Boiler Operating Instructions

Boiler(s) : 83 & 84

Location: Building G-650 Camp LeJeune NC.

Change from oil to Gas

1. Shut manual oil and steam valves at the oil gun
2. Remove oil gun and install oil gun plug
3. Open both manual main gas valves (slowly)
4. Check gas supply pressure to boiler (should be 15 psig.)
5. Check boiler gas pressure down stream of boiler regulator (should be 7 psig.)
6. Place damper in front of boiler to proper position for pilot ignition.
7. Turn Gas / Oil selector switch to the "Gas" position
8. Start Forced Draft fan
9. After boiler is started operate as previously trained.
10. Secure main oil pump
11. Observe natural gas flow (SCFH) on monitor

Note:

If gas leak is detected shut manual gas valve at rear of boiler

STANDARD OPERATING PROCEDURE

FOR

STEAM GENERATION BRANCH

March 1999

Submitted by: T. Brownley
Boiler Plant Operator Supervisor II,
Steam Generation

Approved by:
Steve L. Soller

TABLE OF CONTENTS
SOP BLDG. G-650

HOURS OF WORK

1. Steam generating plants operate on a twenty-four hour, seven day a week basis, consisting of three eight hour shifts.

2. Shifts are scheduled from 2400 - 0800, 0800 - 1600, 1600 - 2400 on a rotating basis.

3. A work week begins at 0001 Sunday and ends at 2400 Saturday. Two days off can be given any time during this seven day period.

HOURS OF WORK
(Relieving on Duty Shift)

1. Each employee in steam generation is scheduled to work on a week to week basis with shift schedule subject to change at anytime; due to personnel being out sick or on emergency leave, or shift in plant workload.

2. On duty shifts are required to note any operating change or operating irregularity on daily log sheets and inform on-coming personnel of these changes or irregularities; also any maintenance or procedure that is not routine will be noted on the log sheet and reported to the shift supervisor.

3. Shifts change at 0800, 1600 and 2400. At the time of shift change the oncoming operator will call the shift supervisor at Building 1700, phone 451-3627 or 451-5112 to log himself on shift and the off going operator off shift. The plant operator will also call in every two hours during his shift to check in with the Shift Foreman. Calls must be brief in order to allow all plants to check in within a 10 minute period.

4. Shift Operators are to call the Shift Foreman at Building 1700, phone 451-5112/451-3627 if not relieved in time at the end of their shift.

ANNUAL AND SICK LEAVE
(RULES GOVERNING THE USE OF)

1. Request for Annual Leave: Annual leave must be requested and approved before the absence begins. The supervisor will notify the employee of the approval or disapproval of the leave request prior to the first day of leave. Occasions will arise during off duty hours, when absence from the job without prior leave will be necessary. If this should happen, the reason for such absence is to be reported to the supervisor as soon as possible before the start of shift on the first day of such absence. The notification of such absence does not mean that the leave requested will be approved, as the absence must be justified and approval obtained upon return to duty. When notice is not received explaining the reason for being absent, the employee shall be reported on the time card as absent without leave (AWOL). The entry on the time card shall not be adjusted unless the employee can show cause for justification.

2. Grant Sick Leave: Sick leave shall be granted to employees when they are unable to perform their duties due to sickness, injury, medical, dental, or optical examination or treatment, or when a member of the family of the employee is sick with a contagious disease and requires the care and attendance of the employee.

3. Request for Sick Leave: Request for sick leave for medical, dental, or optical examination or treatment shall be submitted for approval in advance of appointment. An employee that is unable to report for work because of illness shall notify the supervisor as soon as possible by the best method available of such absence to prevent overtime.

4. Return to Duty: When an employee returns to duty after an absence in excess of three days, a written statement from the physician indicating the nature of the illness is required to be submitted.

5. Employees Responsibilities: Each employee is responsible for the signing of leave request before going on leave. In case of emergency or sick leave, request will be signed the first day of return to duty. Additional information governing request and use of all types of leave is in Base Order 12630.1F.

6. In case of an emergency contact Shift Supervisor, phone 451-3627/451-5112.

DUTIES - GENERAL

The below listed duties apply to all personnel as scheduled. They will not apply at all plants, but will be performed where they apply.

ALL SHIFTS

1. Machinery will be checked visibly and physically each hour, or more often, if hourly inspection shows necessity. Oil will be added to bearings as needed, if bearings running too hot secure equipment and note on the log sheet; foreman on shift will be notified.

2. Air compressor bearings will be oiled at least once a shift with a few drops of 30 weight or designated oil. Drain any water from unit.

3. Water softeners and condensate are to be checked for hardness every hour. Regenerate softeners as needed. Report hardness in condensate to Shift Foreman.

4. Low water cut offs and water columns will be checked by blowdown at beginning of each shift, on all operating boilers, more often as necessary.

5. Burner nozzles will be checked each shift, once a week change and clean burners more often if necessary, due to excessive carbon accumulation in gun type burners using #2 fuel.

6. Fuel tank berms will be checked each shift, make sure drain valves are shut and locked. Remove water from berms as necessary. Close and lock valve when berm is drained. In the event of a fuel spill in berm follow SOP for fuel spill

7. Peep sight glass in back of boilers in operation will be kept clean at all times.

8. Any shift receiving No. 2 oil will sound oil tanks to see if tanks can hold the load. Check the seal on the oil tanker to ensure seal has not been broken during unloading. Make visible inspection of tanker when driver finishes unloading to ensure that all oil was unloaded; sign, date, and put plant number on oil tickets. Ensure that sulfur content ticket accompanies each load of fuel and it meets specifications. Oil will not be off loaded until proper ticket is presented or authorized by Shift Supervisor. Operators receiving oil will be responsible for oil tanks not being filled over 85% of capacity of tank itself. It it is necessary to fill nearer capacity, put tank on immediately and burn down to 85% capacity.

9. Log sheet remark space should be utilized for the purpose of informing management personnel of boiler room operation. It takes only a moment to note things of various interest. Your cooperation in this matter will be greatly appreciated.

10. Perform boiler blowdown as prescribed by chemical analysis.

Safety Concerns: All Boiler Plant Operators and Boiler Plant Workers must be attentive and alert at all times to ensure boilers and plant equipment are operating in a safe and efficient manner. Watching or possessing a television or engaging in any non-duty related work activity that compromises his or her attention to their duty is prohibited at all times.

GENERAL INSTRUCTIONS TO BOILER PLANT OPERATORS

1. All federal buildings have been declared as non-smoking areas. You are tasked with promoting this policy within your steam plant.

2. All personnel inside any manned plant are required to wear an approved safety hard hat. The Operator in Charge, in the absence of the Foreman, will ensure this policy is adhered to.

3. All safety gear will be worn when required to perform certain tasks to ensure the job can be done in a safe manner. Such as, wearing goggles, rubber gloves, and apron when charging the chemical tanks, hard hats, etc.

4. All journeyman level operators are required to have a set of tools to perform maintenance to equipment in the plant according to job description. (See BO 12594.2B) List of these tools are found in this SOP under title of "Hand Tool Requirements".

Note: It is the responsibility of each person in Steam Generation to practice good safety habits when engaged in any work. It is imperative that each operator work in a safe manner and encourage any one that works under his or her direction to work safely at all times.

DUTIES - HOUSEKEEPING
ALL SHIFTS

1. Personnel will keep floors, desks, and/or office space clean and free of foreign matter, including newspapers and books.

2. The head (including toilet bowl and lavatory) will be kept clean at all times.

3. Cleaning stations will be assigned each shift at each plant; regardless who is working that shift at that plant, the cleaning station will be his responsibility. This will apply particularly when an employee is scheduled on another man's shift while he is out on leave.

4. Each employee should keep cleaning station assigned to him or his shift in a constant state of cleanliness by keeping boilers and assigned equipment painted, dusted, washed, oil wiped up, or anything necessary without further supervision. However, it will be the Shift Foreman's duty to point out and have any discrepancies noted and corrected at earliest possible date.

5. We are subject to plant inspection at any time by anyone from the Commanding General down to the Foreman. You are to keep plant and equipment in a constant state of readiness.

STEAM GENERATION PLANT
S. O. P. For Operations Personnel
General Instructions

All personnel will report promptly for work on their scheduled shift and respective plant.

Operator in Charge, when reporting for a shift will make a complete and thorough check of the plant at start of assigned shift. Any discrepancies found will be recorded on log sheet and same corrected by operator on duty and noted on the log sheet. Operators should inspect all plant equipment. Plant is accepted by relieving operator by signing in on log sheet. Operator on duty will not turn plant over to another operator if they think the person is not in good physical condition and will remain on duty until supervisor is notified and they have been properly relieved. All machinery and equipment will be observed hourly on each shift for abnormal operation. All maintenance problems will be reported to the Shift Supervisor.

All personnel reporting for duty will check in with Operator in Charge. All personnel will check with the personnel they are relieving for any exchange of operating information. Any operation problems will be noted on log and reported to Shift Supervisor.

All personnel will be thoroughly familiar with all emergency equipment in plant (how they start, adjust and when to use). Such as emergency generators, emergency lights, fire extinguishers, etc.

All personnel will strive to be neat and orderly on the job, wear clean clothes and be polite and courteous to others and alert and attentive to duty at all times. All personnel are expected to study their job thoroughly, looking for ways to improve operation, be economical in the use of material and conservation of utilities. All personnel will check bulletin board regularly for a review of memos and for new or specific information.

All boiler plant personnel have a specific job, and a very important responsibility that is, we at all times maintain a safe and efficient operation.

All personnel driving Government trucks will check trucks they are going to use and determine if it has any new discrepancies since the last time they used it. They should check oil level, water level, tires, cleanliness, check all equipment assigned to truck, check for new dents and scratches and report same to the Shift Foreman.

Wall lockers, (government) have been issued to personnel for your convenience. Items that can be kept in lockers are such things as rain gear, boots, personal convenience items, tools, etc. Paint and other flammable items should never be stored in lockers. Lockers will be searched at the discretion of supervisory personnel. Failure to open said locker could result in a disciplinary action.

All personnel are responsible for accomplishing duties of shift they are working.

All journeyman level personnel will have the required tools at all times as per tool list.

Generators will be test run under load each Monday and information logged on log sheet.

All Boiler Plant Operators, Boiler Plant Workers, and Shift Foremen are to check boiler Certificates and see that they are current and correct.

BUILDING G-650

ASSIGNMENTS OF STATIONS TO BE PAINTED AND KEPT CLEAN

1. Abner James	#83 boiler and attachments to include #1 feedpump, chemical bin and rag bin.
2. Cleve Ketchum	#84 boiler and attachments to include #2 feedpump, blow down tank, and pit pumps.
3. William Bell	#85 boiler and attachments chemical pumps, tanks to include steam turbine and pump and desk.
4. Sammie Rogers	Oil pumping station, heater and makeup tanks, to include framework, softeners and brine tank, air compressors and transfer pumps..
5. All Shifts	Keep blow down ditch cleaned out.

6. It is the responsibility of each shift to perform operational cleanliness and general housekeeping every watch. These stations will be periodically inspected by a supervisor.

BASE MAINTENANCE DEPARTMENT
Utilities Division
Marine Corps Base
Camp Lejeune, North Carolina 28542

MAIN/TH/spk
15 July 1980

From: Director, Utilities Division
To: All Operators

Subj: Handtools; requirements for

Ref: (a) BO 12594.2B
(b) CMMI

1. All personnel hired or promoted to journeymen are required to furnish the basic tools of their trade as required by references (a) and (b). Upon permanent assignment to these positions, employees will be given a list of tools required and will be expected to have a sufficient number to perform the common tasks of the trade. After initial assignment to the position, a period of forty-five days will be granted for operators to acquire the necessary tools. The Civilian Personnel Office will be supplied with copies of such lists..

2. Tools required for operators are:

Sockets 3/8" to 1" 1/2" Drive (1 set)
Open end wrenches 3/8" to 1" (1 set)
Box end wrenches 3/8" to 1" (1 set)
Channel lock pliers (1 ea)
Wrench, adjustable 8" (1 ea)
Wrench, adjustable 10" (1 ea)
Set phillip screw drivers (1 ea)
Set square screw drivers (1 ea)
Allen wrenches 1/16" to 1/4" (1 set)
Pipe wrench 12" (1 ea)
Hand light (1 ea)
Pipe wrench 14" (1 ea)
Tool box with lock

CARL BAKER

Copy to:
CivPersOff

LEAVING BOILER IN OPERATION UNATTENDED

1. Anytime an employee should have to leave the area of the plant he is assigned, he will make sure a qualified person is in the plant on standby until he returns.

2. Contact the Shift Foreman, phone 451-3627/451-5112 if an emergency situation arises where you have to leave the plant.

BOILER AND AUXILIARY EQUIPMENT 8 - 4 SHIFT

1. When a boiler has been washed and put back in service it will be necessary to check manhole and handhole plates to ensure that gaskets are in place and tight. Internal pressure will cause these to loosen up and leak.

2. Fuel oil strainers should be cleaned or at least checked to see if cleaning is needed every Wednesday.

3. Air compressor filters should be cleaned every Friday.

4. Safety valves will be lifted by hand every Monday on operating boilers.

5. Chemical analysis will be performed daily and proper chemical feed established.

6. Air compressors should have moisture drained each shift.

8-4, 4-12, 12-8 SHIFTS

1. Soot blowing will be performed by these shifts only. 8-4 only when specified for a particular plant.

2. Drain water from air compressors.

Spill(s) and Related Emergency Contingency Plan

Base Maintenance
Building G-650

A. In the event that a spill(s), fire, release of toxic fumes or similar emergency occurs, the following action will be taken:

(1) EVACUATE AREA

Immediately alert employees/persons in the immediate area of the emergency and begin evacuation of any persons subject to inquiry by the emergency. Evacuees shall assemble at the following areas as designated by the hazardous waste site manager:

Primary area: north side of building in field area
Secondary area: open area on west side of building

Attachment A includes the evacuation plan and location diagram for Building G-650.

(2) CALL 911

Provide the Base Fire Department dispatcher with the best available knowledge of the amount and type of substance spilled; the location of the emergency; whether any persons have been or are likely to be injured; and any other information helpful to emergency response personnel. Stay on the line with the dispatcher and follow dispatcher's instructions if safety of the individual(s) will not be compromised. Continue to advise dispatcher of changing circumstances. The Site Manager is required to pull last inspection of spill accumulation area to inform Base Fire Prevention what material may be involved as long as safety of the individual(s) will not be compromised.

(3) ASSIGN ONE PERSON

One person will meet the emergency vehicle and guide Fire Department personnel to spill/emergency site.

(4) ASSEMBLE EMERGENCY ITEM(S)/SUPPLIES

Begin assembling emergency item(s)/supplies and equipment available at the work site. A list of chemicals used at Building G-650; an inventory of emergency item(s)/supplies used to contain a spill(s); item(s)/supplies location; and personnel responsible for item(s)/supplies are included in Attachment B.

(5) CONTAIN SPILL

If the circumstances of the emergency permit, begin containment of the spill by shutting off valves and applying sorbent pads to the spill. Only personnel appropriately trained will be allowed to enter the immediate area of the spill. A list of personnel authorized to enter the area

and actions they are expected to take is provided in Section D of this document. Upon arrival at the scene, the Fire Department will control access to the site.

(6) **UNDER NO CIRCUMSTANCES**

Personnel will not undertake any action which will expose them to toxic chemicals, fumes, and/or gases unless personnel use the proper type(s) of personal protective equipment.

B. The Senior Fire Department Official on the scene will serve as the Navy-On-Scene-Commander (OSC). All Marine Corps, Navy, and civilian personnel on the scene are expected to provide available resources as the On-Scene-Commander deems necessary to abate the emergency and protect life and property.

C. Notify the following officials:

Camp Lejeune's Environmental Compliance Coordinator (ECC):	John Riggs, Resource Conservation Recovery Branch, 451-1482
Base Maintenance Officer (BMO):	LtCol David Nicholson, 451-7972
Environmental Compliance Officer (ECO):	Allison Stockweather, Industrial Hygienist, 451-3046

D. Roster of shop personnel authorized and trained to respond to hazardous material and waste spills/emergencies:

Ernest Humphrey, Boiler Plant Operations Supervisor, 451-9562

E. Responsibilities of personnel listed in Section D are the following:

1. Immediately alert employees/persons in the immediate area of the emergency and begin evacuation of any persons subject to inquiry by the emergency.

2. Notify the Base Fire Prevention at extension 911.

3. Provide technical support

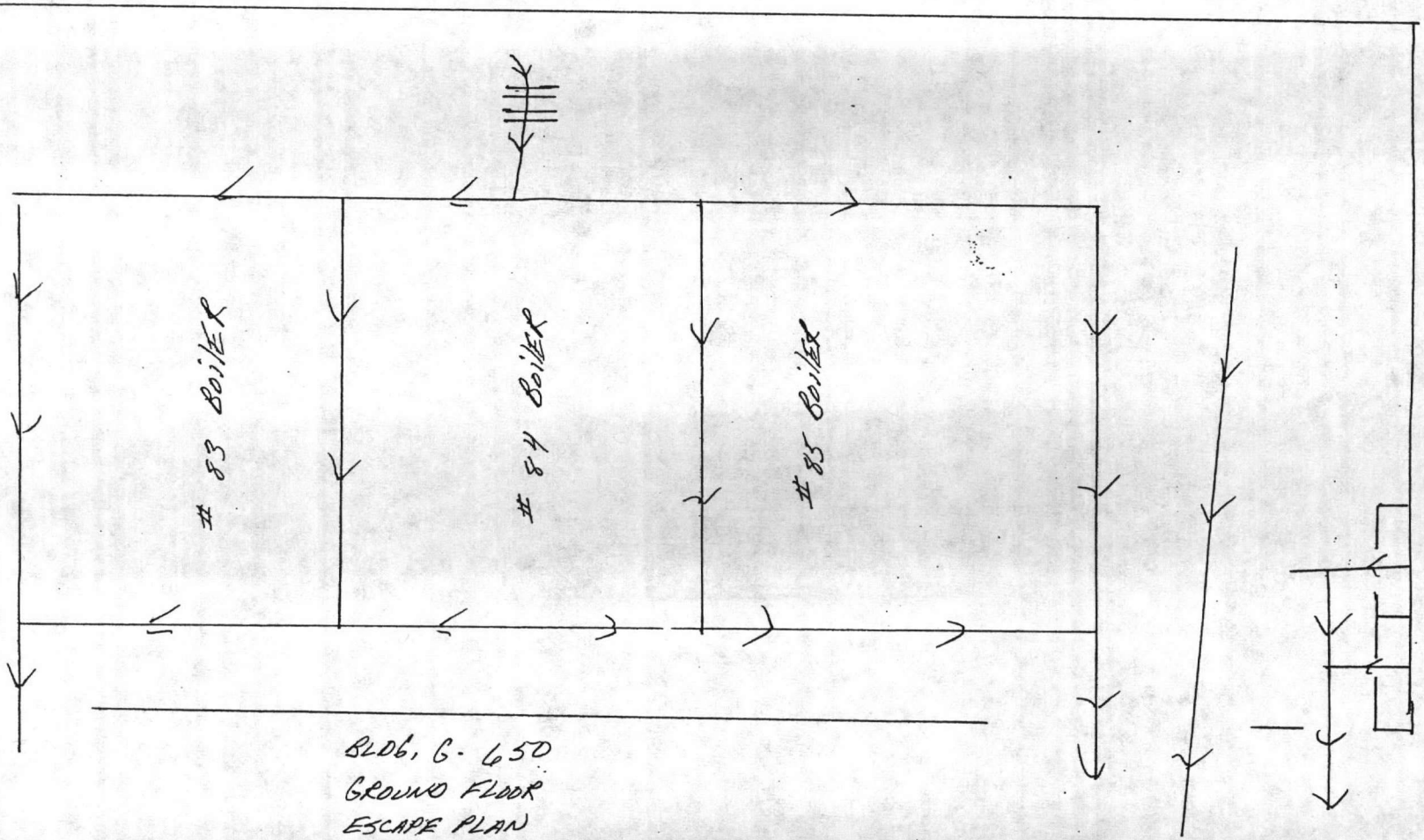
4. Carry out orders of OSC.

I certify that Mr. Humphrey, Boiler Plant Operations Supervisor, was properly trained and authorized to carry out the specific responsibilities shown above on 26-29 Mar 01 (EM 101 Initial Hazardous Materials and Hazardous Waste Training Course offered by EMD, Camp Lejeune). He will assist in handling hazardous material/waste spills and related emergencies to the extent that he can do so safely.

Allison Stockweather
Environmental Compliance Officer

June 15, 2001
Date

ATTACHMENT A



BLDG, G-650
GROUND FLOOR
ESCAPE PLAN

Attachment B

List of chemicals/fuel used at Bldg. G-650

#2 Fuel Oil
Advantage +1400
Amercor 1849
CL362 Optispearse
Corrshield NT402
Hardness Indicator
Hydrogen Peroxide 3%
IS 104
Liquid Neutralizing Solution
MCP601—boiler chemical treatment
Methyl Purple
NA702—boiler chemical treatment
Phenolthalein
Potassium Chromate
Potassium Iodide/iodate
Sequesterant #1
Sequesterant #2
Sequesterant #3
Silver Nitrate N/71
Sodium Sulfite
Starch Indicator Solution
Sulfite Packets
Sulfuric Acid N/50

Inventory of Emergency Item(s)/Supplies:

ITEM DESCRIPTION	ITEM LOCATION	NAME AND NUMBER OF PERSON RESPONSIBLE FOR MAINTAINING ITEM	USE
UXT "XTRA TOUGH" SORBENTS Perforated Pads, 16"x20"	Paint locker located outside; west side of building	Ernest Humphrey/451-9562	Absorbs oil-based and water-based chemical, hazmat, and maintenance type fluids

PROCEDURES IN CASE OF FIRE/CHEMICAL SPILL

FIRE

1. Report all fire to Fire Department by telephone by calling 911..

2. If personnel are available, send someone to direct the Fire Department to the scene of the fire. Contact Shift Foreman and explain circumstances. If the Shift Foreman isn't available, call Boiler Plant Operator at another plant and ask that they locate the Shift Foreman.

3. Close all doors and windows if time and conditions permit.

4. Fight fire with means at hand.
    a. Electrical - CO2 extinguisher.
    b. Oil or grease - CO2 extinguisher.
    c. Wood or rags - water.

5. If fire becomes out of control, pull boiler control switch to cut out fuel supply and stop boiler operation.

6. Fill boiler with water by manual feed control to one inch from top of gauge glass.

7. Close header stop valve if possible.

8. Pull all electrical disconnects entering building if possible.

9. Evacuate building.

10. All fires must be reported to the Fire Department even if no help was required to extinguish fire.

CHEMICALS

1. Call the Fire Department - Dial 911.

2. Call you Supervisor.

3. Follow the same procedures for oil pollution prevention and other abatement and oil and other hazardous substances spill contingency plan - BA 11090.1B.

COLD START UP BOILERS
G-650 # 83, 84 & 85

1. Check boiler and ensure all doors are closed and all piping is in place. Check all man holes and hand holes to ensure they are in place.

2. Open valves to gauge glass, chemical feed valve.

3. Fill boiler to operating level (1/2 gauge glass).

4. Check for any leaks (man holes, hand holes, plates). Remove any gags from safety valves. Clear tag out sheet on boiler.

5. Make sure atomizing steam (air if no steam) valve is open, open main fuel valve at burner, open pilot gas valve, close scavenger oil valve.

6. Start firing boiler for one (1) minute each hour for 24 hours, longer if necessary to dry out brick work in the boiler.

7. After 24 hours go to 4 to 5 minutes per hour, after pressure exceeds 25 lbs close drum vent.

8. Slowly bring boiler steam pressure up to line pressure of 100 lbs.

9. After boiler is at line pressure (100 lbs) it has to be certified by a licensed Boiler Inspector before it can be put in service.

10. After operational test and boiler is certified, check and ensure all gags are removed from safety valves, reinspect boiler for any leaks and make sure blank has been removed from steam export lines.

11. Boiler can now be placed in service.

NOTE: ONLY CERTIFIED BOILER MAY BE OPERATED

G-650 LIGHT OFF PROCEDURES
BOILERS # 83, 84 & 85

1. Fill Boiler to operating level (1/2 glass).

2. Make sure drum vent is open if pressure is below 25 psi.

3. Insert oil burner in boiler.

4. Open instrument air line to boiler.

5. Open atomizing steam valve (air atomizing), open main fuel valve, open pilot gas valve.

6. Place forced draft fan control in auto, start fan.

7. Place Boiler Master in manual at 20%. Place fuel flow controller in manual at 0%. Place air flow in manual at 0%. Place oxygen controller in manual at 50%. Place drum level in manual at 0%.

8. Make sure emergency trip switch is pulled out. (Run position)

9. After limits complete turn boiler switch on. Hit burner start.

10. After boiler lights, place oil controller and air flow controller and oxygen trim in automatic. Bring boiler up slowly using Boiler Master.

11. Run boiler at low fire until 25 lbs pressure on boiler, close vent valve. After header pressure is reached (100 lbs), open drains on header stop valve to remove any trapped water from header. Close drains, open by-pass on header stop valve charge line, close any vents on header line, then open header stop. Open non-return valve.

12. Open feedwater valves and place feedwater controller in automatic.

13. Increase Boiler Master until load demand is satisfied and place Boiler Master in automatic.

14. Start boiler chemical feed pump.

15. Open continuous blowdown, run chemical analyses and charge chemical tanks to bring readings up to specifications.

SHUT DOWN BOILERS AT G-650 STEAM PLANT

NOTE: If boiler is coming off line for summer maintenance, it must be shut down according to SOP concerning chemical program prior to boiler being secured. (See SOP for details)

1. Place Boiler Master in manual and slowly lower rate of firing to boiler until it reaches 0%.

2. Close main fuel valve at burner. Secure atomizing steam valve. Close off pilot gas valve.

3. Switch boiler off at main control panel, shut off F.D. fan, place air flow controller, oil flow controller, oxygen trim in manual at 0%.

4. Place feedwater controller in manual and lower same to 0%. Close main feedwater stop valve.

5. Secure chemical feed pumps, close chemical feed valve, close continuous blowdown valve.

6. Secure header stop and non-return valves, open vent when pressure drops below 25 lbs on steam drum.

NOTE: Boiler chemicals must be maintained in stand-by boilers at the proper levels. (See SOP for stand-by procedures)

STEAM LOAD SHEDDING INSTRUCTIONS

For any emergency, or at anytime boilers are at full capacity and load shedding is necessary, precautionary measures will be put into effect as follows:

1. After checking the efficiency log sheet carefully and it is determined that load shedding is necessary, the Foreman in charge of shift will make the following arrangements to reduce steam load:

    Reduce the steam load by cutting back on all area lines.

2. The shift Foreman on duty will contact Mr. Ernest Humphrey at 355-2884 or Mr. Thomas Brownley at 326-2781.

OPERATING PROCEDURES FOR STAND BY BOILERS

1. Stand By Boilers should be respected as boilers being operated.

2. Boiler Feedwater Levels will be closely monitored at all times. (1/2 gauge glass)

3. Feedwater Automatic and Manual valves will be closed immediately when fire has been secured and boiler has stopped generating steam.

4. Never fire a stand by boiler if the water level can not be observed or detected.

5. Boiler water level should never be allowed to rise to a point that water will go over in the main steam header line.

6. If water gets in the main steam header line and water hammering occurs, secure all boilers immediately. Open drains on main steam header line and close header stop valves on all boilers.

7. Never inject water into a hot boiler. If water level can not be observed or detected, boiler should be cooled down to room temperature before water is injected in the boiler.

8. Boiler water level too high or too low could be hazardous to personnel and equipment.

9. Close valves on fuel oil, ignitor fuel, atomizing steam valves and gas supplies on all stand by boilers when boilers are not being operated.

OPERATING PROCEDURES FOR A SECURED BOILER

1. Secured boilers are boilers not being operated, boiler pressure down to zero. All discharge steam valves, feedwater valves are to be closed and boiler vent valve open. Locked and tagged out using lock out procedure.

2. Header stop and non-return valves are to be closed and locked out.

3. Drains on header line between non-return valve and header stop valve are to be open.

4. Valves on feedwater automatic and manual are to be closed and tagged out.

5. Never empty a boiler of water unless refractory and boiler has been cooled to room temperature.

6. Close all fuel supply valves manual and automatic.

7. Boilers should be cooled down slowly unless extreme emergency arises.

STEAM BOILER PROCEDURES

I. Wet Stand-by Procedures for Steam Boilers

A. Boiler to be put on wet stand-by.

1. 24 hours prior to bringing an operating boiler off line, bottom blowdown should occur hourly.
2. Sulfite residual should be raised to 100-200 ppm in the boiler
3. All other boiler water parameters should be within range.
4. Boiler water should be tested weeekly and recorded.
5. The boiler should be fired for circulation if chemicals have to be added after testing. (only if boiler can be fired)

B. Boiler brought off line for Maintenance

1. 24 hours prior to bringing an operating boiler off line, bottom blowdown should occur hourly.
2. Sulfite residual should be raised to 100-200 ppm in the boiler
3. All other boiler water parameters should be within range.
4. Boiler water should be tested weeekly and recorded.
5. The boiler should be fired for circulation if chemicals have to be added after testing, (Only if boiler can be fired)

II. Steam Boilers to be put on Wet Lay Up

A. Boiler to be brought off line

1. 24 hours prior to bringing an operating boiler off line, bottom blowdown should occur hourly.
2. Sulfite residual should be raised to 100-200 ppm in the boiler
3. All other boiler water parameters should be within range.
4. Boiler water should be tested weeekly and recorded.
5. After the boiler is off line, then fill to the top of the steam drum with feedwater, blocking and closing all appropriate valves.

B. Boiler brought off line for maintenance

1. 24 hours prior to bringing an operating boiler off line, bottom blowdown should occur hourly.
2. Sulfite residual should be raised to 100-200 ppm in the boiler
3. All other boiler water parameters should be within range.
4. Boiler water should be tested weeekly and recorded.
5. Now fill the boiler to the top of the steam drum vent with feedwater, closing all appropriate valves, tagging out same.

WATER TREATMENT CONTROL CHART

DAILY PLANT TEST	RANGE
P-ALKALINITY	400 - 600 PPM
TOTAL ALKALINITY	800 PPM MAX
CONDUCTIVITY	1400 - 2000 MMHOS
TOTAL HARDNESS	2.0 MAX
CHLORIDES	RECORD
DREWGUARD 1400	500 - 600 PPM
AMERCOR 1849 (Condensate)	7.5 Ph - 8.5 Ph
SULFITE	30 - 60 PPM

BOILER WATER

CHLORIDES ("CL") TEST

(1) Use the sample from the P and M alkalinity test.

(2) Add 10 - 15 drops of Hydrogen Peroxide to the sample.

(3) Add 10 - 15 drops of Chromate Indicator to the sample.

(4) Titrate with Silver Nitrate slowly until the green color turns to a muddy red.

(5) Take the burette reading. Multiply this reading by **20** to get the Chloride reading.

MAKEUP AND FEEDWATER

CHLORIDES ("CL") TEST

(1) Pour 25 ml of water into casserole dish.

(2) Add 2 drops of Phenolphthalein Indicator. If the water turns red, titrate with N/50 Sulfuric Acid until the red color just disappears and the natural color of the sample appears.

(3) Add 5 drops of Chromate Indicator to the sample.

(4) Titrate with Silver Nitrate slowly until the yellow color turns a light orange-red.

(5) Take the burette reading. Multiply this reading by 20 to get the chloride reading.

ALKALINITIES

"P" Alkalinity

(1) Measure 25 ml of water into casserole dish.

(2) Add 2 drops of phenolphthalein indicator. If the water turns red (and boiler water should) titrate with sulfuric acid until the red color just disappears and the natural color of the sample appears.

(3) Take the buret reading and multiply it by 40. This will give you the "P" alkalinity. DO NOT POUR SAMPLE OUT! SAVE IT TO RUN "M" ALKALINITY. ALSO DO NOT REFILL BURET.. BEGIN TITRATING FOR THE "M" ALKALINITY WHERE YOU STOPPED TO GET THE "P" ALKALINITY.

"M" Alkalinity

(1) TO THE SAMPLE THAT YOU USED FOR THE "P" ALKALINITY TEST, add 3 or 4 drops of methyl purple indicator. If the water turns green titrate with sulfuric acid until the green color turns to a red-purple color.

(2) Take the buret reading and multiply it by 40.

"OH" Alkalinity

(1) The method for hydroxide alkalinity is considered accurate only within 10%. Due to this, the following equation is used to calculate the "OH" Alkalinity:
(2 x "P" Alkalinity) - "M" Alkalinity = "OH" Alkalinity.

Example: If your "P" Alkalinity is 320 and your "M" Alkalinity is 400, you would calculate for your "OH" Alkalinity as follows:

(2 x 320) - 400 = "OH" Alkalinity
640 - 400 = 240
Therefore your OH Alkalinity is 240.

CATALYZED SULFITE TEST

1. Measure 50ml of boiler water.

2. Place a measured boiler water sample into a porcelain titration bowl.

3. Cut open a sulfite reagent pillow and add entire contents of the pillow to the boiler water sample. Mix powder and sample thoroughly.

4. Add 1ml of starch indicator solution (1 dropperful) to the boiler water/powder mixture in the porcelain titration bowl. Mix thoroughly.

5. Titrate the boiler water sample and reagents with Potassium Iodide-Iodate until a faint blue color remains.

6. Read the volume (ml) of Potassium Iodide-Iodate used to turn the sample from clear to faint blue color.

7. Multiply the volume (ml) of Potassium Iodide-iodate by 10 and record the result on the Daily Boiler Water report.

DREWGUARD 1400

(1) Measure 100 ml of boiler water into mixing bowl.

(2) Add 1 foil packet of Sequesterant #1 to boiler water sample and mix thoroughly. If sample turns yellow after thorough mixing, then add 1 drop of Sequesterant #2 and go to Step #4.

(3) If boiler water sample remains purple after thorough mixing, then add Sequesterant #2 dropwise until boiler water sample turns yellow. Add 1 more drop of Sequesterant #2 after sample turns yellow.

(4) Add Sequesterant #3 to boiler water sample in mixing bowl until the sample turns from yellow to pink/purple color.

(5) Read the amount of Seq #3 (ml) needed to change the color from the burette. Subtract 2ml from the amount of Seq #3 and multiply by 40.

Example: 21.7ml of Seq #3 needed to change sample color from yellow to purple.

21.7ml - 2ml= 19.7ml
19.7ml X 40 = 788 ppm (record this value on log sheet)

NEUTRALIZED CONDUCTIVITY
NTDS

(1) Pour 100 ml of boiler water to be tested into a flask.

(2) Add conductivity neutralizing solution until sample turns pink. Continue to add conductivity neutralizing solution until the sample turns from pink to clear.

(3) Pour sample into conductivity meter cell. Read conductivity.

RAW CONDUCTIVITY
RTDS

(1) Rinse Conductivity Meter with unneutralized boiler water several times.

(2) Pour unneutralized boiler water into Conductivity Meter test cell. Read Conductivity.

HARDNESS INDICATOR SOLUTION PROCEDURE

1. Place approximately 100 ml of sample into a glass beaker.

2. Add 3 - 5 drops of indicator solution to sample and mix. (Add more drops to darken color.)

3. Read color of sample:
   Purple - Hardness present in sample
   Blue - No hardness present in sample

FOR SAMPLES WITH HARDNESS

1. Measure 25 ml of the colored sample.

2. Place 25 ml of the colored sample into a glass beaker.

3. Add Hardness Titration solution by drops to the sample and count the number of drops necessary to turn the sample from purple to blue.

4. Divide the number of Titration drops needed to change the color of the sample from purple to blue by 2. This corresponds to the hardness present (parts per million; ppm).

5. Record data.

11350
MAIN

DATE: 03 March 98

From: Boiler Plant Operator Supervisor II, Steam Generation Section

To: All Personnel

SUBJ: REGULATIONS FOR HANDLING CHEMICALS

1. All personnel are reminded appropriate personal protective equipment will be utilized when handling and using all chemicals. If you are unsure of appropriate personal protection to utilize, contact your Shift Foreman or supervisory personnel.

2. Disciplinary action may be taken for failure to utilize appropriate personal protection.

T. E. BROWNLEY

0. BASIC SAFETY MEASURES

a. Injury records should be kept as a means of checking accident causes and spot-lighting hazards.

b. Safety hazards should be searched out.

c. Equipment and work methods should be made safe as possible.

d. Work habits should be controlled.

1. FIRE PROTECTION - Flammables must be stored with care, and fire extinguishers kept in there proper place as required by the Fire Department. Each employee should familiarize himself with the proper procedure as outlined in the fire bill and follow these procedures in case of fire.

2. PERSONNEL INSTRUCTIONS - All employees, particularly newcomers in the Utilities Plants, should be thoroughly instructed as to plant safety requirements, personal safety protection and safe operating procedures, including procedures for obtaining needed items of personal safety or other safety equipment.

3. MACHINERY SAFETY GUARDS - Safety guards are necessary to provide safety and to protect employees against accidental contact with machinery or power driven equipment. The following rules shall apply if guards do not exist or have been damaged make certain that they are installed at once. If guards are removed during maintenance operations, make certain they are replaced before starting machinery. Operating and maintenance personnel shall not remove guards, except for maintenance purposes only, and only when the machinery is not in operation.

Always stop machinery or drivers before cleaning, adjusting or making any repairs.

Never wear gloves, jewelry, neckties, long sleeves unbuttoned or torn clothing near rotating parts.

SAFETY RULES AND REGULATIONS

1. Operating Personnel. Each employee shall strictly observe all safety rules and regulations as stated.

2. Reporting Unsafe Conditions. Each employee shall report any unsafe condition or any equipment or material which he considers to be unsafe.

3. Warning Others. Each employee should warn others who he believes to be endangered by known hazards or by failure to observe precautions.

4. Personel Protective Equipment. Each employee shall wear or use protective clothing or equipment of the type approved for the safe performance of his work; ear plugs, hard hats, safety shoes, goggles, respirators, and any other safety equipment that is required for the area or shop that he is employed. Employees that are required to work around mechanical equipment should wear good shoes and good clothing at all times. Shirts with long sleeves should be buttoned. This regulation applies to all personnel in the Utilities Division.

5. Report of Injury or Ill Health. All personnel shall report to their supervisors any injury, regardless of how small, in the course of his work.

6. Care of Lawns and Grounds. The employee at each plant are expected to keep the grounds policed each day, grass and weeds should be cut at least once each week during the summer months. Personnel should not leave equipment of any kind on the grounds or walking areas, even for a short period of time, since this causes a serious tripping hazard.

7. Combustible Materials. Rags shall be kept in closed containers. All paints, oil and grease shall be stored in outside lockers, as provided, when not in use. Oily rags, waste paper and other flammable materials shall be kept in tightly closed metal containers and there contents disposed of at the end of the work day.

8. Decks and Floors. Grease, oils or other materials, which tend to make decks or floors slippery shall be cleaned up promptly. There shall be no running or horse-play in the plants at any time because of slipping, tripping, and collision hazards.

9. Housekeeping. Tools or material shall not be allowed to clutter up floor and become stumbling hazards. Pieces of scrap pipe or junk of any kind shall be cleaned up promptly and disposed of in the proper place provided for same. All refuse shall be cleared from plant daily. Employees are expected to keep their places of work clean and in an orderly manner at all times.

11300
MAIN

Date: 02 March 98

From: Boiler Plant Operator Supervisor II, Steam Generation Section

To: All Boiler Plant Operators and Boiler Plant Workers

Subj: FLUSHING EYEWASH STATIONS

1. All eyewash stations will be flushed for 3 minutes weekly on Thursday. This flushing test will be logged on plant logsheet. A call will be made to the Boiler Plant Shift Supervisor after flushing completed, acknowledging same.

T. E. BROWNLEY

SECTION I

LOCKOUT/TAGOUT

101. LOCKOUT/TAGOUT POLICY AND PROCEDURE

1. General. It shall be the responsibility of each department whose employees are engaged in erecting, installing, constructing, repairing, adjusting, inspecting, operating, or maintaining the equipment/process to develop, document and implement a policy and procedure for lockout/tagout.

2. Specific. Standard Operating Procedures (SOP's) for lockout/tagout of high voltage circuits are contained in the procedure manual of the high voltage work center.

3. Affected Personnel. Each affected employee shall be responsible for understanding and complying with the established lockout/tagout procedures.

4. Supervisor. Each affected supervisor shall be responsible for:

a. Establishing and implementing an effective lockout/tagout procedure within each work center.

b. Enforcing compliance with lockout/tagout procedures.

c. Conducting periodic inspections to determine compliance.

d. Ensuring all assigned and newly-assigned personnel are provided with the proper training and instructions on the lockout/tagout procedures.

e. Ensuring that periodic refresher training is provided at least annually for all assigned personnel.

f. Ensuring that all assigned personnel be required to read the contents of this Section at the time the initial training is conducted and at least annually thereafter.

g. Ensuring that each affected employee is provided with an ample number of tagout devices and at least one lockout device. Lockout/tagout devices shall be:

(1) Durable - capable of withstanding the environment to which they are exposed.

(2) Unique - distinctive, easily recognizable and clearly visible.

(3) Standardized - the tagout devices (Danger, DO NOT OPERATE tags) that have been selected for use within the center are shown in Figure 1.

(a) Tag shown in Figure 1 is for use by any affected employee.

(b) Other types of tags may be used. The tag should be unique and should have space for writing a specific message.

(4) Padlocks will be of such durability and key code complexity that removal cannot be accomplished other than regular excessive force or unusual techniques, such as using metal-cutting tools.

(a) Each affected employee will be issued a key-type padlock with two keys. The employee will maintain one key and the work center supervisor will maintain the other key.

(b) Work center supervisors will identify each employee's key and will maintain the keys in a secured location. In the event an employee misplaces his key, the supervisor will arrange for a duplicate key to be fabricated.

(c) Padlocks will be identifiable. Each affected employee's padlock will be identified by either a number or the employee's name.

102. IMPLEMENTATION OF LOCKOUT/TAGOUT PROCEDURES

1. Preparation of Lockout/Tagout

a. Notification of Personnel. All personnel affected by the lockout/tagout shall be notified of the lockout/tagout application. Employees should be informed with respect to the scope, time and anticipated duration that the equipment/process will be inoperable or out of service.

b. Equipment Access and Release. A method shall be established to provide a means of gaining access to the equipment/process that involves acknowledgement and release from use by the individual(s) responsible for the equipment/process.

c. Plan. Upon request by the affected employee(s)/supervisor(s), the general foreman will assist in developing a lockout/tagout plan on jobs that extend beyond the regular work period or the established shift schedule and which involves multiple personnel.

2. Application of Lockout/Tagout

a. Equipment/Process Shutdown. Using appropriate equipment/process shutdown procedures, all operating controls shall be turned off or returned to the neutral mode by authorized individuals.

b. Equipment/Process Isolation. All involved energy isolating devices shall be located and operated in such a manner as to isolate the equipment/process from the energy source(s). The lockout/tagout plan, if developed, shall be followed.

c. Lockout/Tagout Device Application. Appropriate lockout/tagout devices shall be applied to each energy isolating device by authorized individuals. Except where provisions of paragraph 3 apply, lockout devices shall be attached in such a manner as to hold the energy isolating devices in a safe position. Tagout devices shall be attached in such a manner as to forbid the operation of energy isolating devices. Tagout devices shall be attached to the energy isolating device. In those instances where the installation does not permit this attachment, they shall be located in such a position as to be immediately obvious to anyone attempting to operate the energy isolating device.

d. Verification of Isolation. One or both of the following actions shall be accomplished after lockout/tagout application to determine if the operation of the energy/isolating devices has, in fact, produced the required isolation of the equipment/process:

(1) Operate the equipment/process operating controls (push buttons, switches, etc.) to determine that the energy isolation has been effective. CAUTION: RETURN OPERATING CONTROLS TO NEUTRAL POSITION AFTER EACH TEST.

(2) Test the equipment/process by use of appropriate test equipment and/or visual inspection to determine that the energy isolation has been effective.

e. Stored Energy. The equipment/process shall be carefully examined to detect and relieve, disconnect, or restrain any residual energy. Blocks or other physical restraints may be necessary to guarantee total immobilization of the equipment/process. In the case of electrical circuits, grounds may be necessary to discharge energy. Bleed valves may require operation to relieve pressure.

3. Release from Lockout/Tagout

a. Equipment/Process. Before energy is restored to the equipment/process, a visual inspection of the work area shall be made by an individual to ensure that all nonessential items have been removed and that all components are operationally intact.

b. Personnel. Before energy is restored to the equipment/process, a personnel count or administrative technique shall be employed to verify that personnel are in the clear. This check-out procedure should be supplemented with a visual verification that personnel are in the clear.

c. Lockout/Tagout Device(s) Removal. Each lockout/tagout device shall be removed from each energy isolating device by the affected individual who applied the device or under the direct supervision of an authorized individual, except where the provisions of paragraph 3 apply. In instances where employees are not available (sickness, day-off, leave) to clear the control of their personal lockout/tagout protection, the appropriate supervisor will be contacted. The supervisor will determine if the locking device should be removed.

103. SPECIAL LOCKOUT/TAGOUT CONSIDERATIONS

1. Lockout/Tagout Interruption (Testing of Energized Equipment). In situations where the energy isolating device(s) is locked/tagged and there is a need for testing or positioning of the equipment/process, the following sequence shall apply:

a. Clear equipment/process of tools and materials.

b. Clear personnel.

c. Clear the control of locks/tags according to established procedures.

d. Proceed with test, etc.

e. De-energize all systems and relock/retag the controls to continue the work.

2. Equipment Design and Performance Limitations. Alternative effective protective techniques shall be employed where the equipment/process design prohibits use of the established lockout/tagout devices. The supervisor shall determine techniques to be used. In cases where no alternative techniques are available, the work shall not proceed until clearance is granted by the Base Safety Office.

3. Exposure of Outside Personnel

a. Established lockout/tagout procedures should be employed for the protection of individuals from outside organizations (service representatives, contractor's employees, and other outside personnel), where exposure exists due to their involvement with work in progress. An authorized representative of such outside organizations shall be made aware of established lockout/tagout procedures and informed of the necessity of adapting and enforcing lockout/tagout protection which shall be compatible with existing in-plant lockout/tagout procedures.

b. Interaction between employees and outside personnel is a source of potential injury due to misunderstandings and differences in specific lockout/tagout procedures and devices. For this reason, it is particularly important that the supervisor, outside

personnel and contractors reach a mutual understanding and agreement as to what procedures and devices will be in use. Written verification of the understanding is desirable to ensure the safety of all persons involved.

4. Multiple Personnel Protection (Group Lockout/Tagout). When a crew, department, or other group lockout/tagout device(s) is used, it shall afford the affected employee a level of protection equivalent to that provided by personal lockout/tagout devices.

5. Coordination (Shift/Schedule Change). Provision shall be made to ensure the continuity of lockout/tagout protection during shift or personnel change. Specific procedures shall be developed for such situations.

6. Work on Energized Equipment

a. Personnel engaged in erecting, installing, constructing, repairing, adjusting, inspecting, operating or maintaining the equipment/process should do so under de-energized conditions in accordance with the procedures as specified in paragraph 2.b.(1) of this section.

b. In cases where personnel are required to perform work on energized equipment, acceptable procedures and equipment shall be employed to provide effective protection to all affected personnel. Acceptable safe work practices must be followed. The supervisor has the ultimate responsibility to ensure affected employees follow the prescribed procedures and are provided with appropriate personal protective equipment such as rubber insulating gloves, blankets, mats, etc.

Section II

TAGGING AND GROUNDING

201. Electrical Circuitry and Components

1. Tagging

a. The electrical protective tag is a distinctive color and is marked "DANGER" with additional instructions, i.e., "DO NOT OPERATE."

b. Danger tags shall be used only on open isolating devices of electrical circuits and equipment removed from service for work and where operation of such equipment could cause injury or property damage.

c. No one shall operate any piece of equipment or device which has a danger tag attached or energize any section of a circuit protected by a danger tag, for tests or otherwise, without consulting the person who originally attached the tag or his supervisor.

d. Danger tags shall be securely attached to all isolating devices or their handles, including potential fuse blocks which, if closed, could energize the circuit or equipment. When two or more stick-operated isolating devices make up a circuit switch or circuit opening, one tag will be conspicuously located at each isolating device.

e. No one shall remove or order a removal of a danger tag unless the tag is in their name or when it is impossible to contact the person in whose name the danger tag is placed. The designated employee in charge shall determine that all employees in the crew are clear, that protective grounds installed by the crew have been removed, and report to the designated authority that all tags protecting the crew may be removed.

f. In addition to the danger tags, the operating or isolating device shall be locked or blocked in a safe and inoperable position if the necessary means are provided.

g. Danger tags shall not be used on closed switches or devices.

h. Before work is started the circuits or equipment shall be de-energized, tagged, tested for voltage, and effectively grounded in the order mentioned except where grounding or short circuiting will interfere with testing of equipment or adjustment of relay and communication devices.

2. Clearing and Tagging for Groups

a. Primary responsibility for clearance protection rests on the person in direct charge of the work to be done.

b. When a clearance is issued on an electrical circuit or equipment, it means that all isolating devices that could energize the line or equipment are open and danger tags installed and locked out where possible.

c. When one or more groups from the same department are assigned to work on an electric circuit or equipment, each group shall have separate danger tags placed for their protection. If, however, all such groups are working on the same job and under the direction of a designated supervisor who is in charge of the entire job and who is responsible for getting clearance, testing, and grounding and/or short-circuiting, then only one set of tags will be required.

3. Testing for Voltage

a. When electrical circuits or equipment are de-energized for work, a test for voltage shall be made before protective grounds are attached.

b. The test for voltage shall be made with a device approved by the supervisor. It shall be verified as the correct device for use at the voltage of the circuit or equipment to be tested. The "Buzz Method" is permissible on transmission voltages.

c. All voltage detectors shall be checked before and after use.

d. Glow-type voltage indicators shall be tested before and after use either by applying it to an energized circuit, to the spark plug of a running motor, or by other approved methods.

e. On voltages about 600, only voltage detectors, potential devices or potential transformers with case and one side of secondary grounded, which have been properly tested, shall be used when phasing out a circuit or testing the same for voltage.

4. Isolating Devices

a. When any circuit or equipment is to be removed from service and de-energized for the purpose of work or dangerously close to energized circuits or equipment, it must be disconnected from every possible source of potential by an isolating device. (Isolating devices with visible openings shall be used where provided.)

b. A visible isolating device shall include switches, jumpers, fuses or removable sections of the circuit.

5. Switching Supervisor

a. Has supervision over the circuit or electrical equipment to be cleared.

b. Authorizes switching.

6. Switch Operator

a. Authorized to actually operate switch gear or isolating devices for electrical clearance on orders of switching supervisor.

b. Authorized to place and remove tags.

c. Danger tags shall be placed by order of the supervisor.

d. Danger tags shall not be removed except by order of the supervisor.

7. Remotely Controlled Air Break Switches. When work is to be done on a remotely controlled air break switch or on a circuit or equipment where the sole means of disconnection from the source of power is a remotely controlled air break switch, a danger tag shall be attached to the switch operating mechanism. The control circuit shall be made inoperative and the switch mechanism shall be locked or blocked mechanically to prevent its operation.

8. Clearing Circuits of Potential Transformers and Potential Devices. Circuits shall be disconnected by removing fuses or opening switches.

9. Release of Danger Tags

a. Tags are to be released by the person originally placing the tags.

b. State name and location to the switching supervisor who shall satisfy himself that the an releasing the tags is the person in whose name the tags were placed.

c. Identify the circuit or equipment involved.

d. State that all persons working under the protection of danger tags are out of the protected zone, all grounds have been removed, and whether or not the circuit or equipment is ready for service insofar as his work is concerned.

e. Stated the serial number of each danger tag being released and the number of each switch to which each danger tag is attached.

f. Where it is impossible to contact the person in whose name the danger tag is placed, the designated employee in charge shall determine that all employees in the crew are clear, that protective grounds installed by the crew have been removed, and report to the designated authority that all tags protecting the crew may be removed.

10. Protective Grounding and Short Circuiting

a. All circuits or equipment are to be considered energized at full voltage unless protective grounds are installed in accordance with the provisions of this section.

b. The circuit or equipment must be de-energized, tagged and tested for voltage before protective grounds are attached.

c. Testing of adjustments or undergrounded relay and communications devices must be performed by experienced personnel in accordance with established and approved procedures.

d. Protective grounds shall be installed or removed with live line tools.

e. All conductors, including the non-insulated static wire and neutral of the circuit or equipment, shall be effectively grounded in a manner as to both ground and short circuit the conductors before the work is started.

f. Only grounding devices approved by the Utilities Branch shall be used, but in no case shall the grounds cable be smaller than 2/0 copper or equivalent.

g. Protective grounds shall be placed on all sides of the work where there is a possible source of power (including wire crossings and parallel lines) and as close to the point of work as possible.

h. Additional grounds shall be placed to reduce static charge or induced voltages from adjacent lines.

i. The best protection is afforded when the short-circuiting and/or grounding is closest to the work.

11. Grounding Metal Structures or Towers

a. All protective grounding cables shall first be attached to a common point on the metal structure or tower leg or connected together with a jumper not smaller than 2/0 copper or equivalent. In all cases, the ground cables shall be applied so as to both ground and short-circuit all the conductors of the circuit. After this is done, attach one of the grounded cables to each conductor of the circuit, keeping as far below the conductors as possible, and keeping clear of the grounded cables or clamps.

b. Coated steel shall be brushed or scraped where the ground is to be attached to assure good contact. Flat clamps with serrated jaws or set screws shall be used on the ground end of the leads.

c. To remove protective grounds on metal structures or tower lines, first detach the grounded cables from the conductors, keeping as far below conductors as possible, and keeping clear of the grounded cables and clamps until all conductor clamps are removed; then remove clamp or clamps from metal structure or tower leg. Start at the top and work down.

12. Grounding of Pole Lines

a. Drive ground rod or install screw rod if there is no existing anchor rod in the immediate vicinity.

b. Attach protective cable or cables securely to the ground rod or anchor rod. Guy wires shall not be used for this purpose.

c. Attach a grounded cable to each conductor of the circuit, including the non-insulated static wire and neutral where they exist, starting with the lowest and/or nearest conductor and working upward and/or outward, keeping as far away from conductors as possible.

d. All workers shall keep clear of the grounded cables and clamps until the grounding is complete. In all cases the grounded cables shall be applied so as to both ground and short-circuit the conductors.

e. For protective grounding of distribution lines, if there is a common neutral conductor available on the pole where protective grounding and/or short-circuiting is to be installed, and the common neutral is not more than one standard size smaller than the phase wires, it will be permissible to use this common neutral and omit grounding to a driver or screw rod. Where multiple circuits of different conductor sizes exist on a pole, the common neutral conductor size will be based on the largest phase conductor on the pole.

f. In general, the protective grounds shall be removed in the same order as specified.

13. Grounding of Substations

a. In performing work on substation equipment, extreme caution should be exercised to eliminate the danger of feedback from the other sources by testing, disconnecting, grounding or short-circuiting transformers regardless of application, potential devices, coupling capacitors, etc.

b. Attach protective grounding cable or cables, to the station grounding system.

c. Attach a bus, keeping as far away from conductor as possible and below if practicable, being sure that all workers keep clear of the grounded cables and clamps until the grounding is completed.

d. To remove protective grounds, detach the grounded cables from each conductor, keeping as far away as possible and being sure that all workers keep clear of the grounded cables and clamps until all conductor clamps have been removed.

e. Remove ground from the station grounding system.

14. General Grounding

a. Protective grounding of conductors making up under ground cables cannot always be done at the point of work. In such cases, the grounds shall be attached at the nearest location where the conductors can be reached, in accordance with protective grounding instructions for stations or overhead lines.

b. When grounding truck chasis, pulling equipment or other related devices, first consideration should be made for attaching the grounding lead to the common neutral. If this is impractical, an existing anchor rod or screw ground rod fully inserted into earth shall be used.

202. STATIONARY BOILERS, MECHANICAL EQUIPMENT, COMPONENTS, AND DISTRIBUTION LINES

1. Tagout Required Prior to Entry into Steam Drums, Mud Drums, or Other Water Side Enclosures

a. Steam and feed lines connecting to the headers under pressure shall be isolated by a stop valve and a blank with open tell-tale valve in between, or by two stop valves with tell-tale valve opened in between.

b. The below listed valves shall be closed, chain locked, and tagged "DO NOT OPEN":

(1) Boiler steam line non-return valve.

(2) Boiler steam line stop valve.

(3) Continuous blow valve.

(4) Chemical line valve.

(5) Super heater vent valve.

(6) Soot blower steam line drum valve.

(7) Soot blower steam line stop valve.

(8) Feed water drum valves at both ends of steam drum.

(9) Feed water line stop valves.

c. After completion of 2.a.(1) and (2), a joint inspection of the boiler will be conducted by a designated representative from the Maintenance Division and the Utilities Branch to certify that the above procedures have been followed before permitting entry into the boiler.

d. Additional safeguards outlined in the NAVMAT MO.324 shall be followed when operating or maintaining stationary boilers.

2. Tagout Procedures for Gas, Steam and/or Water Distribution Systems

a. Utilities duty person shall be notified by activity, contractor, etc., prior to cutting off service.

b. Duty person requesting disruption of services shall request restoration of services. This information, including time of restoration, shall be entered in the duty log.

c. Repairs and maintenance of natural gas lines shall be in accordance with established accepted procedures.

RELEASE, LOCK, TAG, CLEAR, TRY SYSTEM

"EXAMPLE"

I. PURPOSE

A. This document provides the rules and procedures to be followed in releasing, locking, tagging, clearing, and trying equipment. The rules are designed to protect people from injury and equipment from damage due to improper activation of the equipment.

II. POLICY

A. Equipment, which must be deactivated to allow work to be safely carried out, must be secured from improper activation or so isolated that such activation cannot cause injury under foreseeable circumstances.

B. It is the responsibility of each individual to assure his own safety, the safety of others, and to avoid equipment damage while working on any equipment or releasing equipment to others.

C. Additional rules and procedures in conformity with this item will be required for specific jobs. It is the responsibility of each area to establish the needed rules and standard practices, to train area personnel, and to obtain compliance.

III. DEFINITIONS

A. RLTCT System: Release, lock, tag, clear, try System; a group of rules and procedures established to prevent injury or damage due to improper equipment activation.

B. Release: Authorize individuals or groups (other than owner) to work on deactivated equipment or to turn equipment back to the owner.

C. Lock: Deactivate and secure equipment with plant-issued safety lock so it cannot be operated.

D. Tag: Identify the items which deactivate or isolate equipment. A tag identifies the status of the equipment and/or reason for tagging, the date tagged, and the person who applied the tag.

E. Clear: Insure there will be no injury or equipment damage if equipment is unexpectedly activated while "trying."

F. Try: Verify that equipment has been properly deactivated or isolated.

Overhauls and Shutdowns.

Large overhauls and process shutdowns often involve many crafts and employees. In some cases from fifty to one-hundred locks and tags may be required.

To avoid each employee having to lockout each position, a supervisory lockout system is utilized. A supervisory representative of each group involved will witness the lockout by the operating group. A check sheet will be used.

Following the system lockout, the keys will placed in a lockout box.

Lockout Box

Lockout Boxes are used to place keys to large scale lockouts in them for effective control. The box has numerous lockout positions on the lid to prevent the keys from being removed while employees are exposed. Each employee places his personal lock and tag on the lockout box, thus controlling the key(s) to many locks.

Boxes

electrical systems can be effectively isolated by pulling fuses and locking ging the cover to the fuse box. Routine use of fuse boxes for lockout d necessitate installation of lockout hasps on the fuse box covers.

ding Pins

chanical and gravity systems that do not involve electrical circuits must bed out by installing mechanical stops or retaining pins. The stops and ist have openings where locks can be installed.

al Plugs

al equipment operated with extension cords and electrical plugs can be ut by placing the plug in a lock adapter so it cannot be plugged in an le when locked.

ges

blank flanges must be installed in piping systems to prevent employee and provide lockout provisions. The flanges have openings for insti- chains, locks and tags.

OIL AND HAZARDOUS MATERIAL SPILL PREVENTION, CONTAINMENT, CLEANUP, AND DISPOSAL GUIDELINES

1. The prevention of oil and hazardous-material spills and the resultant environmental damage is the responsibility of all Commanders.

2. All Commanders and Department Heads will publish and prominently post directives setting forth detailed policies and procedures for the control and prevention of oil and hazardous-substance pollution specifically applicable to their organization.

3. All Commanders and Department Heads will take the following actions:

a. Take positive measures to prevent spills of oil and hazardous substances to include a review of the Command's maintenance and operational procedures.

b. Conduct frequent inspections of areas and facilities assigned to ensure compliance with published procedures.

c. Establish immediate action procedures for the amelioration of pollution which may result from oil and hazardous-substance spills, to include the stocking of materials required to carry out the procedures.

d. Ensure that all personnel within their Command are thoroughly indoctrinated regarding the environmental impact of oil and hazardous substance spills and proper disposition of oil and hazardous substances.

e. Encourage maximum reuse of technically contaminated fuels by multifuel-engine powered tactical vehicles.

4. The following guidelines are generally applicable to garrison operations:

a. Contaminated fuels which cannot be burned in tactical vehicles and other used petroleum products, except gasoline, will be collected in a tank of at least 250-gallon capacity equipped with a funnel, strainer and cover to prevent entrance into the tank of trash, water and other foreign matter. When the container requires emptying, the Officer in Charge (OIC) will notify the Base Maintenance Department (Telephone 5909). The Base Maintenance Department will dispatch a vehicle to remove the waste oil. In the event of an emergency 55-gallon drums may be used as a temporary expedient storage container for waste oil.

b. Waste lubrication grease will be collected, stored in suitable containers and disposed of in accordance with instructions provided by Base Maintenance Department representative. Send request via Chain of Command to the Base Maintenance Officer.

c. Oil-saturated soil in the vicinity of oil and petroleum storage areas should be removed to the sanitary landfill and replaced with fresh earth.

d. To dispose of contaminated gasoline contact the Base Fire Department (Telephone 3004).

e. Disposal of hazardous waste and other hazardous substances such as acids, poisons and solvents through any drainage system to include sinks, wash racks, storm drains and natural drainage systems is specifically prohibited. These products will be segregated and stored in suitable containers and will be disposed of in accordance with instructions provided by Commanding General, Marine Corps Base, Camp Lejeune.

f. Petroleum products containers will be disposed of at the sanitary landfill, or recycled, if appropriate, with the exception of 55-gallon drums and durable metal containers which will be disposed of through the Defense Property Disposal Officer, Building 906.

g. Personnel changing private owned vehicle (POV) oil on Base will use established Base Special Service facilities and deposit waste oil in one of the authorized collection tanks on Base and the Air Station.

h. Oil and gasoline storage containers larger than 550-gallon capacity will be diked to include a drainage line and valve which will be locked. The latter will be operated only by personnel authorized by the Unit Commander.

5. Field operations will comply with the guidance enumerated in the following subparagraphs:

a. All tactical refueling systems installed on Base must first be approved by the Base Maintenance Officer.

b. Fuel stored in tactical refueling systems will be properly diked, as required by current regulations. As a general rule, the dike must be capable of containing at least the volume of the container stored within it.

c. When using fuel tanker vehicles:

(1) Hoses, nozzles and connections will be checked frequently for serviceability to avoid leakage of fuel.

(2) Refueler operators will stay with the vehicle during refueling operations.

(3) Tanker vehicles containing fuel will be parked in such a manner as to avoid the possibility of spilled fuel entering natural or man-made drainage systems.

(4) During recirculation operations, nozzles will be secured to the vehicle.

(5) All waste petroleum products generated during field exercises will be stored (55-gallon drums, etc.) and disposal instructions obtained from the Director, Natural Resources Division, Base Maintenance Department (451-5003).

28 MAY 1987

OIL AND OTHER HAZARDOUS MATERIAL SPILL CONTINGENCY PLAN

FOR

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

MARINE CORPS AIR STATION (HELICOPTER), NEW RIVER, JACKSONVILLE, NORTH CAROLINA

MARINE CORPS HELICOPTER OUTLYING FIELD, OAK GROVE, JONES COUNTY, NORTH CAROLINA

PREPARED

OCTOBER 1980

ENCLOSURE (2)

MATERIALS AND EQUIPMENT FOR OIL SPILL CONTAINMENT AND COUNTERMEASURE

Item No.	Description	Quantity
1.	Gasoline engine driven (portable) trailer mounted diaphragm pump with sectional suction and discharge hose - minimum capacity 25 gallons per minute.	2
2.	Sectional aluminum oil boom	
3.	Inflatable oil barrier, Whittaker Expandi self-inflating	300 L. F.
4.	Collapsible bag for field filling of collected oil-250 gallon capacity	2
5.	Oil skimmer (portable)type for water floating oil pick-up	1
6.	Baled hay or straw with wire or nylon baling (located at strategic areas)	200 Bales
7.	Steel fence stakes (6 feet long)	50 each
8.	Woven wire mesh (chicken wire) 3ft. width 4ft. width	200 L.F. 100 L.F.
9.	Sledge hammer - 10 lb. 5 lb. 2½ lb.	3 5 5
10.	Shovels - Long handle round point Long handle flat blade Short handle round point Short handle flat point	5 5 5 5
11.	Oil Absorbent Compound - for water spill clean up	2000 lbs.
12.	Oil Absorbent Compound for ground spill clean up - Randustrial P-218 Oil Absorbent (55-gallon drum)	25 drums
13.	Nylon rope - ¼" diameter ½" diameter 3/4" diameter	200 L.F. 400 L.F. 400 L.F.
14.	Oil Sorbent Material - 3M, Conwed or Grefco	500 lb.

(2) The Natural Resources and Environmental Affairs Division Director or his representative shall remain at the scene of the spill until all contaminant is properly contained and the danger of oil contamination of waterways is eliminated.

(3) At the conclusion of all cleanup operations, the official report submitted to the Environmental Protection Agency (EPA), Region IV, shall be prepared in accordance with requirements of Federal Water Pollution Control Act and EPA regulations in effect at the time. The report shall be transmitted to EPA through the directives of the Commanding General.

3. Spill Containment and Cleanup

a. Small Spills (less than one gallon)

(1) Cause: Gasoline or fuel oil spills at fueling locations occur by overfilling or blow back from the tank receiving the fuel.

(2) Reporting: This type of spill requires reporting to the Office of Natural Resources and Environmental Affairs (Phone 1-919-451-5003). The fuel spill must be promptly cleaned up by the person at the scene.

(3) Containment Procedures:

(a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.

(b) Cover entire spill with sand or absorbent material from storage bin or container. Add material as liquid appears in the surface of the sand or absorbent material.

(c) Cleanup contaminated sand or absorbent material with broom and shovel placing it in a container (metal) for disposal or possible reuse. The container shall be labeled "Waste Oil Refuse".

(d) If storage bin of sand or absorbent material is less than one-half full after using, call Base Maintenance Department (3001) to inform them of the location needing additional material.

(e) Reapply a second coat of sand or absorbent material in a very light layer to assure all gasoline or fuel oils have been blotted up. Brush material back and forth over the area and then sweep up completely. This material can be replaced in the fresh storage bin rather than depositing it in the "Waste Oil Refuse" container.

b. Spills on Concrete Aprons (more than one gallon)

(1) Reporting: Call Base Fire Department

(2) Containment Procedures:

(a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.

(b) The person on-site shall erect a two-to-three inch high sand or earth dam on the concrete or at the edge of the concrete below (downstream) the direction that the spill is flowing. This is the first step in containment.

(c) Apply sand or absorbent materials that are available around the perimeter of the spill until the Fire Department arrives. Keep other personnel away from the area.

(d) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and Environmental Affairs Division or his representative arrives to determine further containment and cleanup requirements.

(e) Base Maintenance personnel shall install dams, straw barriers, pumping equipment and other abatement or cleanup equipment as directed by the OSC.

c. Spills on Ground (more than one gallon)

(1) Reporting: Call Base Fire Department

(2) Containment Procedures:

(a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.

(b) The person on-site shall erect a minimum three-inch high sand or earth dam below (downstream) the direction that the spill is flowing. The dam should be made higher if the liquid pool behind the temporary dam rises to within two inches of the top. A trench or sump may be used in lieu of a dam. This is the first step in containment that must be taken promptly to prevent spreading into surface waters.

(c) Apply sand or absorbent materials that are available around the perimeter of the spill until the Fire Department arrives. Keep other personnel away from the area.

(d) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and Environmental Affairs Division or his representative arrives to determine further containment and cleanup requirements.

MERCURY SPILL
STANDING OPERATING PROCEDURES

Subject: Standing Operating Procedure - Mercury Spill Cleanup
Purpose: To publish a standard procedure for the cleanup of mercury spills.

1. Responsibility:

a. The Industrial Hygiene Section is responsible for:

(1) Monitoring the contaminated site before and after cleanup.

(2) Making recommendations for cleanup.

(3) Recommending use of protective equipment for area control and personal control measures.

(4) Providing an industrial mercury vacuum for large spil contact Industrial Hygiene, extension ~~2707~~ 451 - 3046

b. The Chemist, Utilities Branch is responsible for:

(1) Ensuring that proper equipment and protective equipment is provided for Steam, Water and Wastewater Sections.

(2) Ensuring that proper cleanup equipment and protective equipment is utilized by cleanup personnel.

(3) Coordinating the disposal of mercury obtained from spill with Defense Reutilization Marketing Officer (DRMO) representatives.

c. Instrument Mechanics from steam, water and wastewater are responsible for cleaning up mercury spills in their sections.

2. General:

a. The area in which the spill occurs should be isolated (roped off) until cleanup is completed and monitoring indicates safe exposure levels.

b. Contact will be made with the Industrial Hygiene Section, as soon as possible, whenever a spill occurs at extension ~~2707~~ 451. Industrial Hygiene hours 0800-1600, Monday through Friday.

c. Mercury spill will be cleaned up by an Instrument Mechanic from the section involved. If spill is considered to be major, Industrial Hygiene Section will assist with cleanup.

d. Mercury will be disposed of according to guidelines set forth by the DRMO representatives, by the Utilities Chemist.

3. Cleanup and Safety Equipment

a. Mercury spill Cleanup Kit including:

(1) Butyl or latex gloves
(2) Safety goggles
(3) Tyvek suit with shoe covers
(4) Suction device or aspirator fitted with mercury trap
(5) Scoop bottles
(6) Plastic bags with ties and labels

b. Respirator for confined area spills:

(1) Positive pressure self contained breathing apparatus
(2) Positive pressure supplied air respirator
(3) Mercury vapor respirator filters (3M Company)

c. Mercury Decontaminant

d. Industrial mercury vacuum cleaner for major spills. This can be obtained from Industrial Hygiene Section, extension [redacted]. 451-3046

4. Cleanup Procedure:

a. The area in which the spill occurs should be isolated (roped off) as soon as possible.

b. The spill should be reported to the Industrial Hygiene Section, extension 2707, as soon as possible so monitoring and cleanup procedures can be implemented. Industrial Hygiene's hours are 0800 to 1600, Monday through Friday.

c. All personnel should be cleared from the immediate spill area except for those involved in the cleanup. No smoking, eating, or drinking is allowed in the spill area. Cleanup personnel should wear self contained breathing apparatus or other approved respirator. The choice of respirator will be dependent upon concentration of vapor.

d. Protective gloves, goggles, and clothing should be worn. Tyvek coveralls are satisfactory as whole body protection.

e. No sweeping or blowing of mercuy is permitted; gather up as many globules as possible by vacuuming. Globules caught in cracks or recesses may be collected with a suction device fitted with a mercury trap. A magnifying glass will be useful in locating minute globules. A scoop can be used to pick up all but the smallest globules. Scoops which can not be decontaminated should be disposed of as a hazardous waste.

f. After all visible globules have been picked up, cover

the spill surfaces with generous quantities of welted decontaminant mixture to convert mercury not removed by the previous techniques. Leave the decontaminant mixture on the surface overnight to obtain maximum conversion of mercury. The mixture should be worked into cracks and crevices. Vertical surfaces such as walls, cabinet sides, and furniture legs should be checked for mercury.

g. After the mercury concentration has fallen to a safe level, not greater than 0.05 mg/m^3, the spill area should be scrubbed with soap and water and rinsed.

h. Sensible personal hygiene practices during and after clean-up are important. Since mercury can be absorbed through the skin, care should be taken not to handle contaminated components directly. Exposed skin should be throughly washed with soap and water. Contaminated clothing should be placed in double plastic bags for later monitoring and disposal.

BASE MAINTENANCE DIVISION

SOP FOR DESTRUCTIVE WEATHER/DISASTER PREPAREDNESS

TABLE OF CONTENTS

BASE MAINTENANCE DIVISION - RECALL ROSTER

POSITION	NAME	TOWN	HOME#	WORK#
BMO	D. L. Brush	Swansboro	326-7338	451-2511
Deputy BMO	R. E. Scales	Jacksonville	455-6328	451-2511
Div. Secretary	D. Kiley	Jacksonville	577-4006	451-2511

BRANCH DIRECTORS

Administrative	D. Gurganus	Wilmington	686-1914	451-5307
Maint & Repair	(Position Vacant)			451-5855
Operations Br.	E. Winberry	Hubert	326-5028	451-1580
Utilities Br.	C. Baker	Emerald Isle	(919)354-3652	451-5161

EMERGENCY NUMBERS

Duty Officer, MCB	451-2528
Duty Officer, MCAS	450-6111
Provost Marshal	451-2555
Fire Dispatcher	451-3004
Emergency Maintenance	451-3001
Heavy Equip Section (Bldg. 738)	451-5909
Steam Plant (Bldg. 1700)	451-3627

ADMINISTRATIVE BRANCH

Personnel	K. Winberry	Hubert	326-5028	451-5307
Finance & Acct.	F. Brown	Chinquapin	324-5283	451-5122
Supply	E. Grant	Jacksonville	577-7601	451-2006
Automation	L. Davis	Richlands	324-6305	451-3722
Ind. Hygienist	J. Pickett	Wilmington	792-1585	451-3046
Br. Secretary	F. Byrd	Jacksonville	577-3259	451-5307

OPERATIONS BRANCH

Operations Officer	Capt Carson	Jacksonville	347-6995	451-1580
P&E	(Position Vacant)			451-5032
Prog/Work Rcpt.	D. Woods	Jacksonville	353-4953	451-2590
Contracts	D. Oglesby	Jacksonville	353-6664	451-5799
Inspections	G. Shoemaker	Swansboro	393-8741	451-5794
Self Help	MSgt M. Pachecho	Camp Lejeune	577-7836	451-2970
Br. Secretary	T. Covarrubias	Jacksonville	347-3648	451-1580

MAINTENANCE AND REPAIR BRANCH

SECTION	NAME	TOWN	HOME #	WORK #
MCAS/Camp Geiger	R. W. Lanier	Chinquapin	285-2598	450-6818
Emergency Services	A. Woodward	Stella	326-3007	451-5773
Specific Jobs	J. Quill	Swansboro	326-6240	451-5256
General Services	T. Jewell	Jacksonville	577-4476	451-5158
Br. Secretary	R. Provost	Richlands	324-1394	451-5184

SUPERVISORY PERSONNEL (MAINTENANCE AND REPAIR BRANCH)

POSITION	NAME	TOWN	HOME #	WORK #
(MCAS/Camp Geiger Section)				
GrdStr Supv	Major Gray	Hubert	326-4677	450-6543
Maint Supv	W. S. Brown	Jacksonville	324-6885	450-6818
Maint Supv	A. Bruinton	Richlands	324-2281	450-6818
(Emergency Services Section)				
Maint Supv (TT)	G. Lynn	Jacksonville	455-1159	451-5080
Maint Supv (TT)	A. Jarman	Beulaville	324-2465	451-5080
Maint Supv-PP	G. Phillips	Swansboro	326-3986	451-2781
Maint Supv (CHB,RflR, Beach)	J. Fickling	Swansboro	326-1598	451-7552
Maint Supv (Div, HP, FC, IA & Johnson)	E. E. Dudley	Maysville	743-6441	451-2737
A/C Mech Supv (MCB)	C. N. Smith	Sneads Ferry	327-3440	451-3235
A/C Mech Leader	J. Carter	Jacksonville	353-2385	451-3235
(Night Crew)				
Maint Supv	D. Altman	Jacksonville	347-0705	451-2333
Maint Supv	J. Wilson	Jacksonville	346-9801	451-2333
(Specific Jobs Section)				
Maint Supv	B. D. Delmas	Jacksonville	577-5315	451-1775
Maint Supv	C. A. Autry	Jacksonville	346-6020	451-3010
Maint Supv	E. W. Crump	Stella	326-2657	451-1689
Maint Supv	L. E. Morton	Jacksonville	455-0488	451-5306
Maint Supv	L. Young	Jacksonville	937-0721	451-1689
Maint Supv	M. Cochran	Jacksonville	346-2022	451-1438
Metalwrkg	L. Stauter	Hubert	326-1298	451-5110
Plumbing Supervisor	J. Lisiewski	Hubert	326-3628	451-2156
Pipefitter Supervisor	H. E. Dixon	Richlands	324-6629	451-1689

POSITION	NAME	TOWN	HOME #	WORK #
General Services Section				
Grd Str Supv	C. Jones	Kinston	(919)527-3041	451-5158
Grd Str Supv/ Insect Vector	B. Brantley	Emerald Isle	(919)354-5202	451-5158
Eng Equip Op Supv	R. Huffman	Jacksonville	347-1336	451-5909
HvyMobEq MechSupv	A. Petteway	Richlands	324-5677	451-2295
Sanitation Supv	J. Powers	Maple Hill	259-4631	451-2946

UTILITIES BRANCH

POSITION	NAME	TOWN	HOME #	WORK #
Utilities	D. Southerland	Chinquapin	298-3654	451-5161
UMACS	(Position Vacant)			451-5642
Steam Generation	T. Brownley	Hubert	326-2781	451-9563
Water Treatment & Wastewater	M. Frazelle	Jacksonville	353-7595	451-5988
Branch Secretary	M. Manson	Jacksonville	353-8632	451-5161

SUPERVISORY PERSONNEL (UTILITIES BRANCH)

POSITION	NAME	TOWN	HOME #	WORK #
Boiler Maint Supv	J. V. Jones	Chinquapin	324-2211	451-9561
Boiler Plant Supv	Vacant	(For information call Shift Foreman		451-3627)
Elect Distr Supv	H. Ireland	Morehead City	(919) 247-5694	451-2790
Wastewater Supv (Ord Pond)	T. Kennedy	Swansboro	326-1682	451-5933

SECTION I
DEFINITIONS OF STORM/DESTRUCTIVE WEATHER CONDITIONS

1000. GENERAL

1. Storms are a potential and continuous threat to Marine Corps Base property and facilities. Adequate and timely warning, coupled with prompt and effective actions by Base Maintenance personnel will minimize loss of life and damage to the installation resulting from destructive weather conditions.

1001. STORM SYSTEMS

1. Local Storm Systems. Storms of this category generally affect localized areas and are usually short in duration.

a. Local wind warnings. A local wind warning is issued when potentially hazardous winds - between 20 to 33 knots - are anticipated. Recreational activities may warrant special precaution.

b. Small craft warnings. A term used by the U. S. Navy and the U. S. Weather Bureau to describe wind speeds of 18 to 33 knots over coastal areas and inland waters only. As the name implies, this warning is intended to alert operators of small craft to take appropriate precautions to avoid damage to craft or injury to personnel.

c. Gale warnings. Winds are steady and of sufficient force to cause heavy turbulence and high seas. Winds are between 34 and 47 knots. This is primarily for marine interest.

d. Storm warnings. Storms made up of low pressure systems other than tropical origin, with winds of 48 knots or greater.

e. Thunderstorms. Thunderstorms are small scale storms invariably produced by cumulonimbus clouds accompanied by lightning and thunder. These storms may develop within sight and not have a destructive appearance until shortly before passing overhead. Often, hail is associated with thunderstorms. Thunderstorms may produce high winds with gusts greater than 40 knots. Lightning strikes are common in addition to torrential rainfall and low visibility.

f. Tornadoes. A tornado is defined as a violently rotating column of air generally spawned from thunderstorm clouds and touching the ground. Maximum winds created by tornadoes may exceed 130 knots. (Note: Winds associated with tornadoes have been estimated to be 100 knots to more than 250 knots.)

2. Local Storm Conditions. Storm condition settings for localized destructive weather.

Camp Lejeune within 48 hours.

c. Destructive Weather Condition II. A destructive weather system of the type specifically identified in the warning has formed and, current and projected development indicates the possibility that winds of destructive force, could occur at MCB Camp Lejeune within 24 hours.

d. Destructive Weather Condition I. A destructive weather system of the type specifically identified in the warning has formed and, current and projected development indicates the possibility that winds of destructive force, could occur at MCB Camp Lejeune within 12 hours.

e. Destructive Weather Condition IE (EMERGENCY). Because a destructive weather system specifically identified in the warning is passing over the area, destructive winds, including gusts, of 48 knots (55 mph) or greater are in progress.

f. Destructive Condition V (All Clear). This condition of readiness is automatically established between 1 June and 30 November. The potential for the occurrence of destructive weather is elevated; but, no specific system with the potential to threaten the MCB Camp Lejeune area has developed. This condition will also be set to indicate the storm has passed, clean-up operations should be completed, and resume normal operations. This condition will be used to secure from the threat of a storm which has not passed over the Base and resume normal operations while maintaining seasonal conditions of readiness.

g. Cautionary Note. Tropical storms and hurricane conditions are issued separately and distinctly from one another based solely upon current and forecast storm intensity as measured by wind speed. For example, Destructive Weather Condition II may be set when the tropical cyclone is Tropical Storm strength (34 to 63 knots). The estimated winds annotated on the warning would be based on the current intensity of the Tropical Storm. It should be noted that an intense maturing tropical storm may very easily intensify to hurricane strength. Therefore, precautions taken for tropical systems should always be based on hurricane force winds..

3. Snowstorm and Icestorm Conditions. Snowstorms and icestorms present a threat of damage and the disruption of normal operations. Because of the peculiarity of snowstorms and/or icestorm development in this area, a separate and distinct set of storm conditions apply to snowstorms and icestorms. The following conditions of readiness for snowstorms and/or icestorms are prescribed.

a. Snowstorm/Icestorm Condition IV. Secure from snowstorm

SECTION II
OPERATING PROCEDURES - OPERATIONS BRANCH

2000. GENERAL. To meet the threat of destructive weather, snow storm or disaster, the following instructions will govern the actions of personnel in the Operations Branch.

2001. PROCEDURES.

1. Condition IV.

a. Review all pertinent orders and directives.

b. Liaison with the Assistant Chief of Staff, Facilities regarding the availability of personnel and engineer equipment support from II MEF, 2nd MarDiv, 2nd FSSG, 6th MEB, 22d MAW and 2d SRI.

c. Review essential personnel requirements contained in Appendix B and update as required.

d. Ensure that equipment required to man the Disaster Control and Recovery Center (DCRC) are on hand.

2. Condition III.

a. Test all DCRC communications systems. See Appendix C.

b. Prepare and issue specific job orders for destructive weather or snow preparation in the following areas:

(1) Housing (obtain from the Family Housing Division a list of vacant quarters to be secured).

(2) General preparation of all other areas.

c. Identify and assign essential personnel requirements necessary to activate and man the Damage Control and Recovery Center.

d. Have fuel cards available for use.

e. Position military and civilian fuel trucks and one refueler at the Base Fuel Farm for refueling engineer equipment.

f. Obtain one mobile radio from Environmental Management Division for use in the DCRC.

g. Prepare to establish the DCRC upon order of the AC/S Facilities or upon notification of Condition II.

SECTION III
OPERATING PROCEDURES - UTILITIES BRANCH

3000. GENERAL. In the event of destructive weather or heavy snowfall, the instructions noted below will govern the actions of personnel in the Utilities Branch.

3001. GENERAL INSTRUCTIONS - ALL PLANTS.

1. Condition IV. Continue routine operations.

2. Condition III.

a. Check all plant doors and windows for proper fastenings. Store all movable property inside the plants. Tie down any materials which cannot be moved inside.

b. Review call back lists of essential personnel as noted in Appendix B and update as required. Forward updated lists to the Operations Officer, Operations Branch.

c. Coordinate requirements for 4-wheel drive vehicle with the Maintenance and Repair Branch.

3. Condition II.

a. Establish communication with the Damage Control and Recovery Center (DCRC) and report personnel on duty and plant status.

b. Initiate call back of essential personnel. Retain all personnel going off shift.

c. At the onset of heavy rainfall, dispatch four men, each in separate vehicles, to observe all steam tunnels and determine whether or not the storm sewers are properly discharging the flood water. Essential personnel designated by proper authority stand by at assigned duty stations per Appendix B of this SOP.

d. Continue with preparations not completed under Condition III.

e. Notify immediate supervisor and the DCRC when preparations are complete.

4. Condition I.

a. Remain on the job until properly relieved.

b. Remain within plant or station unless outside travel is necessary.

a. Continue operating auxiliary pumps until power is resumed, then switch to electrical operation.

b. Prepare auxiliary motors for future use.

3003. STEAM GENERATION.

1. Condition III.

a. Make provisions for emergency rations and cots for 20 personnel for one day. Raise fuel storage levels to maximum. Fill fuel tanks on all vehicles and welding machines.

b. Prepare Onslow Beach plant to withstand storm conditions and evacuate.

c. Notify Utilities Branch office if header valves to any area have to be closed in Building 1700.

2. Condition II.

a. Draw emergency rations and cots from the DCRC.

b. When destructive winds are expected within 18 hours, secure RR-15 and BB-9 and start cool down procedures at these plants. When these plants are in a safe condition to secure and evacuate, the operators at these plants will call the water treatment plants in their respective areas and inform them they are secured and will need no more water. The operators will then call Building 1700 and inform the supervisor in charge that they are ready to evacuate their plants. The operator at RR-15 will report to Building AS-4151 to assist the operator in shutting down that plant. The operator of BB-9 will report to Building 1700 to assist in shutdown there.

c. Start securing Building 1700 in anticipation of shutdown.

3. Condition I.

a. When it appears destructive winds are expected within six hours, all personnel at Building 1700, who are on standby or not essential to plant shutdown, will evacuate to Building 1202. Remaining personnel will complete shutdown until the plant is in a safe condition to evacuate. At this time the plant's main transformers on ground level will be disengaged. Remaining personnel will evacuate to Building 1202 as conditions warrant.

b. Secure AS-4151, G-650, M-625, M-230 and PP-2615. The operators at these plants will cool the plants down to where they are safe to secure and evacuate (approximately four to six hours). Operators will notify the supervisor at Building 1700

tion Unit will dispatch a crew to shut off the main steam valve at the Central Heating Plant that isolates that line. Prior to cutting of the steam, the DCRC will be notified.

d. Provide assistance in securing buildings and facilities at Onslow Beach as requested by the Area Commander or Base Special Services Officer.

e. Be prepared to react to broken or frozen steam condensate lines during snow conditions.

3. Condition I.

a. Operate pumps in the steam distribution tunnels and perform emergency work as directed.

b. Maintain mobile communications with the DCRC. Be prepared to evacuate to secure areas when directed.

4. All Clear. Assess damage and report to the DCRC.

3005. SEWAGE TREATMENT.

1. Condition III.

a. Make provisions for emergency rations and cots for 15 personnel for one day. Procure and distribute fuel for auxiliary motors for a period of approximately 36 hours of operation.

b. Check and prepare all lift stations for hurricane conditions. Prepare Onslow Beach facilities to run on generator power and evacuate.

2. Condition II.

a. Check all auxiliary motors under load and make required repairs. Fill fuel tanks on all vehicles and welding machines.

b. Prepare Courthouse Bay and Rifle Range sewage facilities to run on generator power and evacuate. After the plants are prepared for evacuation, the Courthouse Bay operator will report to the Hadnot Point Wastewater Plant, Bldg 22, and the Rifle Range operator will report to the Camp Geiger Wastewater Plant, Bldg TC-563.

3. Condition I. Upon power failure, switch to auxiliary motors and continue to operate.

4. All Clear.

a. Continue operating auxiliary pumps until power is re-

4. All Clear.

a. Continue repairs to damaged power lines.

b. Assess damage and provide input to the Utilities Director.

3007. OUTSIDE PLUMBING.

1. Condition III.

a. Make provisions for emergency rations and cots for nine personnel for one day.

b. Fill fuel tanks on all vehicles including backhoe and obtain spare gas for pumps, generators, etc.

2. Condition II.

a. Draw emergency rations from the DCRC.

b. Establish and maintain communications with the DCRC.

c. At the onset of heavy rainfall, check sewer mains for stoppage and clear as necessary. Check for leaking water mains and repair as necessary.

3. Condition I.

a. Provide emergency maintenance and essential services as required.

b. Be prepared to react to broken or frozen water and sewer mains.

c. Maintain mobile communications with the DCRC. Be prepared to evacuate to secure areas when directed.

4. All Clear.

a. Continue cleanup operations.

b. Assess damage and provide input to the Utilities Director.

SECTION VII
OPERATION OF THE DISASTER CONTROL AND RECOVERY CENTER

7000. GENERAL. The following guidance is provided for the operation of the Damage Control and Recovery Center (DCRC). Effective coordination between elements of the Base Maintenance Division, the DCRC and the Emergency Operations Center (EOC) is essential to ensure smooth operation.

7001. RESPONSIBILITY. The Operations Officer, Operations Branch will act as the Operations Officer of the DCRC and have responsibility for its activation and operation. The Center will be responsible for coordinating the following special teams: rescue, wrecking, shoring and demolition, snow removal, and emergency utilities.

7002. STAFFING. The DCRC will be activated on order of the AC/S Facilities or upon notification of Destructive Weather Condition II/Snowstorm Condition II and must be prepared to operate on a 24 hour basis. Appendix B contains staffing requirements for continued operation of the DCRC. Area commanders are to provide augmentation personnel upon request.

7003. LOCATION. The DCRC is located in the Base Maintenance Division Conference Room, Building 1202.

7004. PROCEDURES.

1. Condition II (or upon direction of the AC/S Facilities).

a. Assume operational control of the DCRC.

b. Check in to all required telephone and radio nets. See Appendix C.

c. Initiate call back of essential personnel noted in TAB C to Appendix B or from listings provided by branch heads, if not already accomplished by the Branches or the Night Foreman/Duty NCO.

d. Coordinate and verify placement of emergency generator requirements with the Maintenance & Repair and Utilities Branches. See Appendix D for further details. Notify the EOC of status.

e. Coordinate the placement of engineer support equipment in the staging area. Maintain an inventory of available equipment.

f. Coordinate the efforts of shoring teams, etc.

APPENDIX A

REPORTS

REPORTS	RESPONSIBILITY	FREQUENCY	SUBMIT TO	FORMAT
Engineer Equipment Status Report	M & R Branch/ Gen Svcs	Upon setting Condition IV	Opns Branch	As established
Damage Report	All Branches	Upon setting Condition V	DCRC	As established
After Action Report	Opns Branch	5 working days after setting Condition V	CG, MCB (Attn AC/S Opn/Trng)	Item/Topic Discussion Recommend - action format

APPENDIX B

ASSIGNMENT OF ESSENTIAL PERSONNEL

A. GENERAL. Procedures for the assignment of essential personnel are established to ensure personnel staffing sufficient to:

1. Maintain essential operations.

2. Institute preventive measures to minimize damage to structures and facilities.

3. Perform post-storm recovery operations.

4. A directory of key personnel is attached as TAB A which will be updated as necessary.

B. RESPONSIBILITIES.

1. Branch Heads/Supervisors.

a. Identify personnel resources/team composition by trade area that are necessary to meet team requirements. Current requirements are contained in TAB's B thru D and should be reviewed and updated as appropriate.

b. Identify and inform those employees who are designated essential personnel to fill the requirements noted above. Whenever possible, rosters designating essential personnel should be prepared and posted in shop areas well in advance of storm conditions. This will serve to alert individuals of the possibility of call back or retention on base upon announcement of Condition II and allow them to make appropriate personal arrangements. Supervisors should include several alternates to account for personnel on leave or otherwise unavailable. When identifying essential personnel, supervisors should, when possible and subject to mission requirements, consider unusual personal hardships of their employees and make suitable adjustments on a case by case basis. Examples of such situations are single parent employees with small children or employees with wives at near-term pregnancy.

2. Essential Personnel. Individuals so identified by their foreman or supervisor whose services will be required during emergency operations will report to or remain in work spaces as set forth in this SOP or as directed by special instructions passed during emergency operations. It is important for individuals identified as essential to recognize the importance and criticality of responding to call back. In almost all instances staffing represents minimal requirements and the failure of one

8. Any employee required to perform essential services during a declared emergency will be compensated for all work performed in accordance with the Fair Labor Standards Act and Title 5 of the U. S. Code.

BOMB RESPONSE PLAN

1. If you receive a BOMB THREAT, complete bomb checklist attached.

2. Ask questions through item (f). DO NOT HANG PHONE UP. LEAVE OFF HOOK.

3. Take bomb threat checklist and go to secondary phone. Call Base Operator, extension 1113 or 1115. Report threat and phone number with receiver left off.

4. Call Shift Foreman at Bldg. 1700, 451-3627/451-5112. Report information on checklist.

5. Stand by at safe distance, at least 200 meters or 640 feet to provide assistance, etc. Have a bomb threat checklist available for appropriate personnel.

SAFEGUARD LIST

FOREMAN AND WG-11 - BLDG. 1700

1. After receiving call from outlying plant, complete items 4, 5, 6, 7, 8, and 10 of bomb threat checklist.

Note: Record time on item (5) but telephone off hook applies to outlying plants phones.

Note: Item 9 will be completed by supervisory personnel.

2. Log appropriate information concerning bomb threat.

3. If radio communication available, stand by base station and maintain contact with operator.

BOMB THREAT CHECKLIST

1. DO NOT HANG UP THE TELEPHONE.

2. Questions to ask: Exact words of the conversation.

a. When will bomb explode?_____

b. Where is the bomb right now?_____

_____

c. What kind of bomb is it?_____

_____

d. What does the bomb look like?_____

_____

e. Why did you place the bomb?_____

_____

f. Where are you calling from?_____

_____

g. Who is this?_____

_____

3. Either go personally or send someone to another telephone and call the Base Operator, extension 1113 or 1115. Report the bomb threat and telephone number/extension, _____, of the phone you left off the receiver.

4. From another phone, report the bomb threat to 911, or to the Provost Marshal's Office at extensions 2555, 2556, or 2557.

5. NOTE: DO NOT HANG UP THE TELEPHONE

a. Time call received:_____

b. Time caller hung up:_____

6. Notify key personnel (CO, OIC, supervisor, etc.).

7. TRACING CALLS. If, after getting as much information as you can from the caller, you believe that the caller is about to hang up, follow these procedures to trace the call:

a. Hookflash. Depress the cradle button for approximately one second. The Hookflash will give a dial tone and place the caller in a temporary hold state.

(NOTE: 3100 Phone Systems program. Use GRND Start button, vice Hookflash.)

b. Dial #23, which activates the trace. You will hear a 3-beep confirmation tone.

ENCLOSURE (1)

CONTAMINANT THREAT PLAN

Outlying plants

1. If you receive a CONTAMINANT THREAT, COMPLETE CHECKLIST, enclosure (1).

2. Ask questions through item (e). DO NOT HANG PHONE UP. LEAVE OFF HOOK.

3. Take contaminant threat checklist and go to secondary phone and call Base Operator Extension 1113 or 1115. Report contaminant threat and phone number with receiver off.

4. Call Leader on duty at Bldg 1700 - relay information on checklist.

5. SECURE PUMPING EQUIPMENT AND PLANT IN THE FOLLOWING SEQUENCE:

   a. SECURE PLANT BOILERS

   b. CUT OFF OIL PUMPS

6. Leaders will complete items 4, 5, 6, 7, and 8 of checklist. Insure that you relay information to appropriate personnel of areas that have been secured, etc.

7. Log all appropriate information.

8. Maintain contact with personnel via radio communication.

9. Stand-by to assist operator or spare man if available to assist operator at affected plant.

POSITION DESCRIPTIO[N] *(Please Read Instructions on the Back)*

1. Agency Position No. 03800001

2. Reason for Submission: Redescription / New / Reestablishment / [X] Other

3. Service: Hdqtrs. / [X] Field

4. Employing Office Location: Camp Lejeune NC

5. Duty Station: Camp Lejeune NC

6. OPM Certification No. 3037 (31)

7. Fair Labor Standards Act: Exempt / [X] Nonexempt

8. Financial Statements Required: Executive Personnel Financial Disclosure / Employment and Financial Interests

9. Subject to IA Action: [X] Yes / No

...mation *(Show any positions replaced)*
...ment #1 to Boiler Plant Operator WG-5402-10, JD 03300

10. Position Status: [X] Competitive BUS: 0010 / Excepted (Specify in Remarks) / SES (Gen.) / SES (CR)

11. Position Is: Supervisory / Managerial / Neither

12. Sensitivity: [X] 1—Non-Sensitive / 2—Critical Sensitive / 3—Noncritical Sensitive / 4—Special Sensitive

13. Competitive Level Code: 0C00

14. Agency Use: KHTKHL

15. Classified/Graded by	Official Title of Position	Pay Plan	Occupational Code	Grade	Initials	Date
a. U.S. Office of Personnel Management						
b. Department, Agency or Establishment						
c. Second Level Review						
d. First Level Review	Boiler Plant Operator	WG	5402	10	FEC	12/29/97
e. Recommended by Supervisor or Initiating Office						

16. Organizational Title of Position *(if different from official title)*

17. Name of Employee *(if vacant, specify)*

18. Department, Agency, or Establishment: Marine Corps Base, Camp Lejeune, NC

a. First Subdivision: Facilities Department

b. Second Subdivision: Base Maintenance Division

c. Third Subdivision: Utilities Branch

d. Fourth Subdivision: Steam Generation Section

e. Fifth Subdivision: Outlying Plant SubUnit

19. Employee Review—This is an accurate description of the major duties and responsibilities of my position.

Signature of Employee *(optional)*

20. Supervisory Certification. *I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out Government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.*

a. Typed Name and Title of Immediate Supervisor: D. E. BROWNLEY, JR. BOILER PLANT OPERATOR SUPERVISOR II

Signature: D. E. Brownley — Date: 12/18/97

b. Typed Name and Title of Higher-Level Supervisor or Manager *(optional)*: D. L. SOUTHERLAND UTILITIES SUPERVISOR II

Signature: D. L. Southerland — Date: 12-18-97

21. Classification/Job Grading Certification. *I certify that this position has been classified/graded as required by Title 5, U.S. Code, in conformance with standards published by the U.S. Office of Personnel Management or, if no published standards apply directly, consistently with the most applicable published standards.*

Typed Name and Title of Official Taking Action: F. E. CONE DEPUTY AC S, FACILITIES

Signature — Date: 12-29-97

22. Position Classification Standards Used in Classifying/Grading Position: OPM, FCS for Boiler Plant Opr, series 8G-5402, 5TS-60, dtd Mar 91

Information for Employees. The standards, and information on their application, are available in the personnel office. The classification of the position may be reviewed and corrected by the agency or the U.S. Office of Personnel Management. Information on classification/job grading appeals, and complaints on exemption from FLSA, is available from the personnel office or the U.S. Office of Personnel Management.

23. Position Review	Initials	Date	Initials	Date	Initials	Date	Initials	Date	Initials	Date
a. Employee (optional)										
b. Supervisor										
c. Classifier										

24. Remarks

AMENDMENT #1: Under I.A. change 100 to 150 P.S.I. to 150 to 155 P.S.I.
U[nder] V. Physical Effort second line change 100 pounds to 40 pounds.
A[dd] [un]der III. Skill and Knowledge Paragraph C. Must be able to understand and operate the DCS computer systems to monitor and start up and shut down boilers and all related controls/pneumatic systems to solve problems of operation by own methods. KT 1/15/98

25. Description of Major Duties and Responsibilities *(See Attached)*

BOILER PLANT OPERATOR, WG-10

I. Introduction. This position is located in the Steam Generation Section, Utilities Branch, Base Maintenance Division. The purpose of the job is:

Amend #1 4/15/98

A. Control the operation of boilers operating at pressures of ~~100~~ 150 to ~~150~~ 250 P.S.I., with plant operating capacities to 500,000 pounds of steam per hour. Boilers are fired with coal and oil to generate steam at constant pressures for industrial processes and heating purposes. Operates equipment such as computers, electronic controls, electrostatic precipitators, air compressors, chemical feed pumps, draft fans, and other equipment used in the operation of a heating plant. Checks operation of equipment by observing and making necessary adjustments.

B. Assists the maintenance team in performing maintenance and repair on 88 boilers and five hot water heaters, ranging in size from 10 HP to 3,000 HP, burning pulverized coal, oil and gas, and two electrostatic precipitators.

II. Major Duties.

Lights off and shuts down boilers and precipitators for safe and efficient operation. Analyzes operation conditions as shown by indicating and recording meters and gauges affected by load changes, steam pressures, oil pressure and temperatures, fuel flow, air flow and other controls. Checks equipment for safe and efficient operation, including: alarm devices, automatic, electronic, electrical and pneumatic combustion controls, magnetic valves, programming controls, firetron cells, smoke indicator, air safety switches, protective relays, air compressors, feedwater deareators and heaters, fuel oil heaters, internal chemical injection equipment, stop valves, forced draft fans, fuel and steam pressure controls, relief valves, feedwater regulators and pumps.

All the controls operate in conjunction with the other and require the operator to make adjustments for a safe and efficient operation. The incumbent checks plant efficiency, maintains operational log and computes data for boiler log sheets, inspects safety valves and automatic safety devices for flame extinction, automatic ignition, low water cut off and high pressure cut out.

Must locate source of trouble when visual inspection of meters and other controls indicate malfunctioning equipment or dangerous conditions. Must be able to discharge the electrostatic precipitators when conditions within the boiler exist that can cause damage to the precipitator. Switches to manual controls if automatic controls fail and follows standard emergency procedures until trouble can be corrected. Removes boilers, precipitators, or auxiliary equipment from the line if malfunctions cannot be corrected during operation. Analyzes feedwater in make-up tank and

boiler water, using standard chemical test. Operates feedwater conditioning and treatment equipment to remove impurities, controls chemical concentration in boilers, and removes entrapped gases. Must be able to make adjustments to firing equipment.

Cleans passages, plates, electrodes, insulators and turning vanes by air lancing, scraping and other mechanical means.

III. Skill and Knowledge

A. Incumbent is normally responsible for the operation of boilers, precipitators and equipment on designated watch, and must be able to evaluate operating conditions of steam generating equipment and electrostatic precipitators from gauges, graphs, charts, and dials. Must have a working knowledge in pneumatic combustion controls as well as computer operated electronic combustion controls and be able to solve problems of operation by own methods. In case of emergencies in boiler operating procedures, incumbent must have the knowledge and skills to immediately make changes in control systems; close valves, start auxiliary pumps, change or shut down boilers, secure precipitators and take all precautionary measures necessary to prevent damage to equipment and injury to plant personnel.

B. Must understand the operation of boilers and boiler systems, as well as the location and purpose of all valves and switches in the plants in order to assist in performing maintenance and repair without causing damage to plant equipment or hazards to personnel. Must know and understand the operation of all systems connected with high pressure steam generation such as fuel, water, steam, condensate, electrical and automatic combustion boiler controls (mechanical, electronic, electrical, and pneumatic). Must be familiar with station fire bills and know the location and application of all extinguishers, stand pipes and steam smothering lines. Tools and equipment used in the performance of this work are: pipe wrenches, crescent wrenches, hacksaws, screwdrivers, chisels, micrometers, bevel protractors, calipers, speed indicators, levels, taps, dies, depth gauges, screw pitch gauges, dividers, drills, pipe cutters, feeler gauges, hammers and tube expanders, drill presses of various sizes and volt and amp meters. Portable tools used are: drills, hammers, tube turbines (electric and air operated), grinding wheels and pipe threading machines. Works with boiler inspector in annual inspection of boilers and assists in making necessary repairs to meet the ASME Boiler Code. Must be familiar with the nomenclature and proper use of chemicals and acids. The incumbent must hold a valid State Drivers' License and be able to obtain a USMC Motor Vehicle Operator's Permit if necessary.

Award #1 KT 4/15/95 C. Must be able to understand and operate the DCS computer systems to monitor and start up and shut down boilers and all related controls/ pneumatic systems to solve problems of operation by own methods.

IV. Responsibility

A. The incumbent normally receives instructions from the Boiler Plant Operator Shift Foreman. When operating at Building 1700 Steam Plant, the incumbent will receive instructions from the WG-11 Boiler Plant Operator in charge. Directs lower grade Boiler Plant Operators in fueling, firing, steaming, cleaning boilers, safety and use of boiler auxiliaries and the operation of electrostatic precipitators. Must assume responsibility to take immediate and appropriate action that would affect the safety of plant personnel without direct supervision from shift supervisor.

B. The incumbent works under supervision of the Boiler Plant Equipment Mechanic Foreman or designated work leader when assisting the Maintenance Team. Phases of this work involving mechanical and technical problems are discussed with the supervisor. Incumbent must ensure compliance with safety rules.

V. Physical Effort

Incumbent must have good vision to observe water level in gauge glasses from a distance. Must be physically able to carry ~~100~~ 40 pounds for short distances. Climb ladders or rigid steps to heights of 130 feet for purpose of opening valves, cleaning tops of boilers, checking electrostatic precipitators, motors and machinery. Stoops, climbs, kneels, sits and does strenuous and awkward work for short periods of time. Must have good hearing and be able to distinguish colors.

Amer KT Y/S

VI. Working Conditions

Work is performed inside 90% of the time. Works in excessive hot climatic conditions, excessive noise, dust and vibrations from machinery. Will work rotating shifts, nights, weekends and holidays. When not on operational shift duty, incumbent will assist the maintenance team in performing maintenance and repairs on the boilers and all related equipment on a day work schedule. Rotates between steam plants which are located in remote areas throughout the Camp Lejeune complex. Incumbent must have means of transportation. Exposed to possibility of burns, bruises, cuts, electrical current, moisture and hot and cold pipes. Normal hazards are conveyors, drive belts, motors, boilers and precipitators.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION 650

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF AIR QUALITY

AIR PERMIT NO. 4640R6

Issue Date: September 22, 2000 Effective Date: September 22, 2000

Expiration Date: September 1, 2005 Replaces Permit: 4640R5

To construct and operate air emission source(s) or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere. In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations,

United States Marine Corps
Camp Lejeune Marine Corps Base
Camp Lejeune, Onslow County, North Carolina
Fee Class: Title V

is hereby authorized to construct and operate air emission sources or air cleaning devices and appurtenances consisting of:

1. two No. 2 oil/natural gas-fired boilers (47.0 million Btu per hour maximum heat input each, ID Nos. 83 and 84), and

PS 2. one No. 2/natural gas-fired boiler (30.6 million Btu per hour maximum heat input firing No. 2 fuel oil and 31.6 million Btu per hour maximum heat input firing natural gas, ID No. 85),

in accordance with the completed application (ATS 67/00011.00C) received June 14, 2000, including all plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources and are incorporated as part of this Permit.

This Permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter 2D .0503, .0516, .0521, .0524 (Subpart Dc), and .0535.

2. Visible emissions from the boiler (ID No. 85) shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 27 percent opacity may occur not more than once in any hour.

3. Visible emissions from the boilers (ID Nos. 83 and 84) shall not be more than 40 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four (4) times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 or .1110 must comply with applicable visible emissions requirements contained therein.

4. In no case shall the following emission limitations be exceeded:

SOURCE	POLLUTANT	EMISSION LIMIT(S)	REGULATION
Boiler, ID No. 85	Particulate	0.31 lb/MBtu	2D .0503
	Sulfur Dioxide	0.50 lb/MBtu	2D .0524
Boilers, ID Nos. 83 and 84	Particulate	0.40 lb/MBtu	2D .0503
	Sulfur Dioxide	2.3 lb/MBtu	2D .0516

5. In accordance with NCAC 2D .0524, "New Source Performance Standards (NSPS)" as promulgated in 40 CFR 60, Subpart Dc: the sulfur content of the No. 2 fuel oil combusted in the boiler (ID No. 85) shall not exceed 0.5% by weight. Each shipment of No. 2 fuel oil delivered to the boiler shall have certification of sulfur content provided by the fuel supplier. Fuel sampling shall be in accordance with 40 CFR 60.46c(d)(2). Each calendar year quarter the sulfur content of the No. 2 fuel oil combusted in the boiler for the previous three months shall be reported to the Regional Supervisor, Division of Air Quality. The quarterly reports shall commence upon notification of initial start-up (ref. specific condition 6.(b)).

6. For the boiler (ID Nos. 85), the Permittee shall comply with all provisions, including the notification, testing, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524, "New Source Performance Standards (NSPS)" as promulgated in 40 CFR 60, Subpart Dc. Along with other notification requirements, the Permittee is required to NOTIFY the Regional Supervisor, Division of Air Quality, in WRITING, of:

(a) 40 CFR 60.7 requires notification of the date construction (or reconstruction as defined under 60.15) of an affected facility is commenced, postmarked no later than thirty (30) days after such date;

(b) the anticipated date of initial start-up of the NSPS affected facilities, postmarked not more than sixty (60) days nor less than thirty (30) days prior to such date;

(c) the actual date of initial start-up of the NSPS affected facilities, postmarked within fifteen (15) days after such date.

6. Continued

NSPS PERFORMANCE TESTING is required for visible emissions using EPA Method(s) 9. Within sixty (60) days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after initial start-up of the affected facility, the Permittee shall conduct the required performance test(s) and submit a written report of the test(s) results to the Regional Supervisor, Division of Air Quality. The Method 1 requirements of 40 CFR 60, Appendix A, "Sample and Velocity Traverses for Stationary Sources", should be considered during any construction and be met for emissions testing purposes. All associated testing costs are the responsibility of the Permittee.

7. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, when visible, particulate and/or sulfur dioxide emissions exceed Environmental Management Regulations for more than four (4) hours, the Regional Supervisor, Division of Air Quality, shall be notified as promptly as possible, but in no case later than twenty-four (24) hours or on the next working day of becoming aware of the occurrence. Such notice shall specify the facility name and location, the nature and cause of the excess emission, the time when first observed, the expected duration, and the estimated rate of emissions. This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

8. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Solid Waste Management.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to the:

Regional Supervisor
North Carolina Division of Air Quality
Wilmington Regional Office
127 Cardinal Drive Ext.
Wilmington, NC 28405

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least ninety (90) days prior to the expiration date of this Permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304 (d) and (f). Pursuant to 15A NCAC 2Q .0203 (i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, Division of Air Quality.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203 (a), the Permittee shall pay the Annual Permit Fee within thirty (30) days of being billed by the Division. Failure to pay the fee in a timely manner will cause the Division to initiate action to revoke the permit.

4. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

5. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, Division of Air Quality:

   (a) changes in the information submitted in the application regarding facility emissions;

   (b) changes that modify equipment or processes of existing permitted facilities; or

   (c) changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the Division of Air Quality to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

6. This permit is subject to revocation or modification by this Division upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the Division of Air Quality.

8. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

9. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

10. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, Division of Air Quality at such intervals and in such of form and detail as may be required in such by the Division. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

11. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

12. Pursuant to North Carolina General Statute 143-215.3 (a) (2), no person shall refuse entry or access to any authorized representative of the Division of Air Quality who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

13. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

14. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the Air Permit at the site. The Permittee must make available to personnel of the Division of Air Quality, upon request, the current copy of the Air Permit for the site.

15. COMPLIANCE WITH LOCAL ZONING - The Permittee shall abide by local zoning requirements in effect at the time of the commencement of construction of the facility.

16. 40 CFR Part 68 "ACCIDENTAL RELEASE PREVENTION REQUIREMENTS: RISK MANAGEMENT PROGRAMS UNDER THE CLEAN AIR ACT, SECTION 112(r)" - If the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

17. Title I Part A Section 112(r)(1) of the Clean Air Act "HAZARDOUS AIR POLLUTANTS - PREVENTION OF ACCIDENTAL RELEASES - PURPOSE AND GENERAL DUTY" - Although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. **This condition is federally-enforceable only.**

Permit issued this the 22 day of September, 2000.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Wayne Cook

Wayne Cook, Regional Air Quality Supervisor
Division of Air Quality
By Authority of the Environmental Management Commission

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NORTH CAROLINA 28542-0004

BO 5100.20A
BISS/SAFE

12 SEP 1995

BASE ORDER 5100.20A

From: Commanding General
To: Distribution List

Subj: HAZARD COMMUNICATION PROGRAM

Ref: (a) MCO 5100.25
(b) 29 Code of Federal Regulations, Part 1910.1200 (NOTAL)
(c) 29 Code of Federal Regulations, Part 1926.59 (NOTAL)

1. Purpose. The Hazard Communication Program is designed to ensure pertinent data concerning the safe usage of hazardous chemicals is made available to the users of those chemicals as required by the references. The purpose of this Order is to implement a Hazard Communication Program at Marine Corps Base, Camp Lejeune and to set forth responsibility for administration of the program.

2. Cancellation. BO 5100.20

3. Information. The growing list of materials containing hazardous chemicals within the government supply system requires constant vigilance against unsafe handling, mixing, storing and disposal. Exposures to hazardous chemicals may cause or contribute to many serious health problems, such as heart and lung disorders, kidney and liver damage, cancer, sterility, mutation and skin diseases. Some chemicals may also have the potential to cause fire, explosions, or other serious mishaps. It becomes imperative to protect the user, the general public and the environment by regulating the identification, transportation, storage, handling and use of hazardous materials by providing a communication program.

4. Definition. For the purpose of this Order, a hazardous material is any material which because of its quantity, concentration, physical, chemical or infectious characteristics may pose a substantial hazard to human health or the environment when used, released or spilled into the environment. This Order does not apply to any consumer product. A consumer product is any product with which Commanding Officers/Department Heads can demonstrate is used in the workplace in the same manner as normal consumer usage. Industrial strength/professional use only hazardous materials are not to be considered as consumer products. Workers such as office workers, bank tellers, etc. who encounter hazardous materials only in non-routine, isolated instances are not covered by the provisions of this Order.

5. Applicability and Scope. This Order includes, but is not limited to, a written Hazard Communication Program for individual work centers or shops to include:

a. Hazardous Material Inventory List (HMIL). A complete inventory of all material containing hazardous chemicals must be developed and maintained for each shop. The HMIL will include the complete name of the product, manufacturer or distributor and the National Stock Number (NSN) or product identification number. This inventory will serve as a tool in the process of providing the proper materials safety data sheets (MSDS) and hazardous material information to personnel. The HMIL will be cross indexed with the MSDS's to provide easy access to the MSDS in the event of an emergency. The HMIL will be updated when new material is introduced in the workplace and at least quarterly and be maintained in the written program.

b. Material Safety Data Sheets (MSDSs)

(1) The MSDS is written or printed material which is designed to be a source of detailed information on chemical and physical hazards of material used in the workplace. The MSDS includes information on the specific identity of the hazardous product, its physical and chemical characteristics, known acute and chronic health effects and related health information, exposure limits, whether the material is considered to be a carcinogen, precautionary measures for handling, emergency first aid procedures, and the identification of the organization responsible for preparing information. Manufacturers are required to develop a MSDS for each hazardous material they produce and to furnish the appropriate MSDS to purchasers of the hazardous material.

(2) MSDSs for all hazardous material must be readily available to personnel during each workshift.

(Note. Where employees must travel between workplaces during a workshift, the material safety data sheet(s) may be kept at the primary workplace facility.)

c. Labeling

(1) Hazardous material must be clearly identified throughout its history with particular emphasis on identification for the end user. The affixing of appropriate warning labels to containers is the most practical means of accomplishing this objective.

(2) Manufacturers, importers, and distributors are required to ensure that each container of hazardous material shipped to the user is labeled with the identity of the hazardous chemical, appropriate hazard warning (to include target organ effects), and the name and address of the chemical manufacturer or importer.

(3) Existing manufacturers' labels on containers of hazardous materials will not be removed or defaced unless the containers are immediately marked with the required label information as included in paragraph 5c(2) of this Order.

(4) Upon removal from original shipping containers, the individual unit of packages of all hazardous material must be immediately labeled as required in paragraph 5c(2) of this Order. Hazard labels will be provided on each container prior to issue.

(5) Upon transferring a hazardous chemical from a manufacturer's container to an unmarked container; i.e. handheld spray bottle, the unmarked container must be marked or tagged with the identity of the hazardous chemical and the appropriate hazard warnings to include target organ effects, unless the intended use is for the immediate use only of the person performing the transfer.

(6) For relabeling hazardous chemical containers having a National Stock Number, labels are available through the HMIS CD-ROM system.

d. Training

(1) Reference (a) outlines the basic operation and requirements for the Occupational Safety and Health Training Program. The objective of the training program is to reduce the incidence of job-related injuries and illnesses and delineate necessary protective measures. Reference (b) more specifically requires that personnel be provided with information and training on hazardous materials in their work areas at the time of initial assignment and whenever a new hazard is introduced into the work area.

(2) Hazardous material training must cover, at a minimum, information on the requirements of reference (b); the availability and details of this Order, including an explanation of labeling requirements; an explanation of the MSDS, and how personnel may obtain and use the hazard information; the physical and health hazards of specific materials used in the work area; measures personnel can take to protect themselves, including personal protective equipment (PPE), engineering controls of the process, appropriate work practices, and emergency procedures; and methods that may be used to detect the presence or release of hazardous material in the work area. Personnel must also be informed of the hazards of nonroutine tasks that may take place in their work area.

(3) Supervisory personnel will receive a minimum of two hours of documented formal training annually as established by this Order. The training will be designed to prepare supervisors in compliance with the written program, inventory, MSDS and employee training requirements of reference (b).

(4) All personnel involved in handling or use of hazardous material must receive, at a minimum, one-hour initial documented formal hazardous material training. Training must be updated when personnel are assigned to new areas or when shop processes change to introduce new chemical hazards to the work area.

e. Exceptions. A written hazard communications program and chemical list is not required for operations or workplaces where hazardous materials are handled only in sealed containers, such as warehousing and retail sales. In work operations where employees only handle chemicals in sealed containers, this Order applies to these operations only as follows:

(1) Labels on incoming containers of hazardous materials will not be removed or defaced.

(2) MSDSs that are received with incoming shipments of sealed containers of hazardous chemicals will be maintained.

(3) MSDSs will be procured and provided to employees upon request for any sealed containers of hazardous chemicals that may have been received without one and will be made available during each work shift to employees when they are in their work areas.

(4) Employees will be provided information and training to the extent necessary to protect themselves in the event of a spill or leak of a hazardous chemical from a sealed container.

6. Action

a. Assistant Chief of Staff, Logistics

(1) Implement procedures to ensure acquisition and distribution of MSDSs for all hazardous materials procured by DSSC for distribution.

(2) Maintain the HMIS CD-ROM and provide hard copies of MSDSs upon request.

(3) Implement procedures to ensure that all containers of hazardous materials are labeled in accordance with reference (b) prior to issue.

(4) Ensure all service contracts under Logistics' cognizance (Contracting Division) require contractors to maintain on-site MSDSs for hazardous material introduced onto Marine Corps Base, Camp Lejeune, and that contractors comply with the requirements of reference (c) for such materials.

(5) Provide contractors with information pertaining to any hazardous materials or conditions to which they may be exposed while working under contract aboard Marine Corps Base, Camp Lejeune, and access to the appropriate MSDSs when requested.

b. Assistant Chief of Staff, Facilities

(1) Ensure all service and construction contracts under Facilities' Public Works cognizance require contractors to maintain on-site MSDSs for hazardous materials introduced onto Marine Corps Base, Camp Lejeune, and that the contractors comply with the requirements of reference (c) for such materials.

(2) Provide contractors with information pertaining to any hazardous materials or conditions to which they may be exposed while working under contract aboard Marine Corps Base, Camp Lejeune, and access to the appropriate MSDSs when requested.

c. Assistant Chief of Staff, Morale, Welfare and Recreation

(1) Implement procedures to ensure acquisition of MSDSs for all hazardous material purchased by the Morale, Welfare, and Recreation Department.

(2) Coordinate with the Assistant Chief of Staff, Logistics to obtain MSDS information from the DoD HMIS CD-ROM system on National Stock Numbered (NSN) items.

(3) Ensure all service and construction contracts under MWR's cognizance require contractors to maintain on-site MSDSs for hazardous material introduced onto Marine Corps Base, Camp Lejeune, and that the contractors comply with the requirements of reference (c) for such materials.

(4) Provide contractors with information pertaining to any hazardous materials or conditions to which they may be exposed while working under contract aboard Marine Corps Base, Camp Lejeune, and access to the appropriate MSDSs when requested.

d. Assistant Chief of Staff, Installation Security and Safety

(1) Task the Base Safety Manager with monitoring by inspections the overall Hazard Communication Program.

(2) Task the Base Safety Manager to provide technical assistance to Marine Corps Base units, including tenant commands, in developing Hazard Communication Program procedures.

(3) Task the Base Safety Manager with providing assistance to commanding officers and Department heads in training supervisors, collateral duty safety and hazardous material personnel.

e. Commanding Officers/Department Heads

(1) Will identify work operations that require the use, handling, or storage of hazardous chemicals/materials within assigned work areas. Assistance may be obtained from the Industrial Hygiene Service of the Occupational Health and Preventive Medicine Department, Naval Hospital, at extension 2707. Personnel from the Base Maintenance Division should contact the Base Maintenance Industrial Hygienist at extension 3046 for assistance.

(2) Will ensure that a written Hazard Communication Program is compiled for each workplace using or handling hazardous material. Guidelines for providing a written plan may be found in Appendix E of reference (b).

Further assistance may be obtained from the Base Safety Office at extension 2776.

(3) Will provide employees working in operations not requiring a written program information and training sufficient to protect themselves in the event of a spill or leak and ensure that MSDSs are accessible.

(4) Will ensure a comprehensive hazardous material inventory list (HMIL) is compiled and updated as required by this Order for each workplace and the corresponding MSDSs are readily available to the user. Cross reference the HMIL with the respective MSDS for easy accessibility in the event of an emergency. Upon request, provide a copy of the HMIL to Base Safety, Fire, Industrial Hygiene, and Environmental Management personnel in their evaluation of the Hazard Communication Program.

(5) Will ensure that supervisors, collateral duty safety, and hazardous material personnel are trained in the use and interpretation of the Hazard Communication Program to enable them to provide an effective written program for their work areas and that the required training is provided to subordinate personnel. Hazard communication training is available through the Base Safety Office.

f. Directors, Civilian Personnel Division and Non-Appropriated Fund Personnel Division

(1) Provide training support in development and implementation of training programs for all personnel who handle and use hazardous materials.

(2) Maintain the training records for personnel as required by current directives.

g. Supervisors

(1) Supervisors will be aware of material hazards, adverse effects, characteristics and protective measures required for each hazardous material encountered in their work areas. This will be accomplished by frequent review and study of relevant MSDSs.

(2) Shop supervisors will procure copies of MSDSs covering hazardous materials used in their shops either directly from the manufacturer/supplier or, in the case of National Stock Numbered items, through the Hazard Material Information System (HMIS) CD-ROM. MSDSs for Direct Support Stock Control (DSSC) procured items are available through the Assistant Chief of Staff, Logistics.

(3) Shop supervisors will ensure that initial training is provided to personnel newly assigned to their areas. Updates to training due to process changes will be accomplished as necessary by shop supervisors during weekly stand-up safety meetings. Informal training and updating provided by the supervisor must be documented quarterly on a cumulative basis and reported to the Civilian Personnel Division or Non-Appropriated Fund Personnel Division, respectively, for inclusion in the employee's Official Personnel Folder. Training records for military personnel will be retained at the unit level.

(4) Provide and enforce the use of personal protective equipment needed to protect personnel from known or potentially adverse effects of hazardous materials.

(5) Ensure that all containers of hazardous material issued to and used in the workplace are clearly marked with the identity of the contents and appropriate hazard warnings.

(6) Ensure that all process tanks, equipment, and portable containers are clearly labeled with the name of the contents and appropriate hazard information.

(7) Ensure that all personnel read and understand the written Hazard Communication Program, MSDSs, labels, and other hazard information for each respective workplace.

(8) Ensure that a copy of this Order, the written Hazard Communication Program for operations requiring same, and MSDSs for the workplace are readily available to personnel upon request.

(9) Maintain a supply of "Generic" (fill in the blank) hazard labels to be affixed to any container into which a hazardous chemical is transferred from its original container. The label must contain the chemical name, hazard warnings, and identify target organ(s), if appropriate.

Note: The HMIS CD-ROM program provides labels for most National Stock Numbered (NSN) items.

h. Resident Officer-in-Charge of Construction (ROICC). Ensure all service and construction contracts under ROICC cognizance require a conference with the contractor, a Base Safety representative, and the affected shop supervisor prior to the contractor's initiating work within the facility. The meeting will be scheduled for the purpose of informing the contractor of hazardous materials to which their personnel may encounter, and of the appropriate work precautions and protective equipment required. Ensure contracts also require the contractor to maintain on-site MSDSs for each hazardous material the contractor introduces onto Marine Corps Base, Camp Lejeune, and that the contractor complies with the requirements of reference (c) for such materials.

7. Summary of Revision. This Order has been completely revised containing substantial changes and should be reviewed in its entirety.

8. Reserve Applicability. This Order is applicable to Marine Corps Reserves.

9. Concurrence. This Order has been coordinated with and concurred in by the Commander, U.S. Marine Corps Forces Atlantic, the Commanding Generals, II Marine Expeditionary Force, 2d Marine Division, and 2d Force Service Support Group.

P. G. Howard

P. G. HOWARD

DISTRIBUTION: A plus SAFD (10)

UNITED STATES MARINE CORPS
BASE MAINTENANCE DIVISION
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5000

IN REPLY REFER TO:
5100
MAIN
14 Nov 91

From: Base Maintenance Officer
To: Distribution

Subj: STANDING OPERATING PROCEDURES FOR THE MANAGEMENT OF ASBESTOS/CERAMIC FIBER - CONTAINING MATERIAL

Encl: Subject SOP

1. Purpose. To set forth requirements, procedures and safety measures to protect employees and to delinate responsibilities for operations during handling of or working with asbestos and ceramic fiber materials.

2. Cancellation. MO 6260.2

3. Applicability. Requirements apply to all situations where suspected asbestos material is encountered. This is intended to apply to activities such as but not limited to installation, construction, inspection, operation, renovation and maintenance to any building surfacing material, thermal system insulation and equipment suspected of containing asbestos material. This SOP is applicable to all Base Maintenance employees upon receipt and will replace MO 6260.2 which is to be destroyed.

J. D. WINCHESTER

Distribution:
B

STANDING OPERATING PROCEDURES FOR THE MANAGEMENT OF ASBESTOS/CERAMIC FIBER - CONTAINING MATERIAL

1. Background

a. Asbestos is a general term used to describe several fibrous mineral silicates. Although there are many asbestos minerals, only six are of commercial importance. They are chrysotile, amosite, crocidolite, tremolite, anthopyllite and actinolite, of which all are composed of silicates of iron, sodium, calcium and/or magnesium.

b. The most critical exposure to asbestos dust, from a safety/health viewpoint, is in the fabrication, installation, repair or removal of asbestos cement products, fire-proofing, high temperature insulation, asbestos cloth (such as pipe and boiler operations), and friction materials (such as vehicle brake linings and clutch facings). Asbestos is also used as a building insulation material that is usually found in ceilings.

c. The inhalation of excessive amounts of asbestos dust may result in a serious respiratory disease termed "Asbestosis". Asbestosis means fibrosis of the lungs due to inhaled asbestos fibers. Asbestos has also been found to be a factor in the development or carcinoma of the lung(s) and malignant mesothelioma, as well as cancer of the gastrointestinal tract. A long latency period of 20-40 years between first exposure to asbestos and the appearance of a malignancy is frequently noted. The most significant exposure to asbestos dust occurs during the fabrication, installation, repair or removal (rip-out) of asbestos insulation materials, power-sawing of asbestos-containing fire retardant building material, and brake relining and repair work.

d. The word "friable" is intended to distinguish between such materials as vinyl-asbestos floor tile, in which the asbestos fibers are well bound, and such materials as the common types of molded asbestos pipe insulation, in which the asbestos fibers can be readily released.

"Friable asbestos material" is defined as any material that contains more than one percent asbestos by weight, and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure.

e. Ceramic fiber insulating material has been identified by the Environmental Protection Agency as a suspect animal carcinogen. The material is used where high heat insulation is required, such as in boiler fireboxes, steam pits, etc. Until further testing and evaluation is completed, ceramic fiber insulation material is to be treated with the same precautions as pertains to asbestos materials.

2. Scope

a. Procedures and regulations contained in this SOP apply to exposure during any work by the Camp Lejeune Base Maintenance employees. These regulations shall be applied to the following conditions:

(1) Direct Disturbance

(a) Extensive "rip-out" or removal of large amounts of asbestos-containing or ceramic fiber material where full protection must be provided not only to exposed employees, but to all surrounding personnel and areas.

(b) Repair or removal of comparatively small amounts of asbestos-containing material, such as minor repair jobs, lagging on steam lines, brake linings and during encapsulation, enclosure or exclusion projects.

(c) Repair or removal of small amounts of ceramic fiber material in boiler fireboxes or steam manholes.

b. Contractors and private contractor personnel will be required to conform to specifications delineated in the contract, and also to follow the Code of Federal Regulations established by the Occupational Safety and Health Administration.

3. Policy

a. It is BMD policy to eliminate use of asbestos and ceramic fiber material where substitute materials are available and to protect personnel from exposure to asbestos dust (fibers). Asbestos, and materials containing asbestos, will not be used in the construction, overhaul, repair and maintenance of Marine Corps Base buildings, nor will such materials be used in any facility or operational application where suitable alternate materials have been designated. However, in locations where asbestos materials are presently installed, rip-out operations will not be performed for the sole purpose of eliminating asbestos, unless warranted.

b. Proper work practices and engineering controls will be applied to comply with permissible exposure limits for asbestos and ceramic fiber materials. Compliance with permissible exposure limits shall not be achieved by the use of respirators except:

(1) Pending installation of these controls.

(2) Where these controls are technically not feasible to limited extent only, i.e., rip-out.

(3) During emergencies.

4. Responsibilities

a. The Base Maintenance Officer, Branch Directors and supervisory personnel shall:

(1) Ensure that strict adherence to the safety and health requirements established by OSHA, and this section, are followed by supervisors and employees whose work exposes them to asbestos or ceramic fiber.

(2) Provide and maintain facilities and equipment necessary to offer protection to all workers from asbestos and ceramic fiber hazards.

(3) Ensure that the removal of installed asbestos and/or ceramic fiber material is undertaken only by personnel fully aware of the hazards of exposure and trained in the procedures for control.

(4) Ensure personnel engaged in asbestos and/or ceramic fiber work are provided with, and use, proper respiratory protective equipment and protective clothing. NOTE: DISPOSABLE RESPIRATORS SHALL NOT BE USED AS RESPIRATOR PROTECTIVE EQUIPMENT FOR ANY OPERATION INVOLVING ASBESTOS OR CERAMIC FIBER MATERIAL.

(5) Restrict access to asbestos and/or ceramic fiber handling, fabrication, installation, repair and removal areas.

(6) Develop and provide amplifying work procedures as required.

(7) Notify the Industrial Hygienist, Base Maintenance, of all asbestos and/or ceramic fiber operations prior to work commencing.

(8) Develop engineering controls and procedures to eliminate/reduce personnel exposure to asbestos and/or ceramic fiber hazards.

(9) Ensure that engineers, planners and estimators incorporate adequate safety/health precautions into planning for all operations involving asbestos and/or ceramic fiber handling.

(10) Ensure that asbestos-free insulation material is procured according to military standards and that the vendor is provided with correct marking instructions.

(11) Continually monitor insulation material received to prevent inadvertent introduction of asbestos-containing materials into the system.

(12) Identify personnel subject to asbestos and/or ceramic fiber exposure and ensure they receive appropriate training in safe handling practices.

(13) Ensure that fibrous insulation material is appropriately identified as "asbestos free" prior to issuance and stenciled "asbestos free" when installed.

(14) Ensure that preplacement and annual physicals are scheduled and completed for asbestos and ceramic fiber workers, who have documented exposure.

b. Branch Directors and supervisory personnel at all levels shall ensure that the provisions of this and other instructions concerning asbestos and/or ceramic fiber handling are complied with in all operations under their control.

c. The Industrial Hygienist Base Maintenance Division, will, with training and air sampling assistance, as needed, from Industrial Hygiene, Naval Hospital, Camp Lejeune:

(1) Conduct annual training for all workers handling asbestos and/or ceramic fiber materials on the measures of personal protection against exposure.

(2) Train monitors and assist implementation of an effective sampling program of all asbestos work sites designed to evaluate the levels of asbestos and/or ceramic fiber exposure and the adequacy of controls. Report findings to cognizant shops/codes and make recommendations to correct deficiencies.

d. The Industrial Hygienist Base Maintenance, shall establish environment monitoring plans and monitor/inspect work sites to determine that the provisions of this and other instructions concerning asbestos and/or ceramic fiber handling are complied with.

5. Exposure Considerations

a. Time-weighted threshold limits of 0.2 fibers TWA per cubic centimeter (CC) of air for an eight-hour day shall not be exceeded. The short term exposure limit (STEL) of one fiber per cubic centimeter of air for a thirty-minute exposure will not be exceeded. If the exposure reaches the 0.1f/cc TWA medical action level the employee will be placed in the medical surveillance program which includes a chest X-Ray and a termination physical examination. The Industrial Hygienist, Base Maintenance will establish environmental monitoring plan and arrange for required testing and sampling for asbestos. After a rip-out or major disturbance of asbestos or ceramic fiber material, the workplace shall not be released for unrestricted access until the airborne concentration of fibers has been determined to be less than 0.01 fiber per cubic centimeter of air.

b. Personnel shall not be exposed to airborne concentrations of asbestos in excess of 0.20 fibers longer than five micrometers per cc of air for a one-time exposure. Occupants of work areas

involving asbestos shall be evacuated prior to asbestos removal/handling.

6. Training

a. Federal regulations establish the requirement for training of all personnel associated with asbestos handling or work. The training shall also include all employees working with, or disturbing, ceramic fiber material. This training shall include the safety and health precautions needed during asbestos work, the use of personal protective equipment, proper disposal methods and the various engineering control techniques. Refresher training shall be provided. The Base Maintenance Industrial Hygienist shall maintain overall control of the asbestos control training program to assure proper content, worker coverage and periodicity as required for worker understanding and compliance with health and safety requirements. Branch Directors and supervisors shall ensure that each employee has received the required training. The following training must be included:

(1) Protective equipment. Employees shall be trained in the use of all protective equipment, such as protective clothing, respirators, compressed air supply, protective masking and disposal procedures. Employees must be trained in the use, car and maintenance of respirators of the type that will be in use. No employee shall be assigned to tasks requiring the use of respirators if, based upon their most recent medical (respiratory) evaluation examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee, or other employees, will be impaired by their use of a respirator.

(2) Procedures for handling asbestos and/or ceramic containing material. Employees must be trained in the procedures prescribed by this SOP and pertinent directives for the handling of asbestos and/or ceramic fiber containing materials.

b. All personnel, including supervisors who could incidentally come in contact with asbestos and/or ceramic fiber-containing materials, shall be informed of the potential risk and proper handling procedures.

8. Action. All concerned personnel shall fulfill their responsibilities as prescribed in this SOP and shall ensure that the requirements, controls and procedures are met and followed. The provisions of this SOP and Federal regulations are considered minimum health and safety requirements.

Section I

REQUIREMENTS, CONTROLS AND PROCEDURES FOR EMPLOYEE PROTECTION WHILE WORKING WITH ASBESTOS AND/OR CERAMIC FIBER

1. General. This section contains the requirements, controls and procedures that are applicable for Base Maintenance personnel working with asbestos and/or ceramic fiber containing materials. These shall be considered minimum requirements and all necessary efforts must be applied to avoid hazards to personnel. Any questions or uncertainties should be immediately referred to the Industrial Hygienist for resolution/clarification.

2. Planning

a. Operations involving asbestos or ceramic fiber shall be segregated from other work in order to avoid the exposure of other workers to airborne dust hazards. If work cannot be separated, all personnel exposed within the posted control perimeter shall comply with all the requirements of this order. All other personnel shall be restricted from the work area, which shall be conspicuously posted/roped.

b. The Work Center Supervisor performing above operation shall:

(1) Ensure that a sufficient supply of approved signs and labels are maintained:

a. Caution Signs and Labels

1. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos or ceramic fibers may exceed the permissible exposure concentration. Signs shall be posted at such a distance from such a location so that personnel may read the signs and take necessary steps before entering the area marked by the signs. Signs may be sized to suit the particular occasion. A listing or required protective equipment may be attached to, or part of, the sign. The following criteria represent the minimum requirements: caution signs shall conform to the general requirements of 20 inch by 14 inch vertical format signs, as specified in 29 CFR 1910.145 (d) (4). The sign shall display the following legend in the lower panel, with letter sizes and styles of visibility at least equal to that specified in this sub-division.

LEGEND	NOTATION
Asbestos	1" Sans Serif, Gothic, or block
Dust Hazard	3/4" Sans Serif, Gothic, or block
Avoid Breathing Dust	1/4" Gothic
Wear Assigned Protective Equipment	1/4" Gothic
Do Not Remain in Area Unless Your Work Requires It	1/4" Gothic
Breathing Asbestos Dust May be Hazardous to Your Health	1/4" Point Gothic

Spacing between lines shall be at least equal to the height of the upper of any two lines.

2. Caution labels shall be affixed to containers of raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers if, in the foreseeable use, handling, storage, disposal, processing or transportation of these items, which might constitute a threat to worker health. The caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause

Serious Bodily Harm

(2) Ensure that a sufficient supply of polyethylene sheeting and plastic bags for waste, protective clothing and approved respiratory equipment are available.

(3) Notify support shops of planned operations and needs, e.g., electrical, carpentry, monitoring, personnel qualification, etc.

(4) Ensure sufficient personnel are available with current training and medical qualifications.

(a) Ensure that employees vacuum their disposable clothing using a HEPA Vacuum prior to removing them.

(b) Instruct employees on proper procedures for disrobing of disposable coveralls which includes rolling/folding the material in a way as to preclude unnecessary release of fibers to the atmosphere.

(c) Ensure that contaminated non-diposable clothing are placed in the proper containers and that employees take a shower prior to putting on their street clothes.

c. The shop performing any asbestos or ceramic fiber operations shall notify the Base maintenance Industrial Hygienist prior to beginning work (for emergencies as early as possible) and provide the following information:

(1) Description of building - including building number or nearest building, station and use of structure (administration, industrial, classroom, etc.).

(2) Scheduled start and completion dates.

(3) Estimated quantities to be removed (e.g. linear feet of pipe insulation or square feet of fireproofing or other insulation).

(4) All employees shall be made aware of all applicable Federal regulations and this SOP.

Section II

PROCEDURES FOR INSULATION REMOVAL BY UTILITIES BRANCH PERSONNEL

1. Purpose. This Section and Section I provided procedural guidance and training requirements for Utilities Branch personnel engaged in removing insulation from electrical cables/steam lines for repairing and/or testing purposes. Employees attached to the Structural Trades Shop, Maintenance and Repair Branch, do not have the expertise necessary to perform work on steam lines/electrical circuitry, especially in manholes, unless a complete power outage is arranged. Since restoration of services must be expedited when emergency outages occur, it is essential that the Utilities Branch personnel be trained and instructed in the safe removal of insulation, including asbestos compositions.

2. Responsibility. The Director, Utilities Branch, will be responsible for ensuring that only trained personnel are assigned work involving the disturbance/removal/replacement of electrical cable/steam line insulation within manholes. Special training concerning the safe handling/removal of asbestos material shall be given prior to the initial handling/removal assignment, and thereafter annually. This training shall be arranged and scheduled by the Base Maintenance Industrial Hygienist and a record of the training be retained in the Administration Branch, Base Maintenance.

3. Action. High voltage electricians and pipefitters attached to the Utilities Branch shall follow the procedures listed below when engaged in removing/disturbing steam/electrical insulation in manholes:

a. Be properly trained in the procedures required for handling asbestos products.

b. Be evaluated (screened) by the Base Maintenance Industrial Hygienist for the Asbestos Medical Surveillance Program.

c. Employees shall never work alone when performing tasks involving electrical manholes.

d. Employees shall wear disposable coveralls, and cotton and surgical gloves.

e. Employees shall tape the glove to overall sleeves to prevent entry of asbestos fiber.

f. Employees must have been fit-tested for a negative pressure respirator within the preceding six months and must use only the type and size respirator and cartridge as stated on the fit-test card.

g. All material to be removed must be thoroughly wetted prior to removal with amended water in a mixture specified by the manufacturer.

h. Material removed must be placed in a double plastic bag which shall be sealed and identified as containing asbestos waste material. Waste asbestos products shall be placed in the asbestos material approved dump site at the sanitary landfill.

i. The Industrial Hygienist Base Maintenance shall be responsible for environmental and personal monitoring. Industrial Hygiene, Naval Hospital will provide, upon request from Industrial Hygienist Base Maintenance, breathing zone-monitoring of work in progress.

j. Locking, tagging and grounding of electrical circuitry/steam lines and components shall be in accordance with Federal regulations.

SECTION III

PRECAUTIONARY MEASURES FOR THE PREVENTION OF POTENTIAL ASBESTOS EXPOSURE

Numerous building and facilities on the Marine Corps Base, Camp Lejeune, contain asbestos materials. In order to safeguard the health of our employees, timely identification of the asbestos material is important in order that appropriate removal or encapsulation action can be initiated. It is expected that most of the material identification will occur during the planner/estimator (P&E) phase for specific and minor work jobs. Sound judgement must be used in order to prevent unnecessary exposures and or work stoppages. Areas listed below are to be considered asbestos-suspect until proven otherwise by scope analysis. This list is not all-inclusive and the Industrial Hygienist Base Maintenance is to be notified when in doubt. Only personnel previously trained and qualified shall take bulk samples. Coordinators and first line supervisors are responsible for ensuring employees are working in a safe environment. Inadvertent disturbance of asbestos-containing materials shall prompt an immediate work stoppage until the area is declared safe to re-enter. All work involving rip-outs is to be considered asbestos-suspect until proven otherwise.

PARTIAL LISTING OF ASBESTOS SUSPECT AREAS

1. Machinery rooms
2. Boiler rooms/hot water tanks
3. Building crawl spaces/attics
4. Pressure and condensate lines servicing steam space heaters
5. Areas above dropped ceilings in administrative spaces
6. All buildings/structures
7. Wooden fire doors
8. Sprayed on ceiling materials
9. Exterior asbestos roof shingles and siding
10. Wall and ceiling plaster in building and housing constructed prior to 1975.

The Base Maintenance Industrial Hygienist shall be contacted concerning questions and/or guidance in complying with the above.

Employees who have been subject to exposure to airborne asbestos fibers shall be directed to report to the Base Maintenance Industrial Hygienist, Bldg 1202, for interview and a determination made for possible inclusion in the Asbestos Medical Surveillance Program. This does not apply to employees that are already in the Surveillance Program.

Asbestos and products containing asbestos are prevalent throughout most of the Marine Corps Base, Camp Lejeune. In order to safeguard the health of our employees, it is necessary that the following procedures be strictly complied with:

1. If asbestos is suspected within the work area, stop the work in progress, clear the area, and immediately notify the first line supervisor, the foreman, and Industrial Hygienist Base Maintenance.

2. Work shall not resume until samples taken by the Industrial Hygienist have been identified as non-asbestos or until material identified as asbestos has been removed or properly encapsulated by Base Maintenance insulators.

3. Employees who have not been trained in sample-taking procedures shall not take bulk material samples and/or deliver bulk material samples to the Industrial Hygienist for identification.

4. Employees who inadvertently become potentially exposed to friable asbestos in the course of their work shall immediately notify their first line supervisor.

5. Employees with a history of exposure to airborne friable asbestos are advised to report to the Base Maintenance Industrial Hygienist, Bldg 1202, for an interview and a determination made for possible inclusion in the Asbestos medical Surveillance Program. Employees must have their supervisor's permission to leave their work areas.

The Industrial Hygienist Base Maintenance Shall provide additional information on asbestos-related inquiries, as warranted.

UNITED STATES MARINE CORPS
BASE MAINTENANCE DIVISION
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5000

IN REPLY REFER TO:
5100
MAIN
20 Nov 91

MEMORANDUM

From: Base Maintenance Officer
To: Distribution

Subj: STANDING OPERATING PROCEDURES FOR HEAT STRESS MANAGEMENT

Ref: (a) 29 CFR 1910.20
(b) DHHS (NIOSH) Publication NO 86-113
(c) MCO 6200.1D

Encl: (1) Essential Information for Prevention and First Aid for Heat Stress/Casualties
(2) Marine Corps Base Heat Condition Flag Warning System

1. Purpose. To provide information on the types, causes, recognition and treatment of heat stress/casualties, enclosure (1), references (a) and (b), and to provide shop supervisors with the instructions necessary to regulate physical activities to lower the incidence of heat stress, enclosure (2).

2. Cancellation. MO 6200.1.

3. Application. The Wet Bulb-Globe Temperature Instrument (WBGTI) is used by Marine Corps Base as a measuring standard for the amount of physical activity during warm weather, reference (c). The WBGTI combines shade air temperature, radiation, humidity, and wind into a single value.

During warm weather it is the shop supervisor's responsibility to ensure that the work scheduling/physical activities do not exceed the heat condition flag warning parameters for that period of time.

J. D. WINCHESTER

Distribution:
B

ESSENTIAL INFORMATION REGARDING PREVENTION AND FIRST AID FOR HEAT STRESS/CASUALTIES

1. Body Heat and Environment

a. The human body uses energy in its vital process and in doing work. This energy becomes heat that, at ordinary temperatures, is transferred from the body to the environment. When the environment becomes as warm as the skin, this is no longer possible. When the temperature of the environment is higher than that of the skin, the process is reversed and the body begins to gain heat.

b. When the body cannot lose heat to the surrounding environment, it begins sweating. As sweat evaporates transferring heat from the body to the surrounding air, the body is cooled and normal body temperature is maintained.

c. Sweating causes loss of body water and salt. This loss upsets the heat regulating mechanisms of the body. Improper heat regulation in the body can cause an individual to become a heat casualty.

2. Types, Causes, Symptoms, and First Aid

a. There are three basic types of heat casualties: (1) heat cramps, (2) heat exhaustion, and (3) heat stroke. Heat exhaustion may progress into heat stroke. Heat stroke is the most serious of the heat conditions and, unless promptly treated, may result in death or permanent brain damage. Heat stroke is a true medical emergency.

b. Heat cramps may occur as an isolated condition with normal body temperature or along with heat exhaustion. Heat cramps may occur in a small area of the body or involve a large area when major muscle groups have been stressed. Most frequently involved are muscles of the arms, legs or abdomen.

c. The symptoms of the two most serious conditions, heat exhaustion and heat stroke, are different and easy to recognize. The major differences are in the condition of the skin. Heat exhaustion causes the skin to be sweaty, cool, and pale. Heat stroke causes the skin to be unusually dry, hot, and flushed.

d. The types, causes, symptoms, and first aid treatment for the most serious types of heat casualties are as follows:

(1) Heat Exhaustion

CAUSE: Exposure to high temperature and humidity. Solar heat is also an important factor. Prolonged work, recent arrival in hot climate, and too much clothing.

SYMPTOMS: Shortness of breathe, feeling of illness, headaches, weakness, dizziness, blurred vision, nausea, and muscle cramps may occur. After onset the casualty will generally have a pale, cool, wet skin.

FIRST AID: (1) Send for medical aid.

(2) Place casualty in a cool, shady place with circulating air.

(3) Lay casualty down with head level or lower than feet.

(4) Loosen clothing and equipment.

(5) If casualty is conscious, give liberal quantities of water in small sips.

(2) Heat Stroke

CAUSE: Exposure to high temperature and humidity coupled with the body's inability to sweat. Solar heat is also an important contributing factor. Prolonged work, recent arrival in hot climate, and too much clothing. When sweating stops, the temperature of the body rapidly builds to dangerous levels.

SYMPTOMS: Lack of sweating, weakness, headache, dizziness, loss of appetite, nausea, shortness of breath, faintness, or even collapse may occur. ONSET IS SUDDEN, and will be recognized by convulsion, delirium, or loss of consciousness. The skin will be flushed, hot, and dry. DEATH/BRAIN DAMAGE MAY OCCUR IF BODY TEMPERATURE IS NOT LOWERED.

FIRST AID: (1) Send for medical aid.

(2) THE PRIMARY CONCERN IS TO LOWER BODY TEMPERATURE AS QUICKLY AS POSSIBLE.

(3) Move casualty to a cool, shady place with circulating air. DO NOT attempt to make the casualty drink.

(4) Loosen clothing and equipment.

(5) Apply cool water or ice water to entire body. Be careful to avoid the nose and mouth.

(6) Fan patient constantly to promote cooling of the body by evaporation of applied water.

3. How to Avoid Becoming a Heat Casualty. The human body contains a great deal of water and considerable salt. Sweating causes the body be "weaned" away from water or trained to do without salt.

4. Prevention. Follow these rules to avoid heat exhaustion and heat stroke during hot weather:

a. Encourage employees to drink water frequently and to drink as much as they need. Infrequent large intakes may lead to stomach distention, vomiting, or cardiac problems. When working on their own, individuals should drink water when they need it and drink all they desire. Needs may range from two quarts to three gallons a day in a shop situation, but may increase to five gallons a day when performing heavy work in hot weather. In fact, the need for water may exceed the desire. Ideally, personnel should drink until their urine becomes clear or a very pale yellow.

b. Stay away from cold drinks while still sweating.

c. The average diet provides the necessary daily salt requirements. Salt tablet should be avoided.

d. Personnel should wear headgear in the sun and remember that light, loose clothing will actually defect the sun's heat.

e. Personnel who get sick or dizzy in hot weather should rest. DON'T OVERDO.

f. If an individual stops sweating - GET PROMPT MEDICAL AID.

g. Poor physical condition, lack of muscle tone, obesity, alcoholic indulgence, and lack of sleep increases susceptibility to heat illnesses.

5. Controlling Heat Casualties

a. Personnel who are not accustomed to physical activity under conditions of high temperature are particularly susceptible to heat injury. This is especially true of individuals who are 10 pounds or more overweight, or in whom a circulatory or sweating deficiency is noted. Conditions of high humidity and solar heat increase the possibility of heat injury.

b. Work assignments for personnel who are climatically and/or physically deficient should be limited in intensity and time. A breaking-in period of from two to three weeks with progressive degrees of physical exertion and heat exposure will suffice for achieving acclimatization. During this period, the workload should be increased gradually but not to the point of exhaustion or to the point where personnel will be unduly fatigued the following day. Until acclimatized, personnel will

lose greater than normal quantities of water. These water losses must be replaced.

c. Although acclimatization increases tolerance for heat, it does not make an individual immune to becoming a heat casualty. Overexertion can lead to heat illness even in mild weather.

d. Special provisions must be made for individuals who are overweight or have problems with sweating and/or blood circulation.

6. Water and Salt Intake

a. Water intake must be sufficient to replace that lost by sweating. During physical activity in hot weather, this will require an allowance of up to one pint of water per man per hour if heat exhaustion is to be avoided. Personnel should be encouraged to drink water in small, frequent installments.

b. Salt replacement is normally adequate through a regular diet, and the taking of supplemental salt is not recommended. Salt in concentrated form is not absorbed into the system readily and may upset normal body chemistry and cause gastric irritation or nausea.

7. Rest, Sleep, and Recreation During Acclimatization Periods

a. During red and black flag conditions, schedules will call for a 10-minute break every other hour. The 30 minutes immediately after the noon meal should be devoted to less strenuous activities. Seven hours of sleep per 24-hour period is the minimum recommended for general efficiency.

8. Treatment Stations. If an emergency situation occurs, phone 911 for medical assistance.

9. Previous and Intercurrent Illness. Susceptibility to heat injury is greatly enhanced by illness, infections, or any febrile condition including reactions to immunizations. A previous history of heat stroke, vascular disease, or skin trauma such as heat rash, acute sunburn, or any condition affecting sweat secretion or evaporation increases the risk of heat injury. These cases call for special consideration by a physician.

Marine Corps Base Heat Condition Flag Warning System

1. Heat conditions, determined by the WBGTI, are used in implementing a Flag Warning System to help prevent heat stress/casualties. The flags used in the system are green, yellow, red, or black and are used to represent, respectively, the least severe condition, increasing to the most severe condition. These flags will be prominently displayed by all commands so that every person can see them. As a supervisor, if you are in an area where a flag is not readily visible, phone 1717 and request the flag color.

a. Instructions for Use of Heat Condition Flag Warning System. Where the WBGTI reaches the temperature indicated in the parentheses below, the corresponding flag will be raised. For example, a WBGTI reading of 86 degrees F requires that a yellow flag be raised.

(1) Green Flag (WBGTI of 80 degree F to 84.9 degree F). Heavy physical activity for unacclimatized personnel will be conducted with caution under constant observation.

(2) Yellow Flag (WBGTI of 85 degree F to 87 degree F). Strenuous physical activity will be suspended for unacclimatized personnel in their first two or three weeks. Outdoor activities in the direct sunlight are to be avoided if of long duration.

(3) Red Flag (WBGTI of 88 degree F to 89.9 degree F). All physical activity of long duration will be halted for those personnel who have not become thoroughly acclimatized by at least 12 weeks of living and working in this area. Those personnel who are thoroughly acclimatized may carry on limited activity not to exceed six hours per day.

(4) Black Flag (WBGTI of 90 degree F and Above. All strenuous, nonessential outdoor physical activity will be halted for all shops. Essential activities are defined as those activities which may causes undue burden on personnel or resources, be excessively expensive, or significantly reduces Base Maintenance's assigned tasks. Essential outdoor physical activity will be conducted at a level that is commensurate with personnel acclimatization and physical capabilities in coordination with the Occupational Health Clinic, x2181, medical staff personnel. If a supervisor has any reason to doubt an employee's physical capabilities or acclimatization, they are to contact the Occupational Health Clinic, x2181, medical staff for a medical determination. All efforts should be made to reschedule these activities during cooler periods of the day.

b. Wearing Tyvek protective clothing and heavy coveralls, in effect, adds 10 degrees F to the measured WBGTI. Heat conditions will be adjusted accordingly.

UNITED STATES MARINE CORPS
BASE MAINTENANCE DIVISION
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5000

IN REPLY REFER TO:
5100
MAIN

MEMORANDUM

From: Base Maintenance Officer
To: Distribution

Subj: STANDING OPERATING PROCEDURES FOR THE RESPIRATORY PROTECTION PROGRAM

Ref: (a) 29CFR 1910.134

Encl: (1) Subject SOP

1. Purpose: To promulgate a viable respiratory protection program in compliance with the reference. Base Maintenance shall maintain an ongoing Respiratory Protection Program to ensure that the life and health of employees are safeguarded when they are required to work in areas requiring respiratory protection. This program SOP provides for proper training in selection, fitting, use and care of respiratory protection equipment.

2. Cancellation: MO 6260.1A

3. Applicability. It is the policy of the Base Maintenance Division to provide safe and healthy working conditions. To the maximum extent possible, potential health hazards shall be eliminated or reduced to acceptable exposure levels by administrative/engineering methods and controls. In work situations where it is not possible to reduce exposure to acceptable levels, personnel shall be protected by the use of respiratory protective equipment selected for the particular hazard involved by the respiratory protection program manager. This SOP shall apply to all Base Maintenance employees upon receipt.

J. D. WINCHESTER

1. Responsibilities

a. The General Foreman and Shop Supervisor shall:

(1) Ensure that all employees who may be exposed to or required to work in contaminated/oxygen-deficient areas are properly trained in the recognition of such conditions and in selection, proper use and care of the required protective devices. Ensure these employees have in their possession a respirator card with last respiratory physical and type of respirator they have been fit tested to wear.

(2) Ensure that employees whose work may potentially expose them to hazardous airborne contaminants and/or oxygen-deficient atmospheres are provided with the correct respirator or SCBA suitable for protection against the hazard involved. If there are any questions, contact the Industrial Hygienist at x3046.

(3) Ensure assignment of respirators to individuals for their exclusive use, where practical. Employees shall be trained to clean, inspect, and store respirators as described in paragraph 2.

(4) Ensure that respirators are not worn by persons with beards, long sideburns, missing dentures or other obstacles that may prevent a good face seal and thereby endanger life or health.

(5) Ensure that only National Institute of Occupational Safety and Health (NIOSH) approved respirators are procured and issued to employees.

(6) Prior to assigning employees to jobs requiring the use of respiratory protection devices, ensure employees have received medical certification and fit testing training as indicated on their respirator card.

(7) Ensure that the person responsible for issuing respirators and/or cartridges has been adequately trained as to the correct respirator/cartridge to be issued. Furthers, that they be required to durably mark a respirator issued for the exclusive use of an individual with the recipients name and social security number.

(8) Ensure that, when not in use, respirators are properly stowed outside of the contaminated work area that requires the wearing of the respirator.

(9) Ensure that when employees are working in areas immediately hazardous to life or health, appropriate stand-by personnel and equipment are provided, as outlined in standard operating procedures and safety regulations.

(10) Ensure that information contained in paragraph 5 of this SOP is prominently displayed in tool rooms that issue respirators/cartridges and tool room attendants are cognizant of its contents.

b. The Base Maintenance Industrial Hygienist shall:

(1) Establish and maintain an instruction and training program which will provide adequate training in the selection, proper use, care, fit testing and limitations of respirators.

(2) Make, or cause to be made, a annual visual inspection of respirators/SCBA that are pre-stationed for emergency use and shall record the results and take corrective measures as necessary. Further, operating instructions shall be posted at the site of the emergency-use respirators.

(3) Incorporate the information shown in paragraphs 2 and 3 into the Respirator Training Program.

(4) Provide work place surveillance to determine the conditions and the degree of employee exposure.

(5) Request the services/assistance of the Industrial Hygienist, at Industrial Health, Building 65, for air monitoring, asbestos identification, technical assistance involving respirator fit testing.

(6) Provide a test atmosphere for wearing of respirators as part of the fit test.

(7) Monitor and review the efforts of the General Foreman and Shop Supervisor program; cause corrective action to be taken where required.

2. <u>Respirator-cleaning, Inspection and Storage</u>

a. Cleaning

(1) Remove cartridges, inhalation flaps.

(2) Wash with detergent in warm water with brush, not to exceed 120 degrees Fahrenheit.

(3) Follow with disinfection rinse (immerse for two minutes in 1% bleach).

(4) Thoroughly rinse in clean water to remove detergent.

(5) Air dry in clean place; do not use shop air to dry.

(6) Allow to dry by hanging from wire, inside steel storage cabinet with good air circulation.

b. Inspection

(1) Reassemble respirator in area separate from disassembly area to avoid contamination.

(2) Visually inspect respirator for the following:

(a) Cleanliness, detergent residue

(b) Cracks, tears, holes

(c) Distortion of respirator face-piece

(d) Cracked, scratched, loose fitting lenses

(e) Head straps broken or torn

(f) Loss of elasticity in head straps

(g) Broken of malfunctioning buckles

(h) Missing of defective valve cover or seat

(i) Condition of cartridge (threading, cracks, dents, service life)

(j) Cracks or holes in airline hose

(k) Missing or broken hose clamps

(l) Broken or missing end connection

c. Storage

(1) Place respirator in heat-sealed or resealable plastic bag.

(2) Store with respirator in normal position to prevent distortion or "taking a set".

(3) Store in rigid container such as wall locker, steel cabinet; not in tool box or maintenance cabinets.

(4) Protect respirator from dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, and/or mechanical damage.

3. <u>Types and Characteristics of Respirators</u>

a. Particulate-removing respirators (mechanical filter respirators): Protection against nonvolatile airborne particles in the forms of dust, fume, spray, and mist. They DO NOT provide protection against vapors, gases, or an oxygen deficiency and they should not be used against particulates that hydrolyze or decompose to release a noxious vapor or gas. They should not be used for protection during shot or sand blasting operations which involve exposure to very high concentrations of abrasive and rapidly airborne particulate.

The respirator filter may be designed for protection against one or more than one specific type of airborne particulate - dust, fume, sprays, and mist. Usually the filters are replaceable but in some cases are a permanent part of the respirator. Extreme care must be taken in selecting the proper type of filter for the intended operation.

b. Chemical cartridge respirators: Consist of one or two small cartridge-shaped containers of granular absorbents or catalysts attached to a half-mask face piece or a full face-piece. They protect against low concentrations of vapors or gases that are not immediately dangerous to life. They do not protect against airborne particulate or an oxygen deficiency. Cartridges for this respirator must be carefully selected.

c. Combination particulate removing and chemical cartridge respirators: Offers respiratory protection against both airborne particulates and low concentrations of vapor and gases.

d. Airline respirators: A compressor or tank is used to supply respirable air through a small diameter hose to the wearer of an airline respirator. There are two modes of air flow for airline respirators: continuous, and pressure-demand. The "pressure-demand" supplies air until a predetermined air pressure is established in the respirator-inlet covering and then supplies additional air when the wearer inhales to maintain a positive pressure in the respirator-inlet covering continuously even when the wearer exhales. The "continuous" flow type is approved for use with a tight-fitting respirator-inlet covering such as a half-mask face-piece or a full face-piece and also with a loose fitting covering such as a helmet or hood. Pressure demand are for use only if equipped with a tight fitting respirator-inlet covering.

An airline respirator with a respirator-inlet covering which has a direct mouth or nose connection will not be approved for use. The airline respirator is considered to be the most versatile type of respirator because it can be used against a wide variety of contaminants, both particulate and gaseous but the wearer's dependency upon an external source of air, limits the use of an airline respirator. They are light in weight, comfortable to

wear, offer little or no breathing resistance, and the flow of air to the respirator-inlet covering usually provides a cooling and refreshing effect. An airline respirator may be worn for long periods of time without appreciable discomfort.

e. Self-contained breathing apparatus (SCBA): A respirator which employs a self-contained supply of air, oxygen, or oxygen-generating material carried by the wearer to provide him with a respirable atmosphere. All offer protection against irrespirable vapors, gases, particulates, or combinations thereof in any concentration and against any degree of oxygen deficiency.

f. Disposable respirators: These respirators are generally used as protection against nuisance dusts in small concentrations. They are designed to be discarded at the completion of the workday or task. Disposable respirator wearers must also be trained in the use thereof. Disposable respirators shall not be used for protection against asbestos or ceramic fibers regardless of the concentration.

4. Selection Chart for Respiratory Protection

Hazard	Respirator
Atmospheres immediately dangerous to life and health (IDLH) or oxygen-deficient atmospheres	A Positive Pressure Self-Contained Breathing-Apparatus (SCBA) or an airline respirator with an escape SCBA tied into the airline system
Atmosphere not IDLH	PAPR respirators full face piece or half-mask chemical/ HEPA cartridge respirator/ airline respirator

5. Issuing Instructions for Respirators and/or Cartridges

a. Personnel wishing to obtain a respirator or cartridge must have in their possession a valid card indicating the make and model of respirator for which the individual has been fit tested.

b. Tool room attendant shall not issue a respirator or cartridges other than that described on the employee's information/physical card.

c. Substitution of respirators or cartridges without the express approval of the Industrial Hygienist is strictly prohibited.

Steam Generation
Shop 81

Memo

To: All Shift Foremen and Operators

From: E.L. Humphrey, BPO Supervisor-II

CC: T. Brownley

Date: Tuesday, August 29, 2000

Re: Running the emergency generators at manned plants

All Boiler Operators:

Starting today Tuesday, August 29, 2000, the emergency generators at AS-4151, BB-9,

M-625 and G-650 are to start running the generator on Tuesdays on 8/4 shift and put the plant on generator power for approximately 1 hour. We need to run the generators in this manner so as to extend the life of our emergency generators. The personnel that take care of our equipment recommend this procedure.

I want the operators to log in the comment section of the log sheet what time the unit was run and also log in the generator log. If you cannot get the generator to run I want and emergency ticket called in to have unit fixed.

I tested all the units at the above-mentioned plants on today's date and all units worked properly.

If you have any questions please give me call at 451-9562.

Thanks,

E. Humphrey, BPO Supervisor-II

PROCEDURES FOR USING EMERGENCY GENERATOR G-650

STEP 1. WHEN COMMERCIAL POWER FAILS , SWITCH OFF THE MAIN BREAKER INSIDE STEAM PLANT AT POWER PANEL.

STEP 2. GO TO POWER PANEL NEXT TO GENERATOR (GRAY PANEL) SWITCH RED HANDLE FROM COMMERCIAL TO GENERATOR POWER.

STEP 3. CHECK AND MAKE SURE BREAKER IS OFF ON SIDE OF GENERATOR UNIT. (BREAKER UNDER SIDE COVER OF UNIT)

STEP 4. START GENERATOR BY PLACING SWITCH TO RUN POSITION. (LOCATED UNDER FRONT COVER OF UNIT.)

STEP 5. AFTER UNIT STARTS AND IS RUNNING SMOOTH, PLACE BREAKER IN THE ON POSITION LOCATED UNDER SIDE COVER OF UNIT.

STEP 6. ENGAGE MAIN BREAKER SWITCH TO ON POSITION INSIDE OF PLANT LOCATED ON MAIN POWER PANEL.

STEP 7. PLANT CAN NOW BE OPERATED ON GENERATOR POWER.

PROCEDURES FOR SHUTTING OFF EMERGENCY GENERATOR G-650

STEP 1. SHUT OFF MAIN BREAKER AT POWER PANEL INSIDE OF PLANT

STEP 2. SWITCH OFF BREAKER UNDER SIDE COVER OF GENERATOR UNIT

STEP 3. SHUT OFF GENERATOR BY PLACING THE ON-OFF SWITCH TO THE AUTO POSITION.

STEP 4. SWITCH THE RED CONTROL HANDLE ON TRANSFER SWITCH FROM GENERATOR POWER OF COMMERCIAL POWER.(GRAY PANEL NEXT TO GENERATOR UNIT)

STEP 5 SWITCH MAIN BREAKER ON AT THE MAIN POWER PANEL INSIDE STEAM PLANT.

STEP 6. PLANT CAN NOW BE RESTARTED USING COMMERCIAL POWER.