpenter, and in addition all employees living in the plant.

The booster pump should be turned on at the sound of a fire alarm. The fire chief or his assistant shall be responsible for carrying out this operation.

SAFETY EQUIPMENT AND PROTECTIVE CLOTHING

It is impossible in a plant of this size to make a set rule on which kind of safety equipment or protective clothing must be used by each employee because as changes are made or new methods of production are introduced, changes must also be made in the Safety equipment and protective clothing for the particular work. The following is recommended for the various jobs listed:

Safety shoes should be worn by all plant employees while on duty.

Goggles or safety glasses should be carried on the person when on duty and

worn when necessary by all plant employees.

Tappers and furnace men should wear leather aprons, sleeves, leggings, hard hats, face shields, and heat resistant gloves or mittens while working around furnaces.

Roaster, Conveyor, and Mill men or any one working where there is a dust hazard must have respirators on their persons at all times while on duty and wear them when necessary.

Anode spoonmen and refiners should wear hard hats and face shields and may also wear goggles underneath the face shields.

Cadmium plant men should wear complete flue dust clothing, dust goggles and respirators.

Baghouse men must wear complete flue dust clothing and dust goggles. High top shoes must also be worn. Air masks are used by these men when working in baghouse chambers, but on other work respirators should be used.

Reverberatory slurry men should wear hard hats and green face shields.

Metal safety hats must not be worn by anyone where there is danger of contact with electric wires. This applies to all motor men and switchmen.

Mechanics or maintenance men must wear the proper safety equipment for the department or conditions in which they are working.

Rubber boots or wooden soled shoes must be worn where there is danger of burning or otherwise injuring the feet.

Baghouse suits should be worn when working inside of baghouses, flues, waste heat boilers, wedge roasters, and cadmium roaster; when pulling cottrell dust, wedge roaster flue dust, converter flue dust, and blast furnace flue dust; and when unloading lime and soda ash.

Respirators are available and provided for fumes, dusts, and acid gases. Employees should check with their foremen to determine the type they should use. Those to whom a respirator has been issued must turn their respirators in to the respirator room attendant at the end of the shift on which it was used to be cleaned and sterilized. They must not store it in their tool lockers or any other place other than the respirator room.

Whenever there is doubt about the proper kind of safety equipment or protective clothing to be worn, contact your foreman or the safety office.

**BE CAREFUL
WHILE ABOUT YOUR WORK
FOR A CAREFUL MAN IS THE
BEST SAFEGUARD THAT IS KNOWN!**

from our perspective in the past
and not in the future. We have
seen many of the same things
happen over and over.

There are many things that have
happened in the past that we have
not seen before. We have seen
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**NOW IT'S
UP TO
YOU!**

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