

SPCC PLAN
U.S. MARINE CORPS BASE
CAMP LEJEUNE
JACKSONVILLE, N.C.

1978

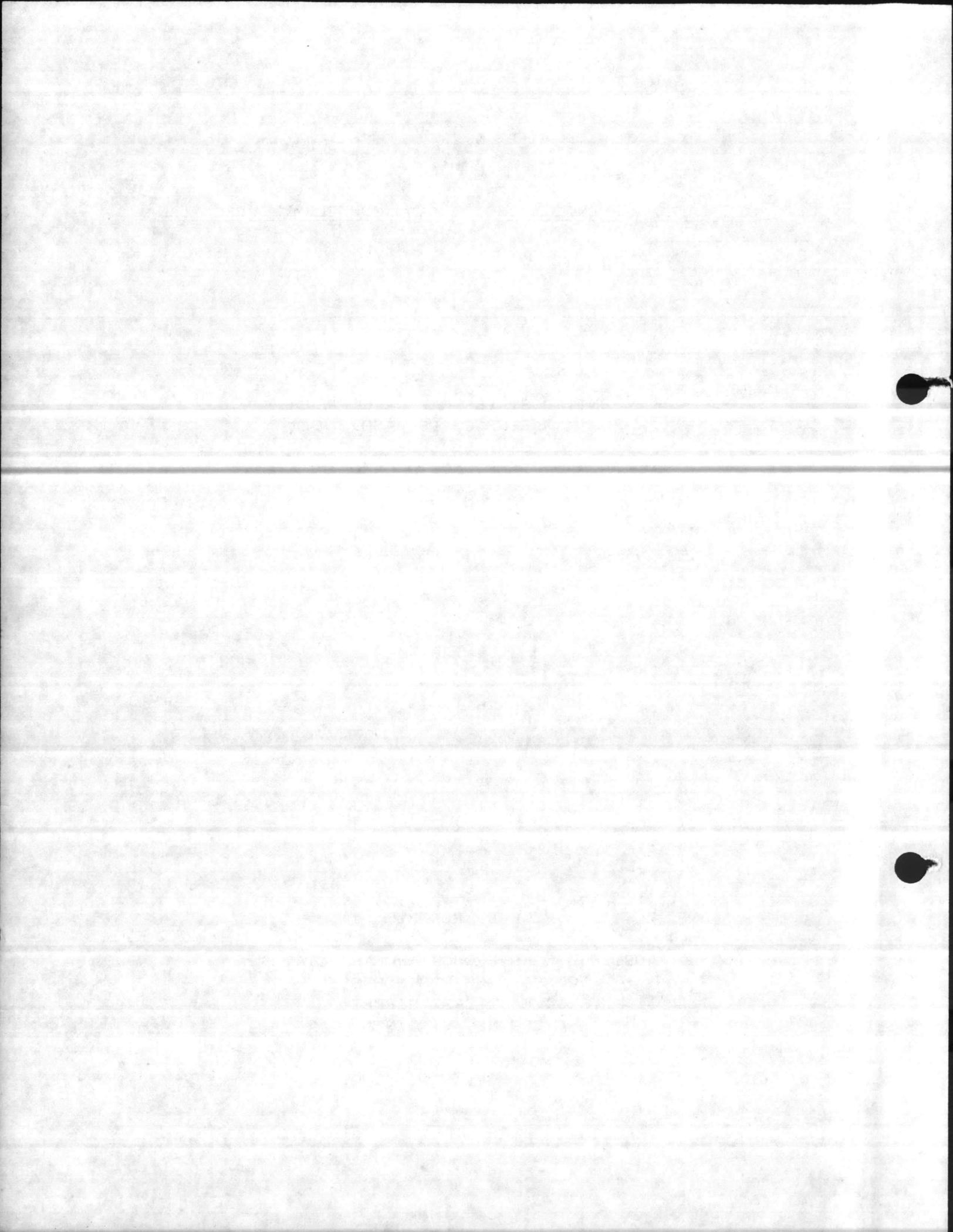
OIL SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LeJEUNE
JACKSONVILLE, NORTH CAROLINA

MARCH 1, 1978

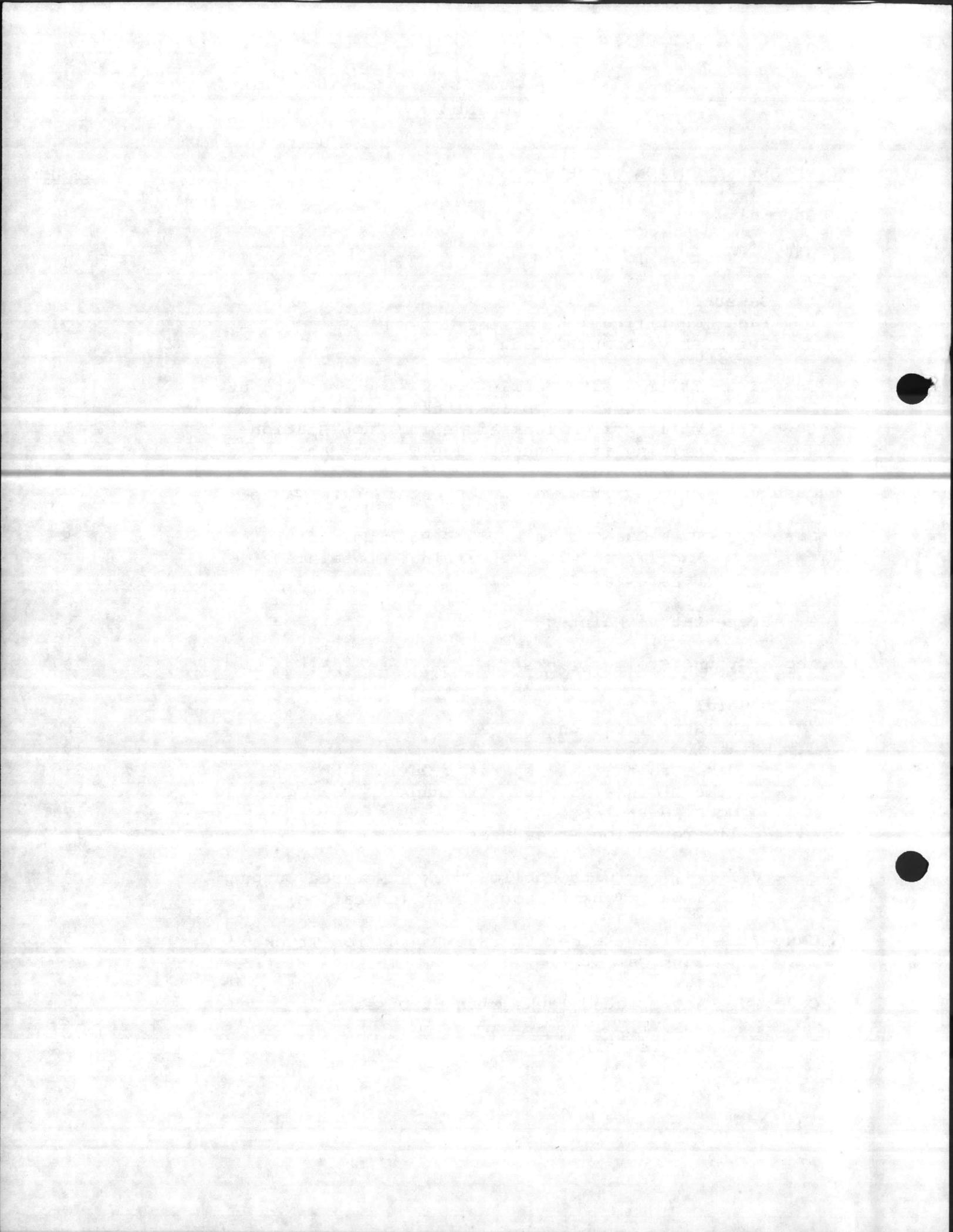
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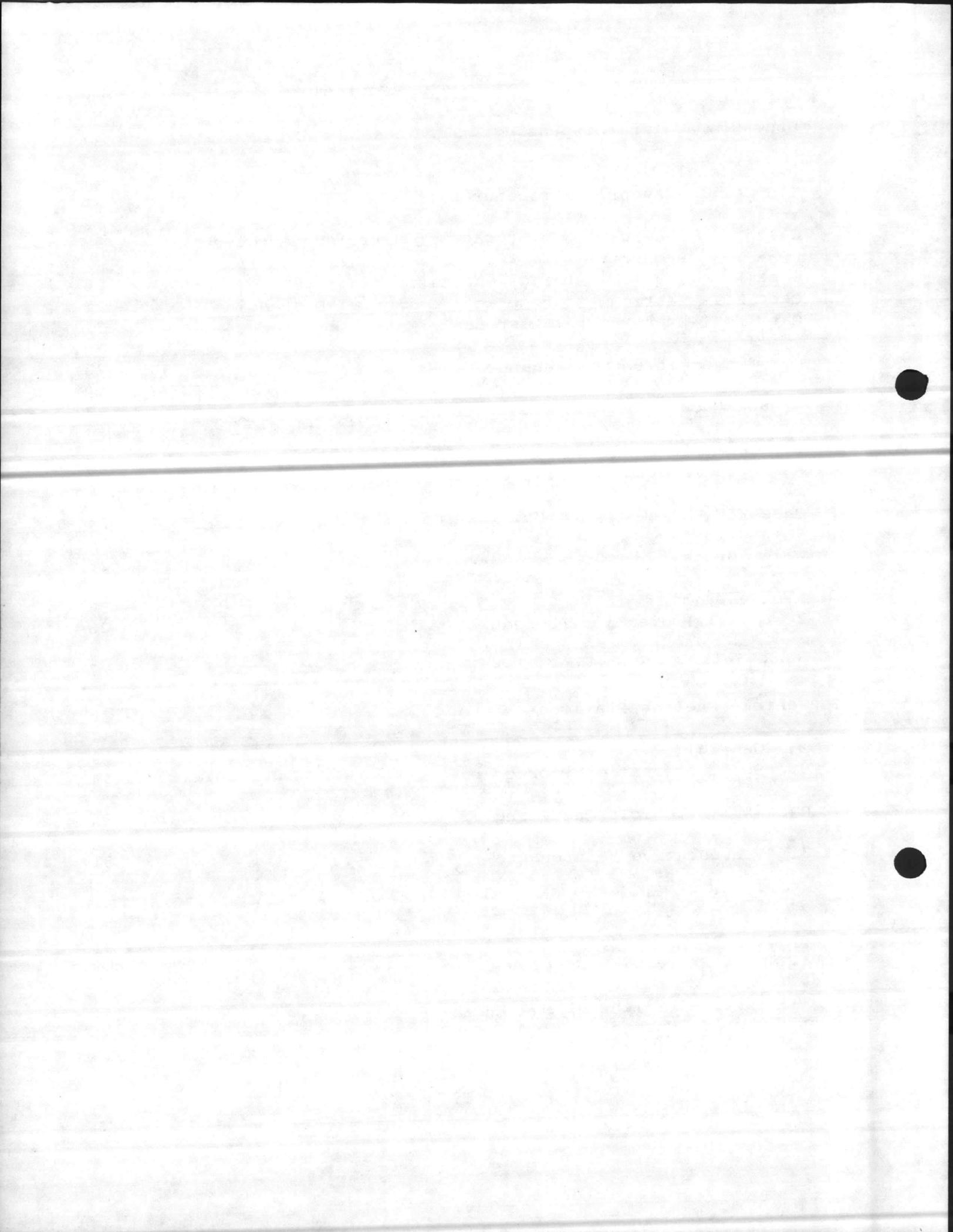
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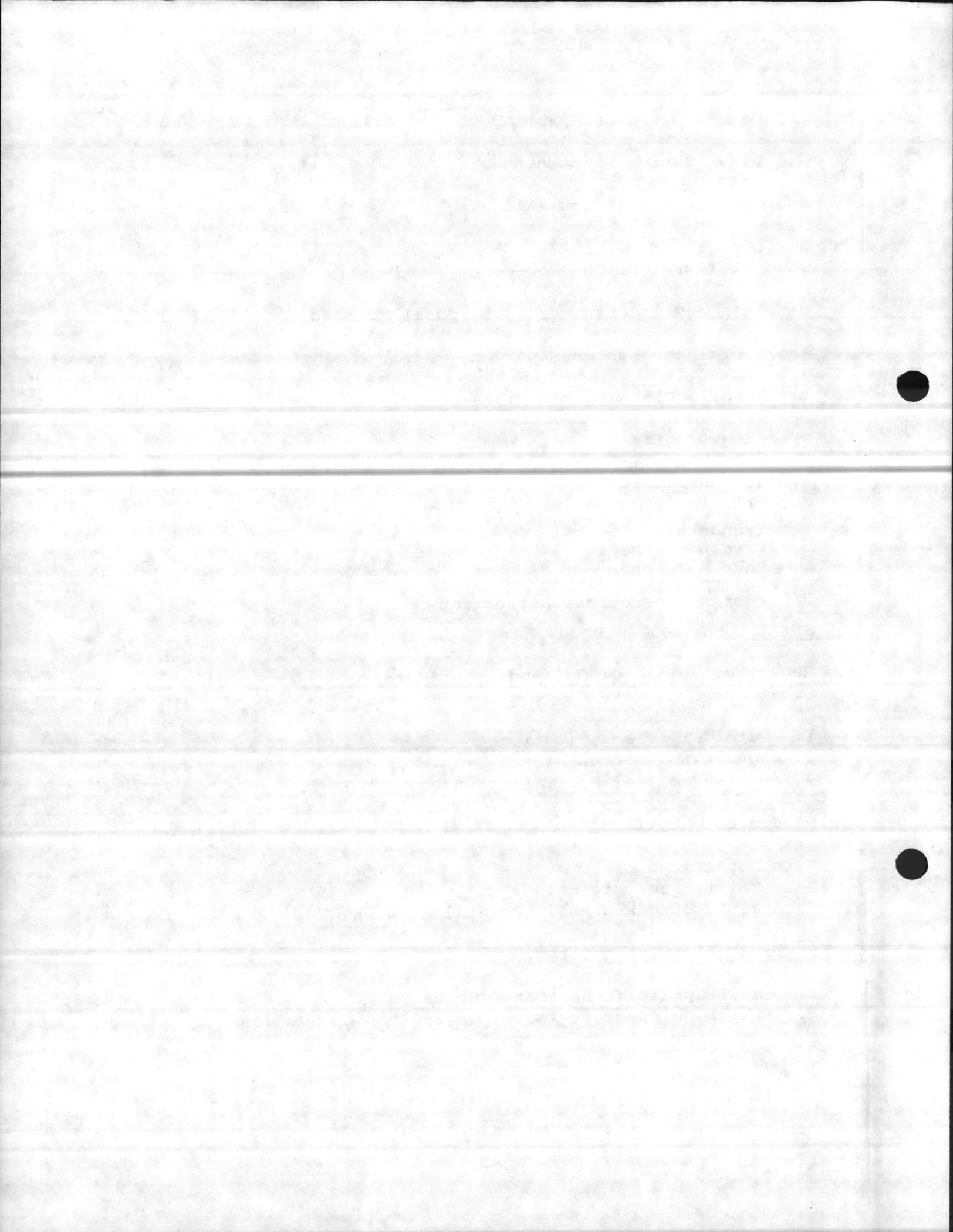
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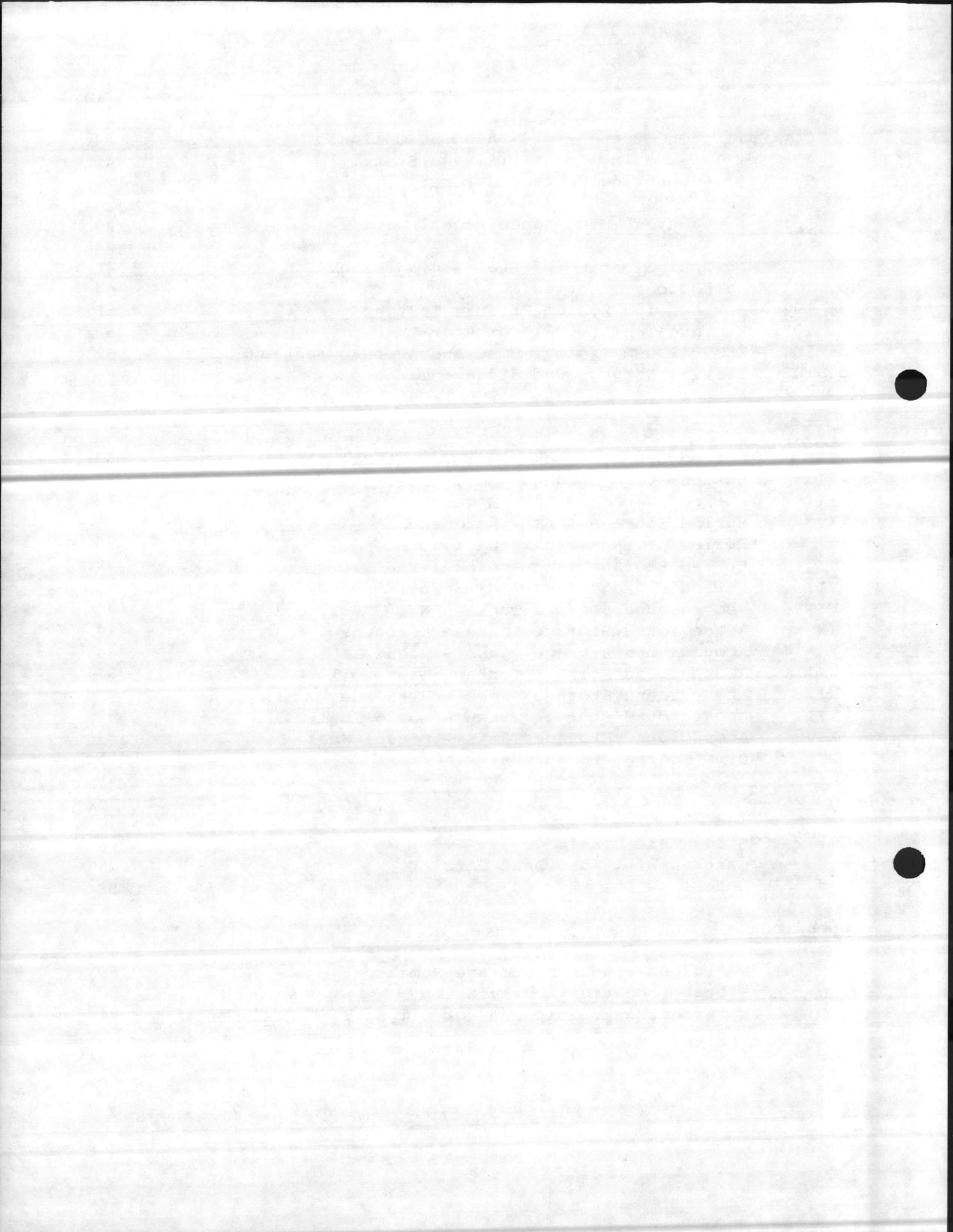
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OIL SPILL PREVENTION PROCEDURES

A. GENERAL

Gasoline, No. 2 Fuel Oil, No. 6 Fuel Oil, Kerosene, lubrication oils, and waste oils are stored in buried or aboveground storage tanks ranging from 55 gallon drums to a 615,000 gallon buried storage tank. Refer to Appendix A "Petroleum Products Storage Summary" for the total number of installations and approximate total capacity.

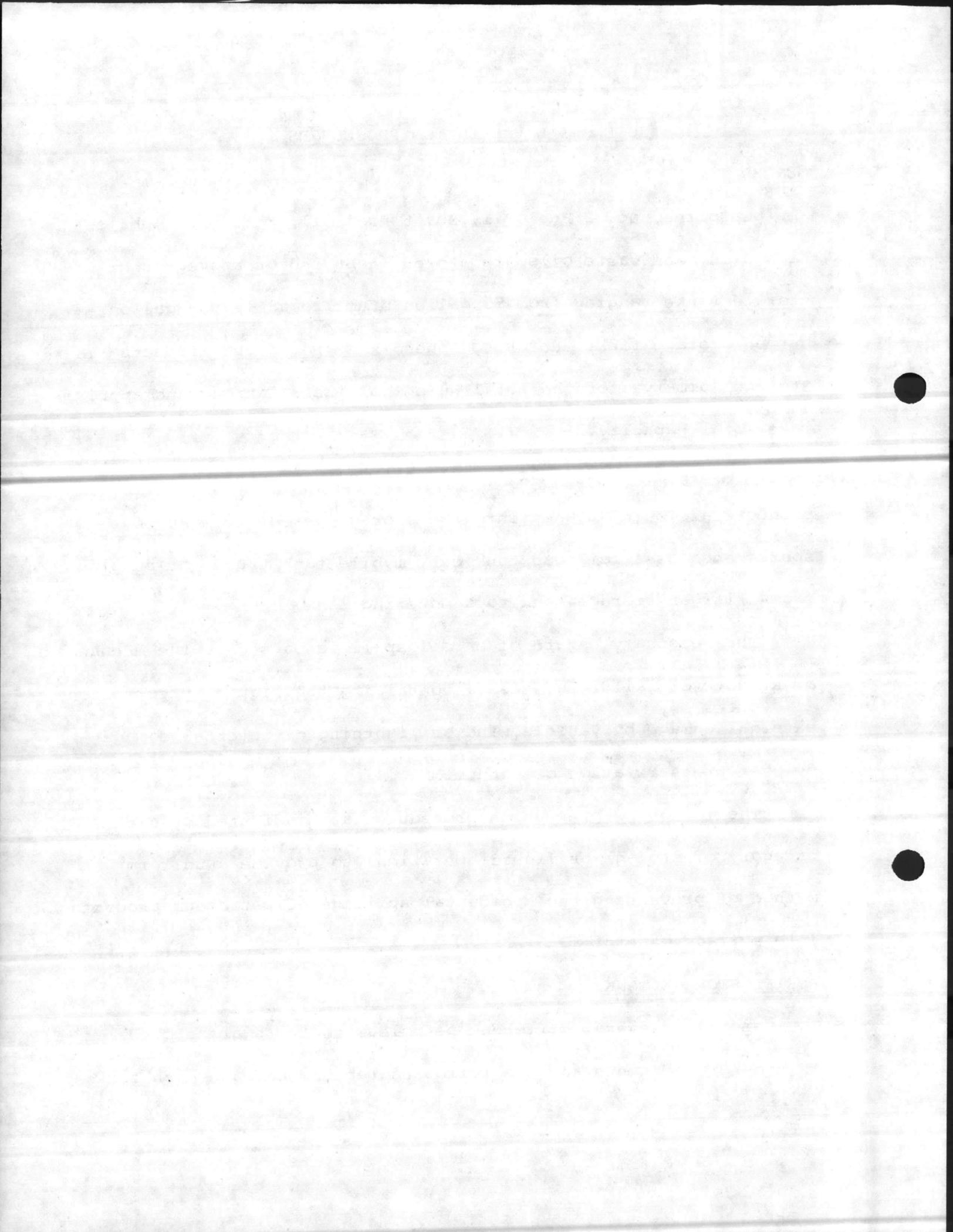
The primary hazard of an oil spill exists when the liquid products are being placed into the storage vessel from another source such as a railroad tank car, mobile tank truck, or pumping from a larger storage tank to a metering tank.

The secondary hazard of an oil spill is caused by the mechanical or structural failure of vessel containing the liquid by corrosion, external damage by vehicle, wind, or lightning or internal damage by over pressurization or vacuum.

The following prevention procedures are indicated by each category of storage or liquid operations to provide a uniform method of preventing the accidental spillage of petroleum products into surface waters.

B. BURIED STORAGE TANKS

1. General - Several different petroleum products are stored in underground tanks and the following tables indicate each tank



capacity, location, and pertinent data required for each tank location:

Table I - No. 2 Fuel Oil
Table II- No. 6 Fuel Oil
Table III Mogas (Automotive Gasoline)
Table IV- Kerosene
Table V - Waste Oil
Table VI- Diesel Fuel
Table VII JP-5 Fuel

2. Tank Identification - Each tank location has a sign posted adjacent to the tank indicating the following data:

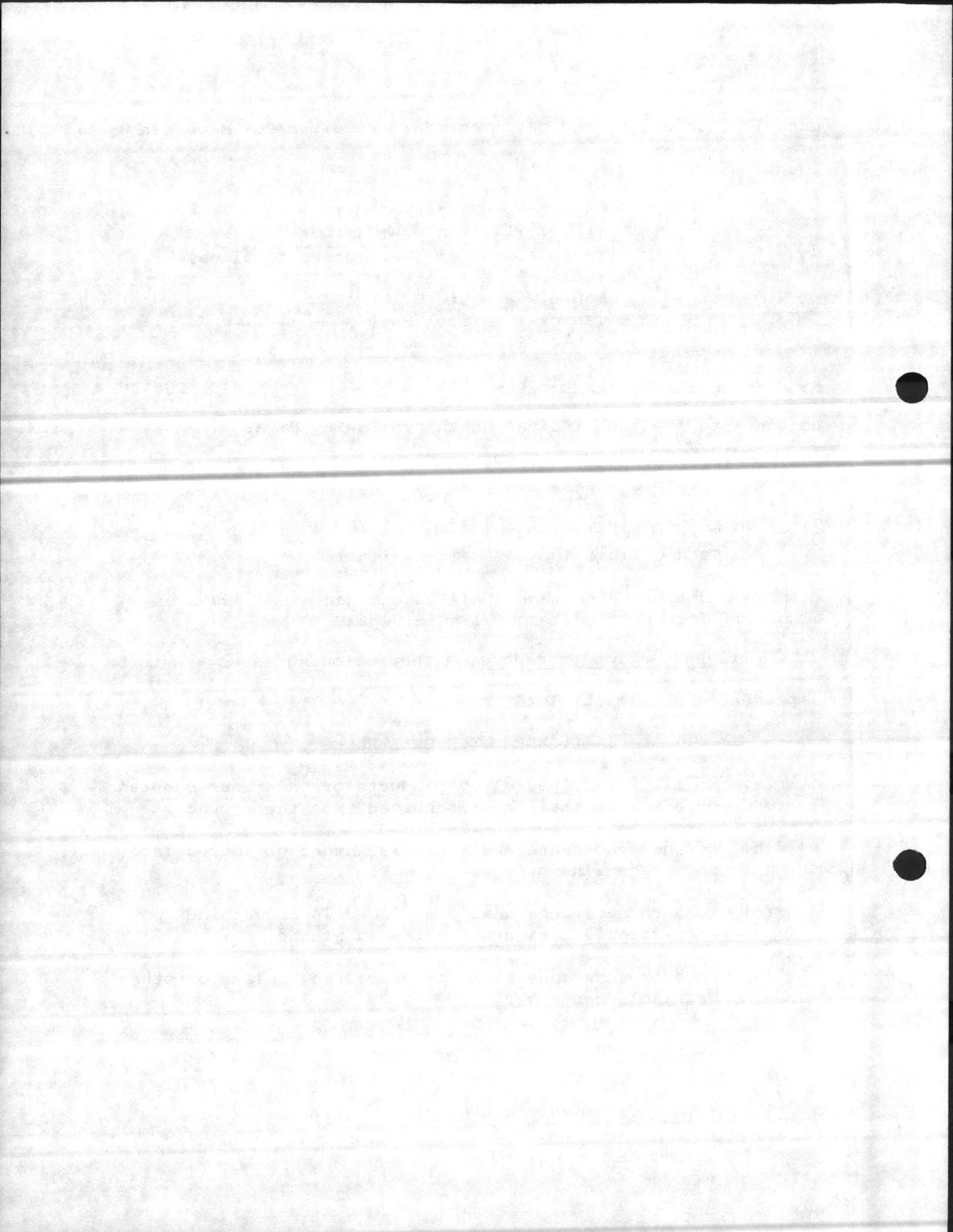
Tank Number
Tank Capacity
Type of Petroleum Product
Tank Diameter (Depth)
Tank Calibration Data (If Available)

In addition, each tank shall have a gauge rod (wood or aluminum) for verification of liquid depth.

3. Spill Prevention Procedures - The following cases are to be implemented at similar locations.

ALL CASES - GENERAL RULES

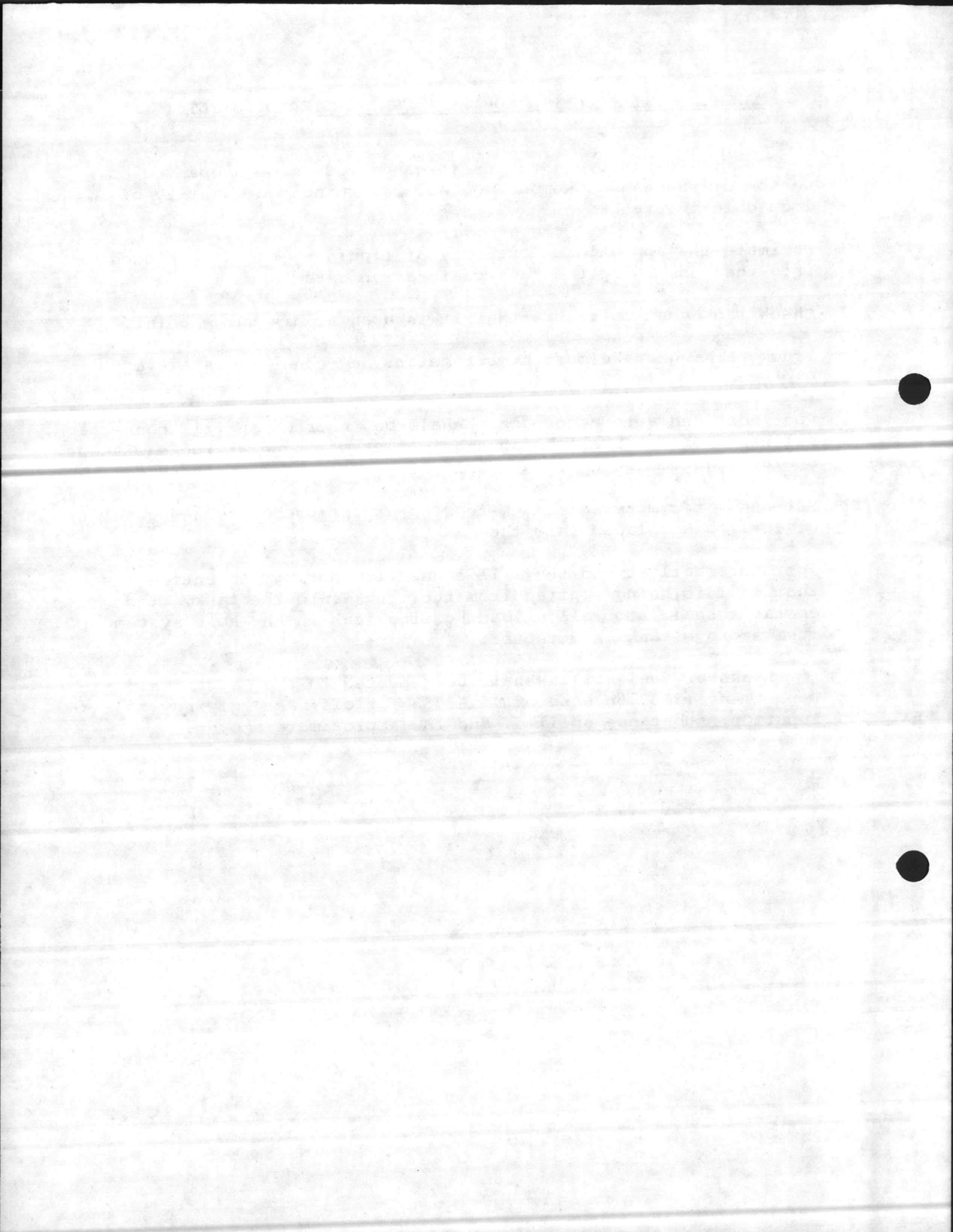
- (a) No oil, fuel, petroleum products or hazardous substance of any kind shall be discharged onto the ground.
- (b) No such substance shall be discharged or poured into any drain line or sewer.
- (c) No such substance shall be placed in a container not specifically designed for the substance.
- (d) No such substance shall be placed in a glass or other breakable container.



CASE I - FILLING WITH MOBILE TRUCK - METERED OUTPUT

- (a) Remove fill pipe cover and insert gauge rod through opening to bottom of the tank. Remove rod and determine the quantity of liquid in the tank.
- (b) Estimate the approximate quantity of liquid that can be placed into the tank using the tank calibration data.
- (c) Check tank vent to assure that it is open at discharge point.
- (d) Truck parking brake must be set before any connections are completed.
- (e) Fuel hose and automatic nozzle shall be inserted in fill connection. All hose nozzles shall be automatic shut-off type. Trucks without operable automatic nozzles shall not be permitted on the Base.
- (f) Set automatic meter at truck to stop at the predetermined quantity of fuel to be placed into the tank.
- (g) Operator shall attend the fill connection during the entire time that fuel is being emptied from the truck into the tank. The operator shall stop all unloading if a leak in the hose system or fuel storage tank is detected.

Leaks or fuel spills shall be reported to the Base Fire Department (3333 on base or 451-3333 for off-base) giving location, substance spilled, and the approximate amount.



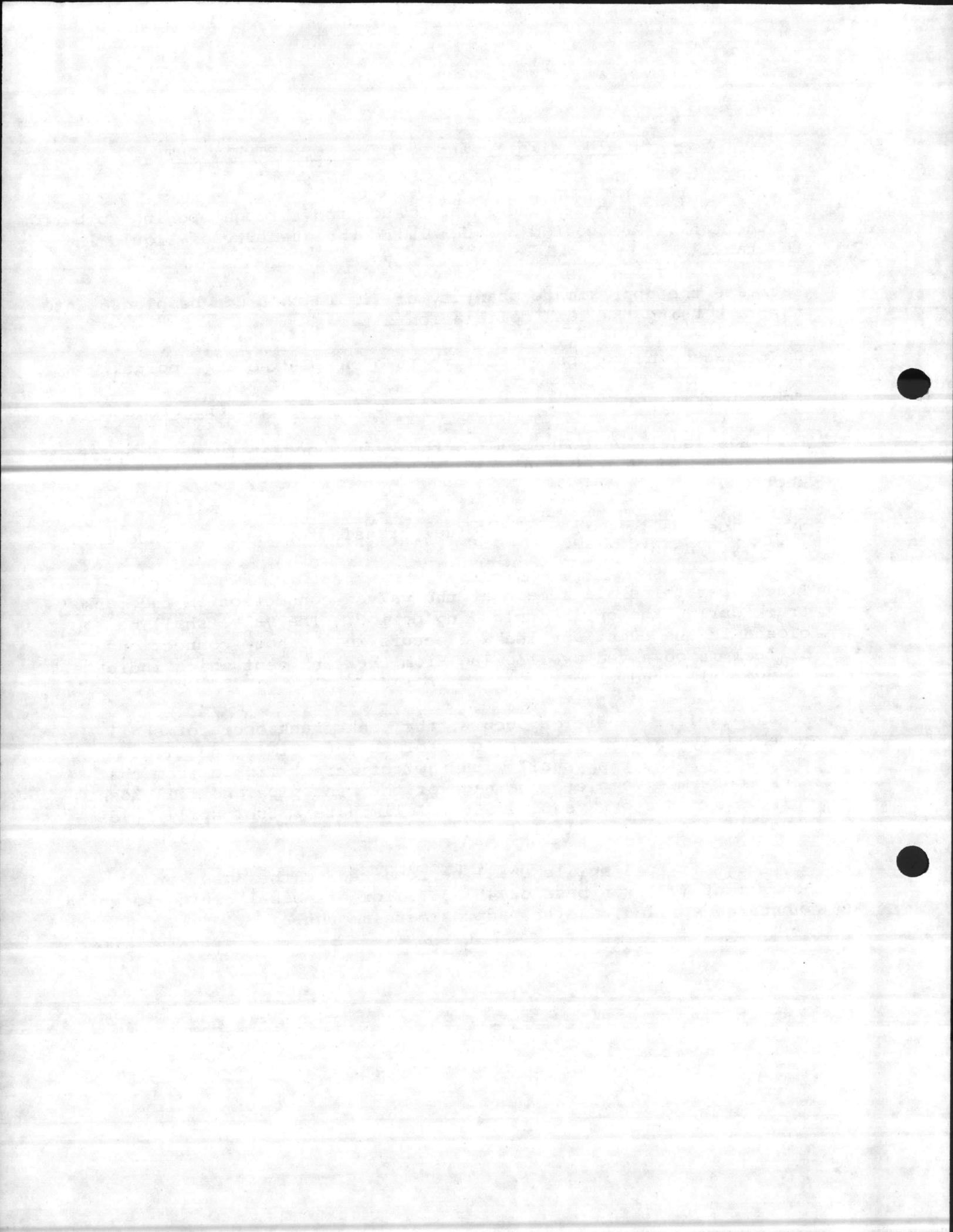
CASE II - FILLING WITH MOBILE TRUCK - COMPARTMENT OUTPUT

- (a) Remove fill pipe cover and insert gauge rod through opening to bottom of the tank. Remove rod and determine the quantity of liquid in the tank.
- (b) Estimate the approximate quantity of liquid that can be placed into the tank using the tank calibration data.
- (c) Check tank vent to assure that it is open at discharge point.
- (d) Truck parking brake must be set before any connections are completed.
- (e) Fuel hose shall be connected to the valved outlet from the specific fuel compartment to be unloaded and connected to the tank fill connection.

Note: Generally this type of fuel transfer does not include an automatic nozzle.

- (f) Truck operator shall remain at the valved connection on the tank truck during the entire unloading period. The valve shall be closed in the event any leakage occurs in the hose connections or fuel is observed overflowing from the tank vent which indicates an overfill conditions.
- (g) If an overfill condition occurs, the tank truck operator shall immediately inform the local user of the overfill condition. The user of the tank shall withdraw sufficient liquid from that tank to permit complete drainage of the vent pipe and fill hose. This is a mandatory requirement to eliminate a fuel spill by disconnecting a hose full of fuel.

Leaks or fuel spills shall be reported to the Base Fire Department (3333 on base or 451-3333 for off-base) giving location, substance spilled, and the approximate amount.



CASE III - FILLING FROM TANK CAR USING PUMP STATION

- (a) Fuel storage tanks designed for the specific fuel to be unloaded shall be checked for available storage space using the installed tank level indicator system or by direct reading of a gauge rod inserted in the tank gauge hole.

CAUTION: Tank level indicator systems may give erroneous measurements. Any measurement system that has not been calibrated every three months or has been determined to be unreliable must be checked by the gauge rod method.

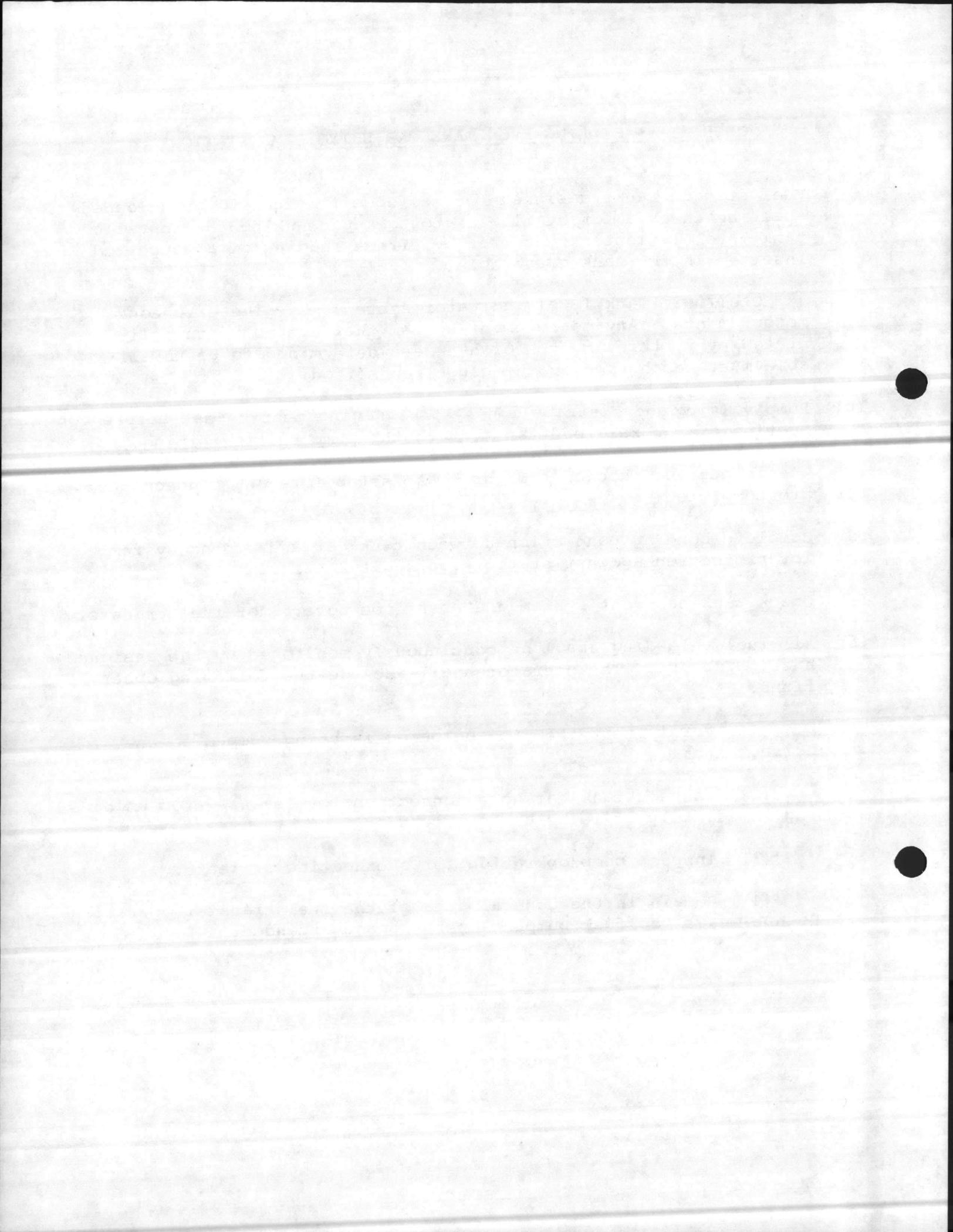
- (b) Pump valving and distribution system valving must be set before connection of the railroad tank car to the pump suction piping.
- (c) Wheels must be chocked and the brake set before any connections are completed.
- (d) Complete bonding connection between tank car and piping system for protection against static electricity sparks.
- (e) Check tank car vent system and open dome covers for fuel transfer.
- (f) All fuel unloading shall be continuously monitored by the assigned base personnel. The operator shall include the following observations:

(1) Verify that the fuel unloaded is being pumped to the correct tank.

(2) Inspect tank car hose connection for leaks - stop unloading immediately if leaks are observed.

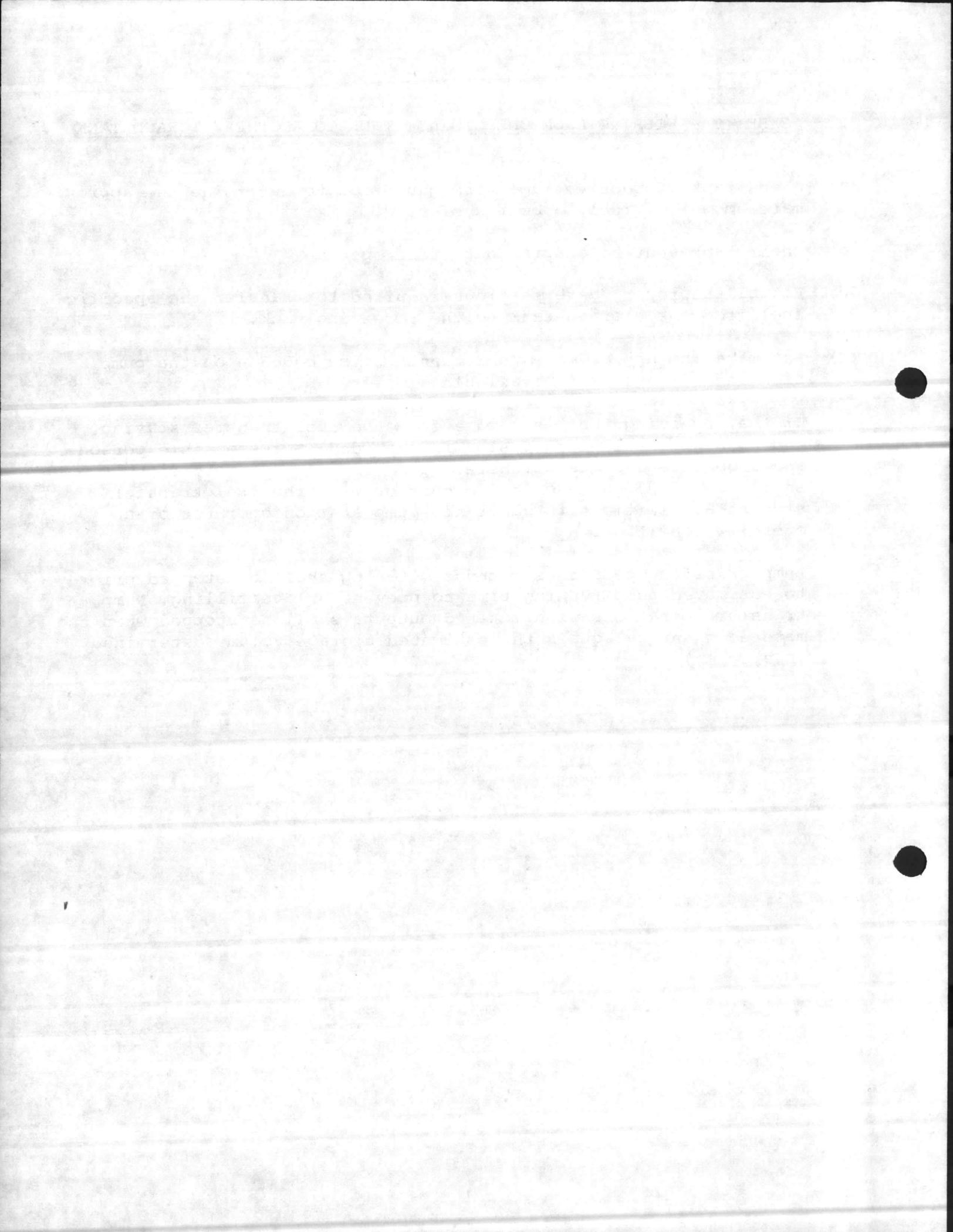
(3) Inspect pump operation for overheating or leaks.

(4) Remain in the general area of the fuel transfer operations. Do not leave the fuel pumping operations unattended.



CASE IV - FILLING FROM ONE STORAGE TANK TO ANOTHER STORAGE TANK

- (a) Check tank to receive fuel with gauge rod to determine the approximate amount of fuel to be transferred.
- (b) Check tank vent to assure that it is open.
- (c) Establish proper valve settings required to transfer the specific fuel from the storage tank to the receiving tank.
- (d) Estimate the approximate pump running time based upon the pump flow and storage space available.
- (e) If the receiving tank is remote from the fuel transfer station, and no high level alarm system is provided, a responsible person shall observe the fuel transfer operation. The remote site shall be in telephone or radio contact with the fuel transfer station at all times to alert the pump station operator of an overflow condition.
- (f) Pump transfer operations without metering shall be stopped prior to estimated pump running time to prevent an overfilling. Pump transfer operations with metered outputs shall be stopped when the metered quantity equals the estimated storage volume determined in step (a).



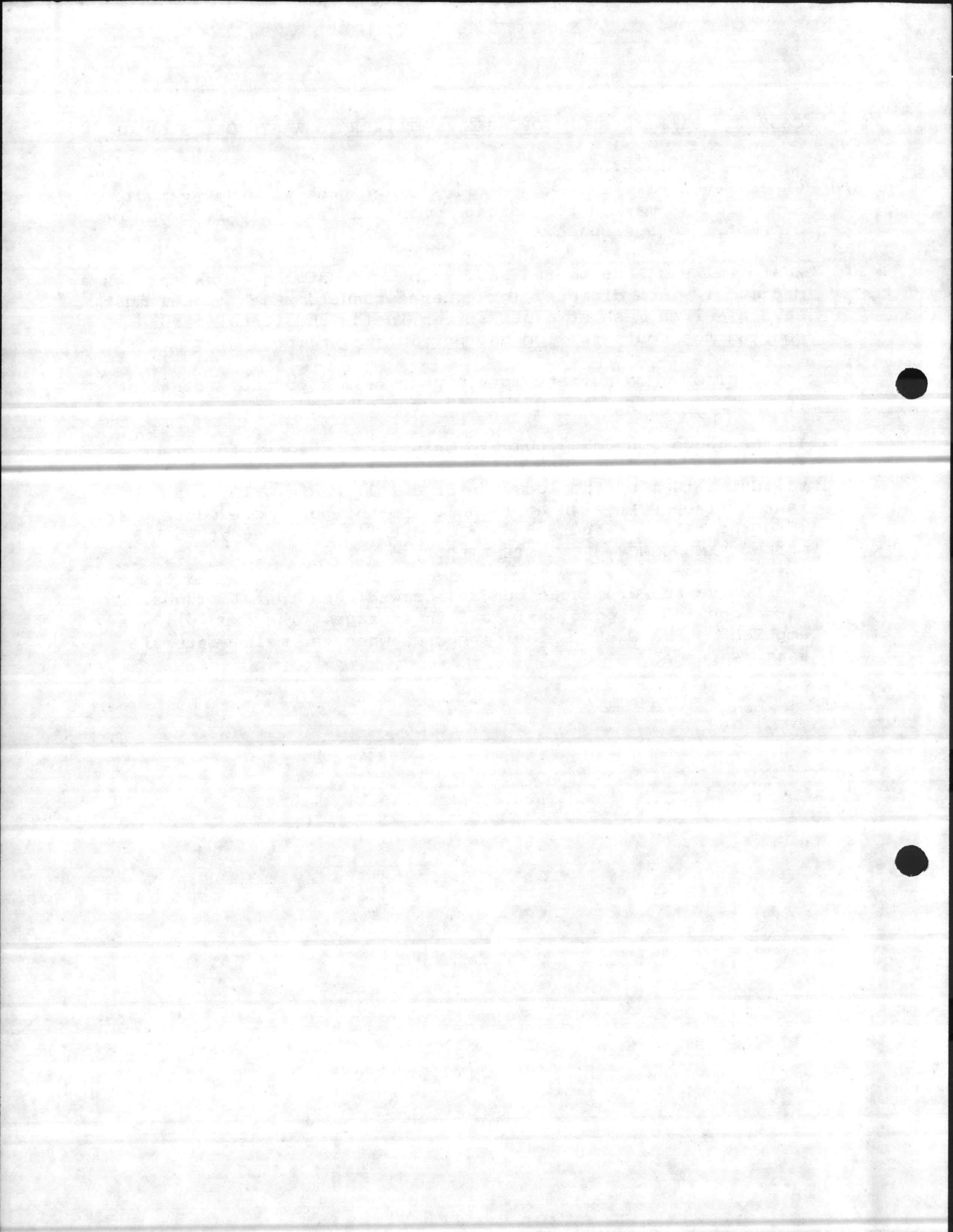
CASE V - FILLING FROM PORTABLE CONTAINER TO WASTE OIL STORAGE

- (a) Check level of oil in waste oil storage tank with gauge rod. Gauge rod is marked to indicate when tank has only five gallons of empty storage space.
- (b) Waste oil shall be poured slowly into the storage tank through a minimum 12-inch diameter (or square) funnel. Each funnel must have a $\frac{1}{4}$ inch mesh strainer screen inside the funnel before pouring the contents from the portable container.

CAUTION: Do not attempt to pour from a portable container into any smaller opening than the funnel required.

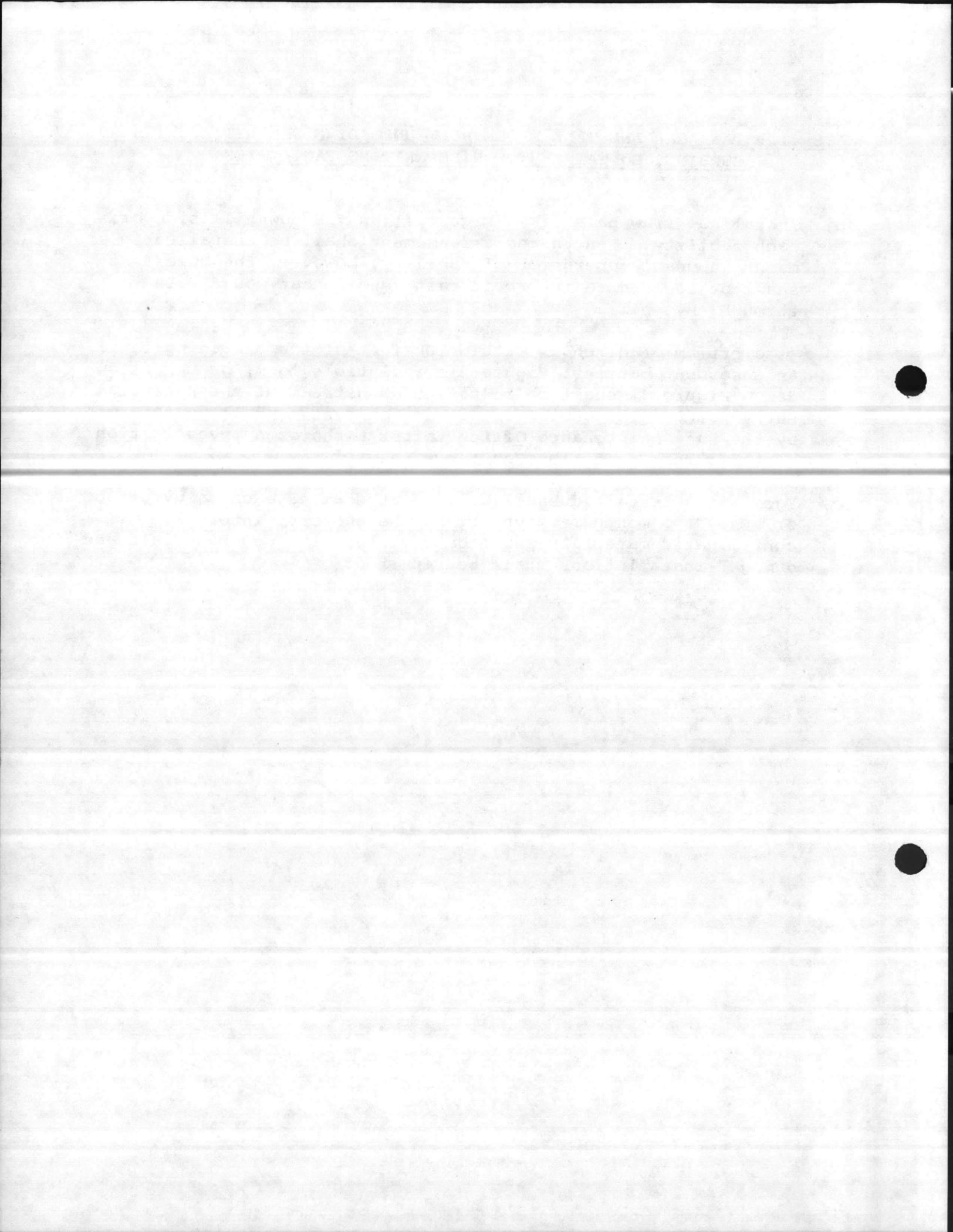
- (c) If the gauge rod does indicate only five gallons of storage remaining, call the Base Maintenance Officer () to advise them of the location of a full waste oil storage tank. Place FULL sign at funnel. Do not pour more waste oil into the tank. A spare 55 gallon drum is provided at each site marked "EMERGENCY USE WASTE OIL".

Remove the drum head bungs (screwed) and install funnel in large opening to pour waste oil in storage. The drum will be emptied by the Waste Oil Pickup Crew when the main waste oil tank is pumped.



CASE VI - TANK CAR AND TANK TRUCK BULK UNLOADING FACILITIES WITH NO CURBING, CONTAINMENT, OR SEPARATING FACILITIES

- (a) Install a straw bale dike (Figure 1) on the downhill side of each facility. Length and arrangement shall be installed to maintain usable operation of facility, however, the bale dike shall be located to intercept rain runoff that would wash through any spill.
- (b) If a stream or ditch is within 100 feet of the unloading facility, an absorbent barrier (Figure 2), inflatable boom, or underflow dam (Figure 3) shall be installed downstream of the potential entry point. The choice of prevention system shall be determined by the Base Maintenance Officer after a thorough investigation of the stream conditions at the site.
- (c) Facilities installed shall be inspected after each rainy period or every two months, whichever is the shortest interval. Oil contaminated materials shall be replaced with new materials and damaged installations shall be repaired.



4. Preventative Maintenance

(a) Tanks shall be pressure tested once every three years in accordance with the procedures defined in Maintenance Practice 100.

(b) Steel tanks with cathodic protection shall have the cathodic system inspected once every year in accordance with the procedures defined in Maintenance Practice 101.

(c) Buried pipe lines shall be pressure tested once every three years in accordance with the procedures defined in Maintenance Practice 102.

(d) Fuel storage tank level indication systems shall be calibrated and repaired as required once every three months in accordance with the procedures defined in Maintenance Practice 103.

(e) Aboveground pipe supports, hose and pipe joints shall be inspected once each year in accordance with the procedures defined in Maintenance Practice 104.

C. ABOVEGROUND STORAGE TANKS

1. General - Several different petroleum products are stored in aboveground tanks and the following tables indicate each tank capacity, location, and pertinent data required for each tank location.

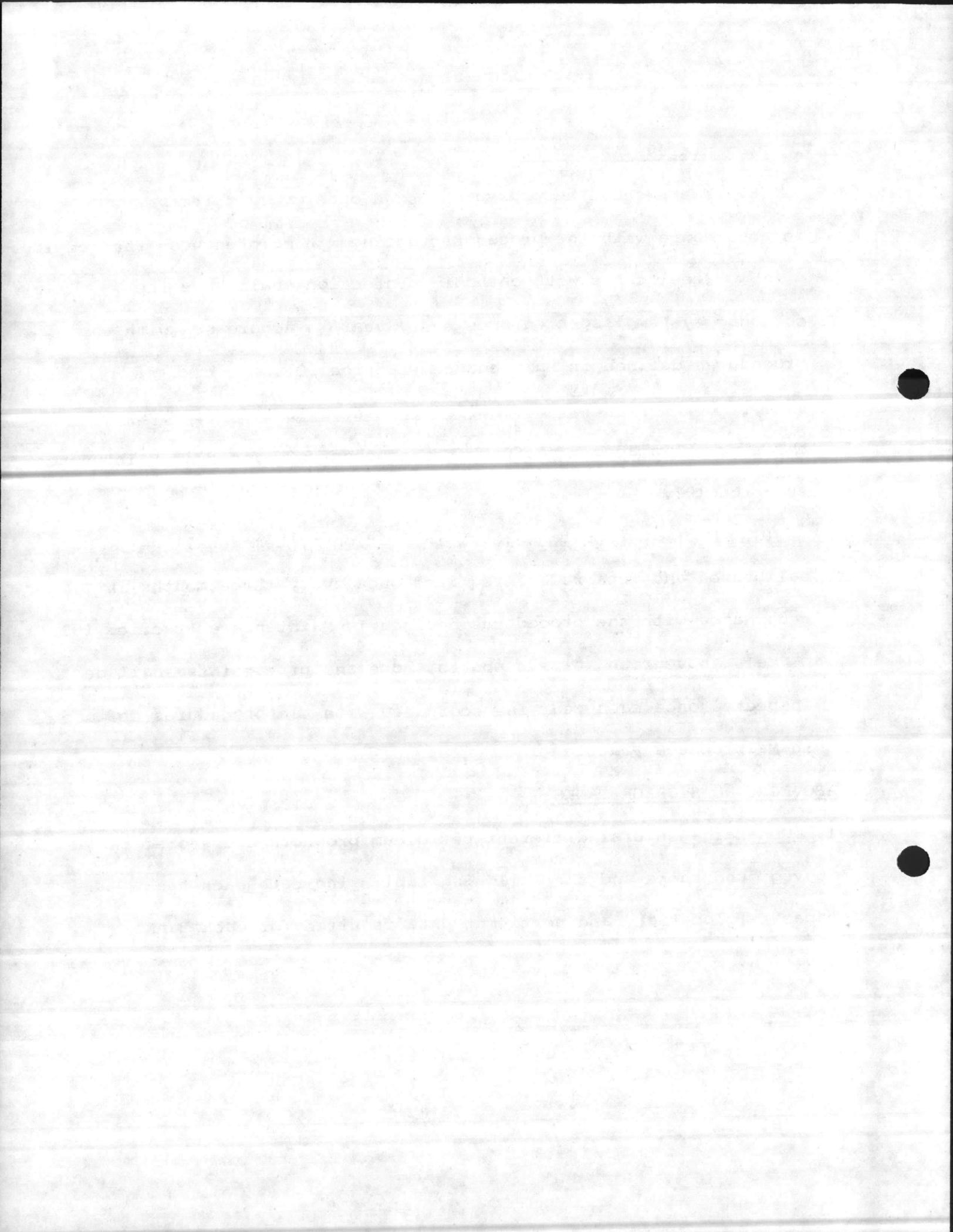


Table VIII - No. 2 Fuel Oil
Table IX - Kerosene
Table X - Mogas
Table XI - Waste Oil
Table XII - JP-5
Table XIII - No. 6 Fuel Oil
Table XIV - Diesel Fuel

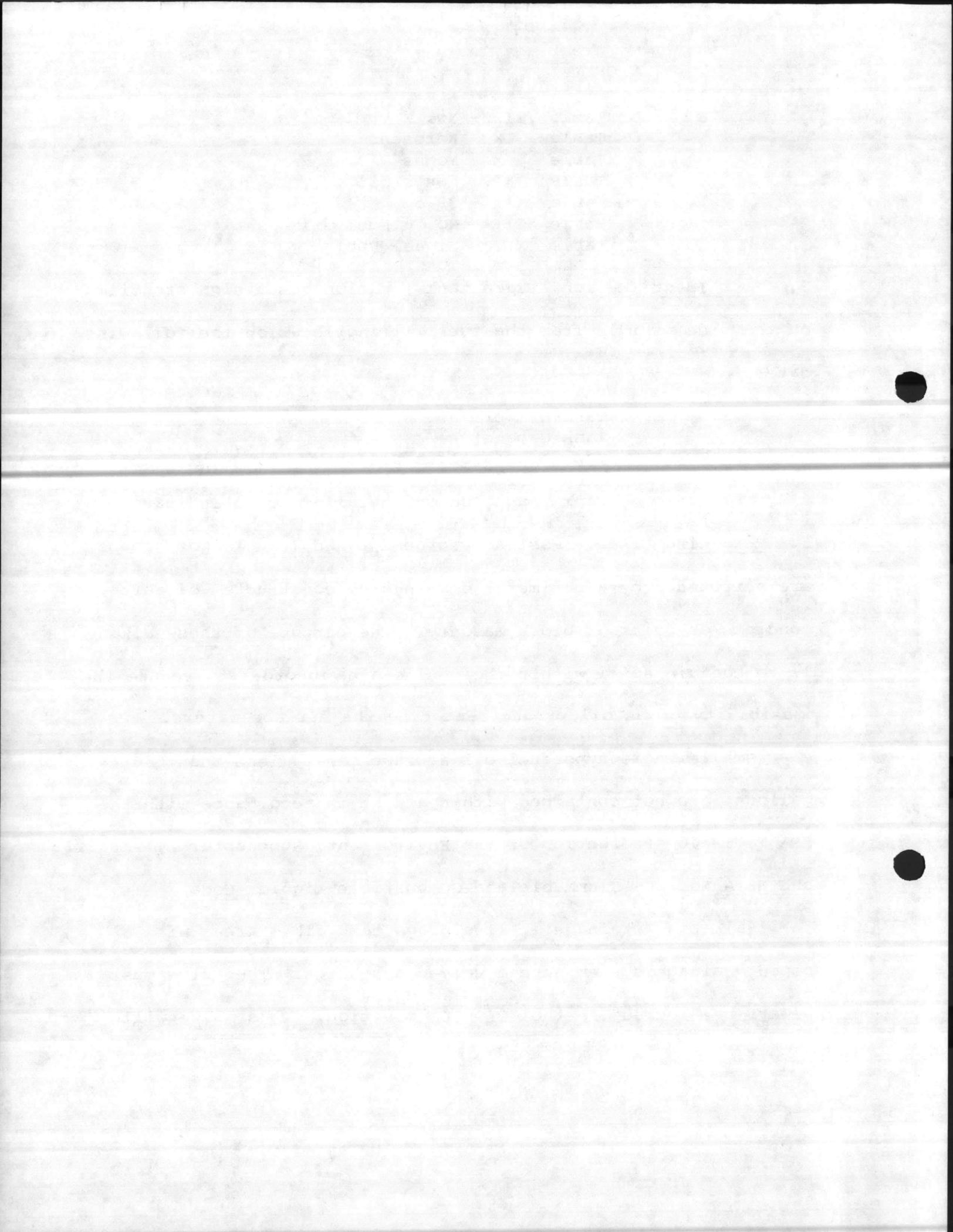
2. Tank Identification - Each tank location has a sign stenciled on the side visible from the fuel filling location the following date:

Tank Number
Tank Capacity
Type of Petroleum Product
Tank Calibration Date (If available)
Tank Gauge Rod or Installed Level Indicator

3. Retaining Dikes - Most aboveground tanks (singles or groups) are surrounded by a perimeter dike system constructed of earth, concrete or brick or block masonry. The purpose of these dikes is to contain spills within the inside area in order to reduce the possibility of an oil product entering the surface waters.

Smaller home type fuel oil storage tanks (less than 660 gallons) are not contained within a dike in accordance with the EPA Title 40 "Protection of the Environment" Subchapter D, Part 112 and NFPA No. 30 "Flammable and Combustible Liquids Code

(a) Dike Drainage - All storage tank diked areas with a piped drainage system have a valved discharge. The valve must always be "locked" in the "CLOSED" position. This valve will



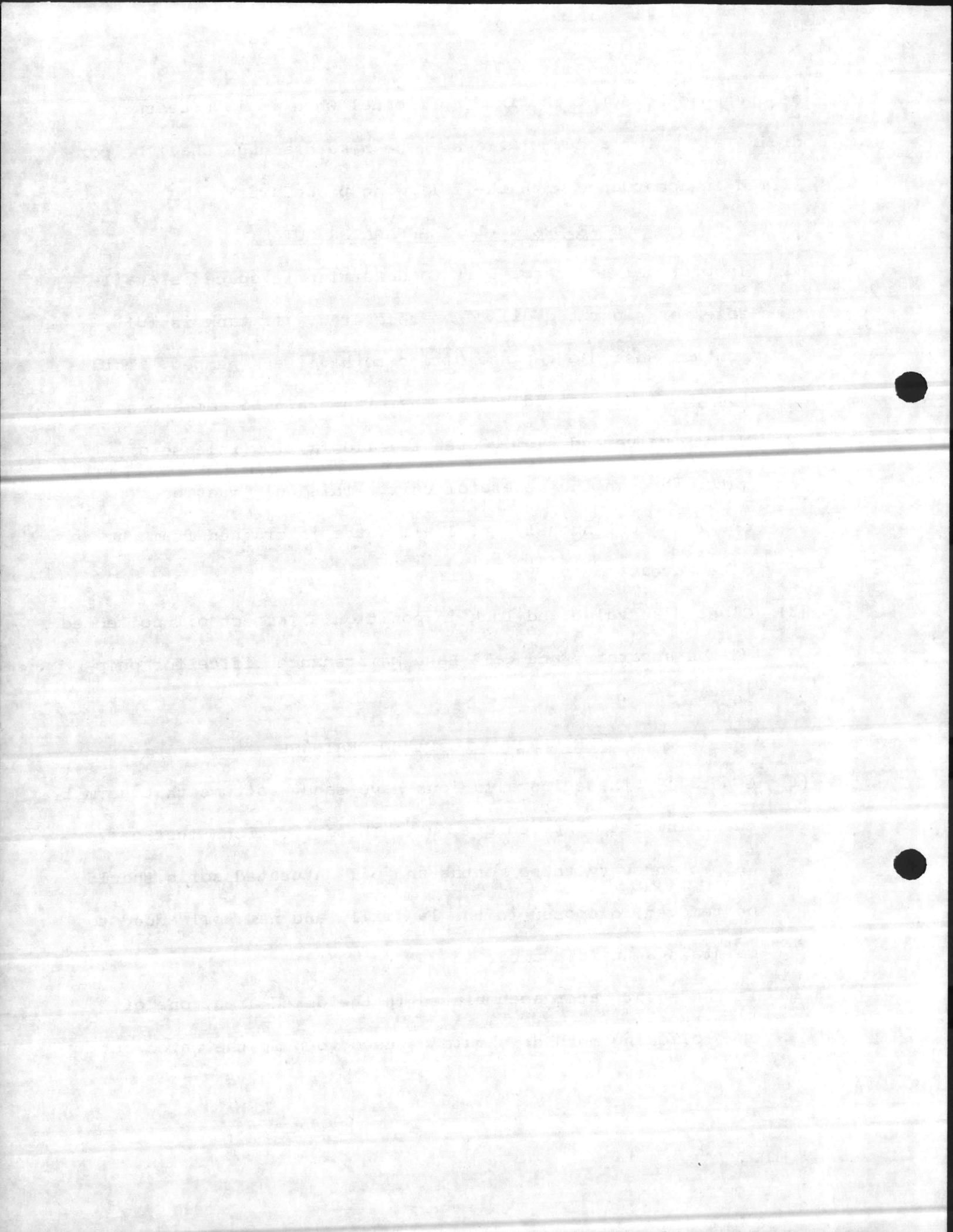
be opened only by "authorized" personnel when it is necessary to drain rain water accumulations. The dike drainage shall be performed in accordance with the following procedures:

DIKE DRAIN - OIL SEPARATOR OUTLET

- (1) Inspect oil separator unit to determine if space is available for separated oil to be recovered. If tank is full, contact Base Maintenance Office to have tank pumped. This tank must be emptied before any dike draining commences.
- (2) Unlock valve and slowly open to allow a slow release of water through the separator unit. This unit must be observed continuously until all water is drained from the diked area.
- (3) Close dike valve and lock in position. Inspect oil collected in the separator and call Base Maintenance Office for pumping.

DIKE DRAIN - NO PIPED DRAINAGE

- (1) Generally, these installations have sandy bottoms that permit the rainwater to percolate out. These locations must be inspected every three months and oil saturated soils should be removed, disposed in the landfill, and new soil added to maintain a uniform area.
- (2) In the event water accumulates in the diked area, one of the following methods should be used to pump the water out

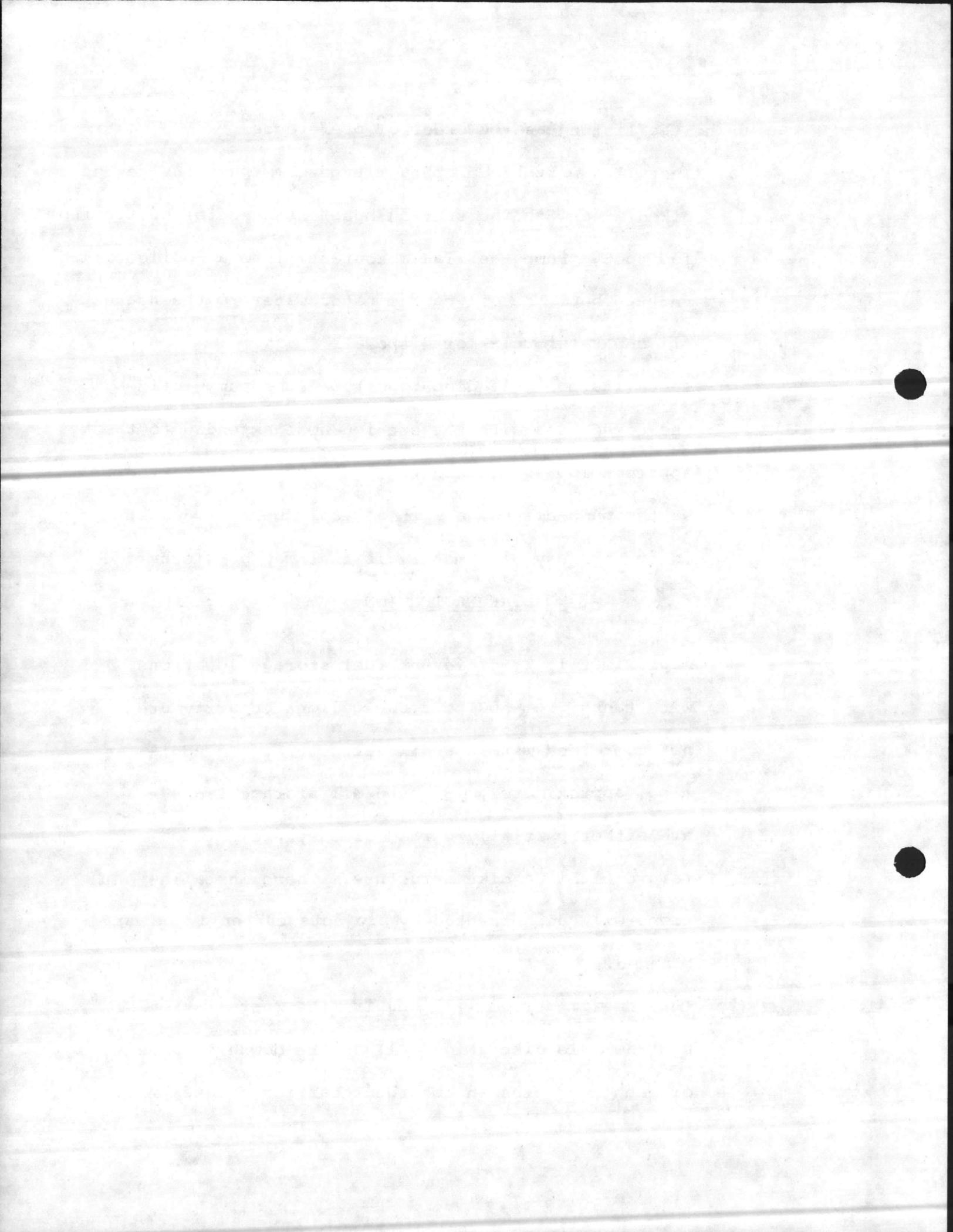


using the listing as the order of preference:

- (a) Install a portable diaphragm type sump pump inside the diked area with the suction hose extended to the apparent low spot. Pump the liquid contents into a mobile tank unit to haul the oil contaminated water to the nearest oil separator unit for disposal.
- (b) Install a portable diaphragm type sump pump inside the diked area with the suction hose extended to the apparent low spot. Construct an absorption barrier at the pump discharge with a second barrier downstream to contain any oily materials that may be discharged.

NO DIKE PROTECTION

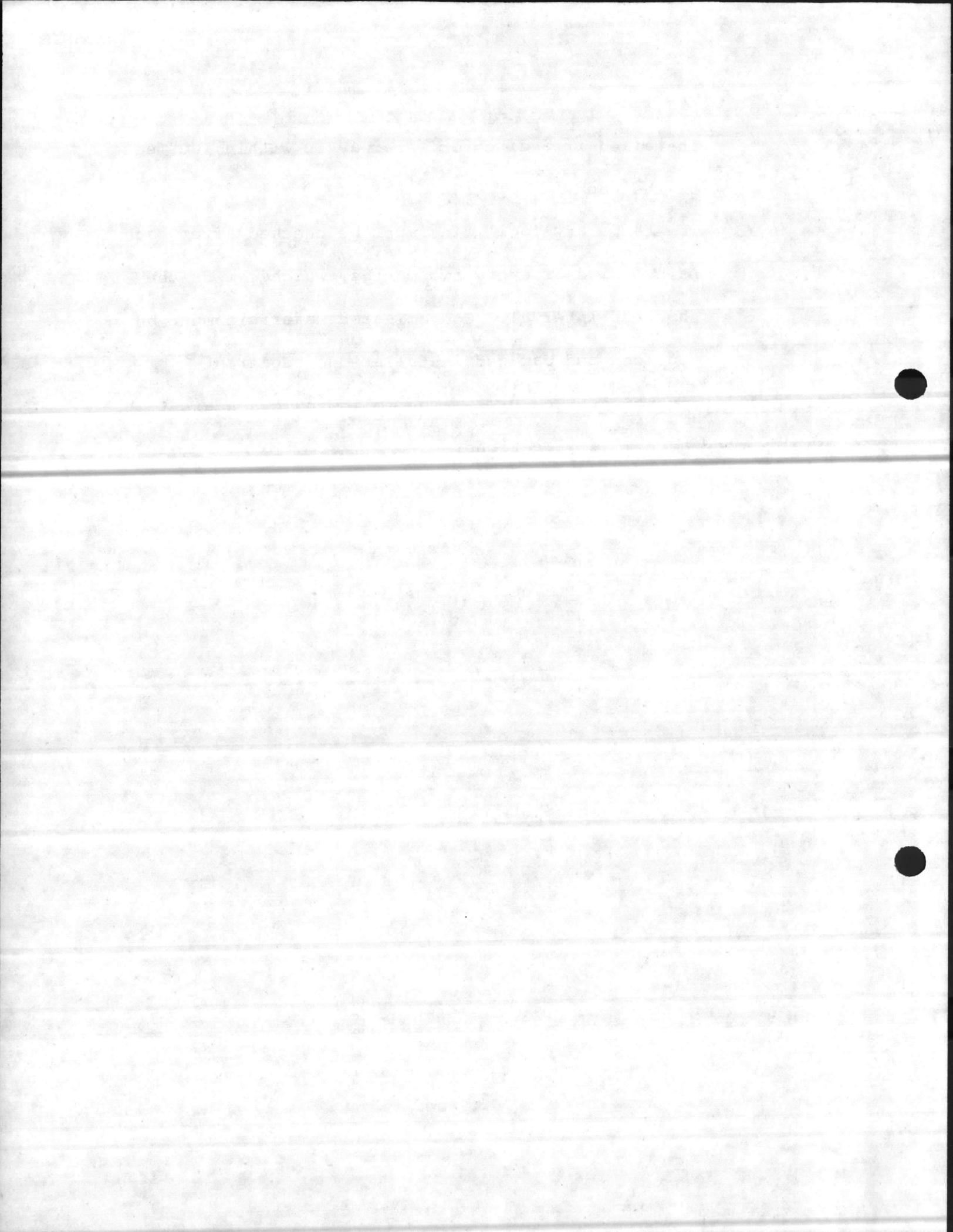
- (1) Approximately 13 different fuel storage locations with tanks from 500 to 3,000 gallons capacity are not contained within a dike structure. In addition, approximately 18 waste oil storage tanks are either partially buried or they are not contained within a dike structure. These installations will be corrected by projects currently being planned.
- (2) The interim period will require the installation of a straw bale dike (Figure 1) on the downhill side of each tank plus an absorbent barrier (Figure 2)



installed if a ditch or waterway is within 100 feet of the tank.

- (3) The temporary facilities must be checked after each rain period or every two months, whichever is the shortest interval. Contaminated materials must be replaced and damaged installations repaired.

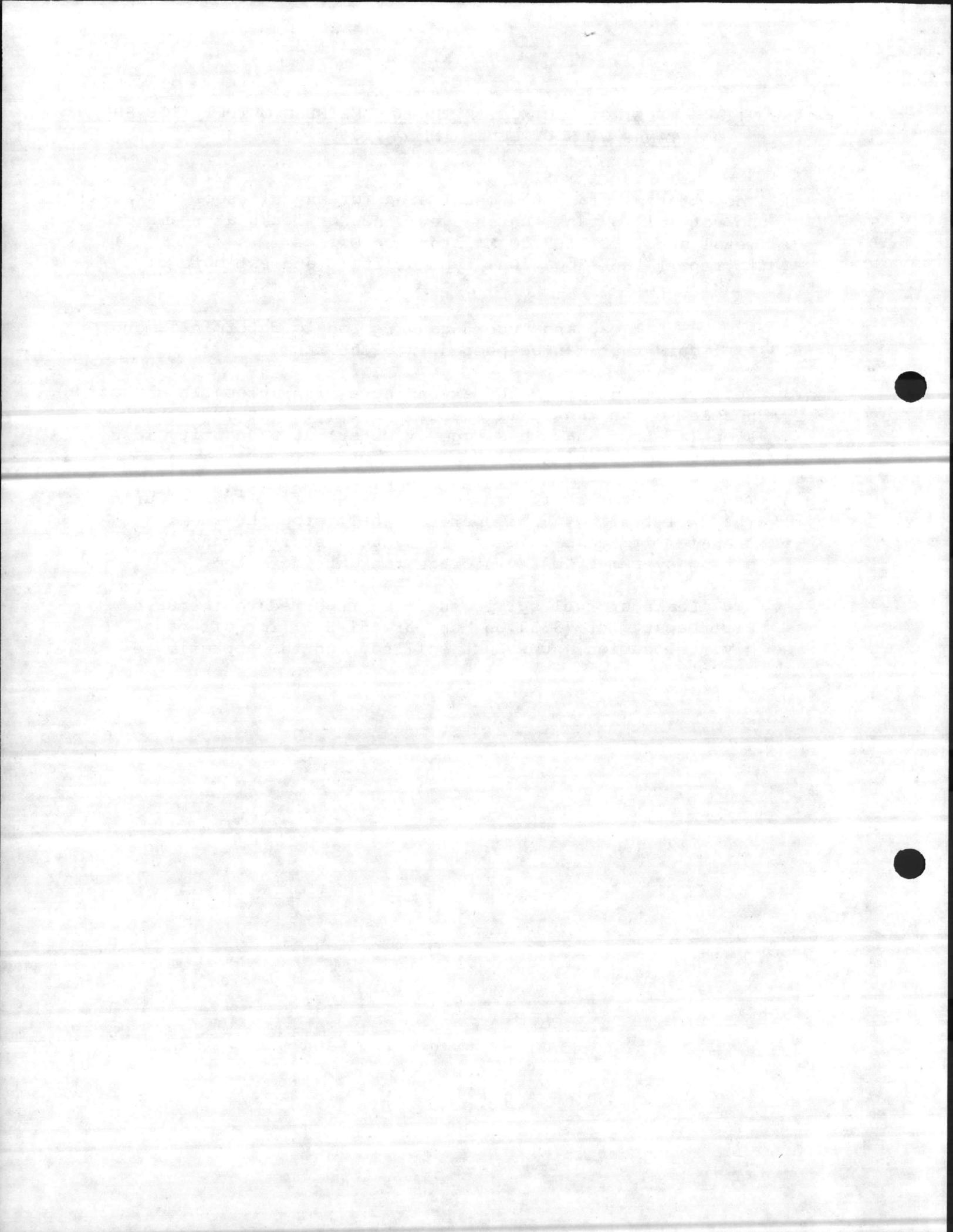
4. Spill Prevention Procedures - The following cases are to be implemented at similar locations.



CASE VII - FILLING WITH MOBILE TRUCK - METERED OUTPUT (FOR SMALL TANKS WITHOUT LEVEL INDICATION)

- (a) Inspect tank seams and metal area for any signs of leaks. Do not fill a tank that has evidence of leaks at seams or metal area. Call Base Maintenance Office () to report tank location, type of fuel, and estimate of leaking rate.
- (b) Remove fill cap and insert gauging rod to determine amount of liquid that can be pumped into the tank.
- (c) Set truck hand brake and extend hose with automatic shutoff nozzle to the tank fill nozzle. Set meter at automatic stop (if truck has this type of meter) at a quantity less than estimated by gauging.
- (d) Truck operator shall remain at the tank fill nozzle during the fuel filling. The operator shall stop the fueling transfer if leaks in the hose system, storage tank, or piping system from the storage tank are detected.

Leaks or fuel spills shall be reported to the Base Fire Department (3333 on base or 451-3333 for off-base) giving location, substance spilled, and the approximate amount.

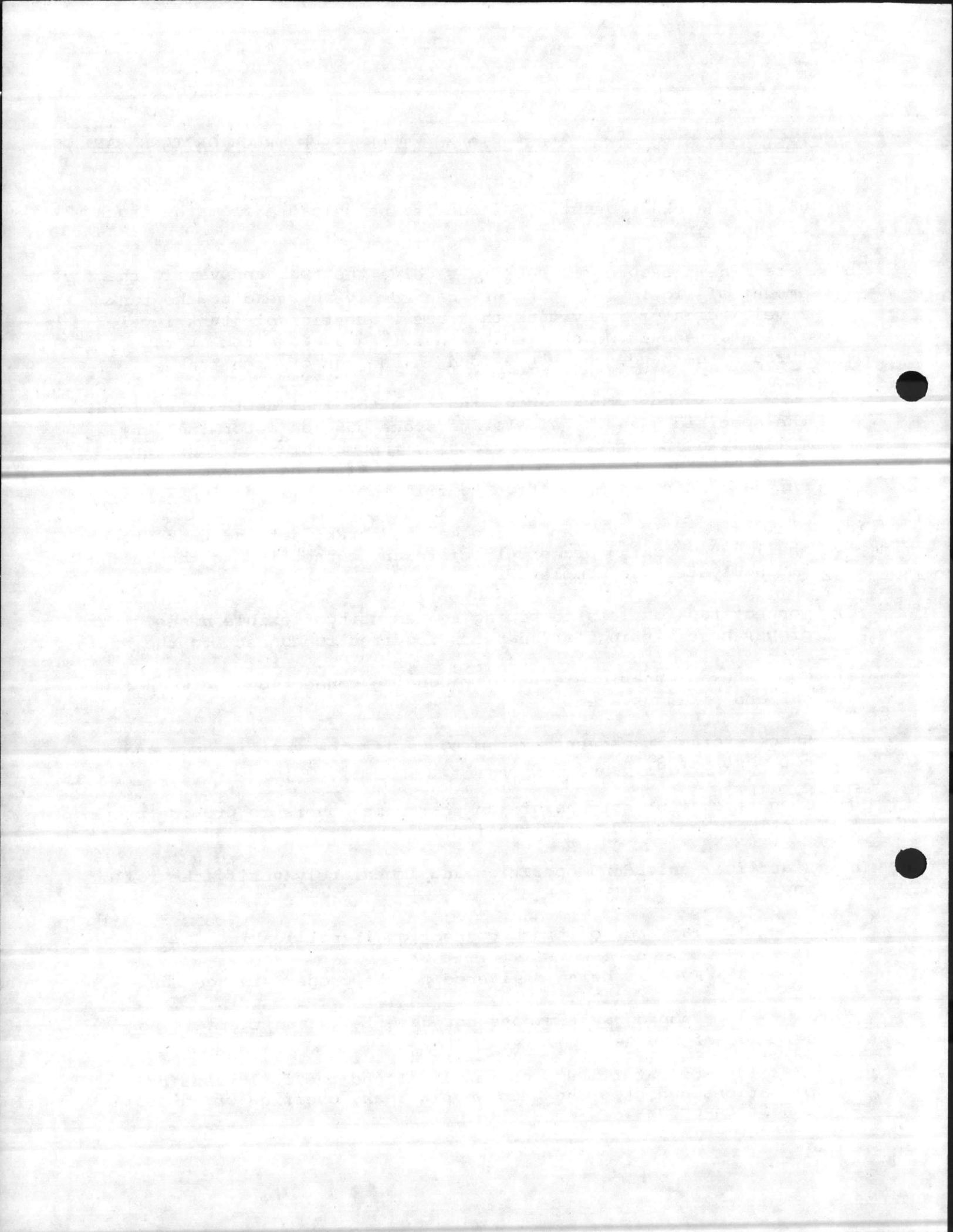


CASE VIII - FILLING LARGER STORAGE TANKS FROM TRUCK OR TANK CAR

- (a) Verify the exact quantity of fuel to be unloaded from the truck or tank car.
- (b) Determine the specific tank to receive the fuel and verify the amount of liquid that the tank can receive by reading the tank level indicator. Any tank that has a questionable tank level indicator should be checked by inserting a gauge rod or tape through the gauge hatch provided in the top of each tank.

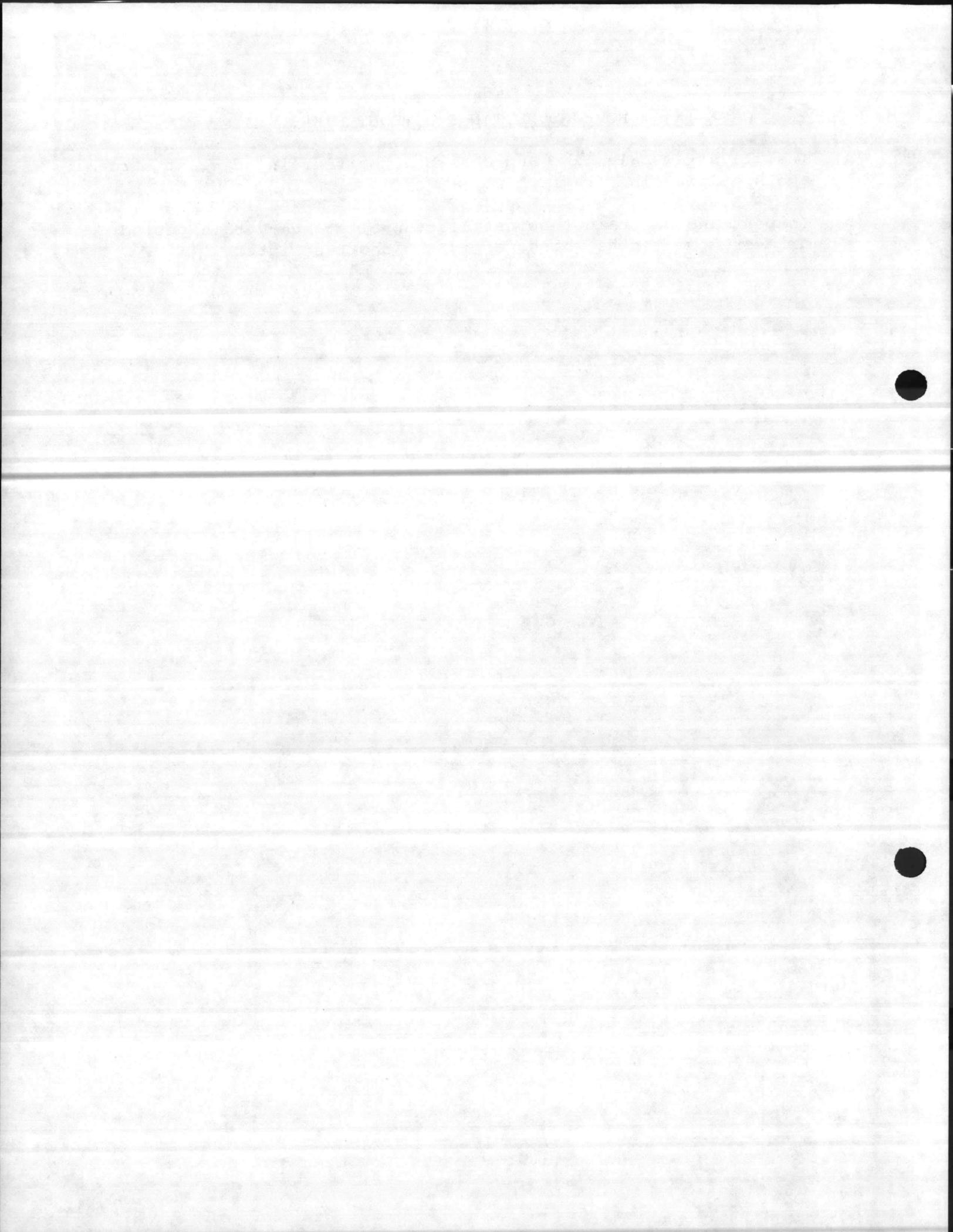
NOTE: Most tank gauges indicate the fuel depth, therefore, the specific quantity of storage space must be determined by multiplying the free board depth by the calibration (gallons per foot) for the tank. If tank has sufficient storage capacity, set valves from pump station to fill the tank.

- (c) Tank car shall have wheels chocked and brake set and tank trucks shall have parking brake set before any connection to the fuel piping system are completed.
- (d) Connect tank outlets to piping system using flexible hoses with proper hose fittings or adapters required to connect to the outlet.
- (e) Complete all static electricity bonding connections between tank car and piping system.
- (f) Check storage tank vent system to verify the vent is open and not obstructed in any manner.
- (g) Open truck vent hatches or tank car dome covers to provide proper venting when withdrawing the fuel.
- (h) Start fuel unloading operation and immediately verify the following:
 - (1) Tank car or truck connection is not leaking.
 - (2) Fuel is being delivered to the proper storage tank.
 - (3) Pumping system does not have leaks and there is no evidence of overheating.
 - (4) Operator must constantly attend the fuel transfer operations and stop the pump when a leak, overflow or unusual condition occurs.



CASE IX - ABOVEGROUND TANKS WITHOUT DIKES

- (a) Install straw bale dike and absorbent barrier in adjacent stream and specified in Paragraph C.3.
- (b) Inspect and maintain the installation after every rain period or every two months whichever is the shortest interval.



5. Preventative Maintenance

(a) Tanks shall be inspected annually in accordance with the procedures defined in Maintenance Practice 105.

(b) Fuel storage tank level indication systems shall be calibrated and repaired as required once every three months in accordance with the procedures defined in Maintenance Practice 103.

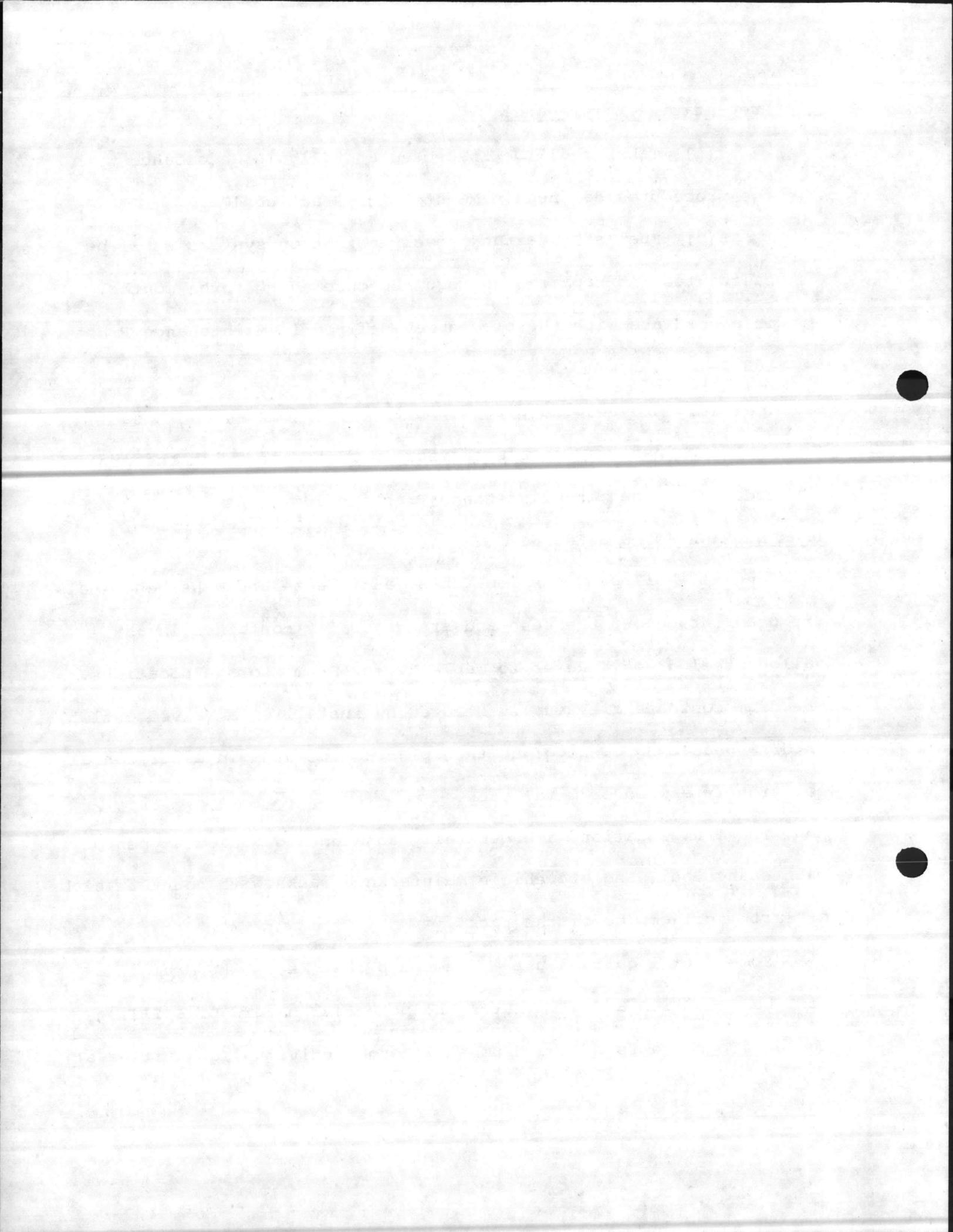
(c) Aboveground pipe supports, pipe joints, and hose shall be inspected once each year in accordance with the procedures defined in Maintenance Practice 104.

D. DRUM STORAGE AND DISPENSING

1. General - Oil products, solvents, antifreeze and other chemicals are used throughout the base and are generally contained in 55 gallon steel drums. Refer to Table XV for Drum Storage Locations. The drum contents are usually removed by installing a valved outlet in drum head bung opening and then placing the drum in a horizontal position in a wood or metal rack.

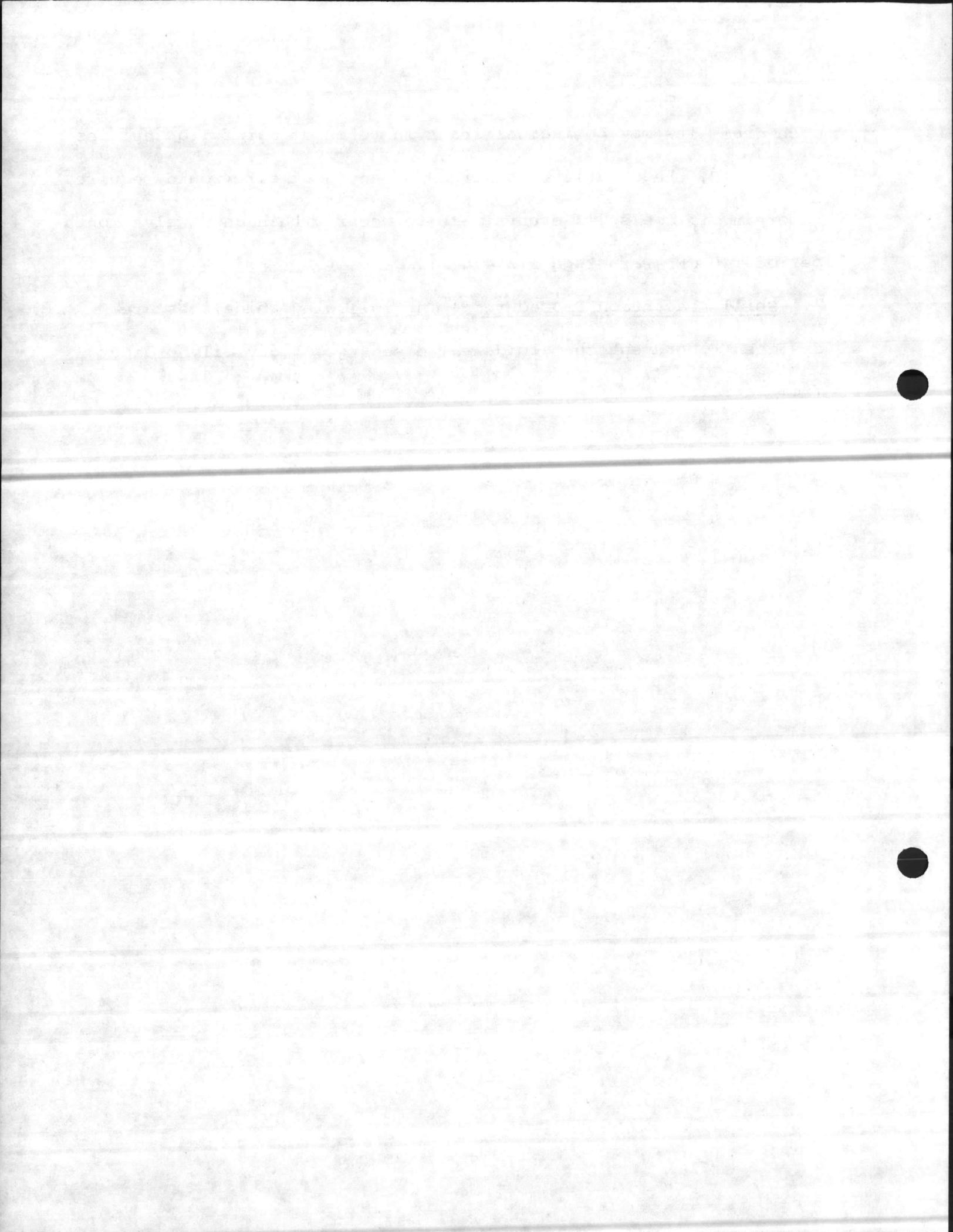
The drum locations are generally adjacent to various types of maintenance building or vehicle maintenance racks with concrete slabs or earth surfaces below the rack.

Some drum locations use a drum pump that keeps the drum in a vertical position and eliminates the potential hazard of spilling the entire contents of the drum. Although individual quantities at



each drum site may be insignificant in terms of harmful quantities if spilled, the quantity discharged at any drum site would require reporting if two spill events were to occur within any twelve month period (40 CFR Paragraph 112.4(a)).

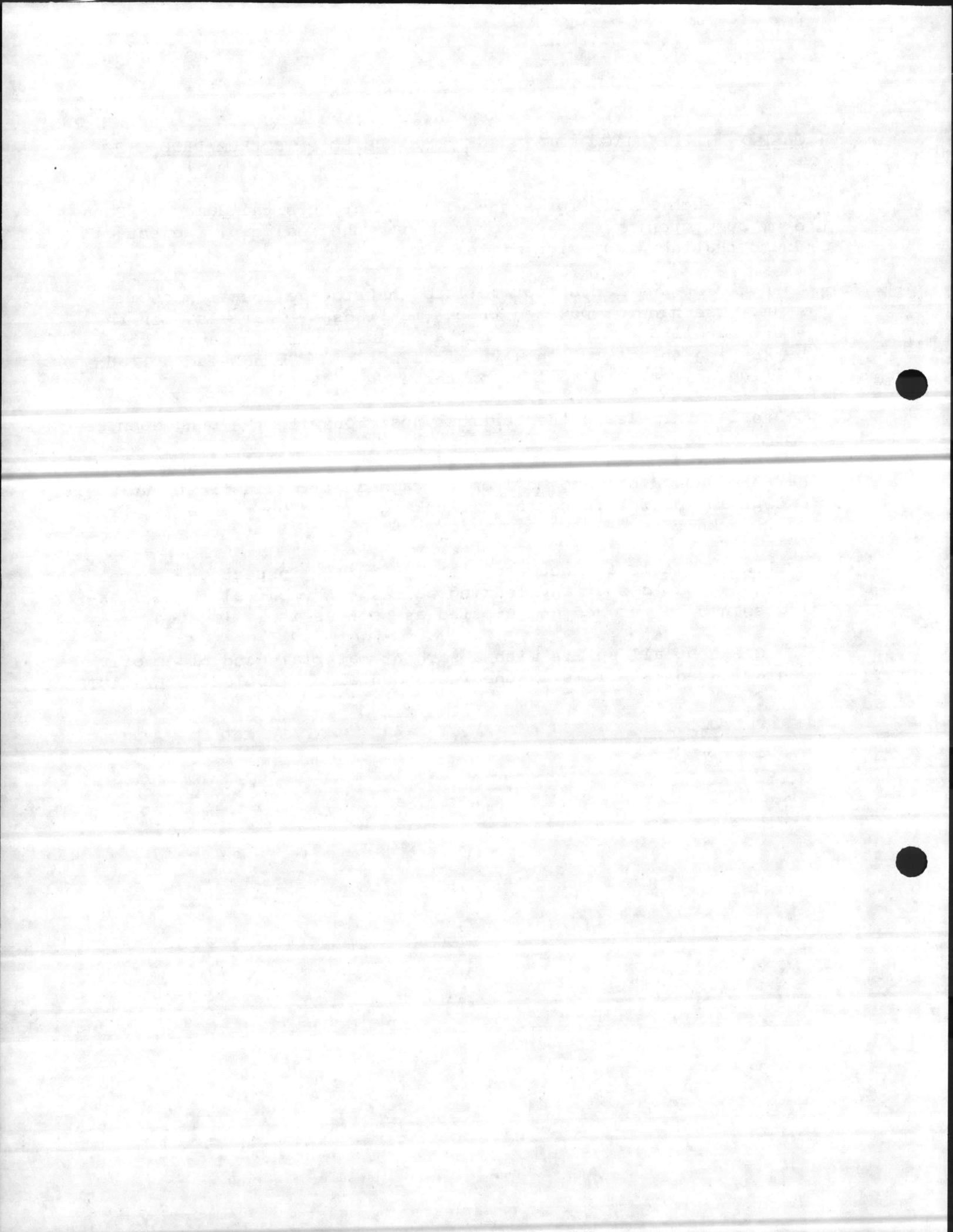
2. Spill Prevention Procedures - The following guidelines are designed to prevent the accidental discharge of any oily product from barrels.



CASE X - RECEIVING AND STORAGE OF BARRELED PETROLEUM PRODUCTS

- (a) Inspect each barrel for signs of leaks or physical damage. Each drum bung opening must be covered with the seal cap. Reject all drums that show any sign of leakage.
- (b) Do not drop any barrel nor roll to the storage location on its side. Use hand or powered trucks to transport barrels. In the event handling equipment is not available, barrels may be moved by keeping the barrel in a vertical position (bung head up) and tilting slightly to roll it on the edge of the bottom.
- (c) Store all barrels in the vertical position with the bung open head up.
- (d) Barrels should be removed from storage on first in first out basis, except any barrel suspected of leaking should be removed to prevent leakage.
- (e) Routinely, at least once per month, visually inspect the barrel storage area to spot any leaking barrel. Any barrel found leaking should be removed and emptied as soon as it is located.

Clean up all spills with absorbent materials and place oil contaminated materials in the waste container labeled "OILY WASTES".



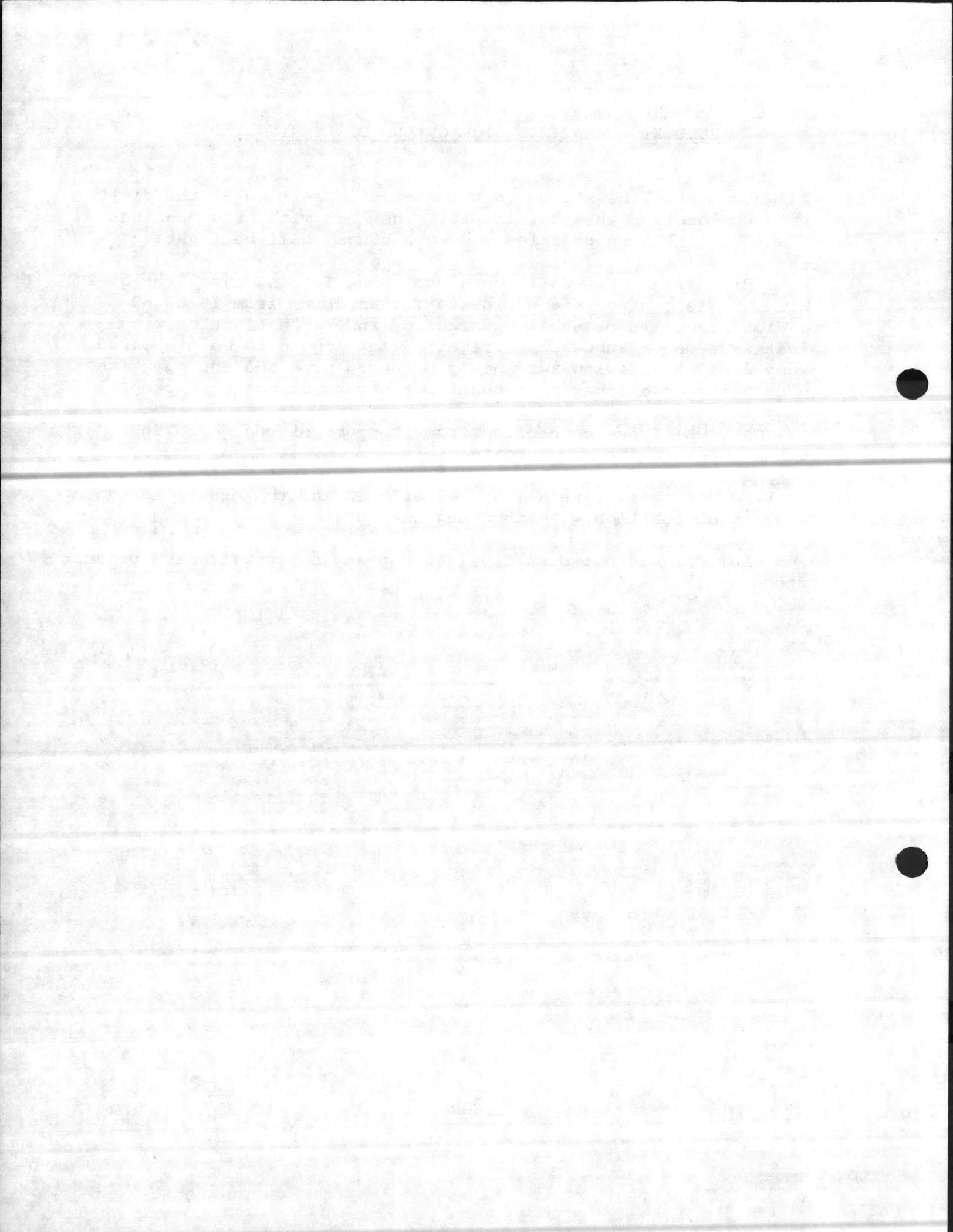
CASE XI - VERTICAL STORAGE AND DISPENSING

- (a) All drums shall be stored in the vertical position at the dispensing location when not in use. The head with bung openings shall be in the up position and both bungs shall be tight.
- (b) Drum dispensing pump shall be a dual bung fitting type (1½" or 2") with a telescoping intake pipe to fit any drum from 15 to 60 gallon size. Pumps shall be brass cylinder construction with leather cups or rubber cups required for liquid to be dispensed. Pump shall have swing away no-drip return pipe and the pump has a capacity of delivering 1 quart per stroke of the hand pump.

CAUTION: Hose connections from the pump discharge to any other location are not permitted.

- (c) Empty drums shall have all bungs replaced and the drums stored in a vertical position with the bung head up.

CAUTION: Do not wash or flush out any empty petroleum product drums.



CASE XII - VERTICAL STORAGE AND HORIZONTAL DISPENSING

- (a) All drums shall be stored in the vertical position at the dispensing location when not in use. The head with the bung openings shall be in the up position and both bungs shall be tight.
- (b) Drum rack shall be used to support the barrel in the horizontal position. The rack shall prevent the rolling of the drum when in the horizontal position and hold the drum in position to prevent sliding or tilting when the oil product is withdrawn.
- (c) Drum shall have a self-closing 3/4-inch barrel faucet installed in the small bung opening while the barrel is in the vertical position.

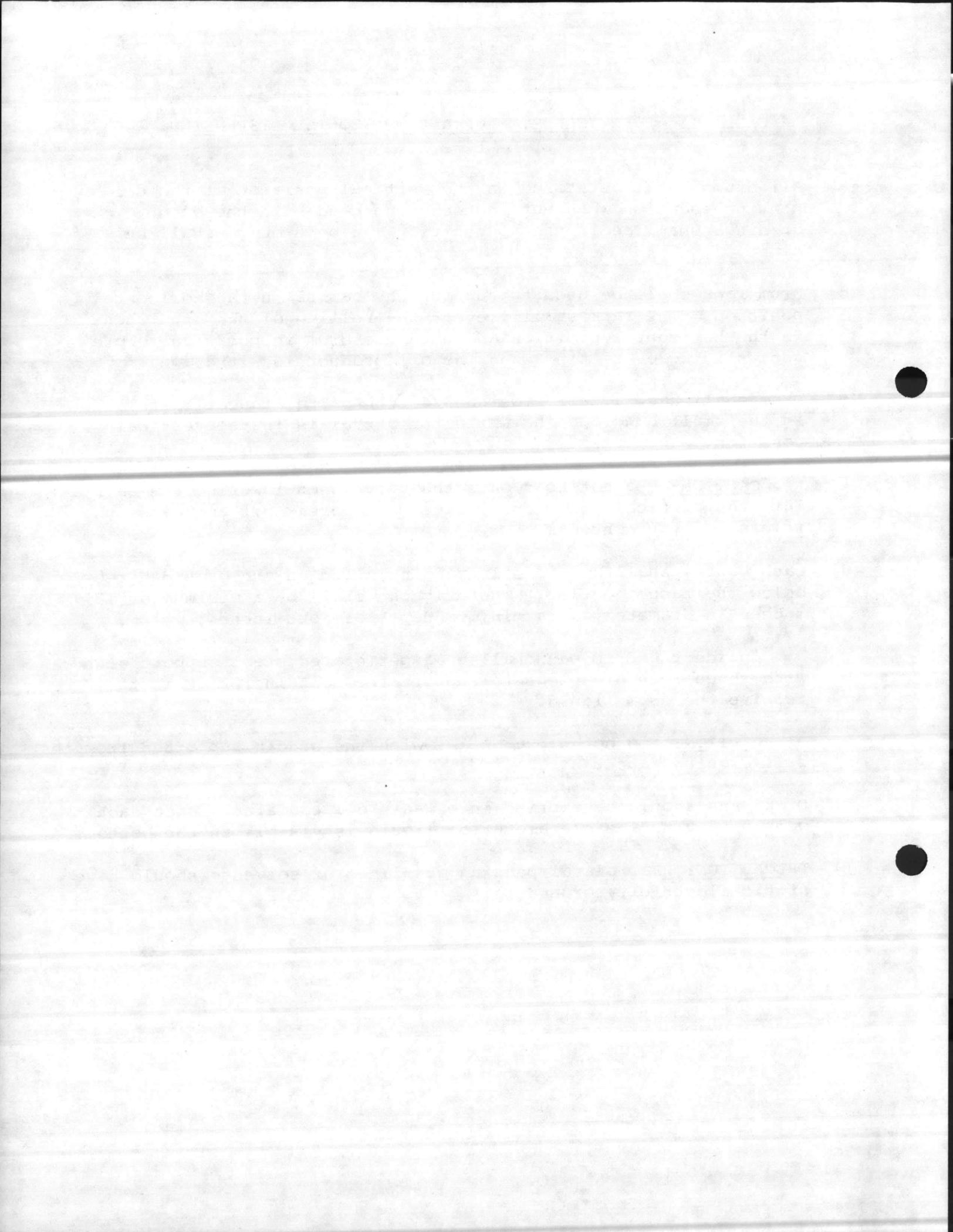
CAUTION: Do not hold onto the valve when lowering the barrel into the vertical position. Valve could break off and cause the release of the contents.

- (d) Each barrel shall have a drip pan installed on the ground directly below the faucet outlet. The drip pan shall be a minimum of 18 inches in diameter and a minimum depth of four inches.

Inside the drip pan shall be a perforated steel support stand with three inch high legs to support the container that is to receive the drum liquid.

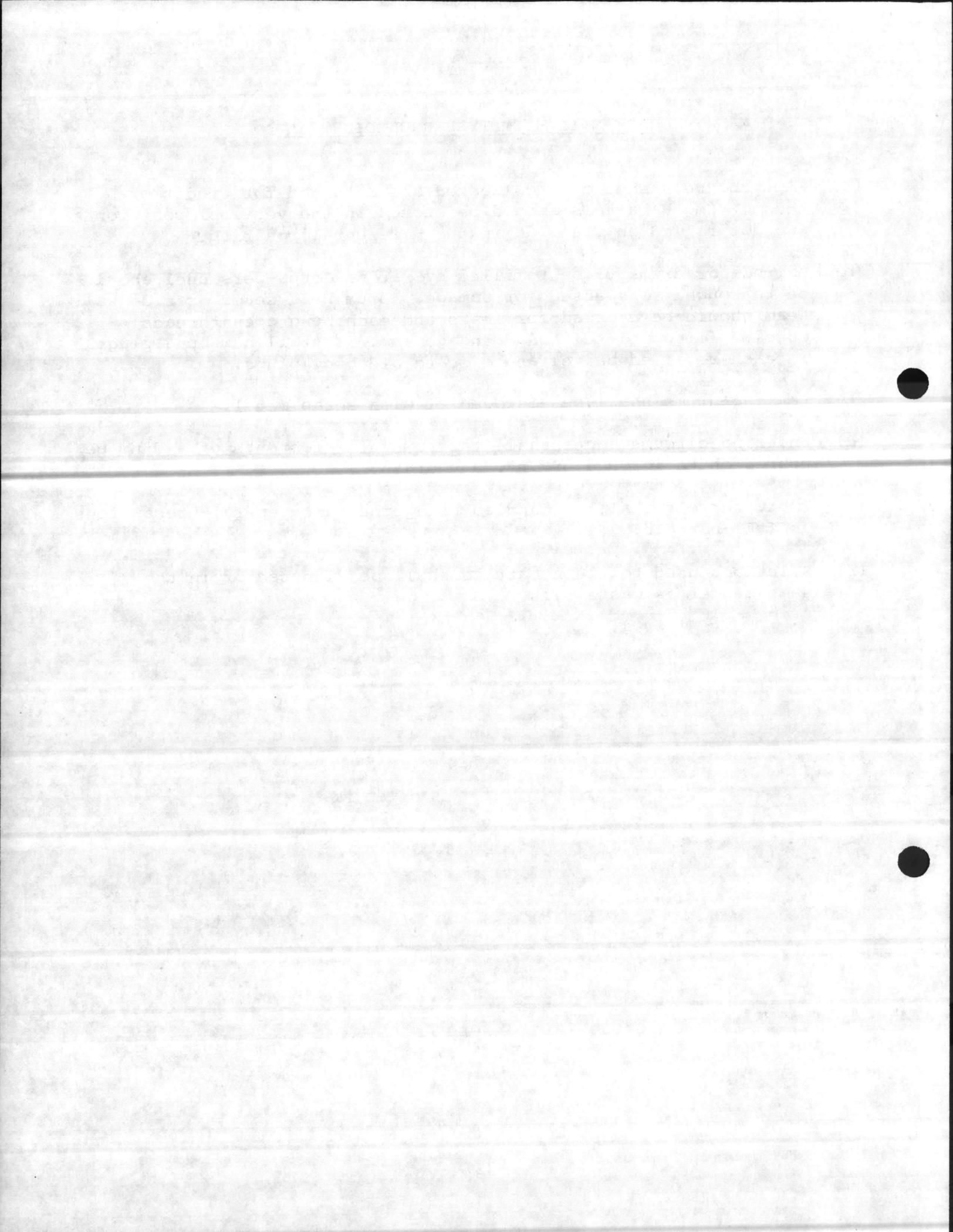
CAUTION: Do not use a bucket with the handle supported from the self-closing faucet nozzle.

- (e) Drip pans should be emptied into waste oil containers once each week or ^{when} any noticeable amount of liquid is visible in the bottom.
- (f) PRECAUTION: Barrels dispensing gasolines or solvents should have static electricity grounding.



CASE XIII - EMPTY BARREL DISPOSAL

- (a) Empty barrels should be collected and returned for credit or reuse. Empty barrels should be stored in the vertical position and not rolled on its side in the horizontal position.
- (b) Barrels or drums to be refilled by Marine Corps personnel should be thoroughly inspected for damage. Drum head seams or side wall seam should be checked for leaks and each bung open threads checked for complete thread engagement. Install new bung plugs in each refilled barrel and discard old bung plugs.
- (c) Leaking drums shall be disposed of with scrap metal.
- (d) Under no circumstances shall the remaining contents of a drum be poured on the ground or into any drain.
- (e) Empty barrels shall be handled using the same general precautions as full barrels.
- (f) Solutions used to clean barrels shall be disposed of in the same manner as waste oils.



3. Preventative Maintenance

(a) Replace drum faucets with new faucets once each year. Scrap old faucets since repair labor will exceed value of new faucet.

(b) Inspect horizontal drum racks once each year for damage. Repair all damage as required.

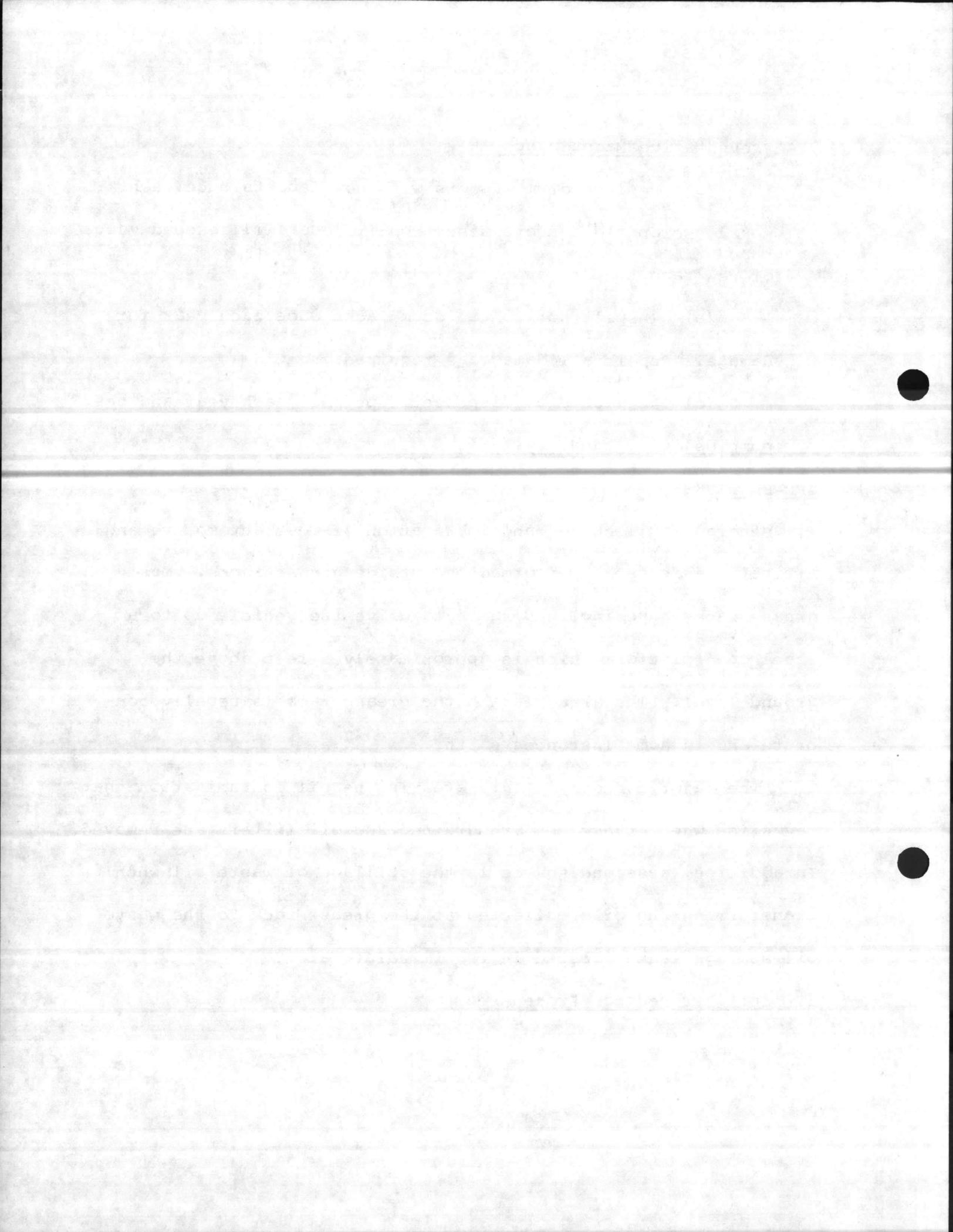
(c) Replace drum dispenser cups once each year and test pump delivery capacity.

E. GREASE RACKS

1. General - Oil change and lubrication of most automotive and military vehicles is performed on outside grease racks. Most grease racks have inclined ramps to drive the vehicle up to a level open platform which is approximately 5 feet above the ground level. The area beneath the grease rack is usually concrete and in some instances earth.

The major concern in this area is the oil contamination that may arise when crankcases are drained and oil filters are removed. In addition, a second source is the spillage of waste oil when transferring the oils collected at the grease rack to the waste oil storage tanks located in the immediate area.

2. Spill Prevention Procedures



CASE XIV - GREASE RACK UTILIZATION

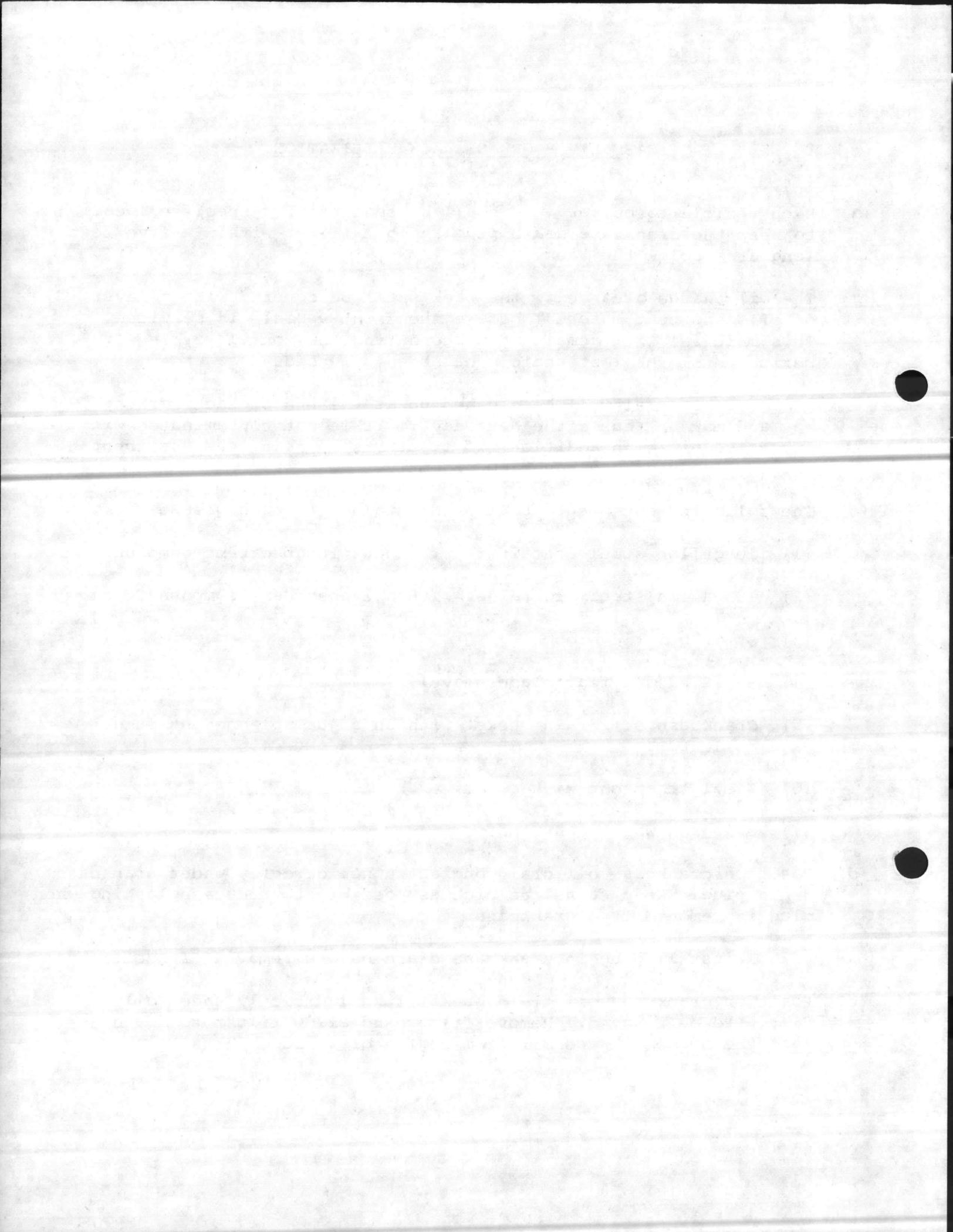
- (a) Each vehicle to be serviced shall be spotted at a specific location to keep the crankcase drain plug and oil filter within a five feet long area below the rack.
- (b) The oil change area below the rack shall be covered with a layer of oil absorbent material before the first vehicle is serviced. This material will remain in place during the normal working period until the last vehicle has been serviced.

The material will be cleaned up at the end of each working day and may be reused the next day if it is not contaminated with excessive oil. In addition, if it starts to rain, the absorbent material should be cleaned up promptly.

- (c) The following equipment shall be maintained at each grease rack.
 - (1) 10 gallon steel container for reusable absorbent compound.
 - (2) 10 gallon steel container with oil absorbent compound.
 - (3) Stiff bristle broom.
 - (4) Short handle flat blade shovel.
 - (5) Crankcase oil drain bucket with an adjustable height funnel collector.
 - (6) Steel trash can with cover.
 - (7) Oily rag waste container.
- (d) Position crankcase oil drain bucket funnel directly under crankcase drain plug. Keep funnel as high as possible to reduce splashing when plug is removed from crankcase.

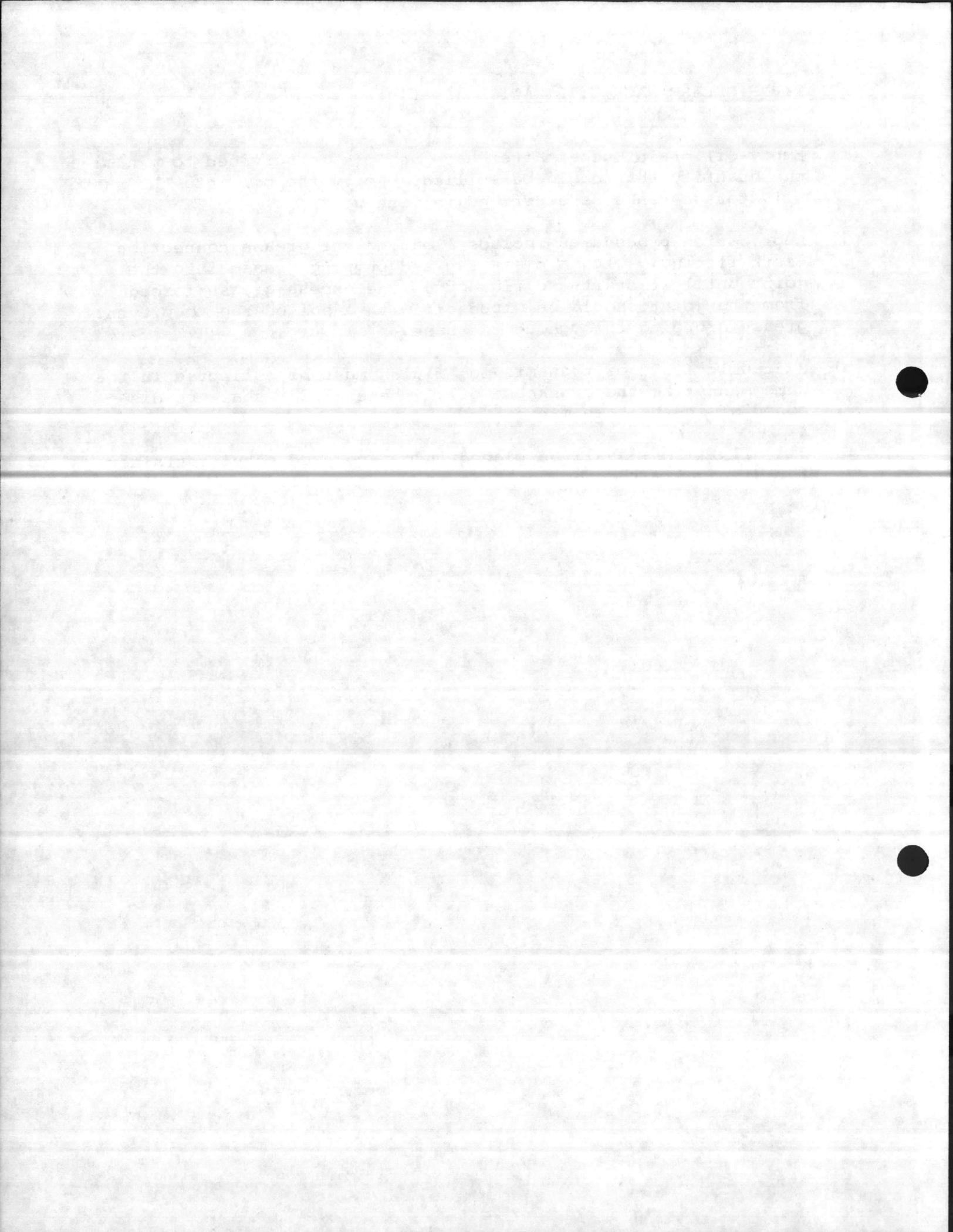
Reinstall plug in crankcase drain before removing funnel.

- (e) Position crankcase oil drain bucket funnel directly under oil filter to be removed. Remove filter and allow filter to drain into the bucket. Wipe oil from engine or vehicle parts.



CASE XIV - GREASE RACK UTILIZATION (Cont'd)

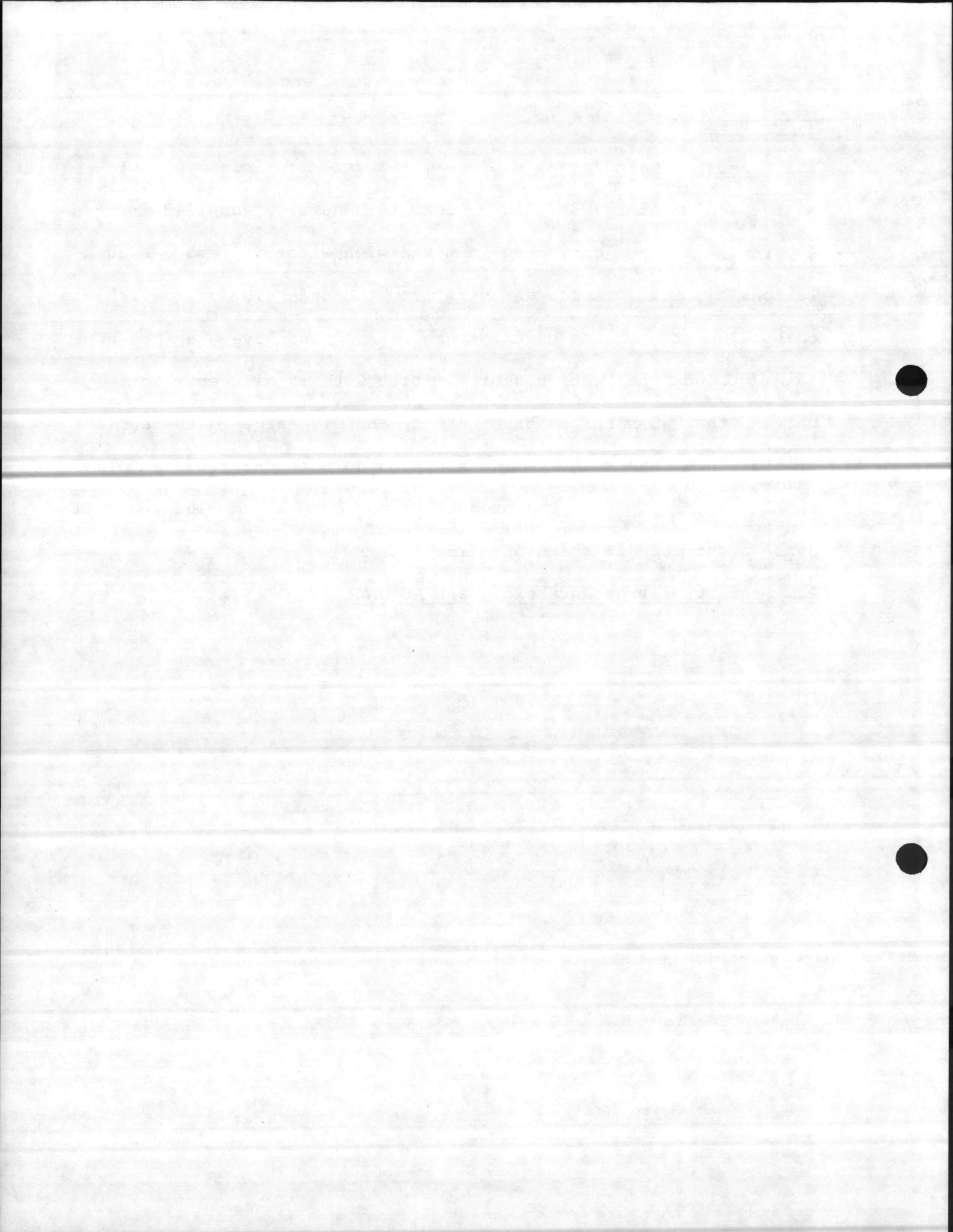
- (f) Empty oil drain bucket after each vehicle is serviced to minimize the quantity that could be spilled. Empty the oil into the waste oil storage tanks as described in Case V.
- (g) Lubrication procedures include cleaning the grease connection (zerk fitting) with a clean rag and pumping grease into the joint until it starts to flow out. The excess grease forced from the joint should be wiped off with a soiled rag to prevent grease dropping throughout the base.
- (h) Hydraulic fluid or transmission fluids must be collected in the same manner as the crankcase oil. These fluids shall be disposed of in the same manner.
- (i) Old oil filters shall be placed into a covered steel container for disposal with other oil saturated materials.



F. WASH APRONS

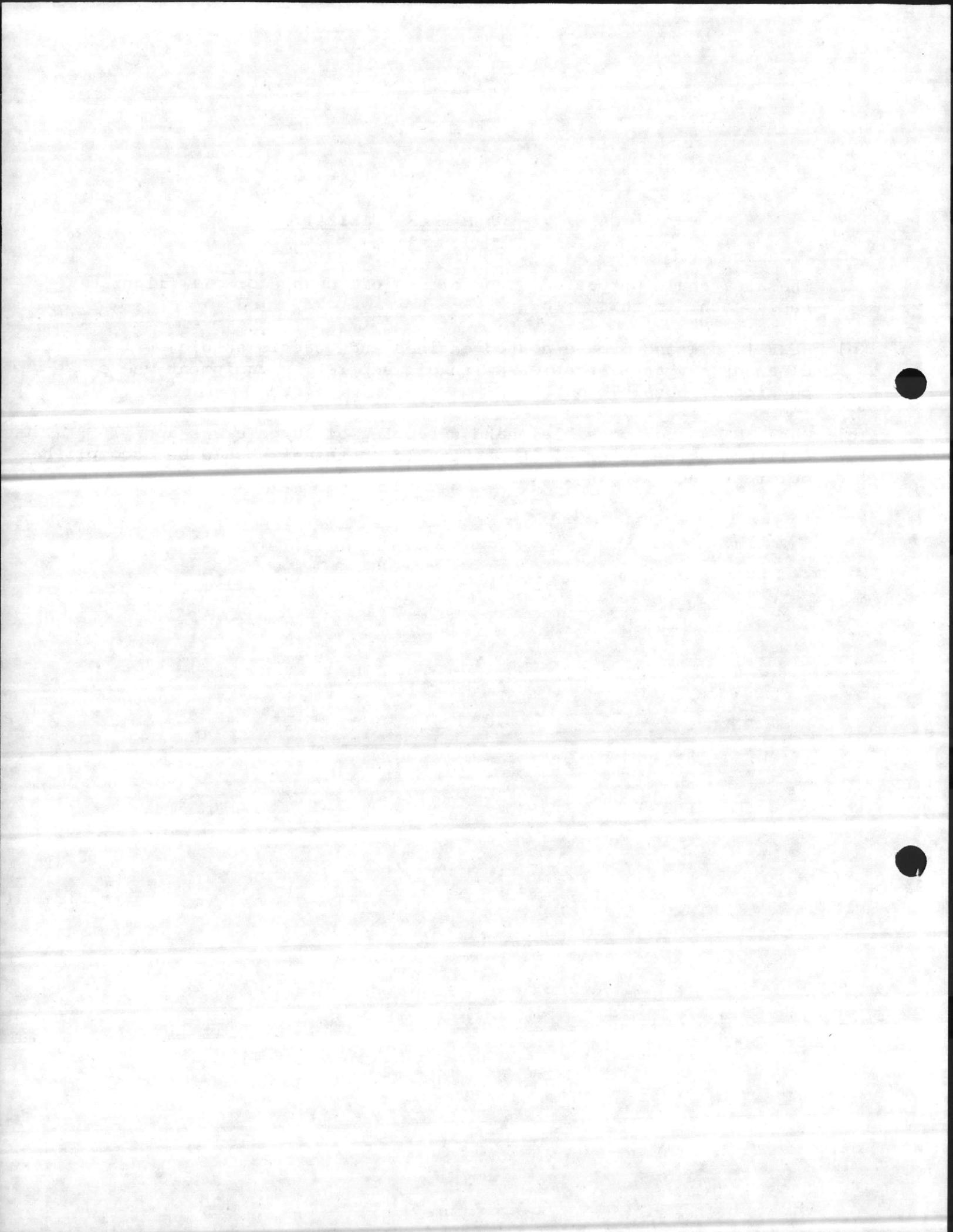
1. General - Wash aprons use steam and water for cleaning automotive and military vehicles. Steam is generally supplied from a portable "steam jenny" and is mixed with water to remove accumulations of oils, grease, and dirt from the underside of the vehicle chassis and the engine block. Some wash aprons have a curbed containment and a collection system fitted with an oil separator unit. Other wash aprons have curbing and discharge to the surface or storm drainage system. These aprons do not constitute an oil spill hazard, however, the products removed by steam cleaning will cause a surface oil sheen or streaking.

2. Prevention Procedures for Wash Aprons



CASE XV - WASH RACK UTILIZATION

- (a) The area shall be posted prohibiting oil change or oil filter replacement in this area.
- (b) Heavily oil and grease coated engines and chassis should be cleaned only at wash aprons with oil separation equipment where physically possible.
- (c) When (b) is not possible, hand scrapping of large areas and collecting the material in a suitable container should be accomplished before steam cleaning.

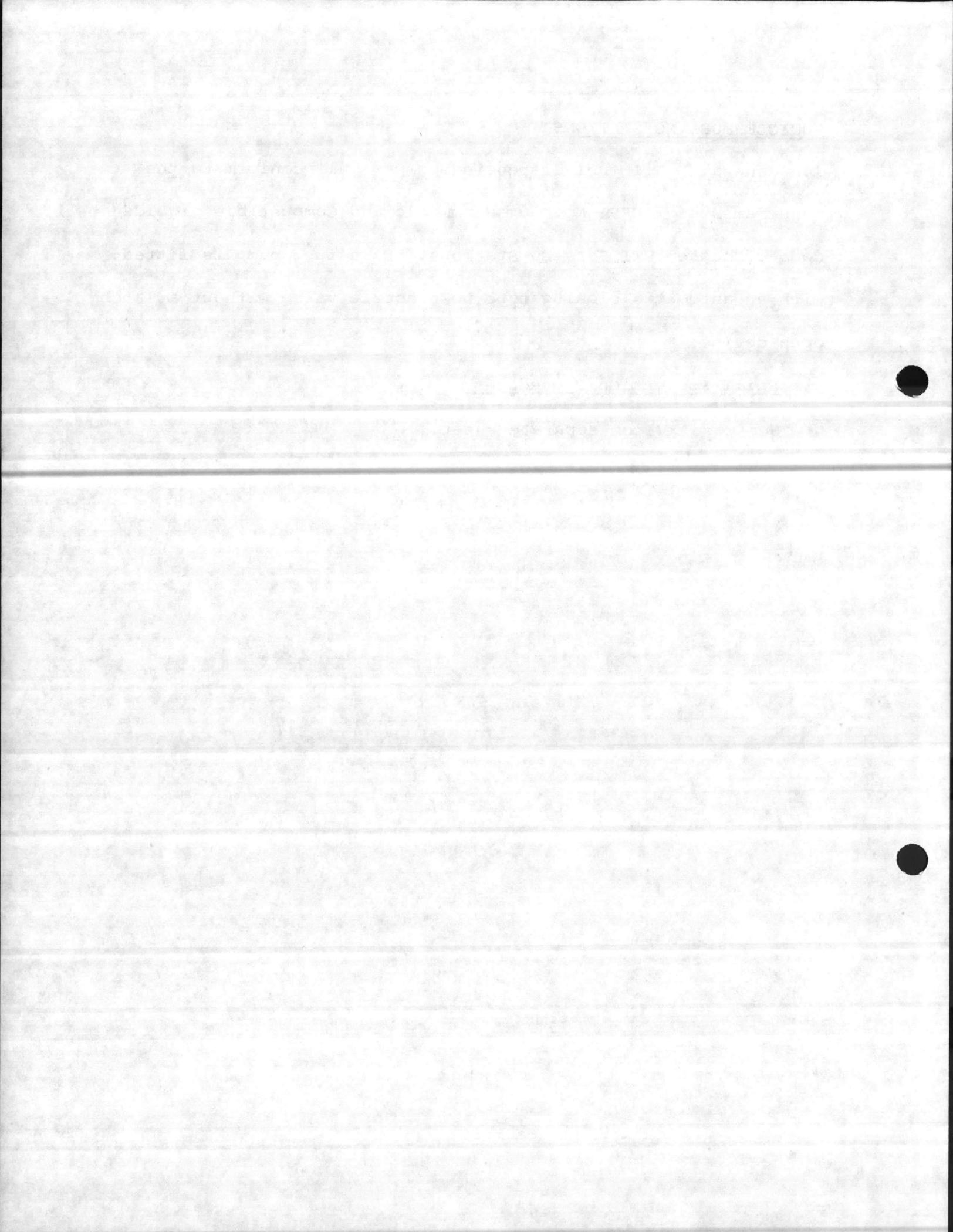


G. VEHICLE FUELING STATIONS

1. General - All fuel dispensing pumps shall conform to the requirements of NFPA No. 30 "Flammable and Combustible Liquids Code", Chapter VII Service Stations. Each fuel pump is fitted with an automatic closing type hose nozzle valve without a latch open device.

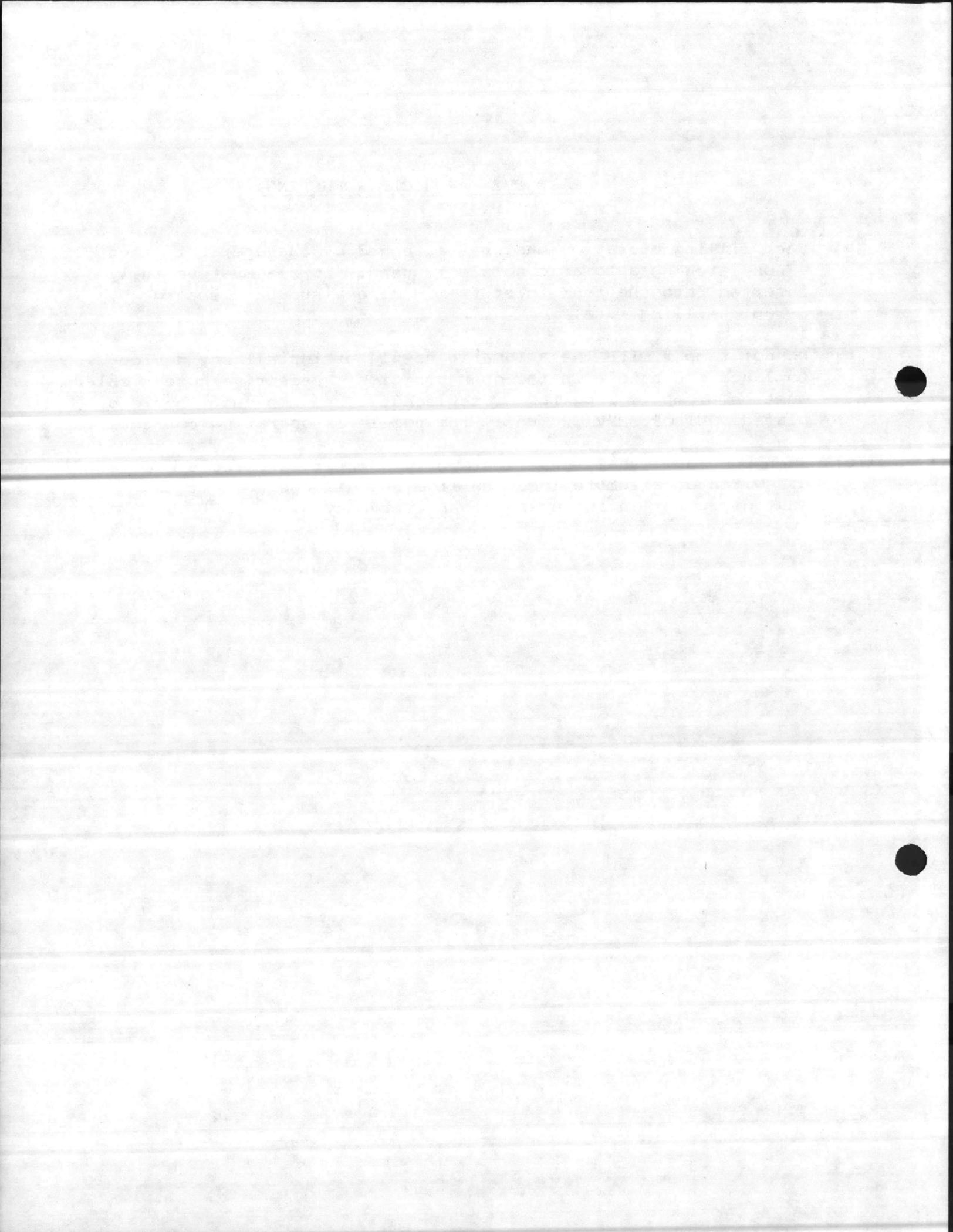
2. Spill Prevention Procedures

See Case XVI on separate sheet.



CASE XVI - VEHICLE REFUELING

- (a) Each filling operation must be attended by the operator since a non-latching automatic nozzle is used. Nozzle must be fully inserted into the tank inlet to minimize a sudden discharge by a rapid filling rate.
- (b) Do not tamper with the automatic nozzle or install any device to latch the handle in the open position. Defective hose nozzles must be promptly repaired or replaced. The pump unit should be placed "OUT OF SERVICE" until the nozzle is operating correctly.
- (c) Each pump unit shall have a properly identified circuit breaker or switch at a remote location from the dispensing unit to shut off power in the event of an emergency.



3. Preventative Maintenance

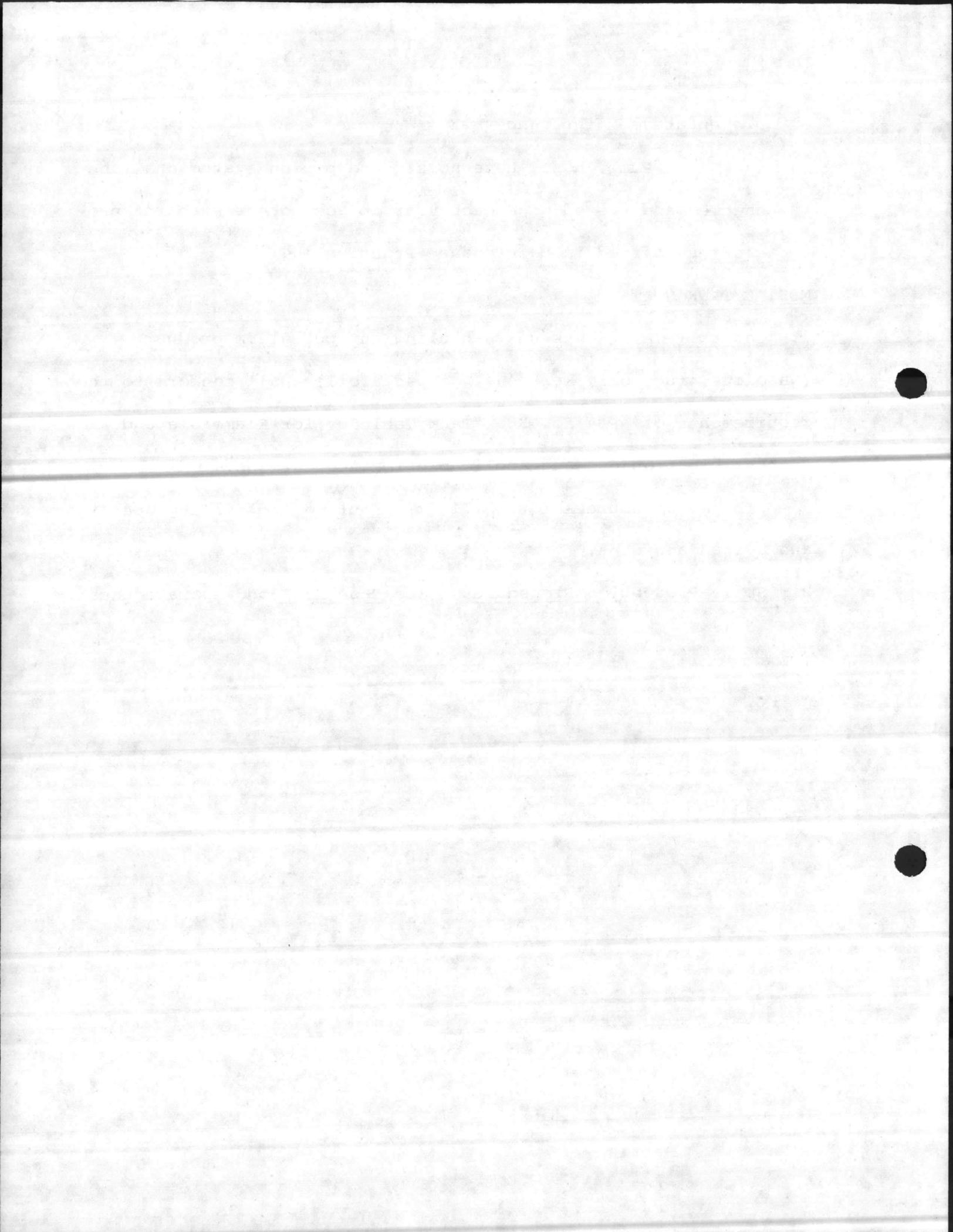
(a) Pump, hose, hose nozzle and piping system shall be checked and tested once each year in accordance with the procedures defined in Maintenance Practice 104.

H. MOBILE TANK UNITS

1. General - All truck units hauling any petroleum product (gasoline, fuel oil, kerosene, or waste oil) shall conform to the requirements of NFPA No. 385 "Tank Vehicles for Flammable and Combustible Liquids" and applicable ICC Regulations.

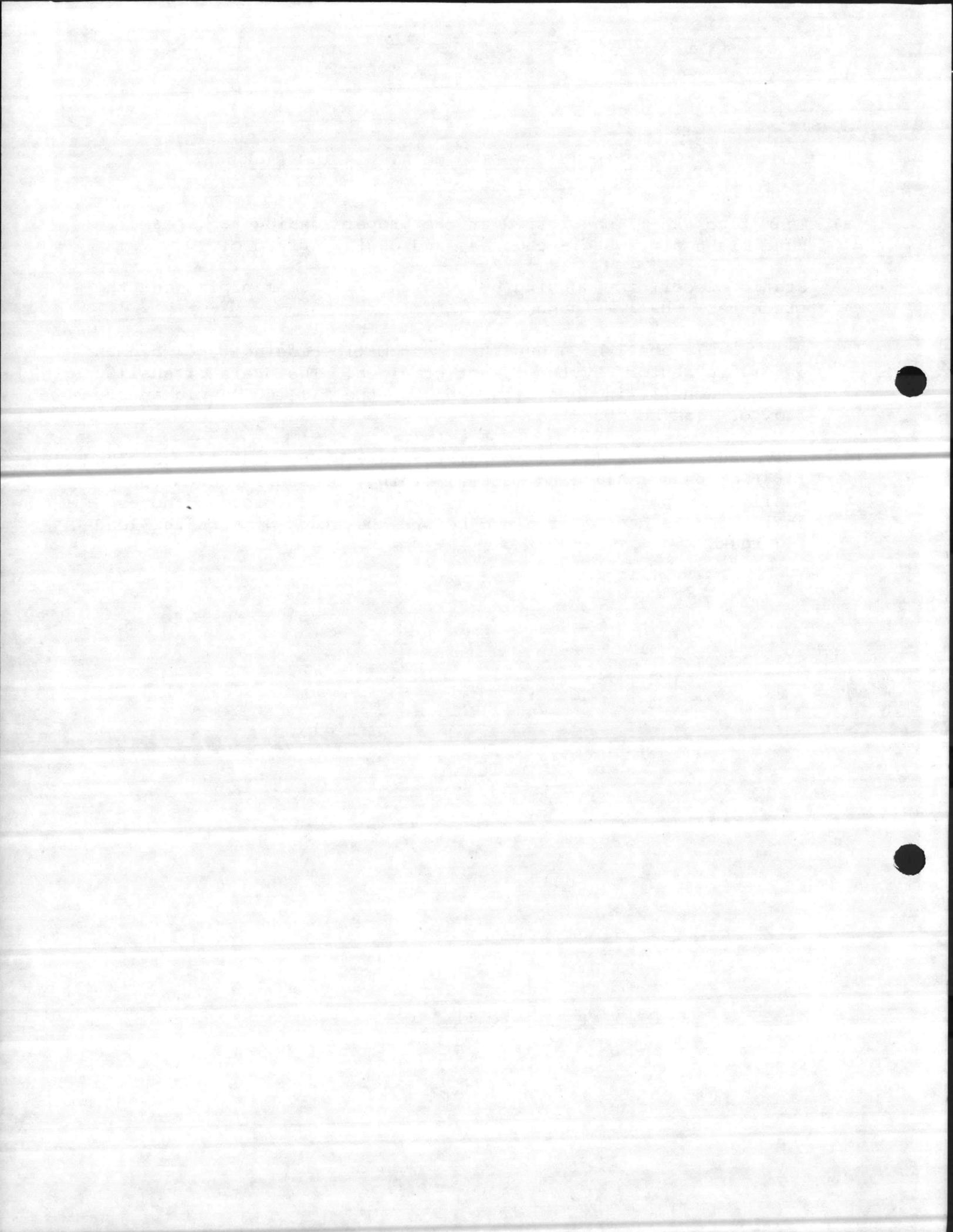
The major sources for spill exist during the filling operation and a road accident.

2. Spill Prevention Procedures - See Case XVII on separate sheet.



CASE XVII - FILLING AT LOADING RACK

- (a) Tank truck shall be spotted at the proper loading rack position, hand brake set, wheels chocked, and engine turned off.
- (b) Static electricity bonding between the fill stem piping and the truck tank shall be connected.
- (c) Fill nozzle shall be a hand held automatic closing type when an automatic shutoff system is not provided. The operator shall attend each filling operation to stop the filling should an overflow or leak be observed.
- (d) All cargo tank fuel filling inlets shall be closed and rechecked for tightness. All hand valves, piping, pressure-vacuum vents shall be inspected. All access doors, dome covers, and hoses shall be closed or restrained before the truck departs the loading rack.

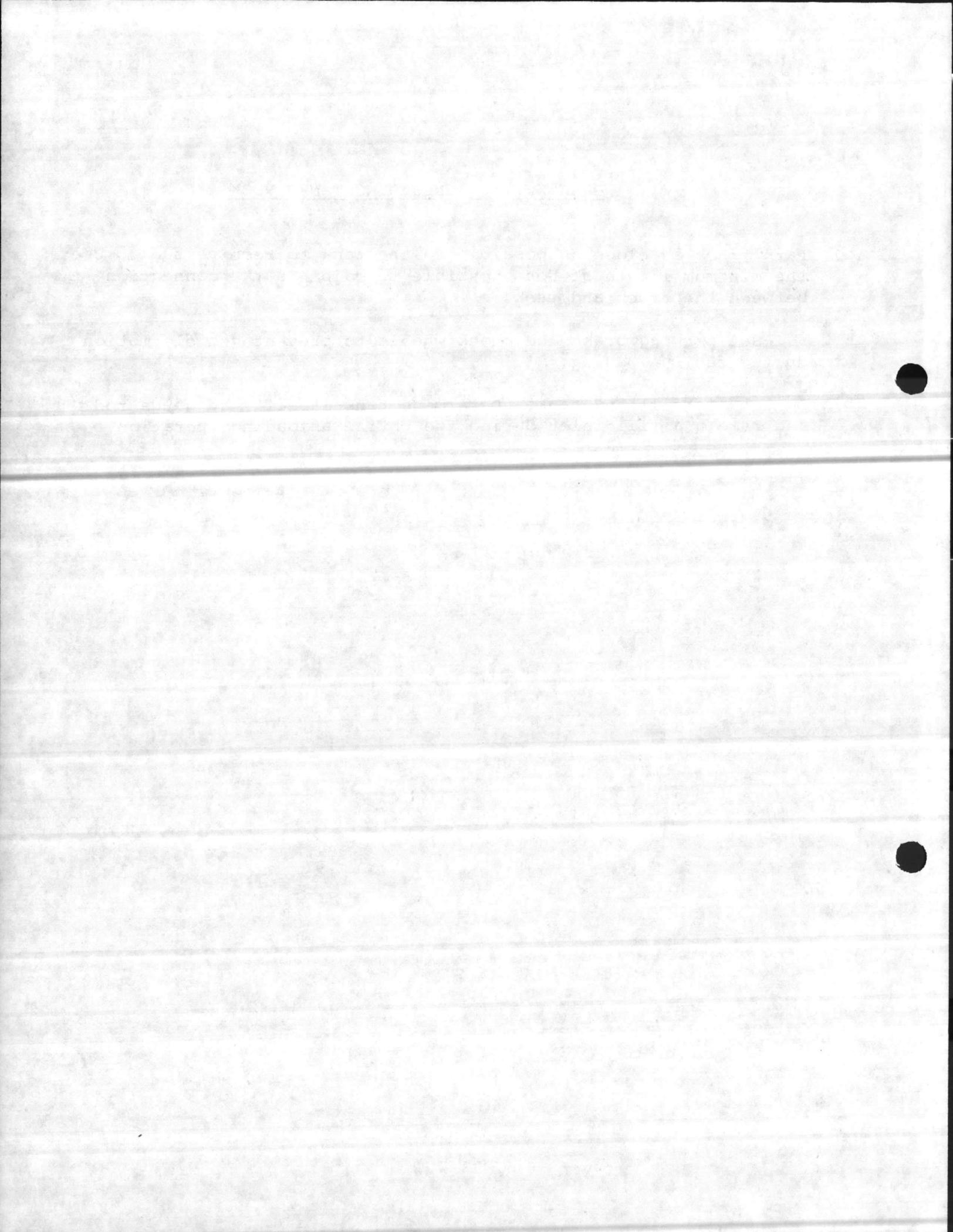


CASE XVIII - UNLOADING TANK TRUCK

- (a) Park truck as close as possible to the tank to receive fuel. Use the minimum length of hose possible to complete the connection between the truck and tank.

Set parking brake and chock wheels to prevent vehicle motion during fuel unloading.

- (b) Do not overfill any tank. Determine tank capacity by gauge rod and remain a fill inlet during the entire unloading operation.



3. Preventative Maintenance

(a) Vehicle Maintenance and Inspection - Each truck shall be maintained in good mechanical condition by performing the following maintenance:

Oil Change - Every 6,000 miles
Oil Filter Change - Every 6,000 miles
Lubrication - Every 6,000 miles
Engine Tune-up - Every 10,000 miles or 6 months
Front end alignment - Every 10,000 miles or 6 months

Semi-annual inspections shall include the following check list:

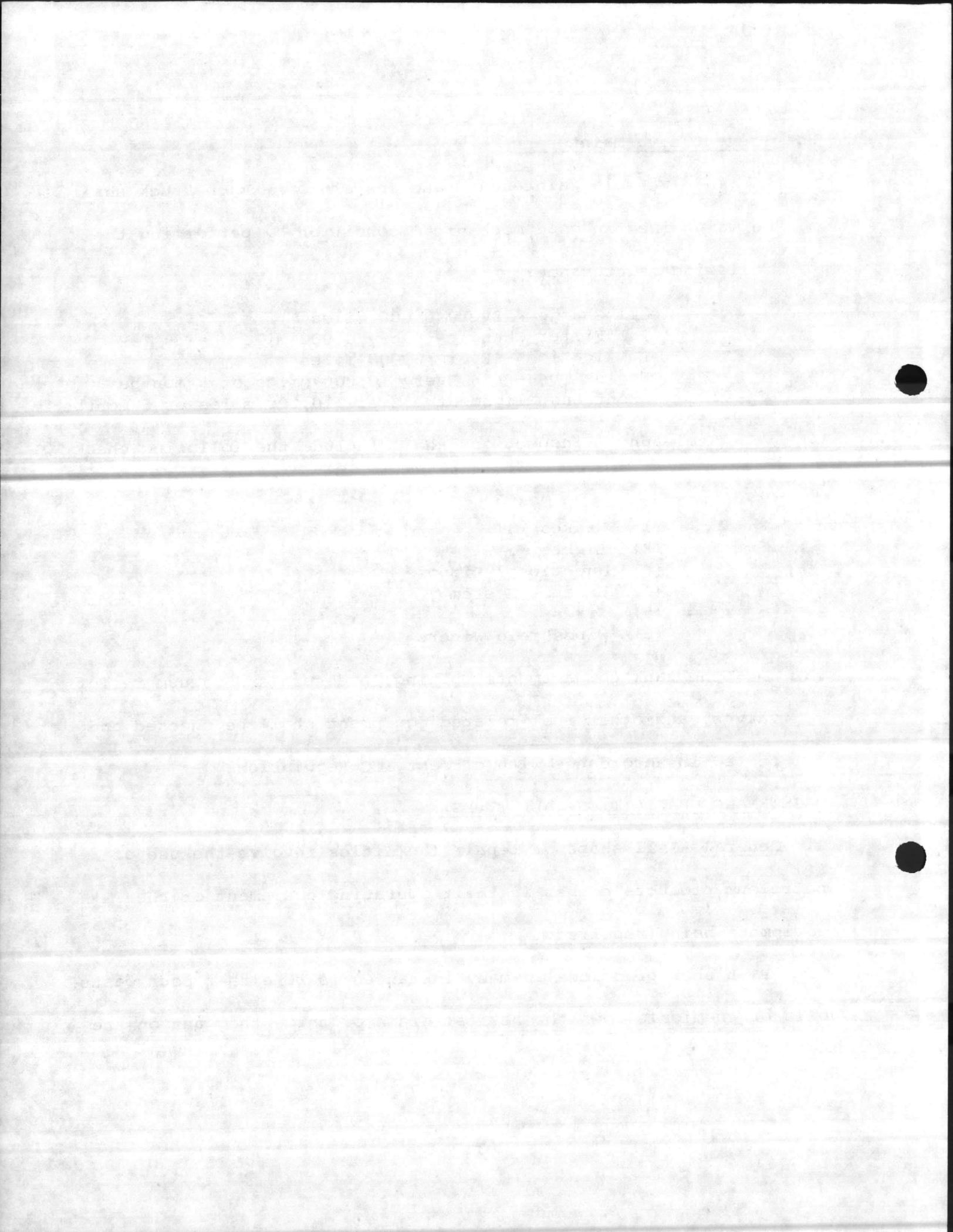
- (1) Brakes
- (2) Lights
- (3) Directional Signals
- (4) Exhaust System
- (5) Tires
- (6) Windshield Wipers

The tank compartments, piping, pressure and vacuum relief valves, and other fuel related equipment shall be checked and tested in accordance with current ICC Regulations.

I. MAINTENANCE FACILITIES (ALL TYPES)

1. General - All shops or repair facilities involve the use of petroleum products either in their operating equipment or the equipment being repaired.

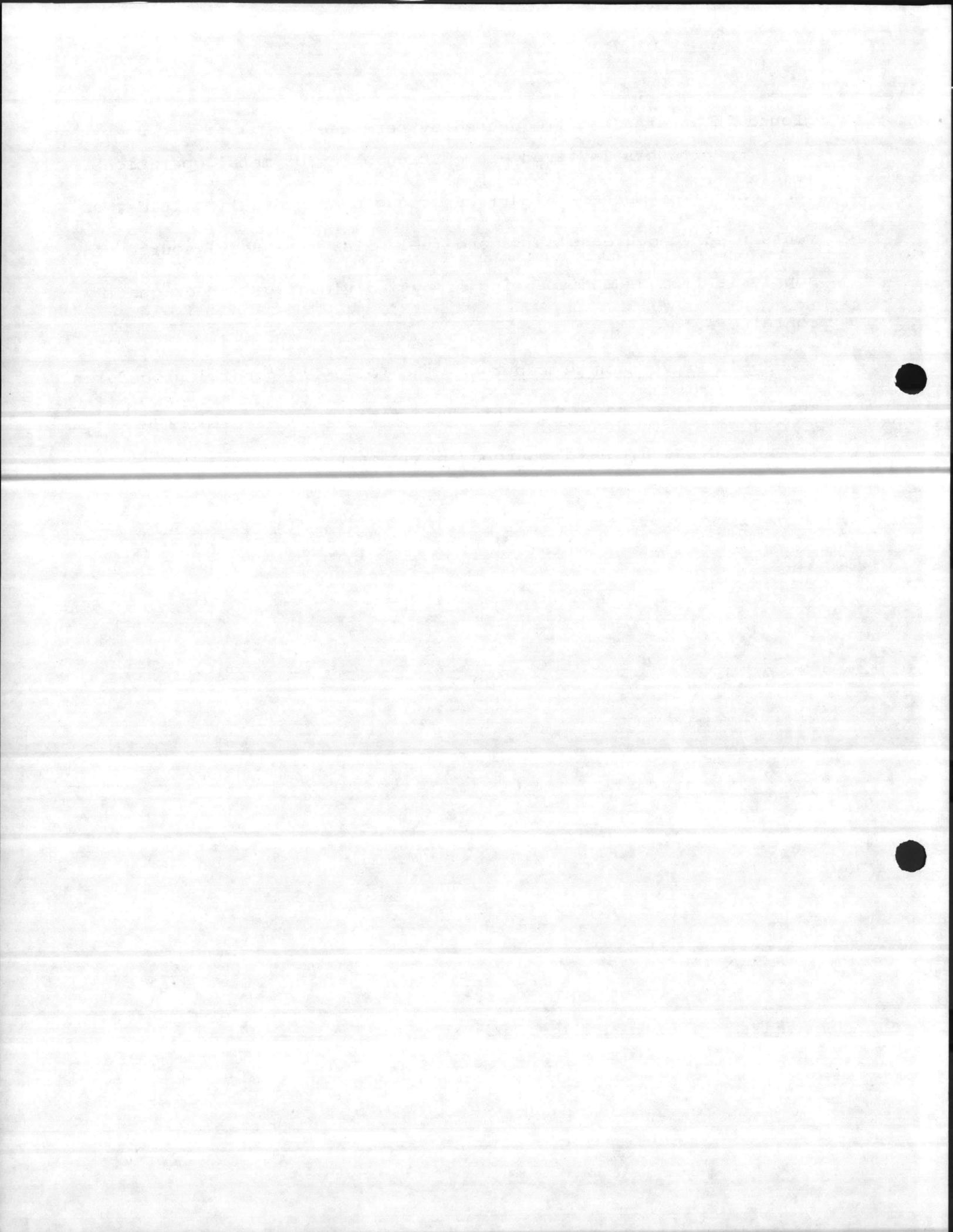
Past shop practices in many instances is to either pour waste oils or chemicals down the nearest drain or throw them out on the



ground in an area not frequented by personnel.

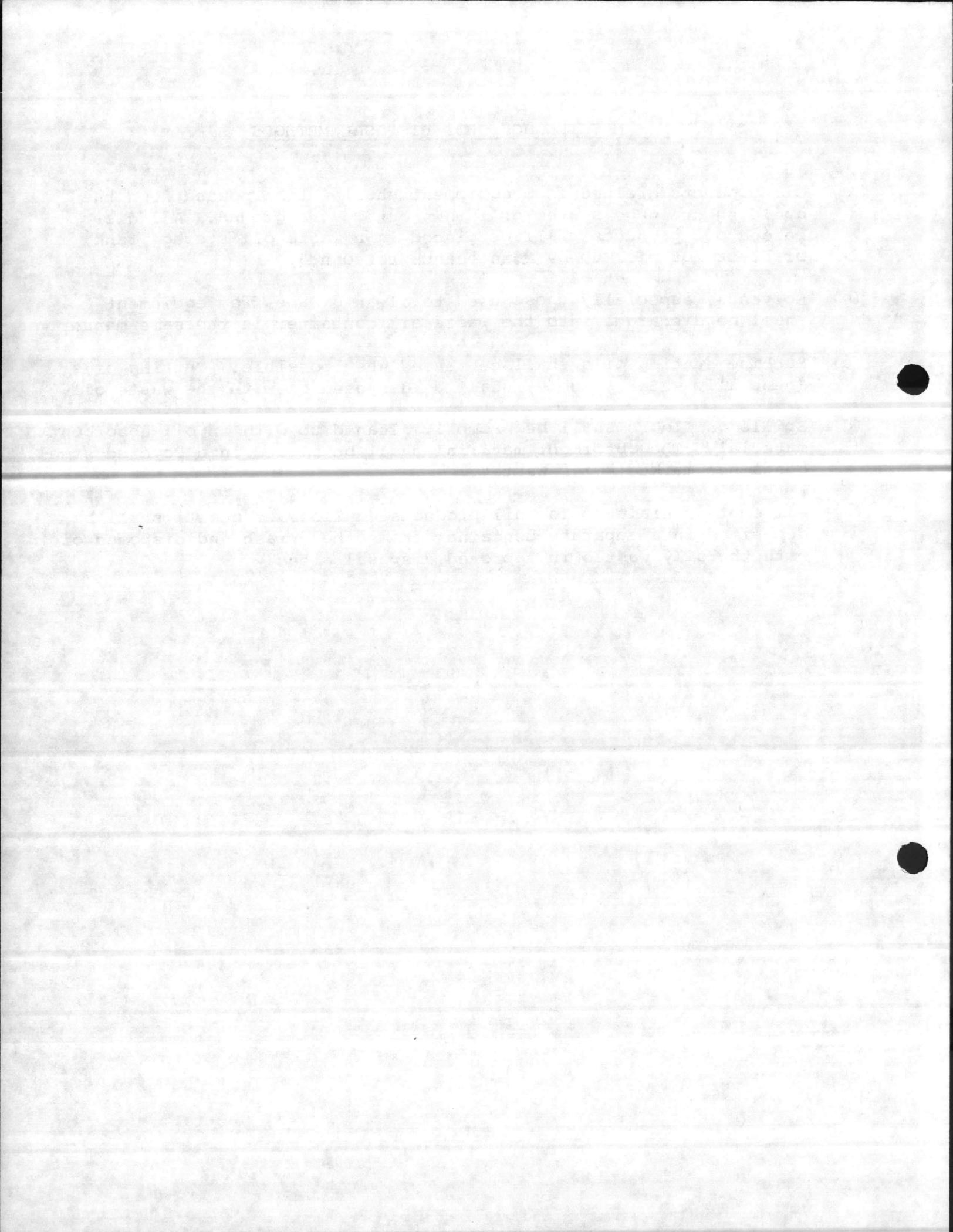
The products involved are cutting oils for metal operations, lubricants for mechanical drives or engines, hydraulic fluids, solvents used to degrease parts and fuel oils. The usual source of supply is from drum dispensing or by individual gallon or quart containers.

2. Spill Prevention Procedures - The following general procedures shall be applied to each maintenance facility where oil products are stored, used, or discharged in any manner.



CASE XIX - MAINTENANCE SHOP DISPOSAL METHODS

- (a) Oil products drained from equipment shall not be poured down the building drainage system or thrown out on the ground. All discarded oil products shall be placed in a waste oil storage tank or drums for pick up by Maintenance Personnel.
- (b) Solvents, especially those used to clean grease from equipment shall be discarded into the waste oil container in the same manner.
- (c) Machine cutting oils shall be reused when possible. Cutting oils (generally water soluble) shall be disposed of with the waste oil.
- (d) Spills on floors shall be promptly cleaned up with an oil absorbent material. The absorbent material shall be placed in a covered steel container marked "Oily Waste".
- (e) All empty containers for oil products (gallons or quart) shall be deposited in a separate container from other trash and disposed of with the oily wastes in approved disposal sites.



J. STORM DRAINAGE SYSTEM MAPS

The Base Maintenance Office shall maintain a complete set of maps (drawings) showing the storm drainage system including catch basins, manholes, open ditches, and points of outfall. These maps will be maintained by annual revisions to incorporate new construction or prior omission. Copies of these maps shall be provided to the following organizations:

Base Fire Department
Director of Natural Resources and Environmental Affairs
Base Maintenance Officer

These maps are essential to isolating spills and assuring that the proper outlet point is properly protected in the event of a spill.

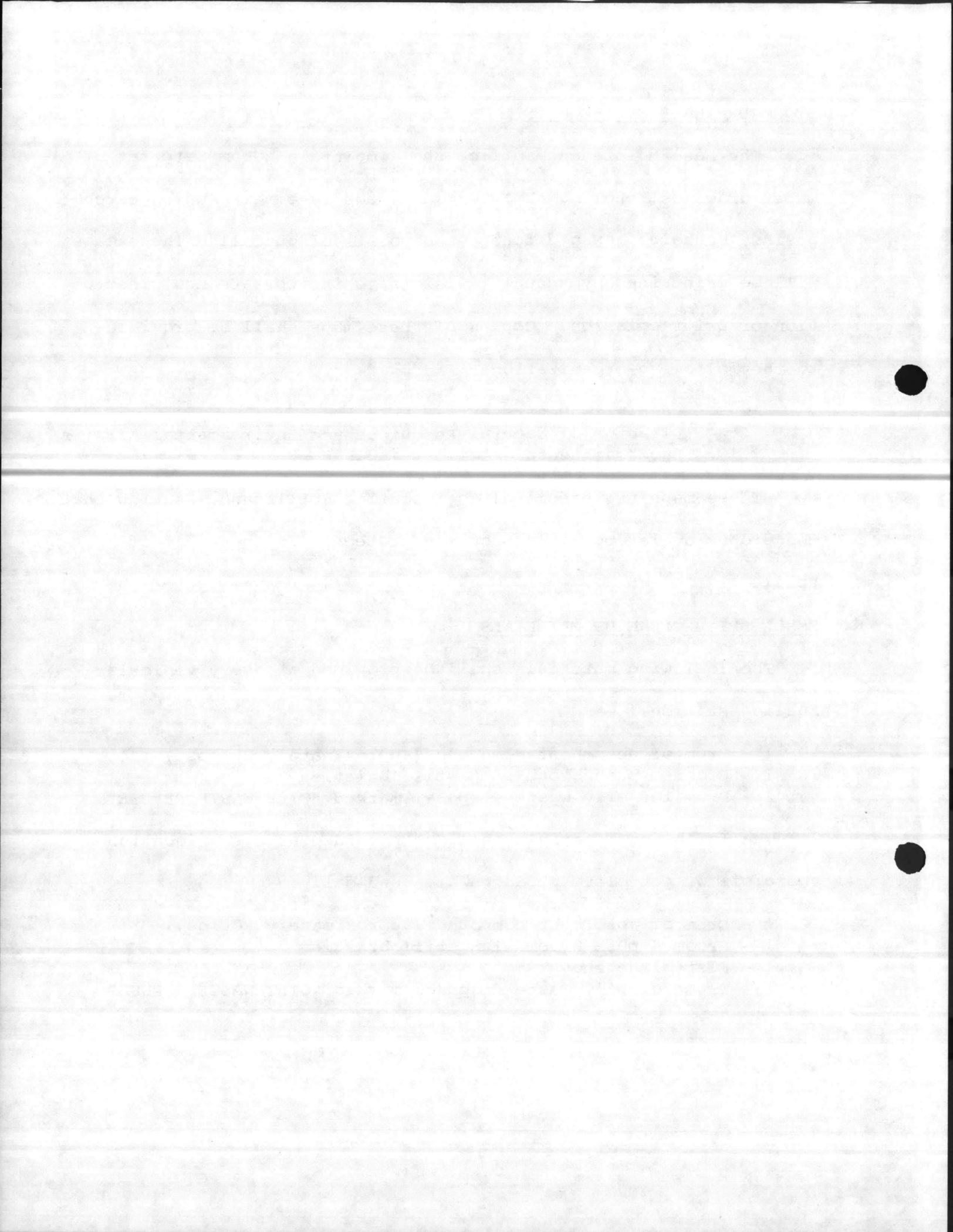
K. SMALL SPILL CLEAN UP MATERIALS

1. The following materials shall be provided at every vehicular fueling station:

- 1 - Drum of absorbent compound (approximately 20 lbs.)
- 1 - Broom - push broom with stiff bristles
- 1 - Drum for oily waste disposal marked "OILY WASTE REFUSE"

2. The following materials shall be provided at every location where oil or petroleum products are used daily:

- 1 - Drum of absorbent compound (approximately 20 lbs.)
- 1 - Broom - push broom with stiff bristles
- 1 - Flat blade shovel
- 1 - Drum for oily waste disposal marked "OILY WASTE REFUSE".



L. TRAINING PROGRAM

1. Responsibility - The Director of Natural Resources and Environmental Affairs is responsible for preparing the educational and specific training programs for preventing oil spills or responding to the containment and clean-up of a spill.

2. Training Program

(a) Tennant/User Training shall be conducted once each quarter to instruct personnel in the following general areas:

(1) Effect of oil or other hazardous materials to humans, animals and vegetation.

(2) The responsibility of each person to prevent spills.

(3) Specific precautions for their area of operations using the applicable case situation with ammendments.

(4) Reporting all spills.

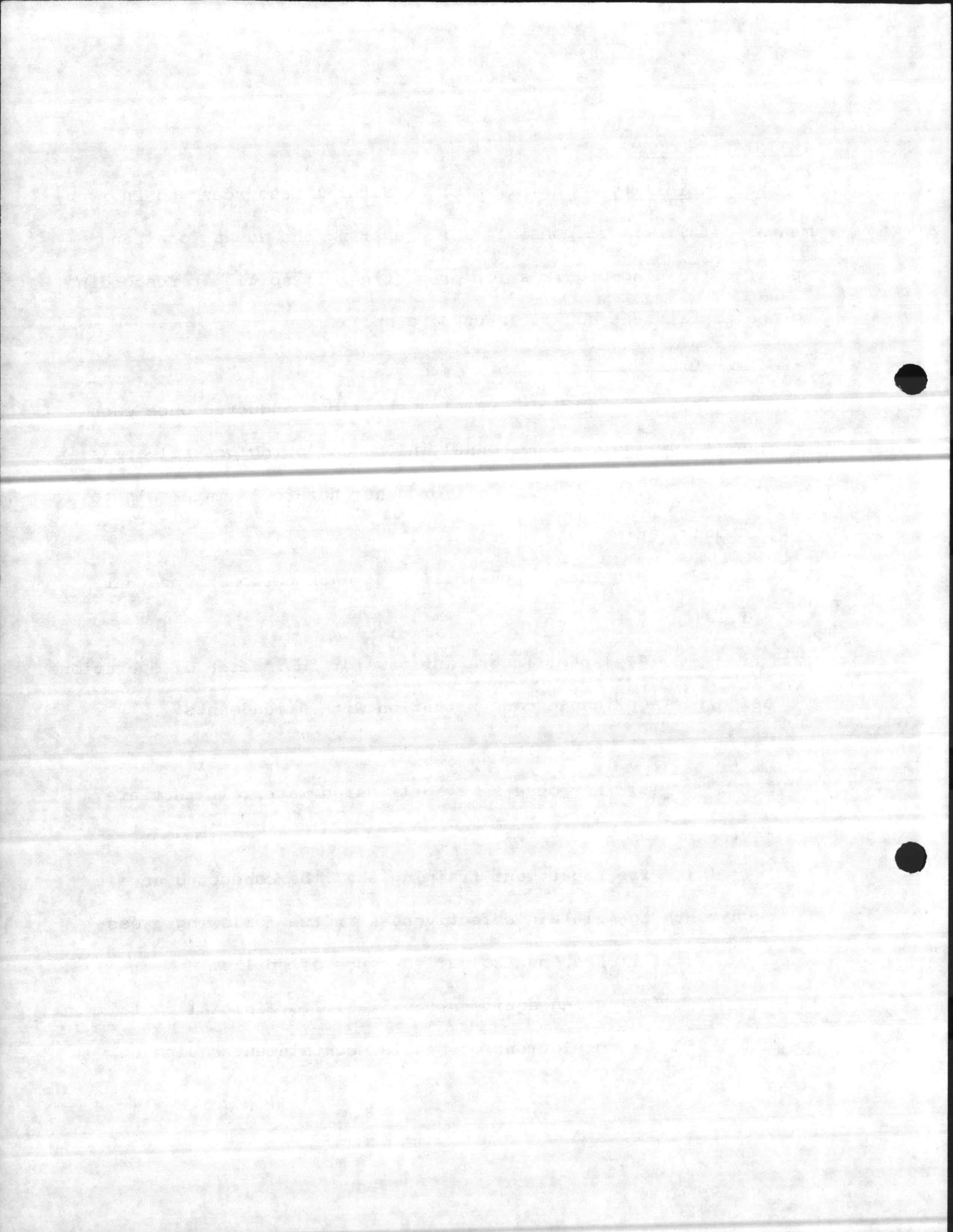
(5) Response to a spill using materials that are available in their area.

(b) Fire Department training shall be conducted once each month to maintain effectiveness in the following areas:

(1) Response to varied types of spills.

(2) Using equipment available for initial containment.

(3) Deployment of special containment equipment.



(c) Base Maintenance personnel shall be trained once each month to maintain effectiveness in the following areas:

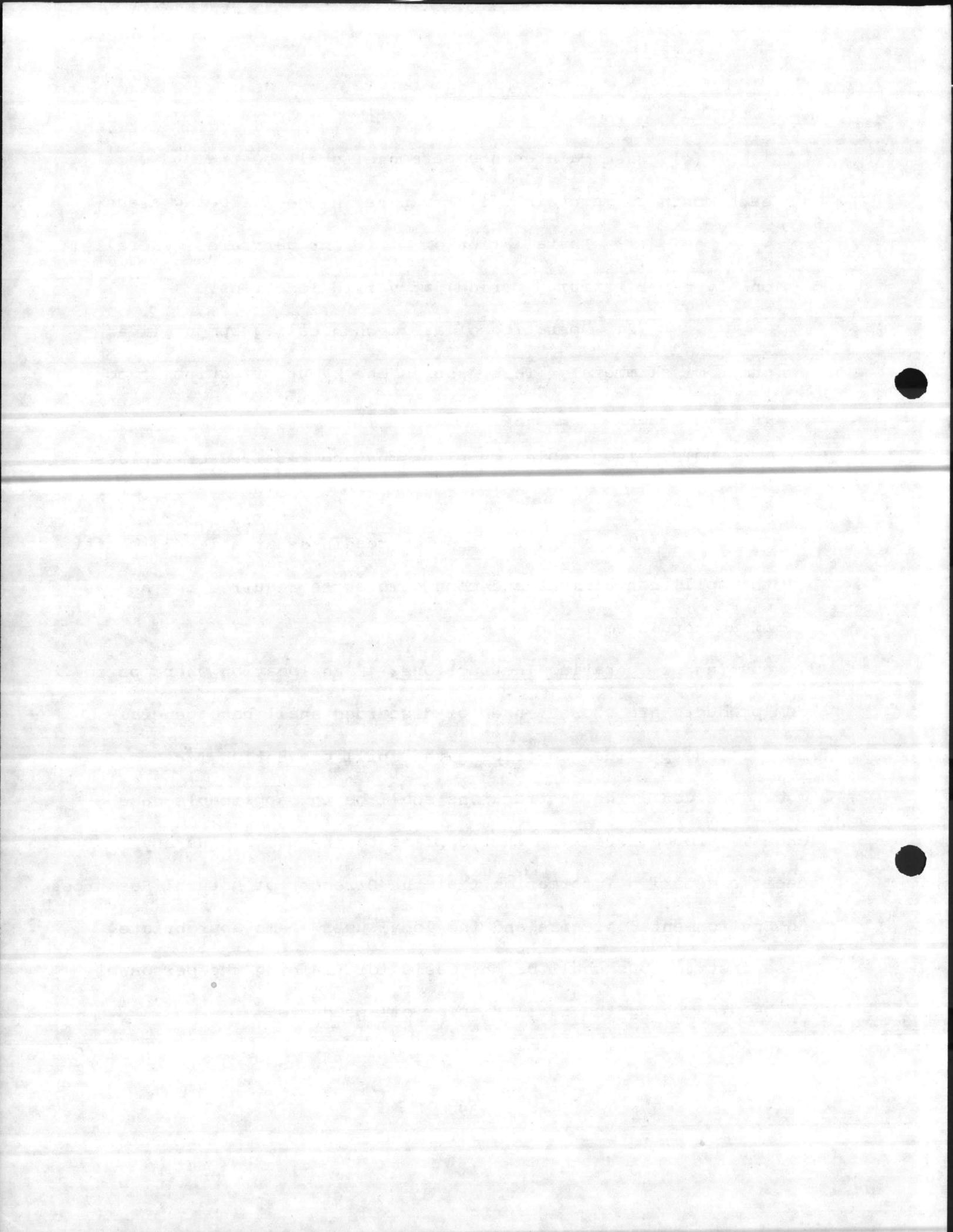
(1) Installation of different barriers (generally one type per training period) at varied locations.

(2) Operation of all mechanical equipment (i.e. pumps or skimmers). This assures check out of equipment to maintain a higher degree of readiness.

NOTE: Inoperable equipment must be repaired or replaced promptly.

(3) Keep organization readiness at a level to meet the spill containment and countermeasures required in the event of an actual emergency.

3. Posting of Operating Instructions - Each location where petroleum products are stored, used or discarded shall have general instructions provided describing the spill prevention measures to be observed. The instructions shall be the applicable case (Case I through Case XIX) that applies to the usage plus any specific detailed information that the Director of Natural Resources and Environmental Affairs and the local user deems appropriate. These instructions shall be the basis for training the personnel in the area using the facilities or oil products.



OIL SPILL COUNTERMEASURE PLAN

A. REPORTING SPILLS OF OIL AND OTHER HAZARDOUS SUBSTANCES

1. Materials Classification - The following products are considered oil compounds or hazardous substances which must be reported if spilled on the ground or water in any amount:

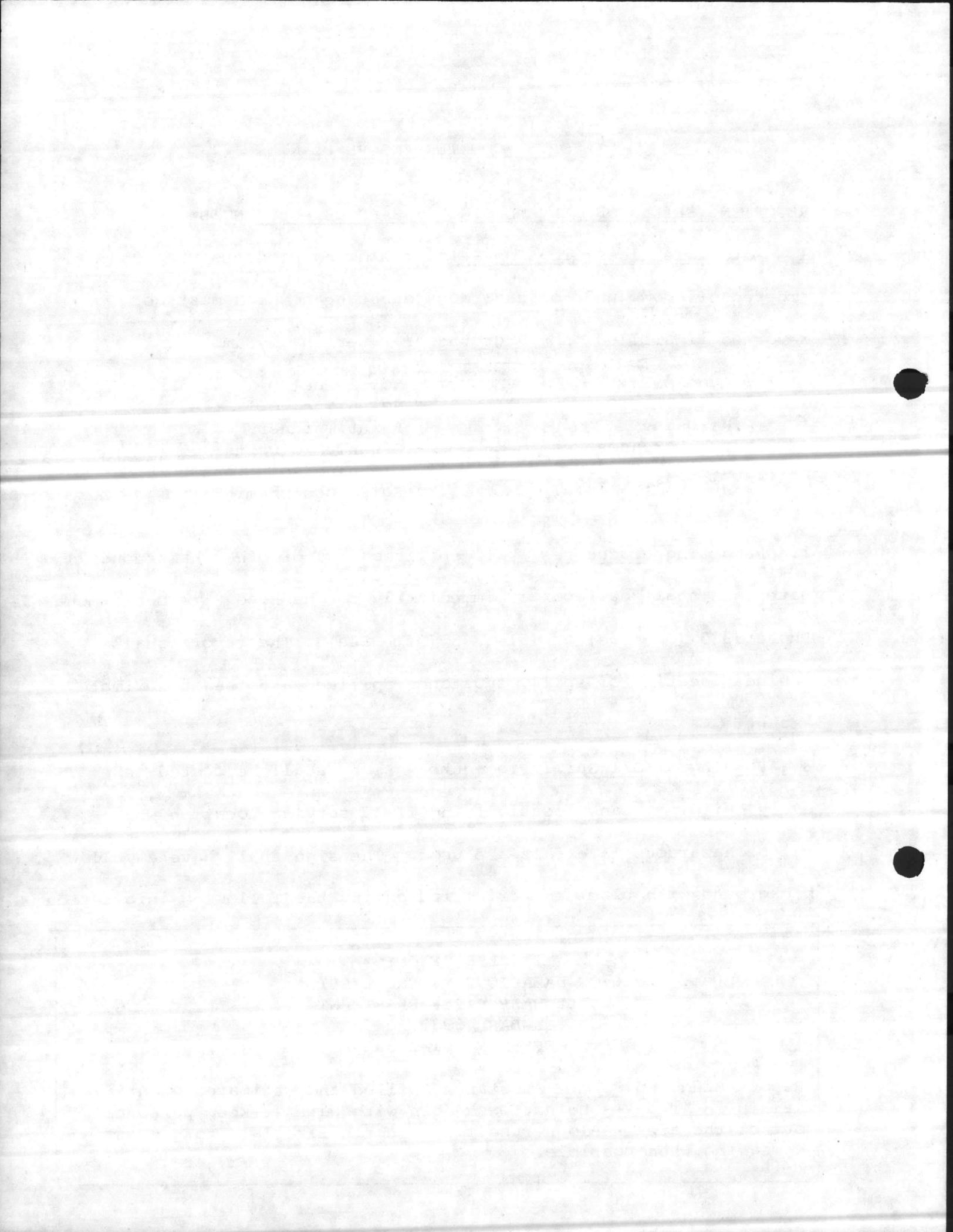
Lube Oils	No. 2 Fuel Oil
Gasoline	No. 6 Fuel Oil
Kerosene	Paint Thinners
Lube Greases	Organic Solvents
JP-4 & JP-5 Fuels	Cleaning Solutions
Hydraulic Fluid	Poisonous Chemicals
	Acids

2. Reporting Procedures - All spills of oil or other hazardous materials shall be reported immediately to the Base Fire Department Phone 3333 (On Base) or 451-3333 (Off-Base). The report shall include location of spill, substance spilled, and the approximate amount.

3. Posting of Oil Spill Procedure - Signs shall be posted in every building, tank location, and field service location where oil or hazardous materials are used. The sign shall have a yellow background with black lettering indicating the following information:

IN CASE OF AN:
OIL OR HAZARDOUS MATERIAL SPILL
CALL BASE FIRE DEPARTMENT
ON BASE 3333
OFF BASE 451-3333

Report Bldg. No. _____ Substance Spilled and Estimated Quantity
Remain in Area---- Do not wash down with water---Keep personnel
out of the area---Block runoff with earth materials to prevent
spreading when possible.



B. RESPONSE TO SPILL

Fire Department

1. Fire Department shall dispatch a regular fire fighting unit to the scene of a reported spill. The Base Fire Chief or his senior representative shall report to the scene as soon as possible who will perform the following duties:

(a) Assume the role of On-Scene Coordinator (OSC).

(b) Take all necessary immediate steps to contain the spill, eliminate any fire hazards, and protect all personnel from exposure.

(c) Notify the Natural Resources and Environmental Affairs Director (Telephone 5003) of the spill location and the nature and quantity of spilled materials.

(d) Evaluate the spill situation and request necessary logistical support from the Base Maintenance Officer to contain the spill and facilitate the clean up and recovery of the spilled materials.

(e) On-Scene Coordinator duties shall transfer to the Director of NR & E Affairs upon his arrival at the scene.

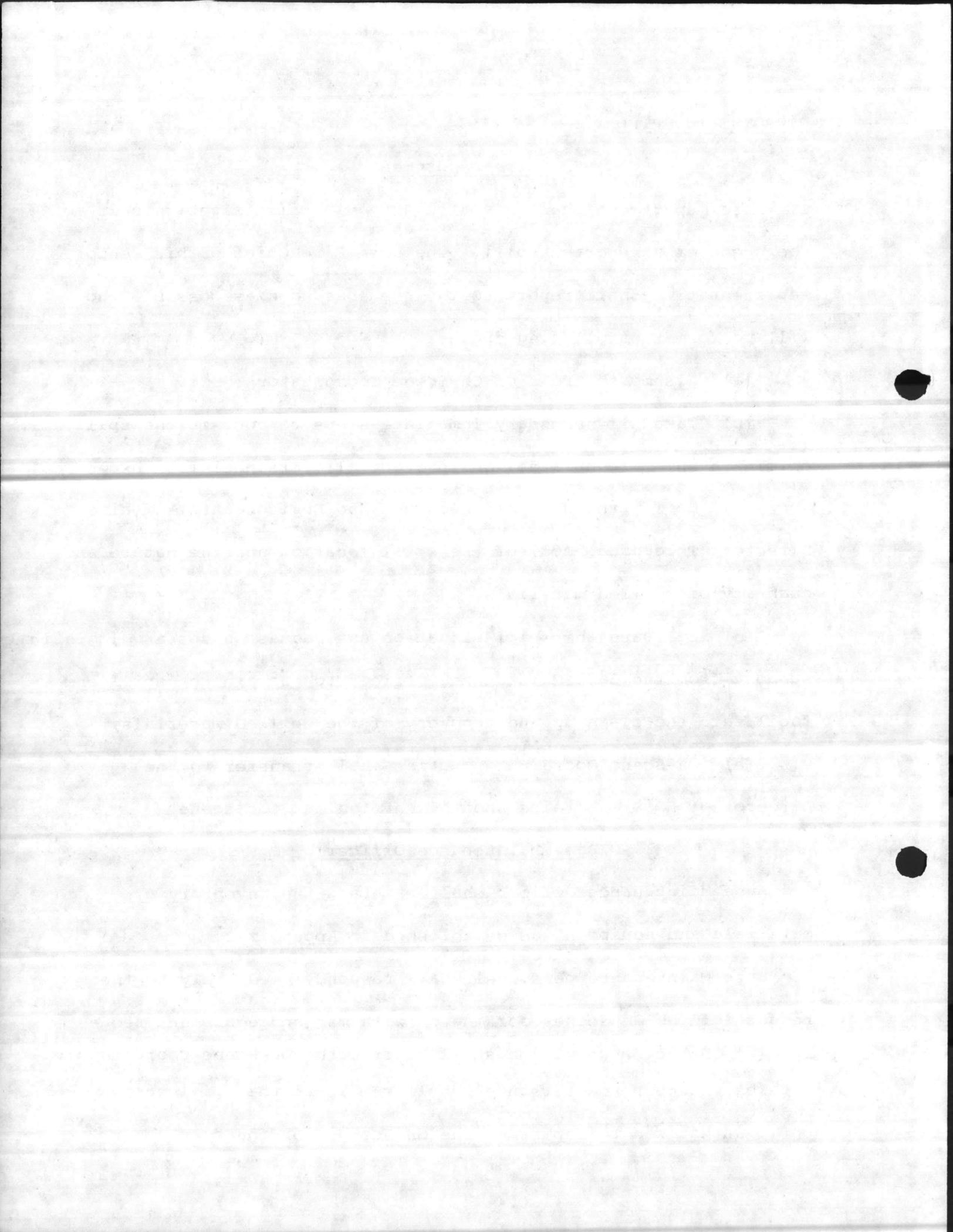
Base Maintenance Officer

1. Base Maintenance Officer shall maintain the inventory of materials and equipment as established in Appendix C.

2. Base Maintenance personnel shall respond immediately to the request of the On Scene Coordinator with men and equipment requested.

(a) Direct supervision shall be from the On Scene Coordinator.

(b) Maintenance Personnel shall remain at the spill scene until authorized to depart by the On Scene Coordinator.



Natural Resources and Environmental Affairs

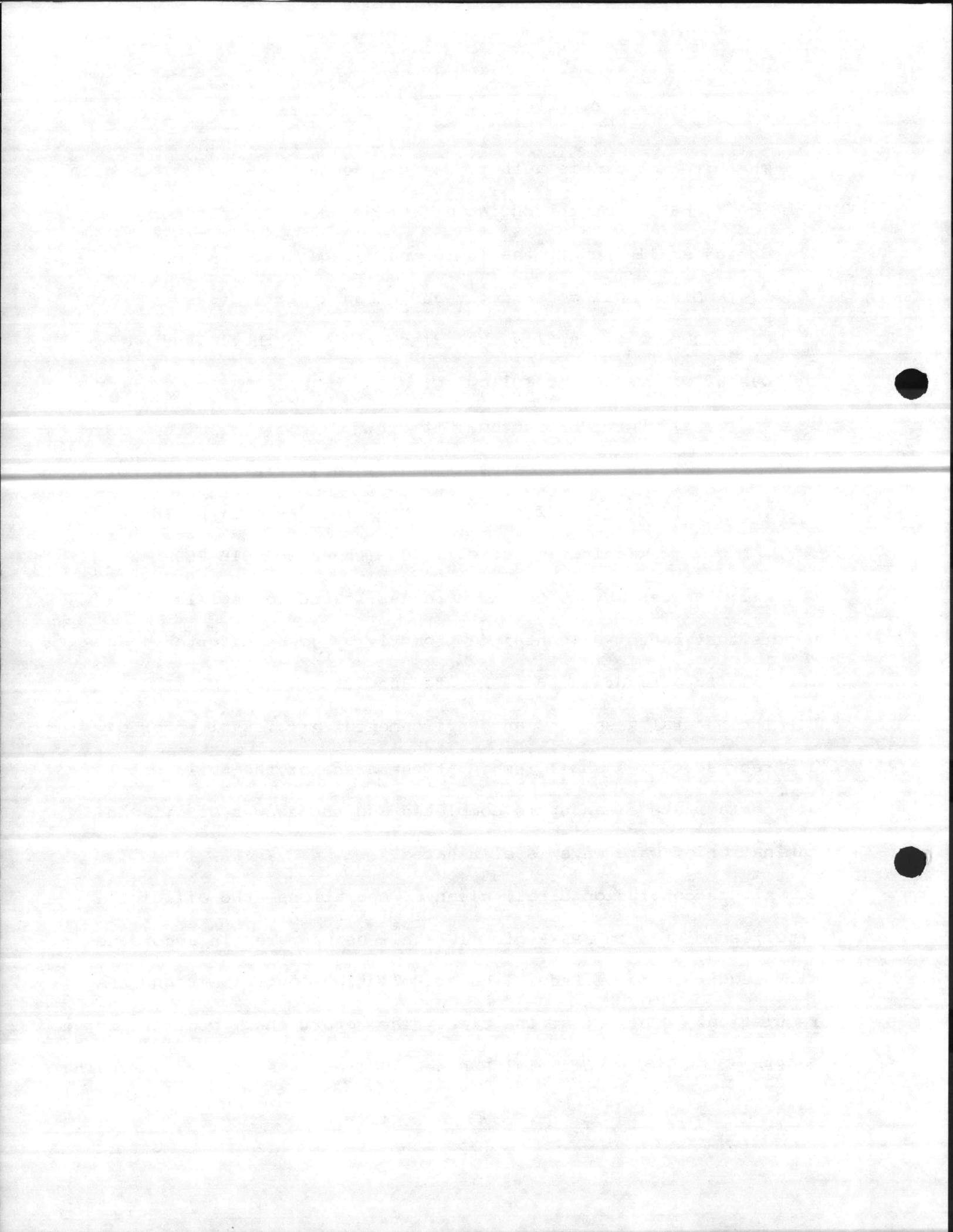
1. The Director or his authorized representative shall proceed to the scene and assume the duties of the On-Scene Coordinator (OSC).

The duties shall include the following categories:

- (a) Direct all containment and clean up activities.
- (b) Report oil spills that discharge into the inland waters or coastal waters to the following:
 - (1) Base Maintenance Officer
 - (2) Assistant Chief of Staff, Facilities, Marine Corps Base
 - (3) Captain of the Port, Room 101, Federal Building, Wilmington, N. C. 28401 (Phone No. 919-763-9435)
- (c) Request U. S. Coast Guard assistance for spills into waters that cannot be contained promptly by joint efforts of the Fire Department and Base Maintenance Crews.

2. The Natural Resources and Environmental Affairs Director or his representative shall remain at the scene of the spill until all contaminate clean up is completed and the danger of oil contamination of waterways is eliminated.

3. At the conclusion of all clean up operations, the official report submitted to 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 "Official Business" directives of the Commanding General.



C. SPILL CONTAINMENT AND CLEANUP

1. Small Spills (less than one gallon)

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

Reporting: This type of spill does not require calling the Fire Department, however, the fuel spilled must be PROMPTLY cleaned up by the person at the scene.

Containment Procedures:

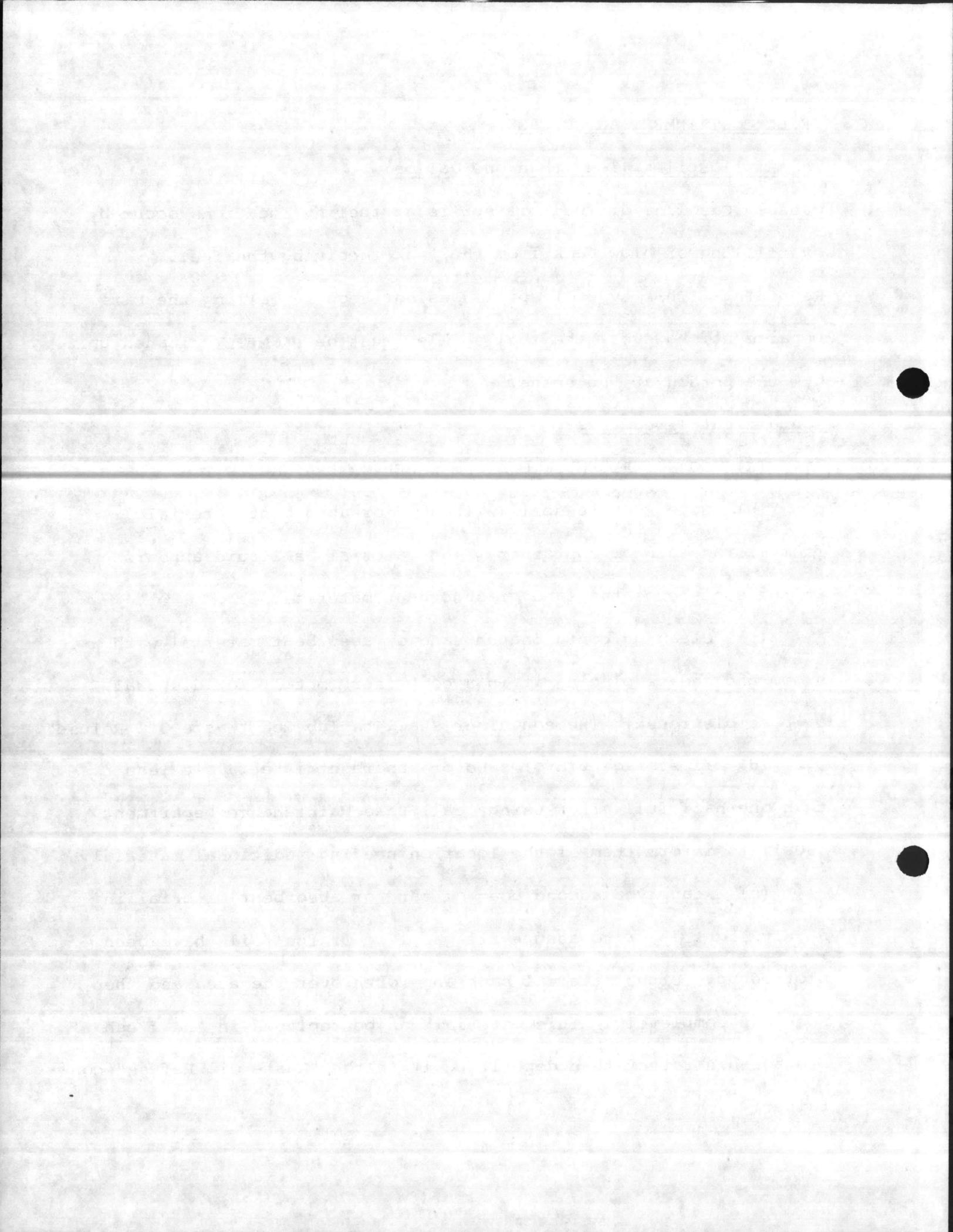
(a) DO NOT FLUSH INTO STORM SEWER OR DRAINAGE DITCH.

(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) Clean up 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.



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

Reporting: Call Base Fire Department

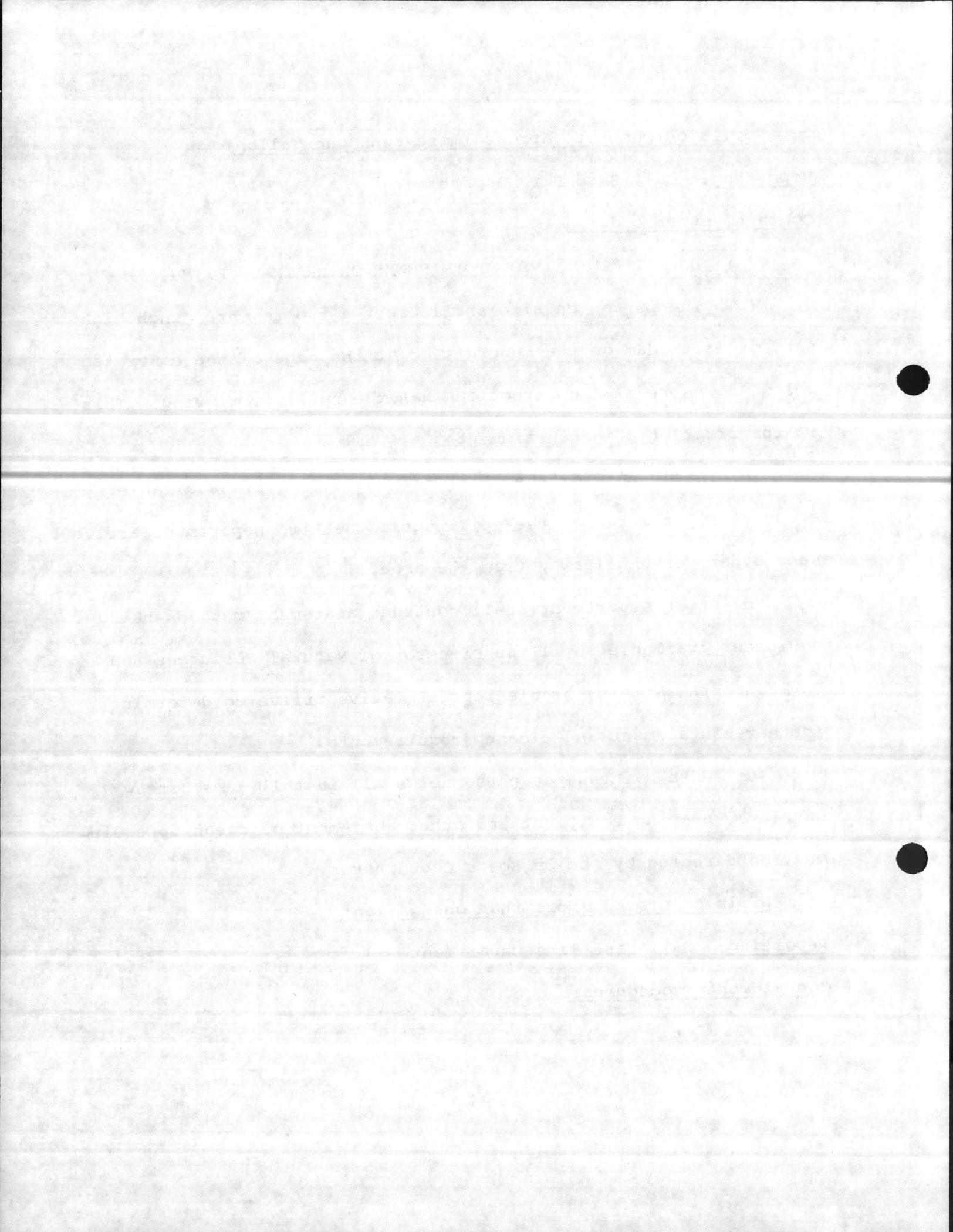
Containment Procedures:

- (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 or his representative arrive to determine further containment and cleanup requirements.
- (e) Base Maintenance personnel shall install dams, straw barriers, pumping equipment and other abatement or clean up equipment as directed by the On Scene Coordinator.

3. Spills on Ground (more than one gallon)

Reporting: Call Case Fire Department

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) of 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 or his representative arrive to determine further containment and clean up requirements.

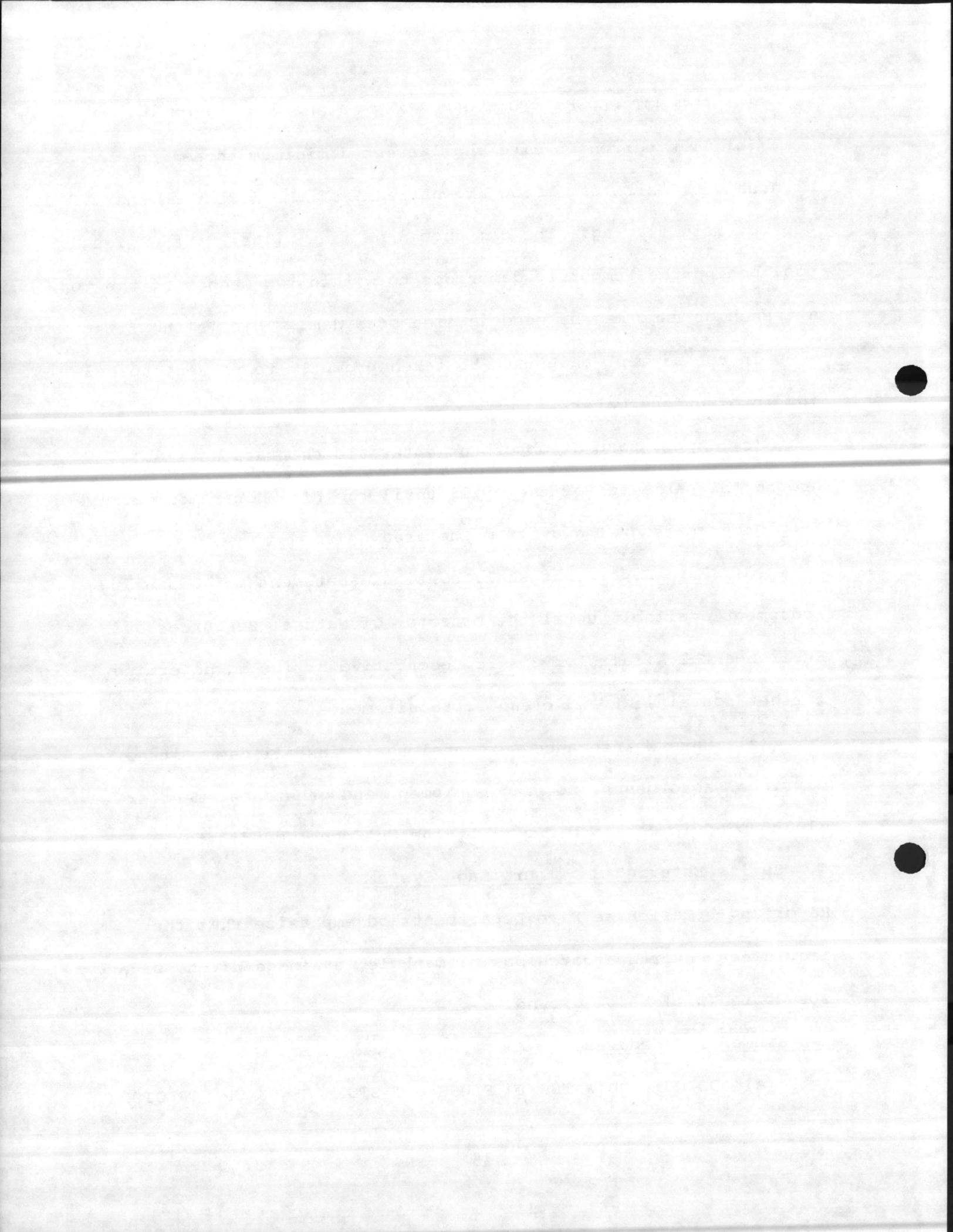
(e) Base Maintenance personnel shall install dams, straw barriers, absorbents, pumping equipment and other abatement or clean up equipment as directed by the On Scene Coordinator.

4. Spills Entering Storm Drainage System

Reporting: Call Base Fire Department and emphasize that the liquid has entered a catch basin, manhole, drainage ditch, or any structure (pit) below ground.

Containment Procedures:

(a) DO NOT ADD WATER TO FLUSH OUT STORM SEWER OR STRUCTURE.



(b) The person on site shall attempt to erect a sand or earth dam around or cover with polyethylene or other plastic materials the manhole or catch basin to prevent further entrance of liquid into the structure. This is the first step in containment that must be taken promptly to minimize the quantity of liquid that will be discharged into surface waters.

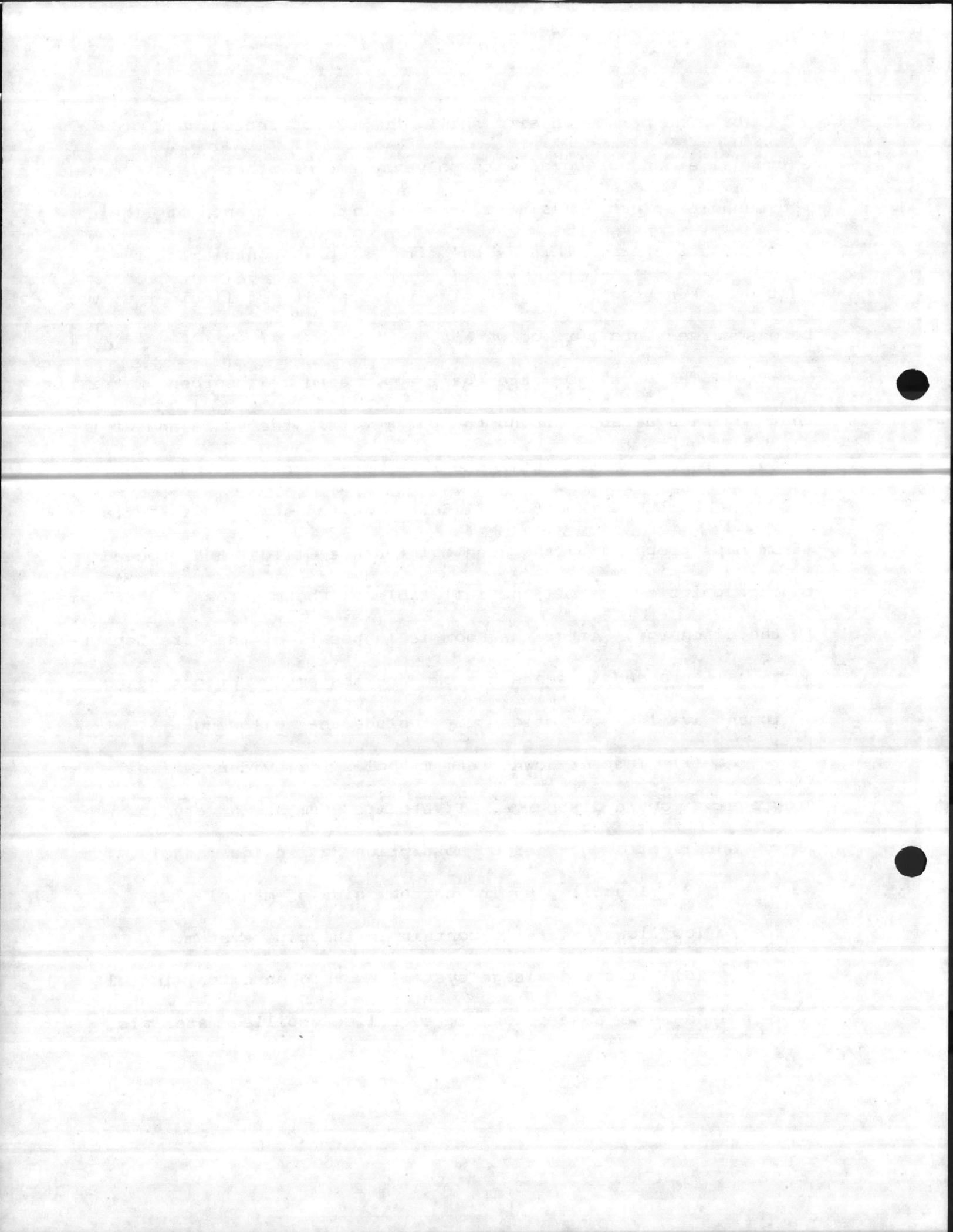
(c) The person on site shall apply sand or absorbent materials that may be available around the perimeter of the spill and at the manhole or catch basin until the Fire Department arrives.

(d) Fire Department shall determine the storm basin outfall (from maps prepared by the Base Maintenance Office) and proceed to this point to install the inflatable oil boom across the stream at the discharge. After the boom is in position, the Fire Department shall proceed to scene to commence abatement methods using equipment available. Actions may include the following:

(1) Inspect downstream manholes for evidence of oil progression toward discharge. If storm system has a very low flow, install straw barrier or absorption dam inside manhole.

(2) Install plug in upstream side of manhole if extremely low flows exists to contain in the pipe system.

(3) If the drainage system has an open ditch, install straw bale dams or absorption dam to collect spilled materials.



(4) Isolate streets with contaminated manhole to prevent fires or explosions.

(e) The Director of Natural Resources and Environmental Affairs or his representative shall determine further containment and clean up requirements after arriving on the scene.

(f) Base Maintenance personnel shall install dams, straw barriers, absorbents, pumping equipment and other abatement or clean up equipment as directed by the On Scene Coordinator.

5. Spills Entering Surface Waters

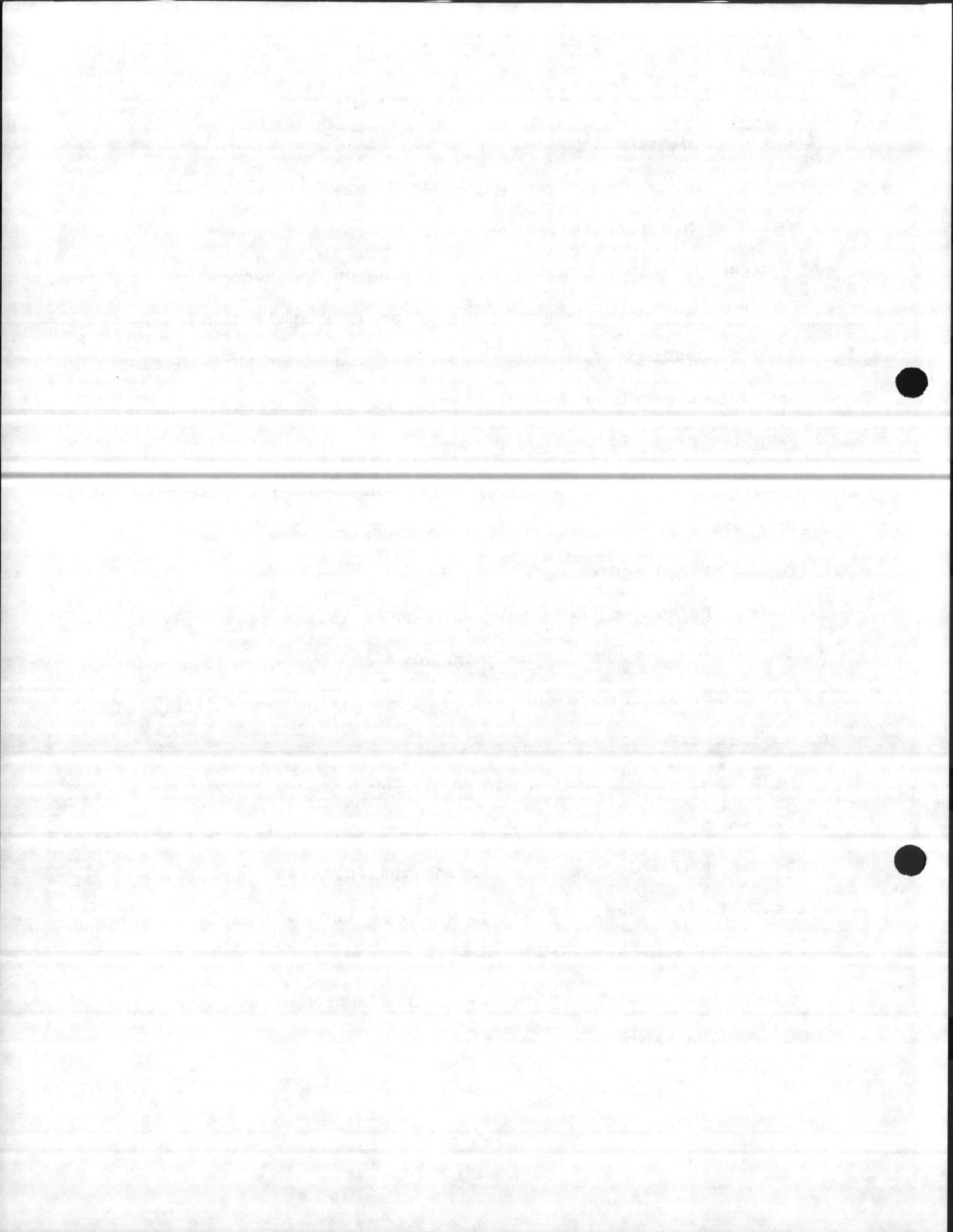
Reporting: Call Base Fire Department and emphasize that the liquid was discharged directly into the surface waters.

Containment Procedure:

(a) Person at the site should check the source of discharge to be assured that no further discharge can occur. Close valves, remove hose, or isolate the source from causing any further release of materials.

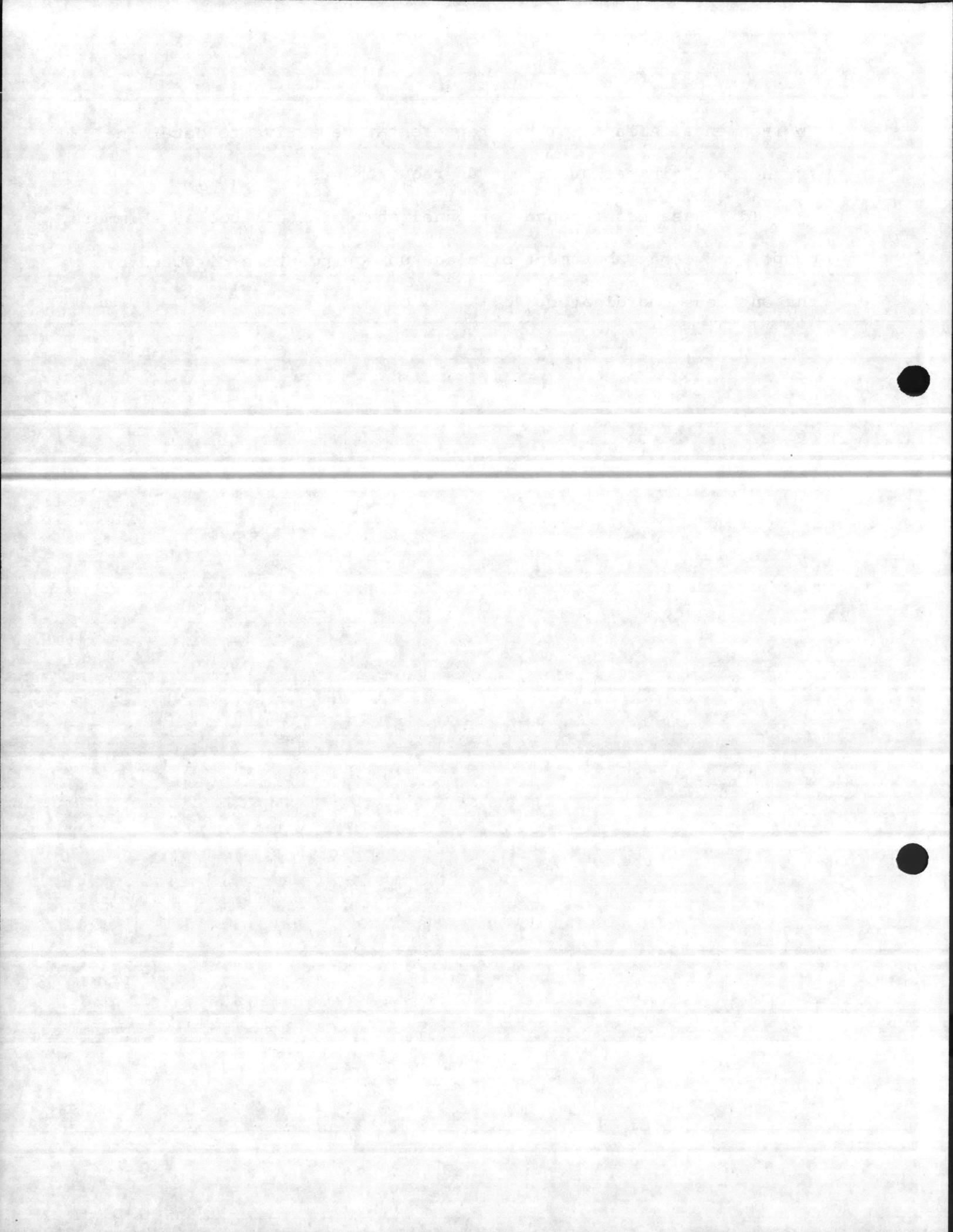
(b) Do not allow boats or equipment to enter the surface waters where the spill has occurred. If surface type oil absorbents are available, begin spreading this material wherever an oil skim is observed. Do not enter the water to apply this material until the Fire Department arrives.

(c) Fire Department shall continue abatement methods using equipment available until the Director of Natural Resources and



Environmental Affairs or his representative arrive to determine further containment and clean up requirements.

(d) Base Maintenance personnel shall install booms, skimmers, pumps, and other abatement or clean up equipment as directed by the On Scene Coordinator.



OIL SPILL PREVENTION MAINTENANCE PRACTICE NO. 100

Pressure Testing of Fuel Storage Tank

Purpose: To assure that the tank is capable of holding oil products without leaking.

References: Underwriters Laboratories, Inc. UL58 "Standards for Safety", "Steel Underground Tanks for Flammable and Combustible Liquids".

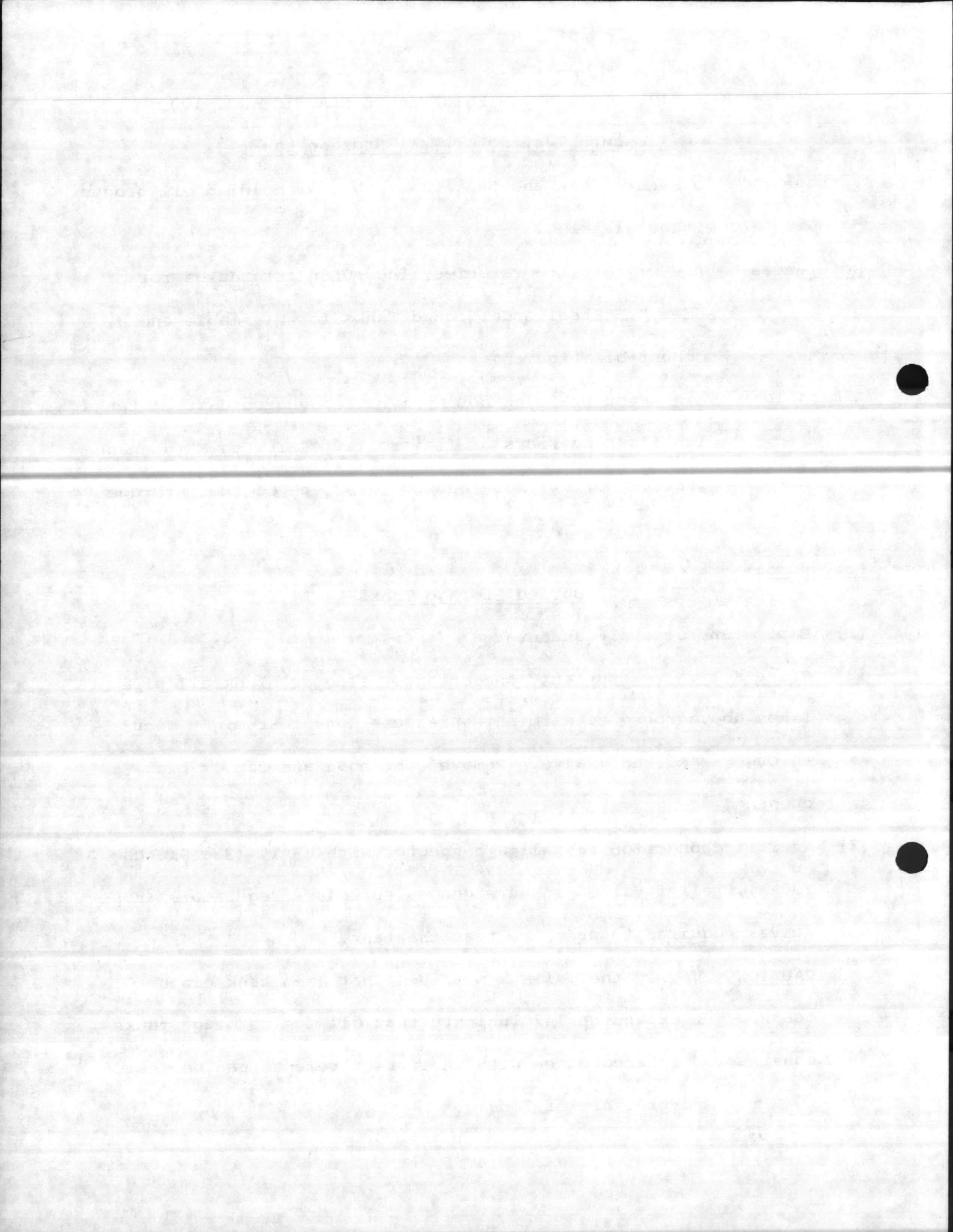
Limitation: This procedure does not apply to aboveground steel tanks with floating roofs or flat roofs. Refer to Maintenance Practice No. 105 for testing this type of fuel storage tank.

Procedure:

Buried Storage Tanks

- (1) Empty tank of fuel contents.
- (2) Close all valves on tank connections. Plug or blank all pipe lines aboveground to eliminate pressure loss that might occur through a "closed" valve. Remove vent hood and cap or plug opening.
- (3) At fill connection install a connector with a "T" (See Sketch 100-A), relief valve pressure gauges, pressure regulator, and valves required to pressure test the tank.

CAUTION - Verify the maximum pressure that each tank can be tested. UL 58 and UL 142 indicate that all fuel storage tanks constructed in accordance with their requirements can be tested to a maximum pressure of 7 psig.



- (4) All pipe plugs and connections shall be coated with soap suds, linseed oil, or equivalent material for the detection of leaks.

Air Testing

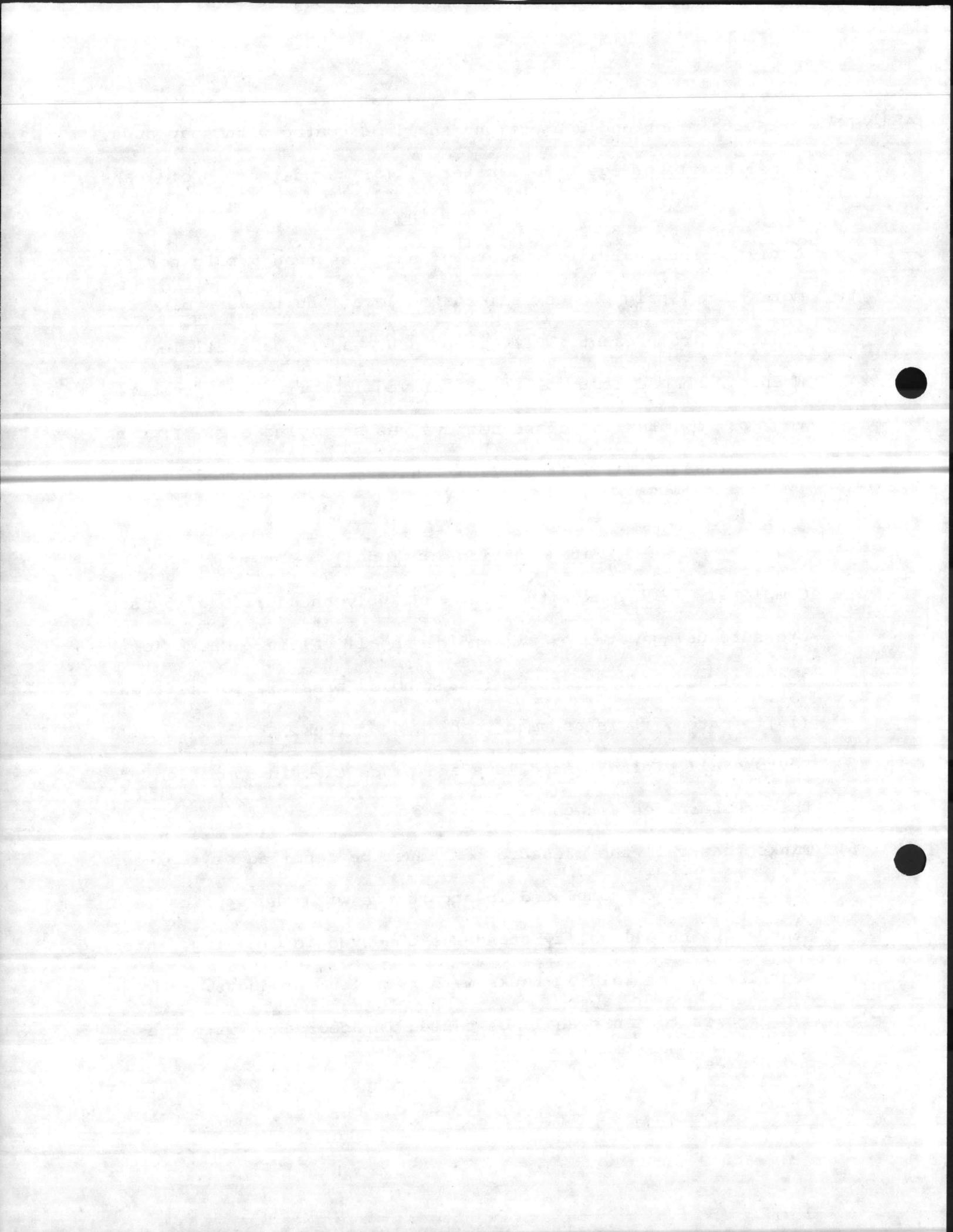
Apply an internal air pressure of not less than 5 psig nor more than 7 psig. Check all soaped locations to determine if leaks are present. Release pressure and repair all leaks. When piping and test joints are proved leak free set pressure to 7 psi on tank and close both valves supplying air. If tank holds pressure for fifteen (15) minutes, it is assumed to be a good tank.

Water Testing (Optional)

Completely fill tank with water and apply an additional 5 psig of pressure using water or air and close all valves. Check for leaks at all connections. If tank holds pressure for fifteen (15) minutes, it is assumed to be a good tank.

- (5) Restore all piping connections and place tank in operation if the pressure test is good.
- (6) Tanks that fail the pressure test must be repaired or replaced. Repairs shall be completed in accordance with the applicable UL Standards and all safety standards observed in cleaning, entering, ventilating and welding tanks with petroleum products.

Repairs to tanks shall be tested in accordance with these procedures.

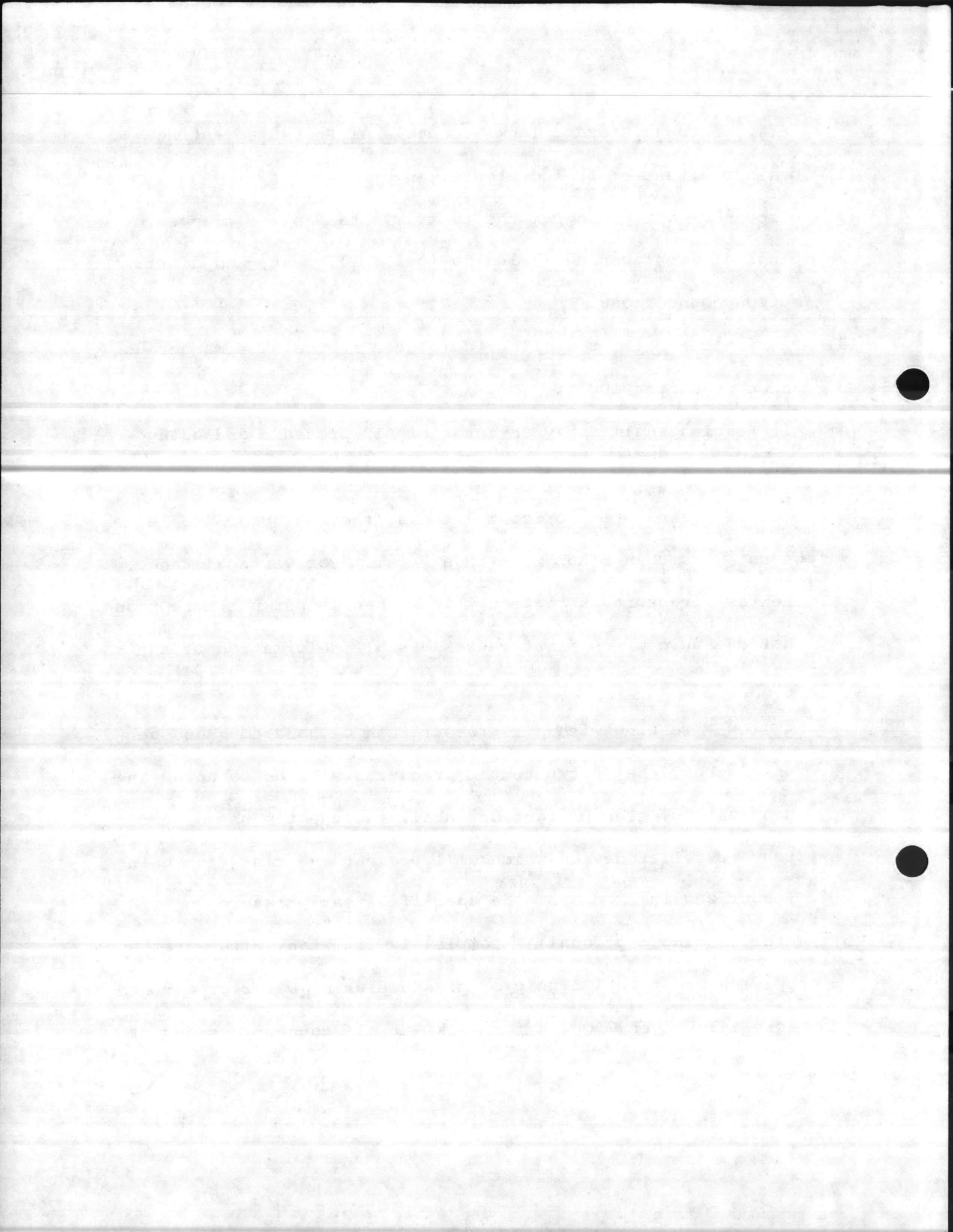


Aboveground Storage Tanks (Capable of Pressure Testing)

- (1) Drain the tank of fuel contents.
- (2) Disconnect all piping at the tank. Install blind flanges or plugs at each opening including fuel fill, vent, and distribution connections.
- (3) Testing connections shall be completed in the same manner as shown on Sketch 100-A.
- (4) Air testing shall apply an internal air pressure and using soapsuds, linseed oil, or equivalent material for the detection of leaks. For horizontal tanks, the test pressure is to be not less than 5 nor more than 7 psi. For vertical tanks, the test pressure is to be not less than $1\frac{1}{2}$ psi nor more than that pressure which first causes visible deformation of the tank.

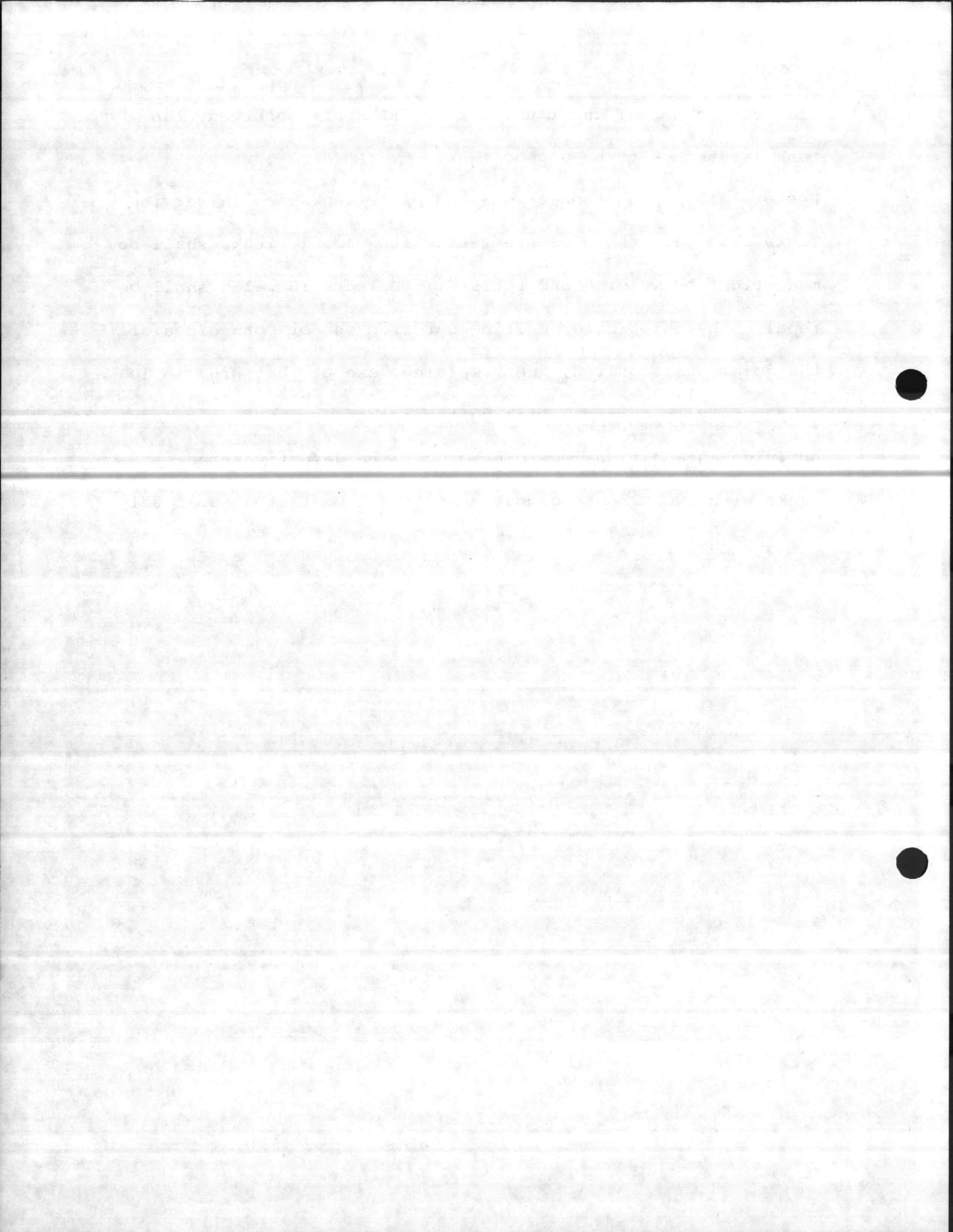
CAUTION - Testing with air pressure can be hazardous and personnel should be instructed in precautions to be taken during such testing. The precautions shall include the use of a pressure relief device which will prevent the tank from being pressurized in excess of the specified test pressure.

- (5) Water Testing (Optional) - Completely fill tank with water and apply an additional 5 psig of pressure using water or air and close all valves. Check for leaks at all connections and at



all weld joints of the tank. If no leaks are observed, the tank is assumed to be a good tank.

- (6) Restore all piping connections and place tank back in service.
- (7) Tanks that fail the pressure tests with visible leaks shall be made tight by welding and retesting. Defects in welds shall be repaired by chipping or melting out from one or both sides of the joint, as required, and rewelding, except that pinhole leaks or porosity in vertical tank bottom joints may be repaired by applying an additional weld bead over the defective area.
- (8) Tanks with two or more compartments shall be tested separately for leakage.



REMOVE HOOD & INSTALL
CAP OR PLUG

SAFETY RELIEF VALVE (1") SET TO RELIEVE AT 7 PSIG

0-15 PSI GAUGE

PRESSURE REGULATOR

0-60 PSI GAUGE

TEE
ADAPTER

(SEE NOTE 2)

COMPRESSED AIR OR WATER
(SEE NOTE 3)

VENT

FUEL FILL

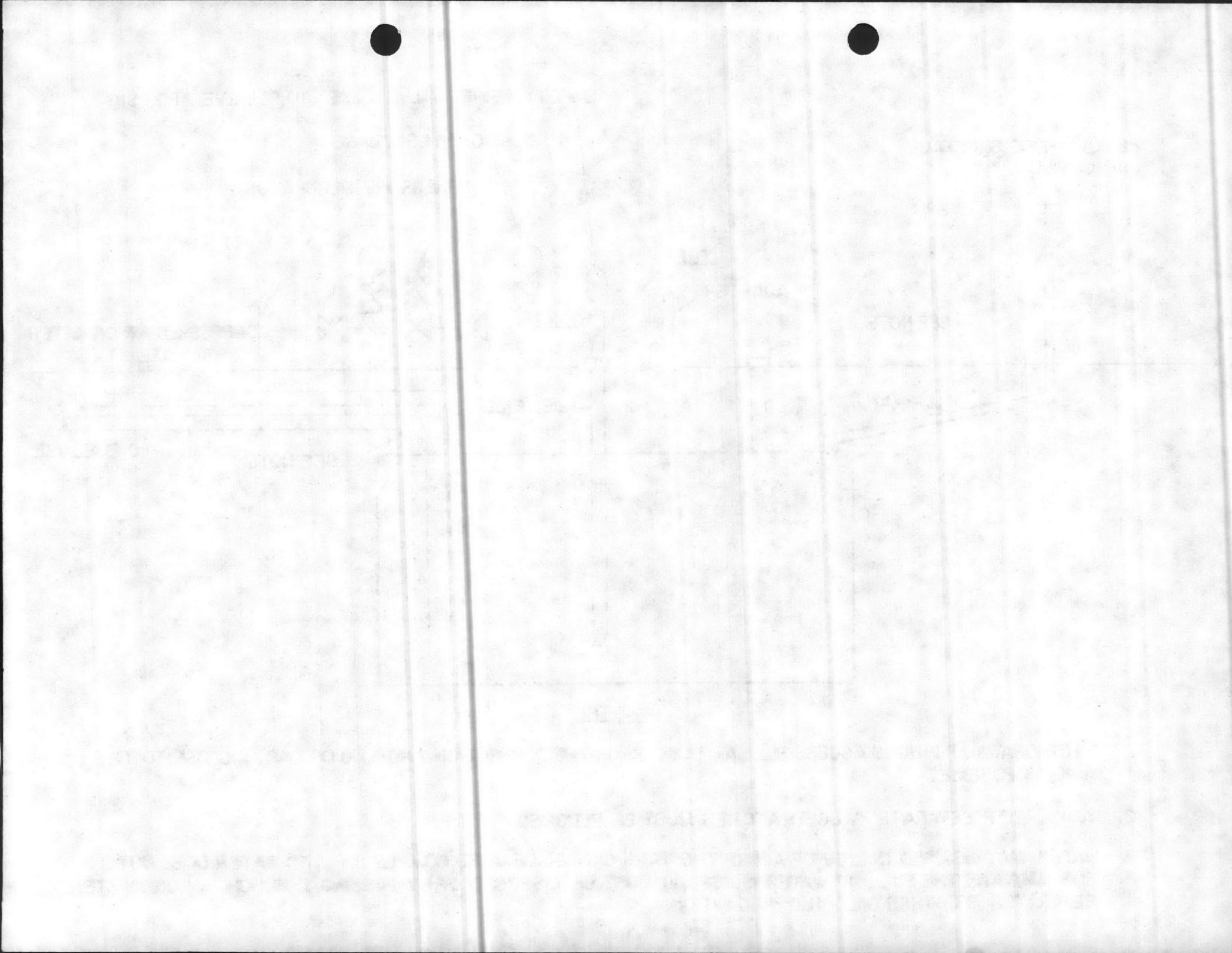
(SEE NOTE 1)

TO FUEL USE

NOTES

1. IF WITHDRAWAL PIPING IS ACCESSIBLE AT TANK, BACK THE CONNECTION AND PLUG OR CAP AS CLOSE TO THE TANK AS POSSIBLE.
2. TANKS WITH SEPARATE GAUGE HATCHES MUST BE PLUGGED.
3. WATER MAY BE USED IN LIEU OF AIR IF THE TANK CAN BE DRAINED COMPLETELY AND WATER DOES NOT CONTAMINATE THE FUEL. IF WATER IS USED, IT MUST BE DISPOSED OF BY PASSING THROUGH AN OIL/WATER SEPARATOR OR OTHER OIL SPILL PRECAUTION.

SKETCH 100-A



Cathodic Protection Maintenance

Purpose: To assure that buried steel tanks have operable cathodic protection to prevent galvanic corrosion.

Limitations: Cathodic protection requires special skills and equipment to evaluate the performance of installed systems and recommend specific repairs or new installations to protect buried steel tanks and pipe lines. Therefore, the major checking must be performed by those qualified in the field of cathodic protection. The following manufacturers are capable of providing investigative services:

Wallace-Tiernan
Electro-Rust-Proofing
25 Main Street
Belleville, N. J. 07109
(201) 759-0800

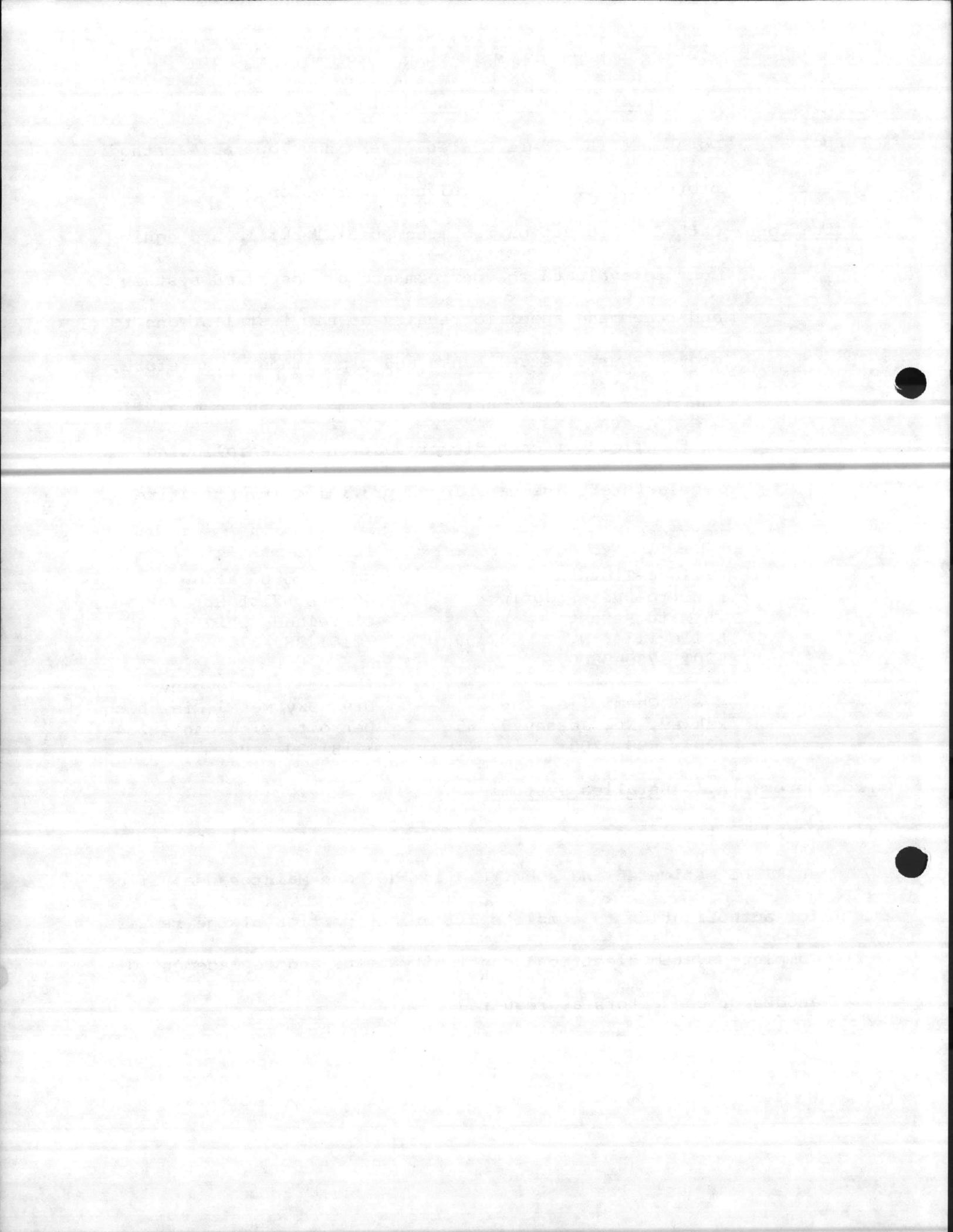
Harco Corporation
4600 E. 71st Street
Cleveland, Ohio 44125
(216) 883-8787

M & T Chemicals, Inc.
Rahway, New Jersey 07065
(201) 499-0200

The Udylite Company
Div. Oxy Metal Finishing
Detroit, Michigan 48234
(313) 539-3400

Procedures: A. Installed Systems

- (1) Complete testing of rectifier and control unit. All repairs shall be estimated and submitted to the Base Maintenance Office for authorization to complete all or any portion of the repairs.
- (2) Complete system electrical continuity tests and replacement of anodes or conductors as required.



- (3) A complete potential profile to determine the degree of corrosion control.
- (4) Adjustment of system to provide optimum corrosion protection.

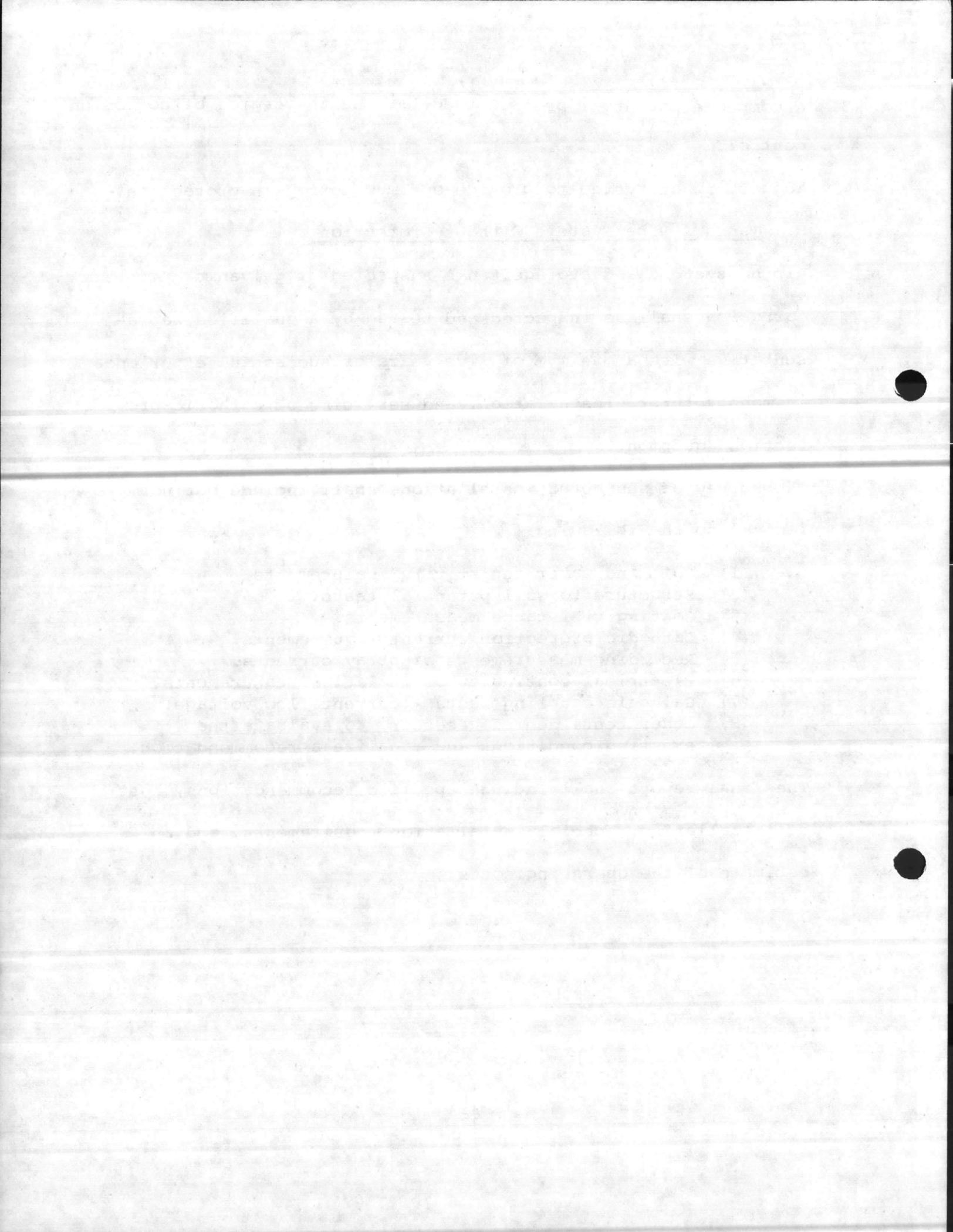
B. Tanks & Pipe Systems Without Protection

Piping systems and storage tanks suspected of galvanic corrosion shall be inspected and tested by a qualified representative with a minimum of five years of successful experience in manufacturer, installation, and servicing of cathodic protection equipment.

The survey of suspected installations shall include but not limited to the following:

- (1) Soil and water resistivity measurements.
- (2) Structure to soil potential tests.
- (3) Coating resistance measurements.
- (4) Cathodic protection current requirements.
- (5) Recording measurements of stray currents.
- (6) Electrical continuity or isolation measurements.
- (7) Galvanic coupling tests - current flow/voltage.
- (8) Other tests deemed necessary to evaluate the existing conditions and finalize a recommendation.

The final report shall include specific recommendations, cost of installation, special installation requirements, and an estimate of the operating costs.



OIL SPILL PREVENTION MAINTENANCE PRACTICE NO. 102

Buried Pipe System Pressure Testing

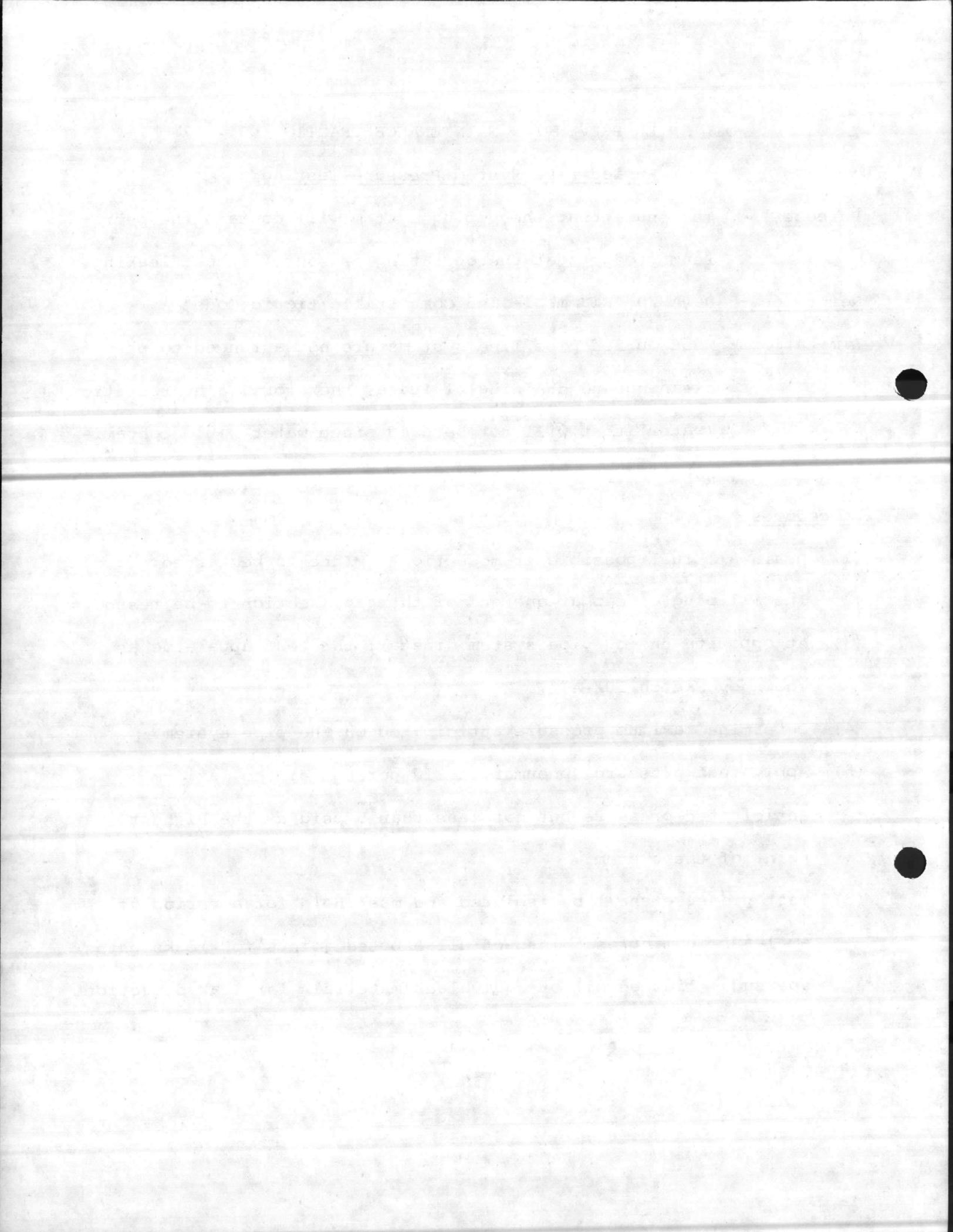
Purpose: To assure that the piping system will contain the petroleum products at the operating pressure without leaking.

References: NFPA 30 "Flammable and Combustible Liquid Code"

Limitations: Most buried pipe line systems are not arranged to permit cleaning and draining of fuels, therefore, a hydrostatic (water) test will not be used since water would contaminate the petroleum products.

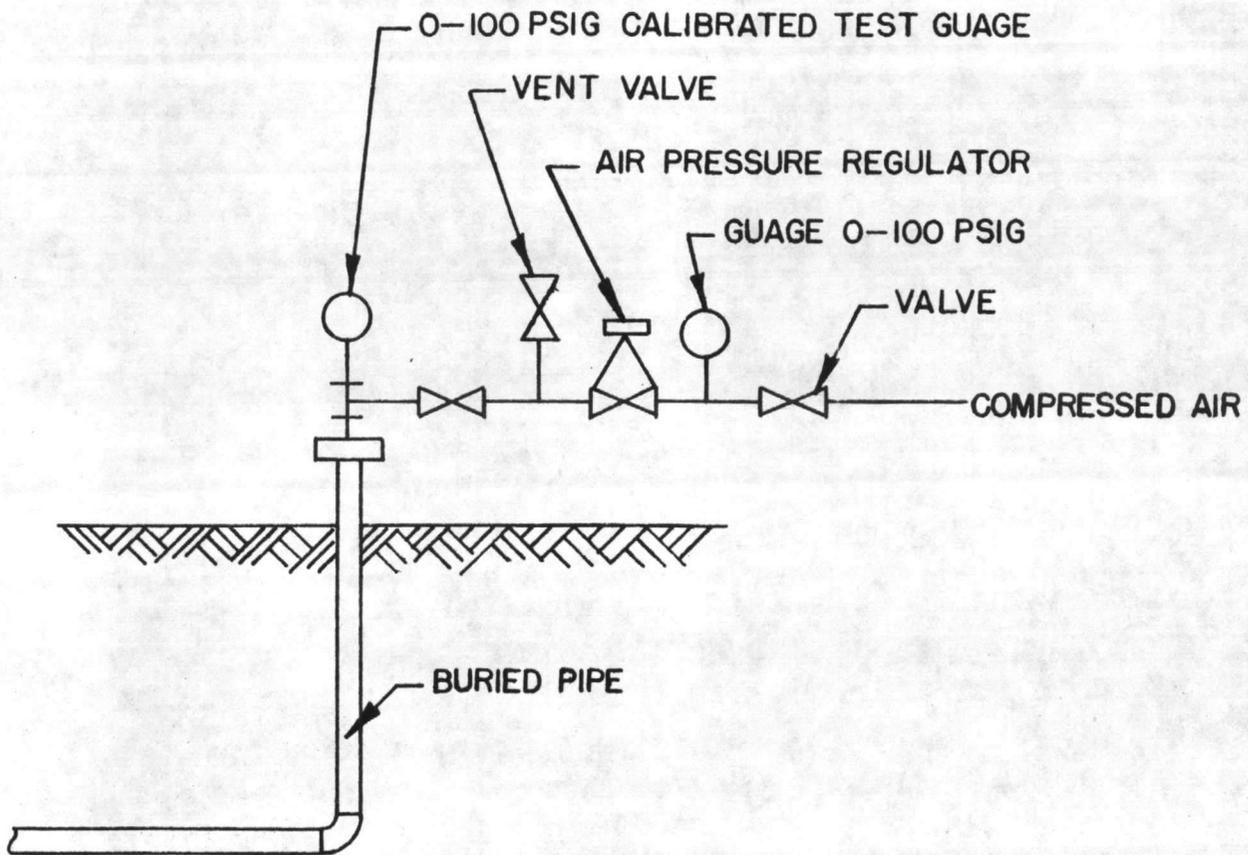
Procedures:

- (1) Drain all fuel possible from section of line to be tested.
- (2) Install plug or cap at one end of the pipe section to be tested.
- (3) At opposite end of pipe system, install the test apparatus as shown by Sketch 102-A.
- (4) Determine maximum pressure anticipated on the pipe system.
- (5) Apply test pressure (pneumatic) 110 percent of the maximum anticipated pressure but not less than 5 psig at the highest point of the system.
- (6) Test pressure shall be isolated and must hold for a period of at least 10 minutes. Inspect all exposed joints for leaks using soapsuds, linseed oil or equivalent materials for leak detection.

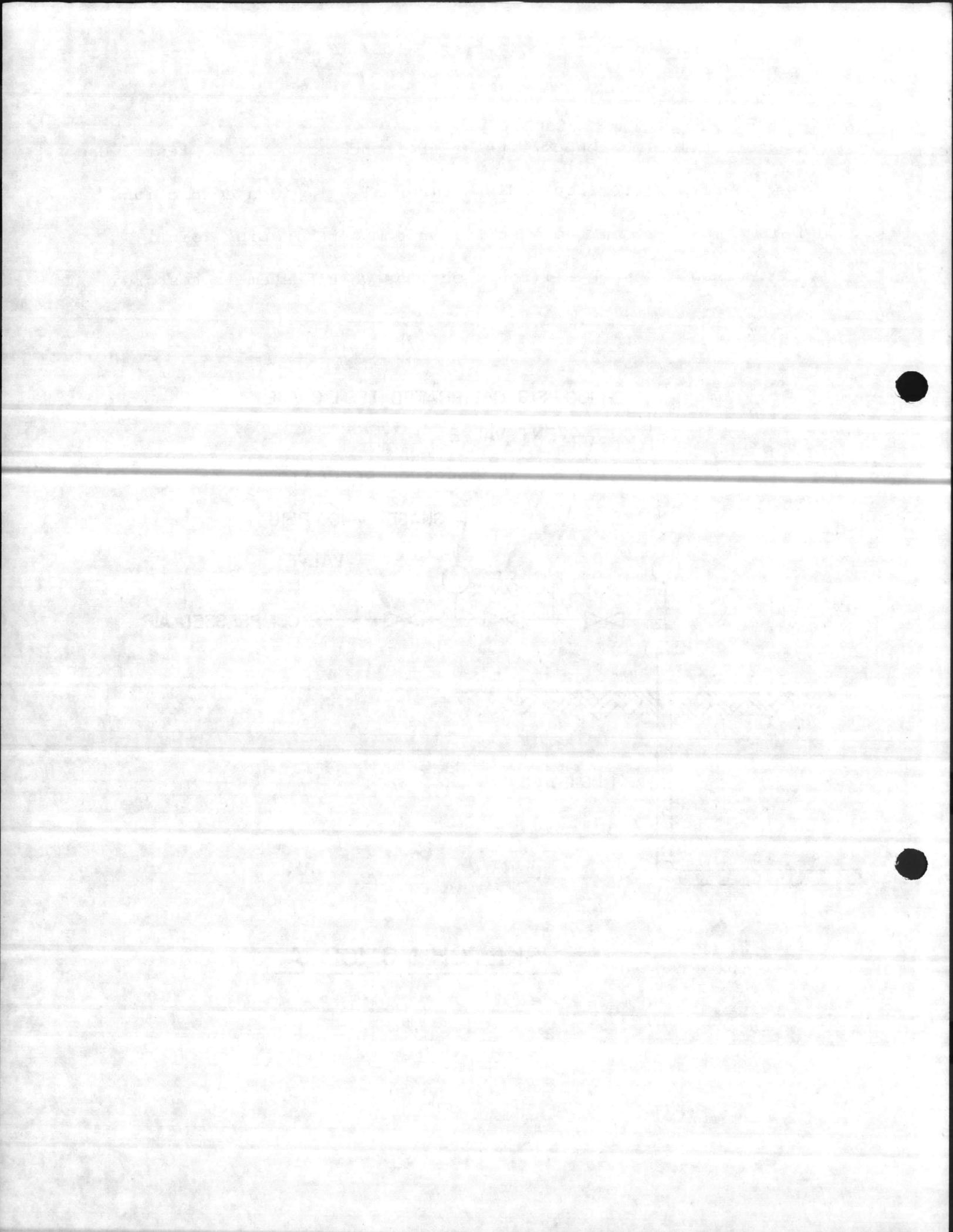


(7) Restore all pipe connections at the conclusion of the test. Use new gaskets where required and clean all threaded connections before making them up. Use teflon compound in pipe joint.

Visually check all reconnections when system is restored to service for leak.



SKETCH NO. 102-A



OIL SPILL PREVENTION MAINTENANCE PRACTICE NO. 103

Storage Tank Level Indicator

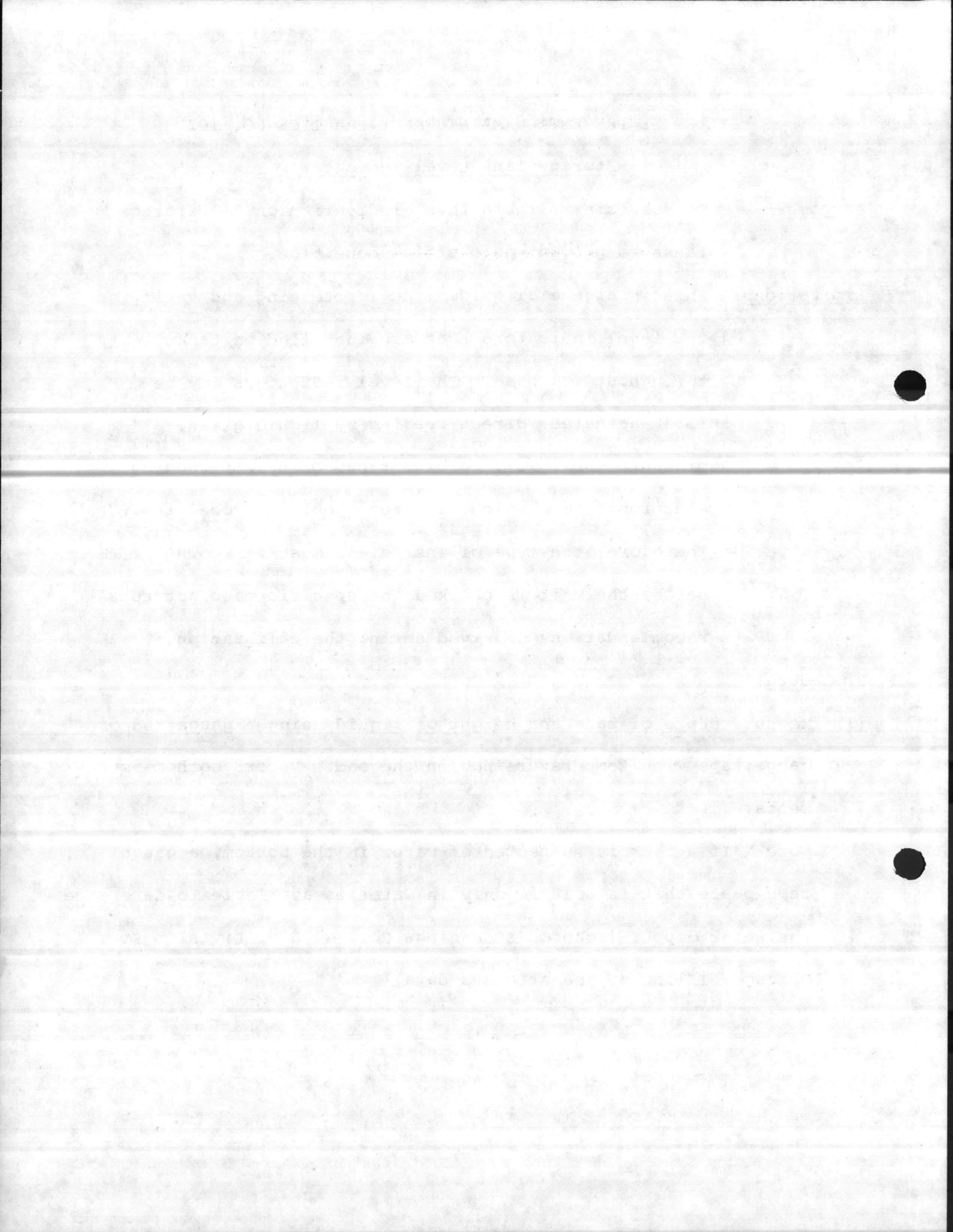
Purpose: To maintain reliable level indication on oil storage tanks to prevent an overflow condition.

Limitations: This is a general guide line for testing and verifying the level indicators that are installed on tanks throughout the base. The level indicators may be float actuated, direct reading by liquid glass, pressure (bellows), bubbler type, or direct reading electronic type which requires specific procedures. Therefore, the type of instrument must be known before the unit is checked and specific manufacturers' recommendations observed during the calibration.

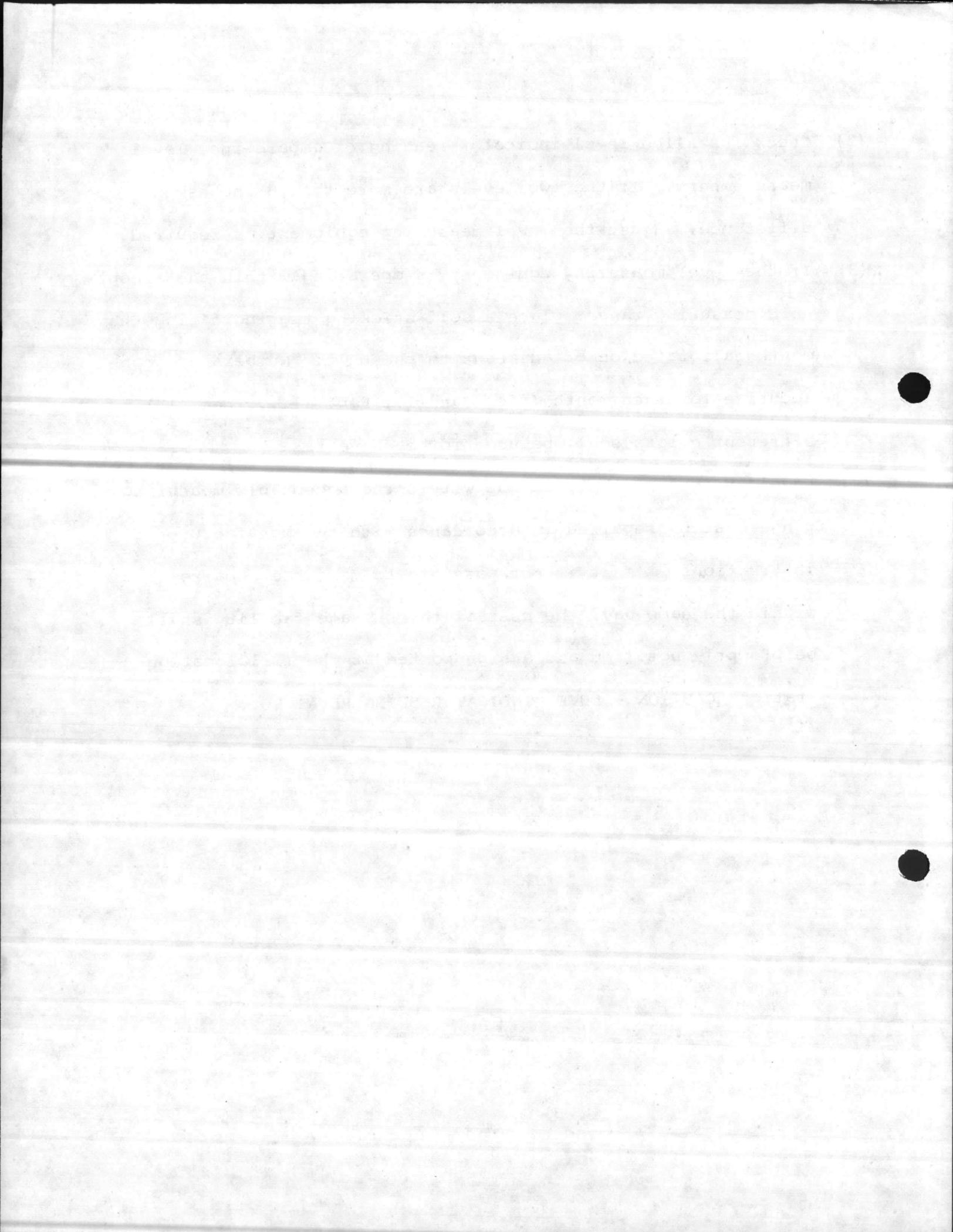
Procedure:

- (1) Measure depth of tank and height of liquid using a gauge rod or gauge tape with temperature bob on the end. Record both measurements.

Note: If a tank is suspected of water in the bottom, a gauge tape paste that is soluble only in water is available to determine the water depth. (Johnson & Jennings Co., 4700 W. Division St., Chicago, Illinois, See attached data)

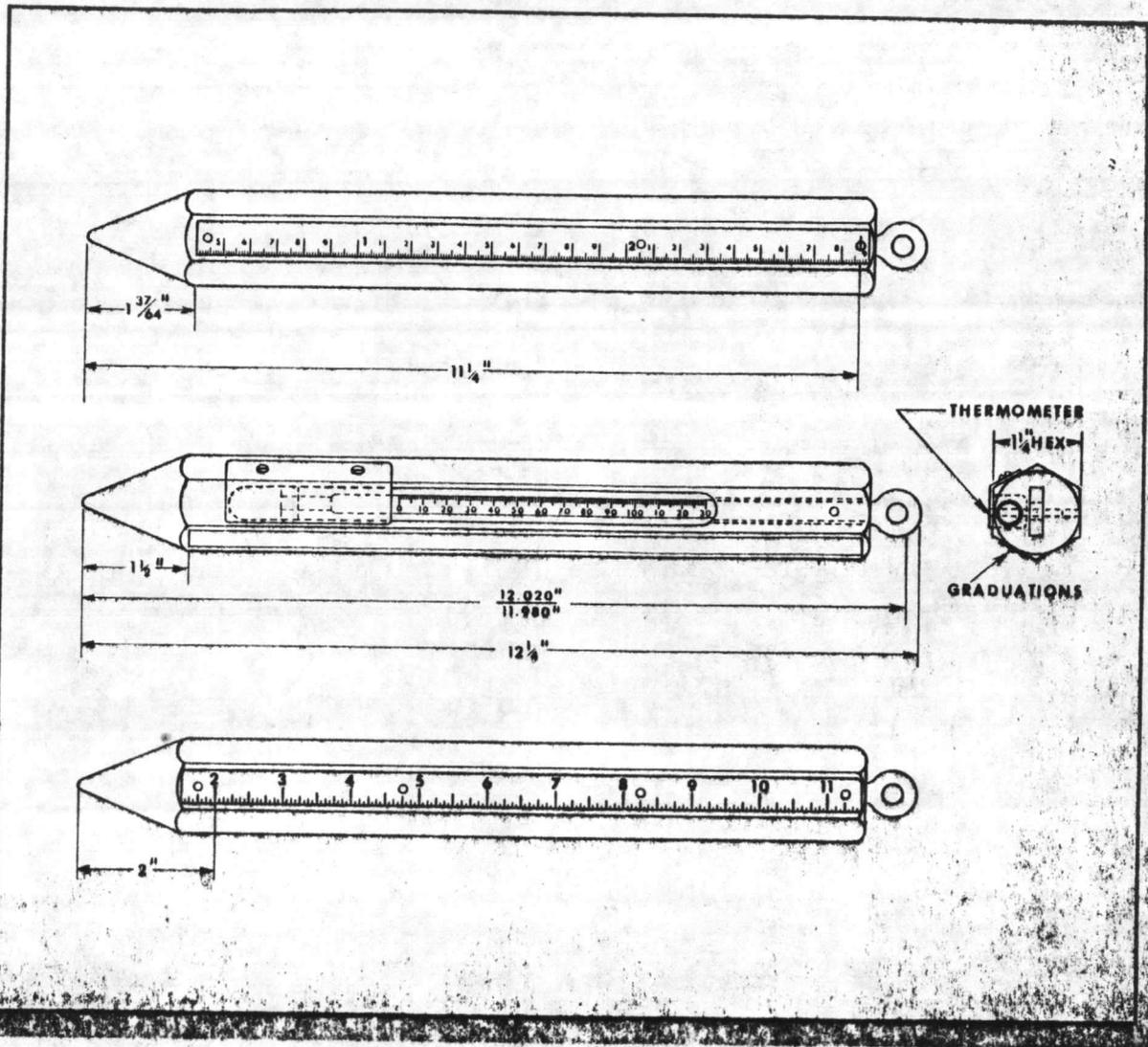


- (2) Check installed level indicator reading. Compare fuel level measurements. If the two levels are more than 8 inches in difference, adjust the level measuring equipment as required.
- (3) If the level measuring equipment is operating within the acceptable measuring range, place a self-sticking tag indicating the month calibrated on or adjacent to the unit. Numbers are consecutive for each month (i.e. Jan.(1), Feb.(2).....Dec. 12). Different colors shall be used for each year.
- (4) Level indicators that are not within the acceptable measuring range must be repaired in accordance with the manufacturer's instructions. If it is not possible to make the repairs within the same day, the user of the storage facility shall be promptly notified and a sign posted at the fill location station "CAUTION - LEVEL INDICATOR BEING REPAIRED".



OCECO

Gauge Bobs



OCECO No. 44

GAUGE AND TEMPERATURE BOB

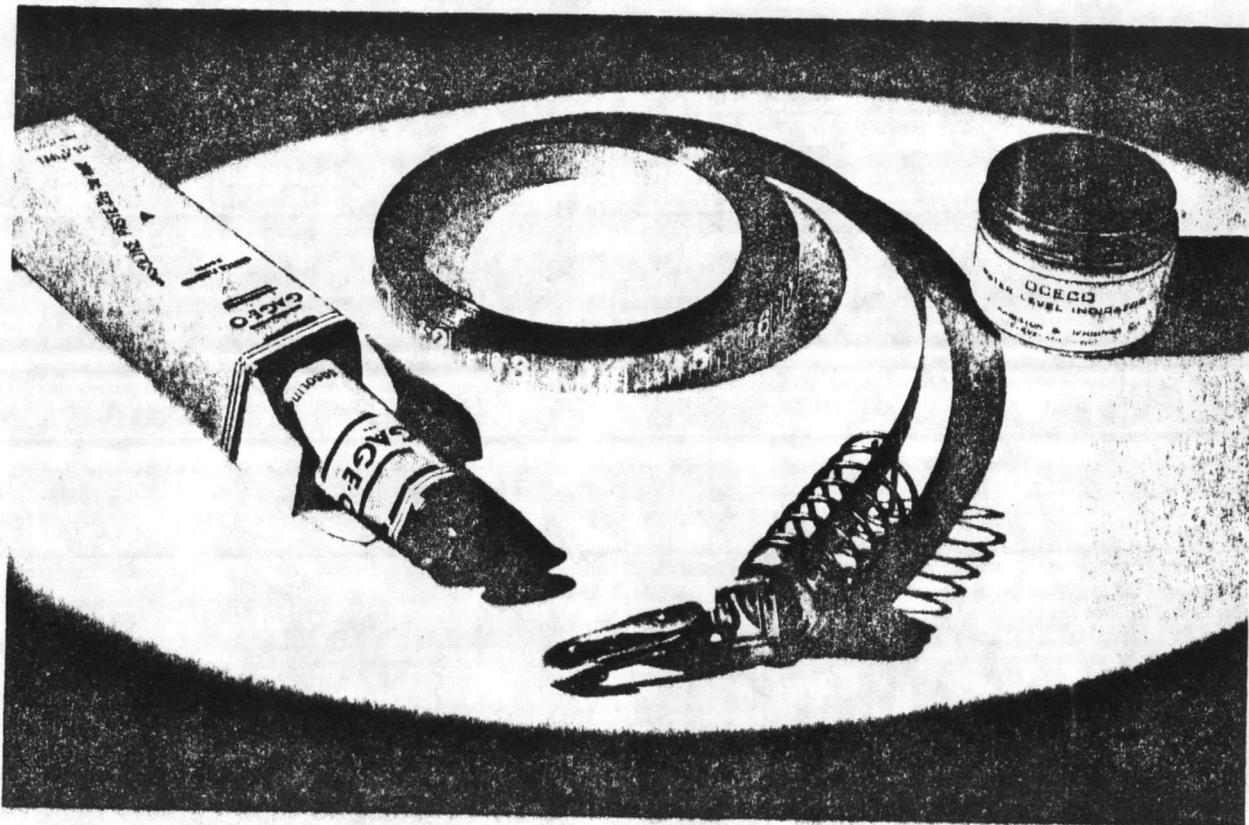
OCCECO No. 44 Gauge and Temperature Bobs measure the height of liquid level, the depth of the water bottom, and take temperature readings of the tank contents. They weigh approximately $2\frac{1}{2}$ lbs. each, are fabricated from hexagonal aluminum bars, and measure $1\frac{1}{4}$ " across the flats.

The scales are graduated by one-eighth inch increments or in centimeters and millimeters and are etched deeply to provide a rough surface to which water bottom measuring paste can be applied.

The glass thermometer tube is recessed in a slot machined in one side of the bar, and is held securely in place by a thermometer cup—see diagram above.

As further protection against breakage, and to eliminate any inaccuracy in the temperature reading (due to the nearness and temperature of the metal in the bob) the back, sides, top and bottom of the thermometer tube are encased in a synthetic rubber jacket so that the glass tube does not come in contact with the metal at any point.

(See Also Reverse Side)



OCECO GAUGE TAPE AND GAUGING PASTES

OCECO GAUGE TAPES are of 18-8 stainless steel— $\frac{1}{2}$ " wide and are regularly furnished in lengths up to 80 lineal feet, which is the capacity of standard tape reels furnished in No. 40 Gaugits.

These tapes are graduated in inches by $\frac{1}{8}$ inch increments to assure accurate reading but can be furnished graduated in the metric system on special order. Bumper springs resting on a bronze bushing cushion the impact of the tape and bob against the bumper tube in the gaugit to prevent tape breakage, and a sturdy malleable iron swivel snap provides an easy, quick method of fastening the gauge bob to the tape.

OCECO WATER BOTTOM MEASURING PASTE is furnished in $2\frac{1}{2}$ oz. jars. This paste should be applied to the measuring graduations on the bob with your finger when it is desired to measure the depth of the water table on the bottom of the tank. Oceco Water Bottom Measuring Paste is soluble in water only. It leaves a clear, sharp, easily read mark instantly, and consequently can be used not only on gauging bobs which remain on the bottom of

the tank for 20 to 30 seconds, but also with the No. 45 Sampler Bob which contacts the tank bottom and then is reeled in immediately.

OCECO GAUGING PASTE is furnished in $2\frac{1}{2}$ -oz. tubes. This paste should be applied to the stainless steel gauge tape—with your fingers—a few inches in each direction from the point at which the liquid level is expected to be found.

Oceco Gauge Paste is soluble and will be cut by gasoline and most other petroleum products that customarily are held in storage tanks. When reading the height of liquid level of tank contents when paste is used, be sure to read the white line. The dark line will be about $\frac{1}{8}$ " above the true liquid level.

THE JOHNSTON & JENNINGS CO.
division of
PETTIBONE MULLIKEN CORP.
4730 W. Division St. Chicago 26, Illinois

100-100

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5800 S. DICKINSON DRIVE
CHICAGO, ILLINOIS 60637

RECEIVED
JAN 15 1964

PROF. J. H. GOLDSTEIN
UNIVERSITY OF CHICAGO
5800 S. DICKINSON DRIVE
CHICAGO, ILLINOIS 60637

Dear Professor Goldstein:
I have received your letter of January 14, 1964, regarding the
loan of a copy of your book, "The Theory of Polymer Solutions",
to the University of Chicago. I am pleased to inform you that
the book has been loaned to the library and is available for
your use.

Sincerely,
[Signature]

OIL SPILL PREVENTION MAINTENANCE PRACTICE NO. 104

Aboveground Piping, Hose, and Support Testing

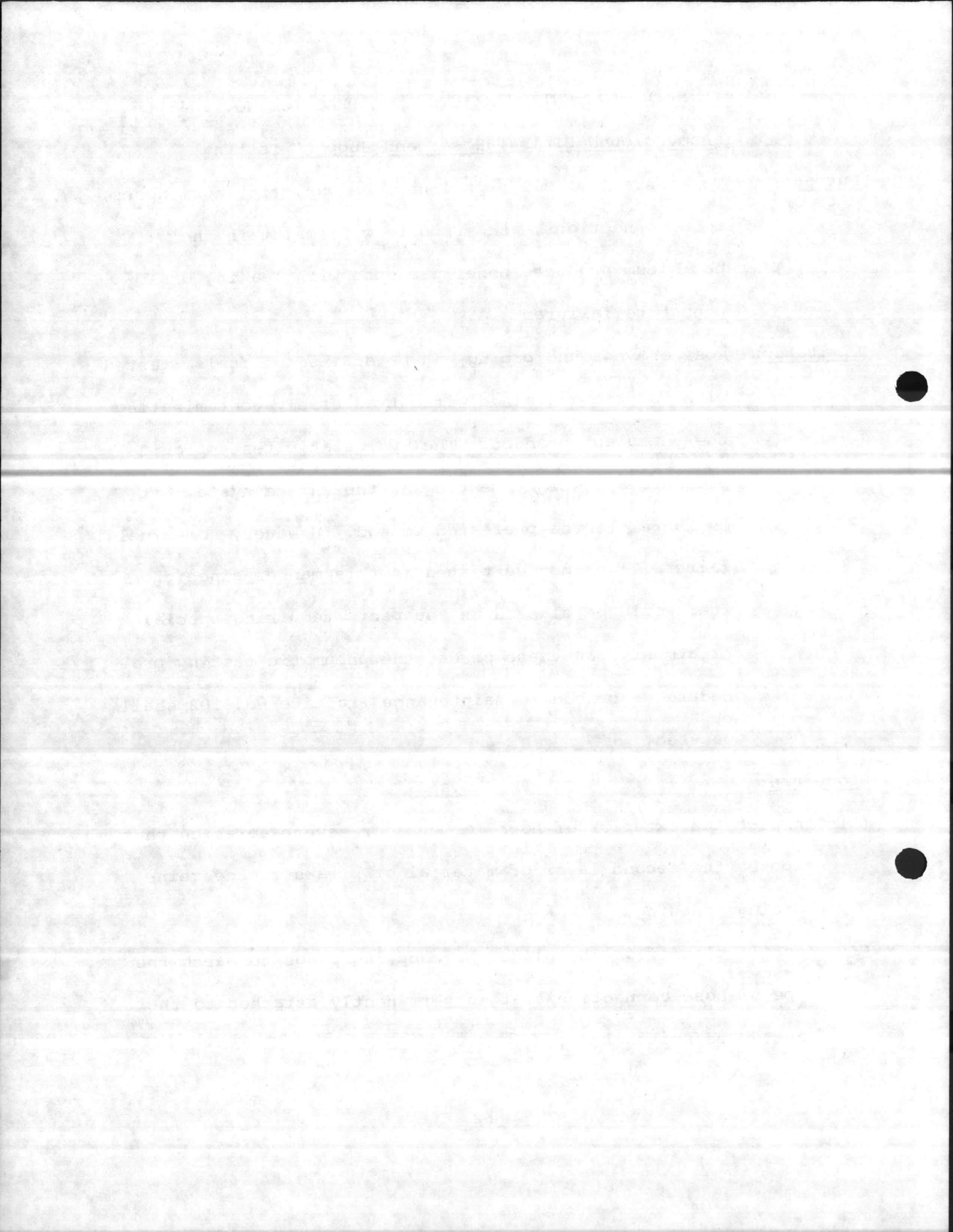
Purpose: To assure that all pipe lines, valves, fittings, hoses, hose connections, and supports will maintain the petroleum products under pressure with leaking or premature failure.

Limitation: Most aboveground piping can be drained of fuels, tested with water and drained without adversely contaminating the petroleum product. The hydrostatic tests provide pressure and weight testing of the entire system; it is therefore the preferred method. However, some fuels (aircraft) cannot be tested in this manner since the fuel would be classed as "suspect" requiring special treatment. In these cases, the pneumatic testing procedure described in Maintenance Practice No. 102 shall be used.

Procedure:

Hoses

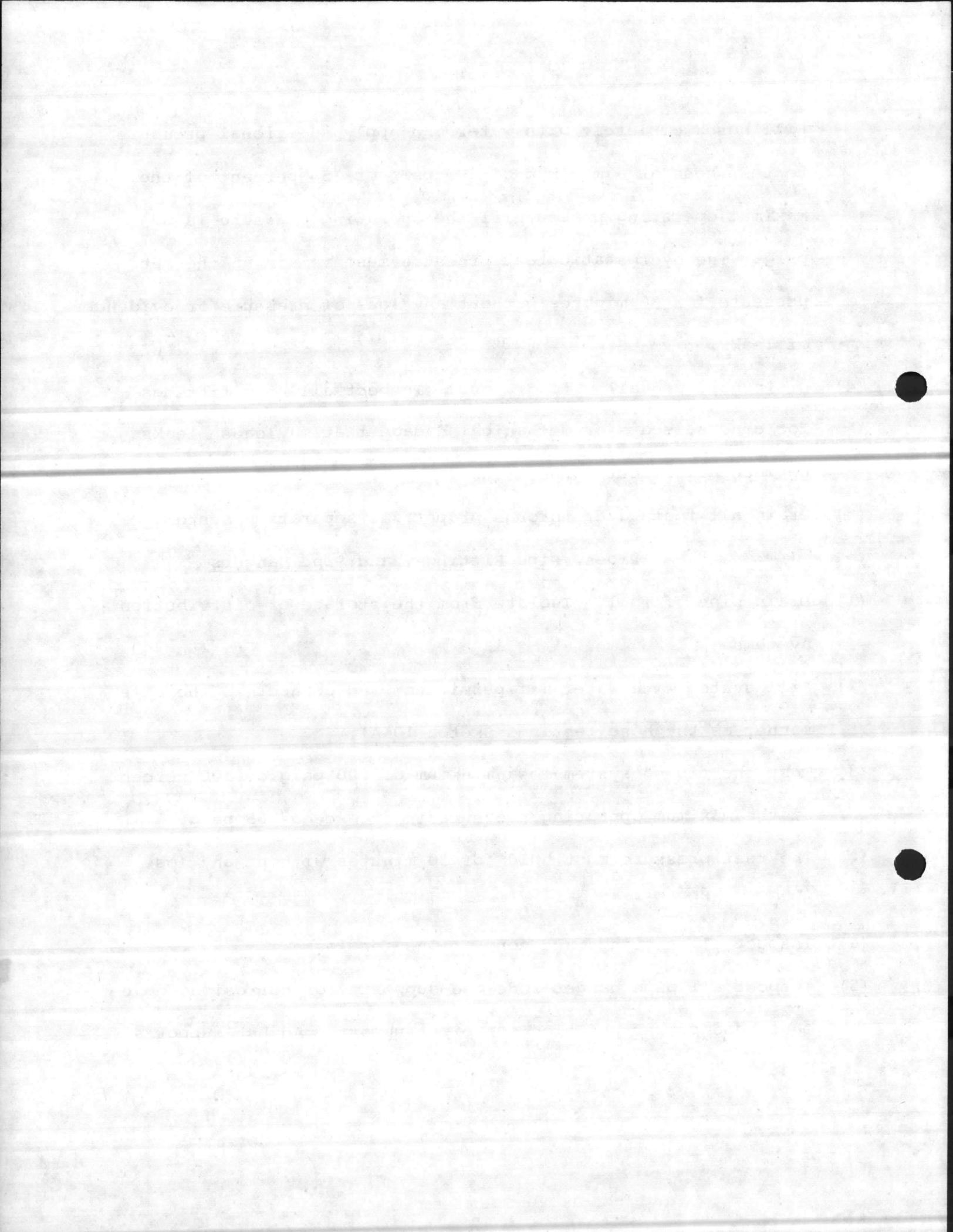
- (1) Inspect the exterior of hose for cuts or severe abrasion that exposes the second layer of material or breaks in the reinforcing braiding.
- (2) Install blind flanges, plugs, or coupling plugs to match the type of hose connection that is permanently attached to the hose. See Sketch 104A.



- (3) Fill hose completely with water and apply additional pressure to test hose at a minimum of 100 psig or 150 percent of the maximum operating pressure if the operating pressure is 65 psig. The hydrostatic test pressure must remain at the set pressure for 30 minutes without any loss of pressure or evidence of leaks.
- (4) Drain hose and allow to dry out. Inspect all hose fittings for cracks, scars or mechanical damage that may cause leaks. Replace all defect connections.
- (5) Drain all test water through proper oil separation system.

Pipes, Pipe Fittings, and Pipe Hangers

- (1) Drain pipe of fuel - Isolate from the storage or distribution systems.
- (2) Fill system with water (if permitted) and connect in the same manner as the hose testing (Sketch 104A).
- (3) Test the piping system to a minimum of 100 psig or 150 percent of the maximum operating pressure if it exceeds 65 psig. The test pressure must hold for 30 minutes without any loss of pressure.
- (4) Inspect all fittings and connections for leaks.
- (5) Inspect all pipe hanger rods and supports for corrosion, movement, and proper position for pipe support. Adjust supports to

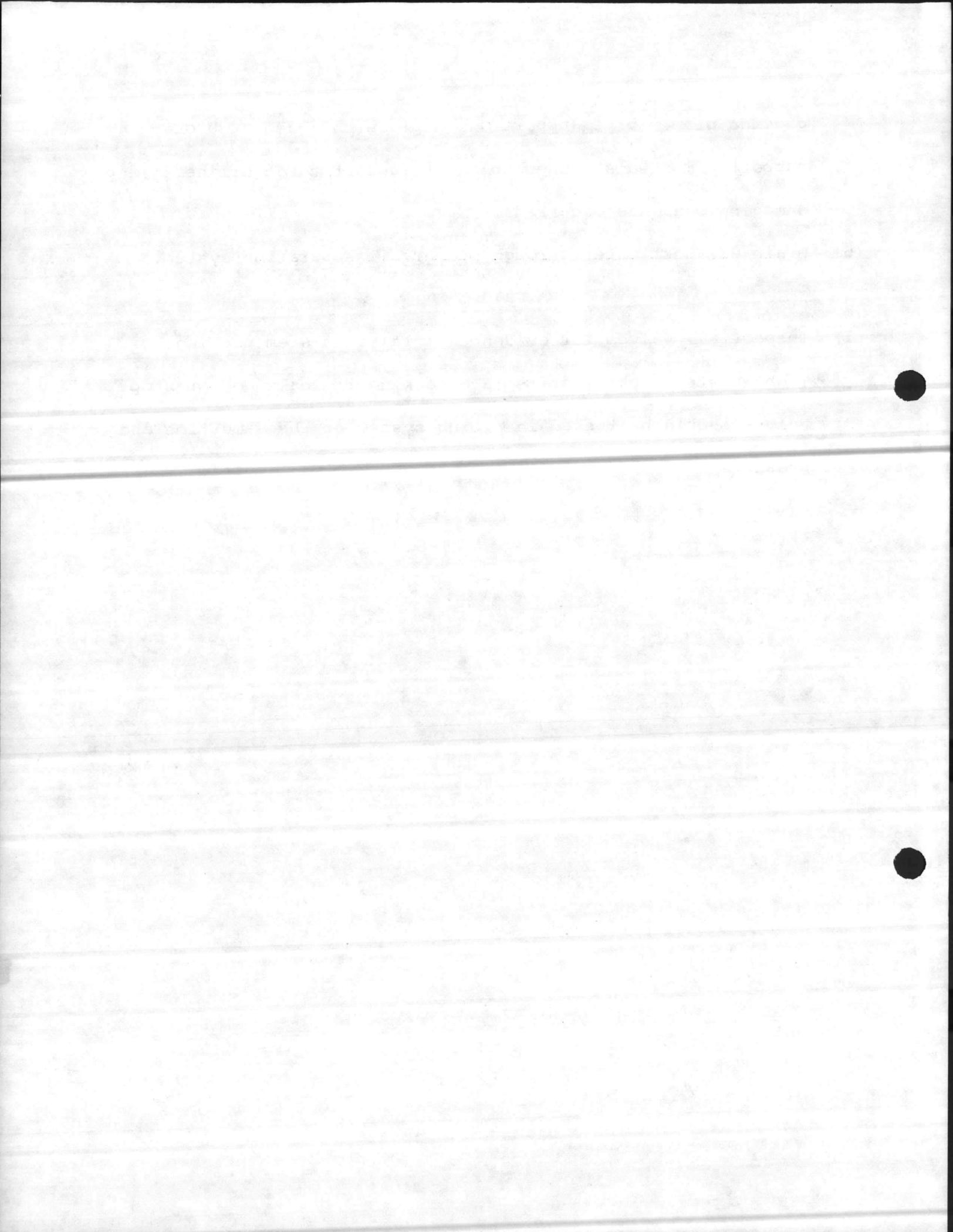


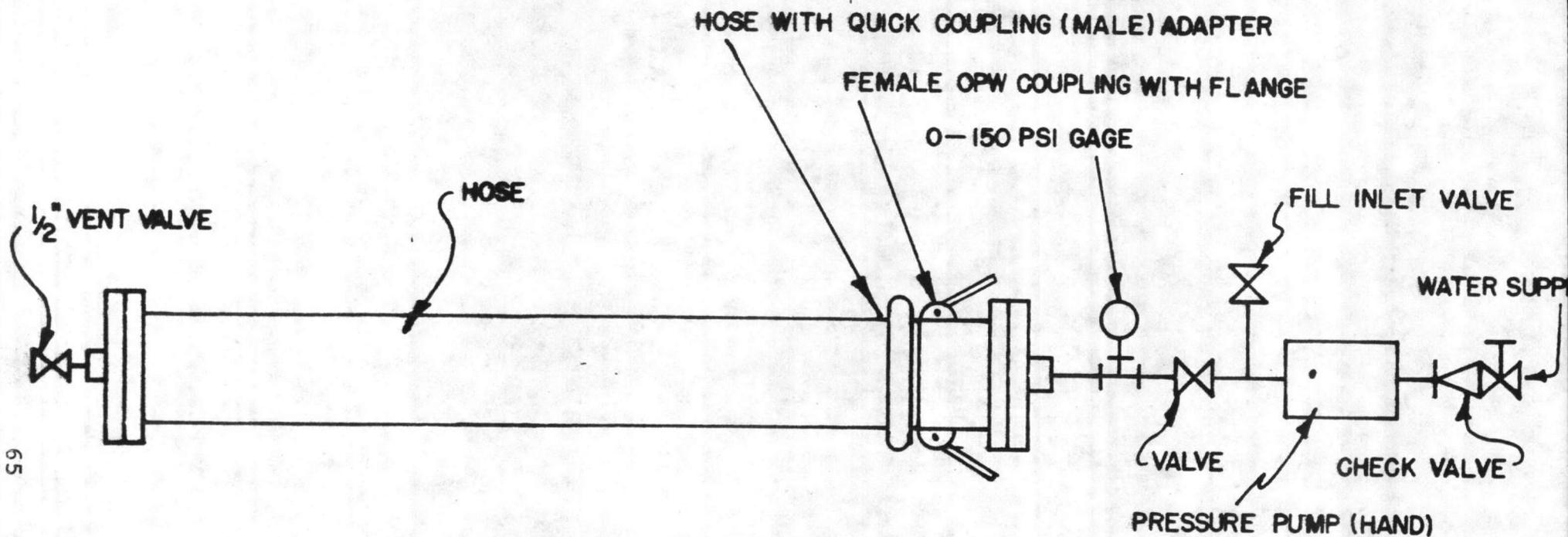
provide proper pipe support and replace corroded or broken support components. Check pipe at support to determine if any damaging wear has occurred.

- (6) Drain all test water through proper oil separation system.

Valves

- (1) Inspect all valves for evidence of leaks at stem packing.
Tighten stem packing or replace packing if leaks do not stop.
- (3) Valves should be tested in piping system at the same time and pressure

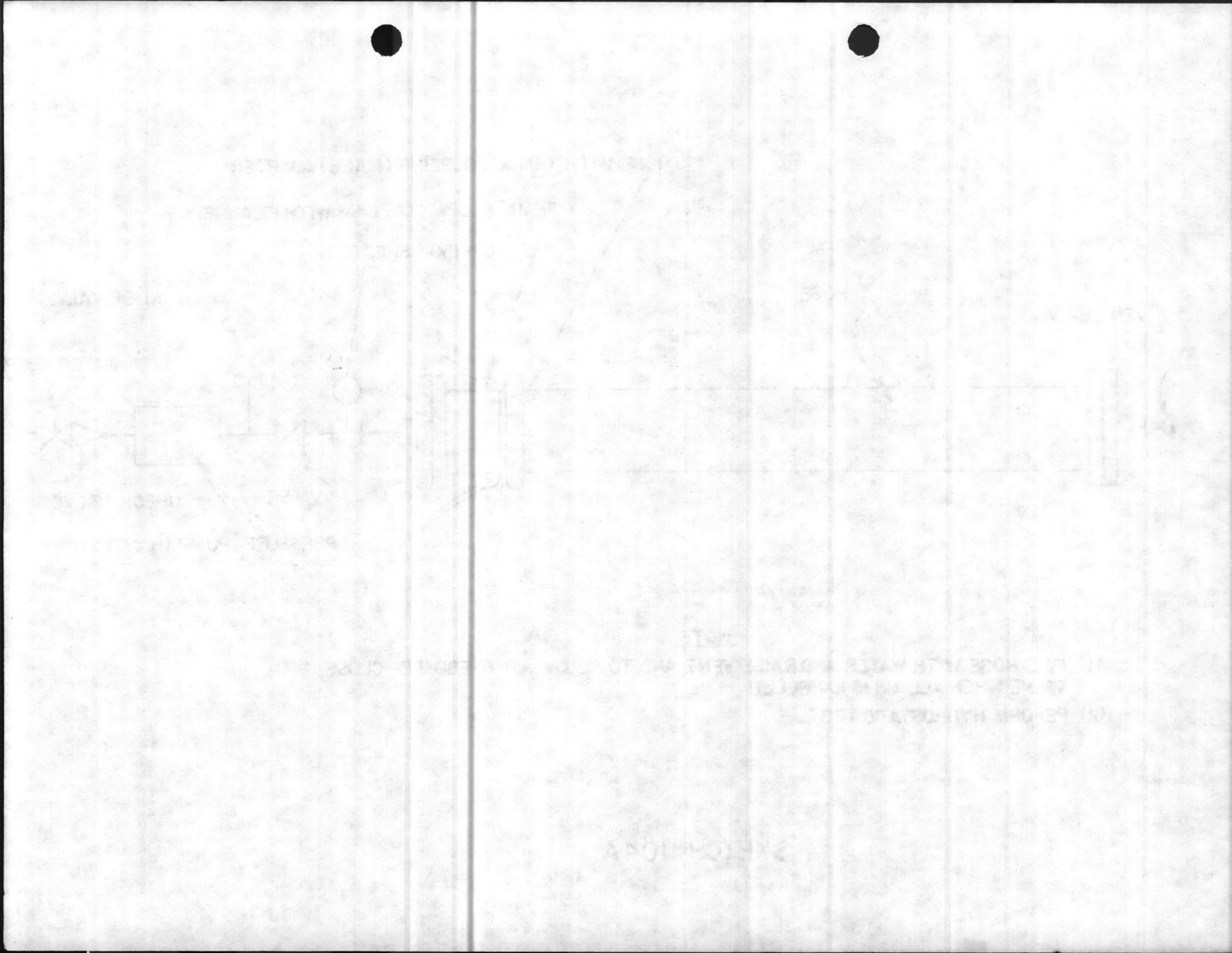




NOTE

- (1) FILL HOSE WITH WATER AND RAISE VENT AND TO ALLOW AIR TO ESCAPE. CLOSE VALVE WHEN ALL AIR IS EXPELLED
- (2) PEFORM HYDROSTATIC TEST.

SKETCH 104A



OIL SPILL PREVENTION MAINTENANCE PRACTICE NO. 105

Testing Aboveground Storage Tanks

Purpose: To assure that each tank is capable of holding oil products without leaking.

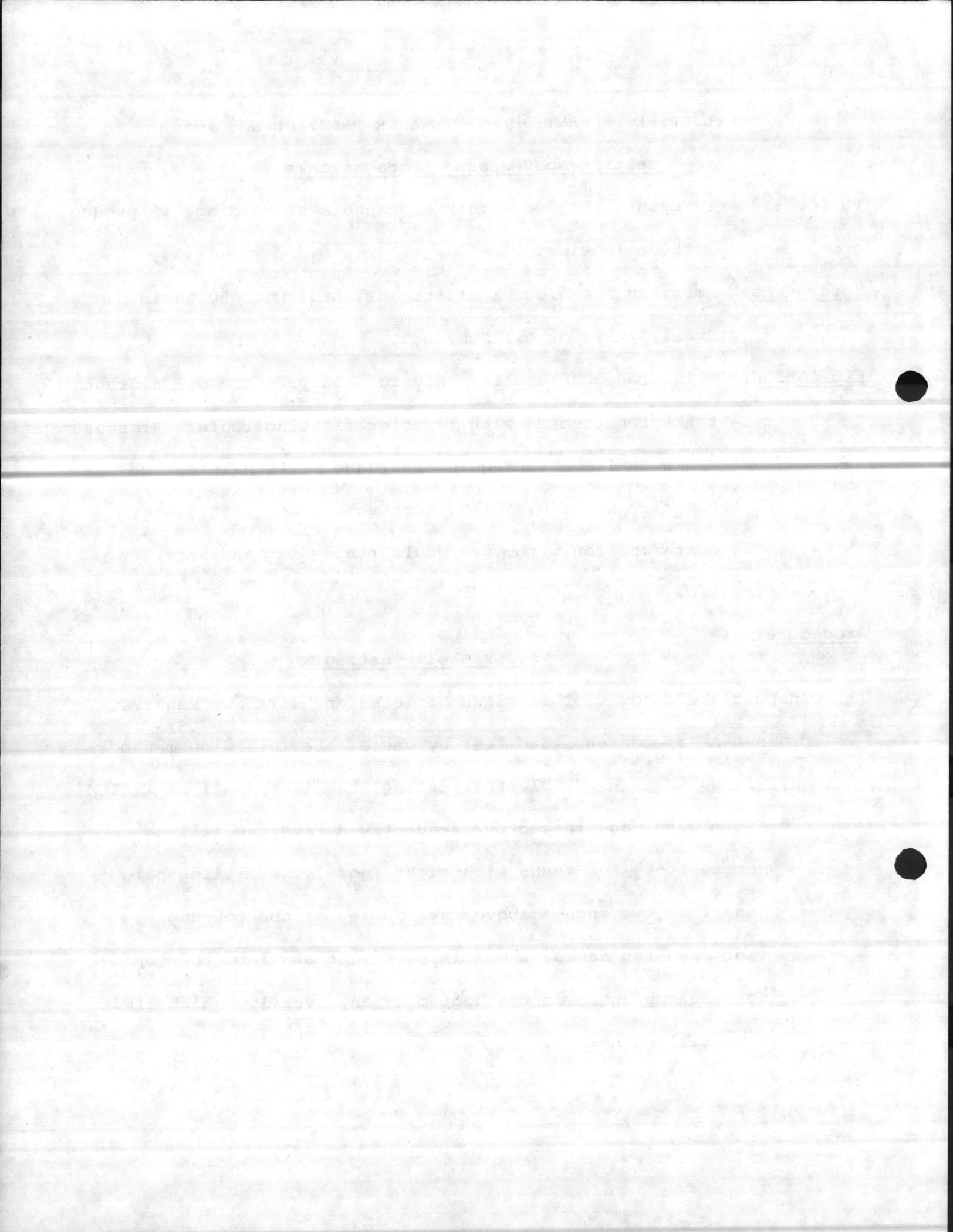
References: American Petroleum Institute API Std. No. 650 "Welded Steel Tanks for Oil Storage".

Limitation: This procedure applies only to non pressure oil storage tanks constructed with fixed or floating roofs. Pressure tanks shall be tested in accordance with Maintenance Practice No. 100. Water test should be omitted where contamination with fuel would render it "suspect" for use.

Procedure:

Tank Shell Testing

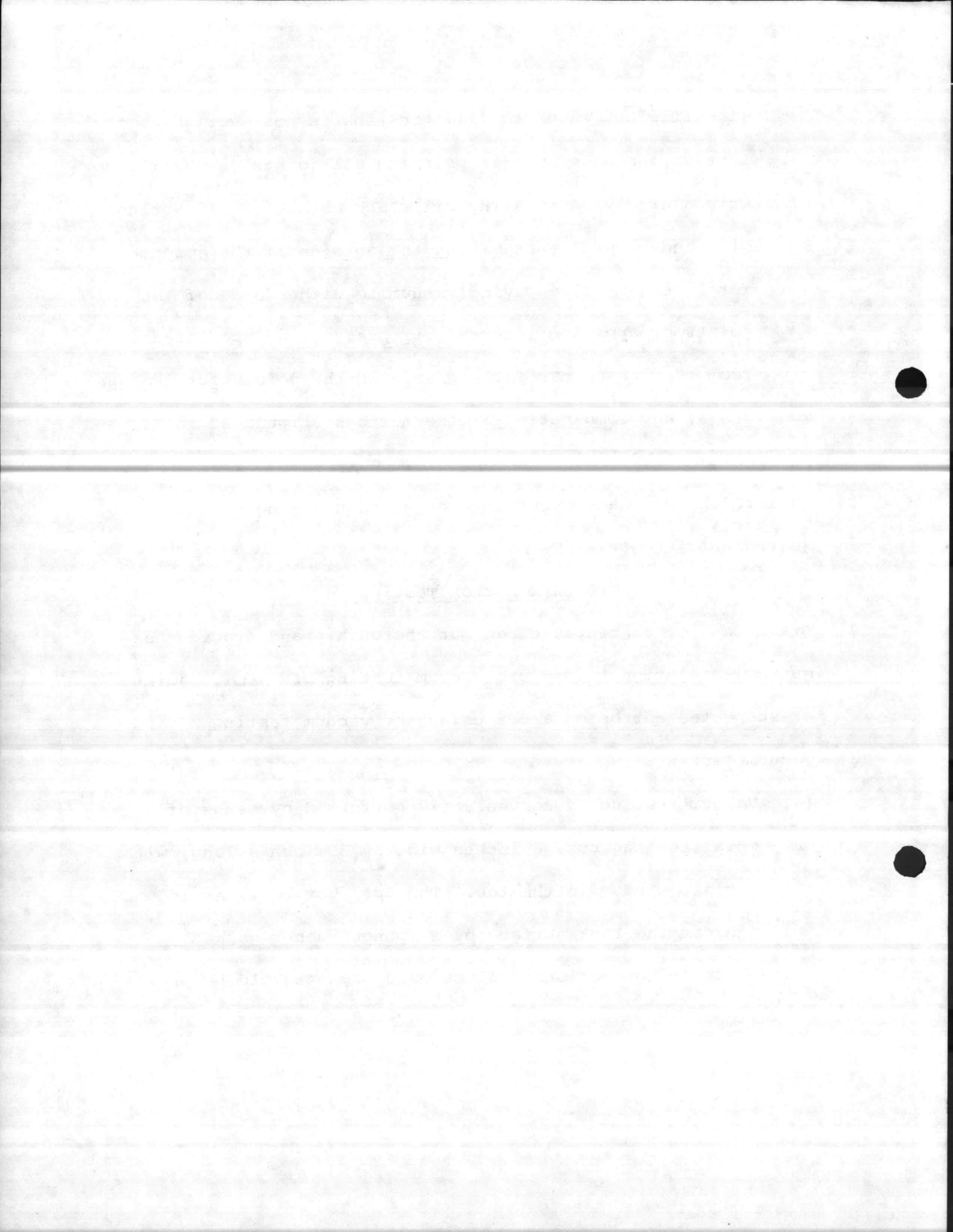
- (1) Inspect shell for visible signs of leaks and mark for repairs. Drain tank of contents and test by one of the following methods:
 - (a) If water is available for testing, the tank shall be filled with water and inspected frequently during the filling operation. For tanks with tight roofs, the filling height shall be two inches above the top leg of the top angle. For open-top tanks, the filling height shall be the top of the top angle or the bottom of any overflow which limits the filling height.



- (b) If sufficient water to fill the tank is not available, the test may be made by: (1) painting all joints on the inside with a highly penetrating oil, such as automobile spring oil, and carefully examining the outside of the joints for leakage; (2) applying vacuum to either side of the joints or applying internal air pressure as specified for roof test 5 and carefully examining the joints for leakage; or (3) any combination of the methods stipulated in (1) and (2).
- (2) Wall thickness measurements can be taken using non-destructive (ultrasonic) tests

Tank Bottom Testing

- (1) Drain tank of contents, clean out thoroughly and provide adequate ventilation to perform vacuum testing of bottom joints or suspected corrosion areas using the vacuum testing.
- (2) Vacuum Testing:
- (a) Vacuum testing is conveniently performed by means of a metal testing box, 6 inches wide by 30 inches long, with a glass window in the top. The open bottom is sealed against the tank surface by a sponge-rubber gasket. Suitable connections, valves, and gages should be provided.



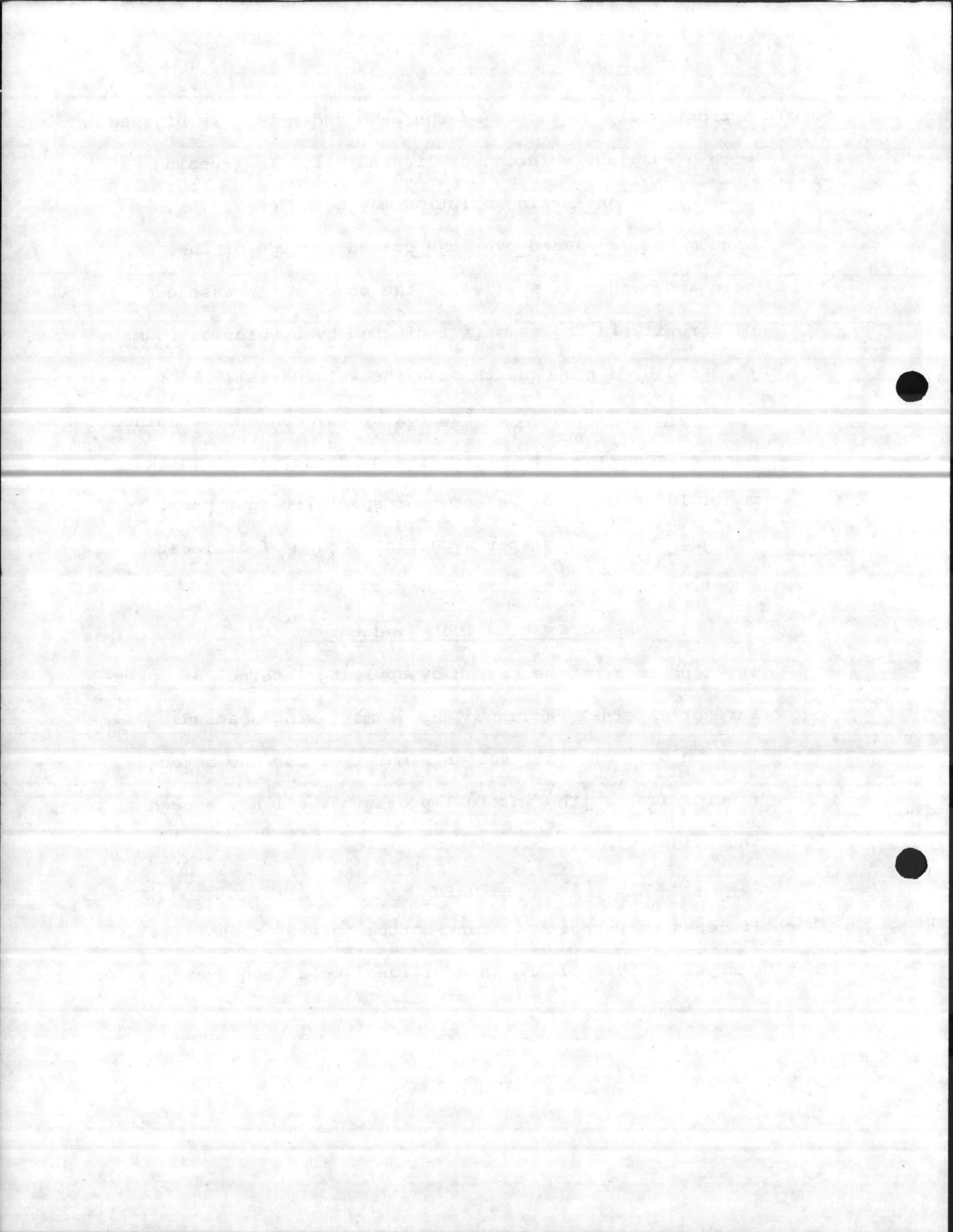
- (b) Approximately 30 inches of the seam under test is brushed with a soapsuds solution or linseed oil. In freezing weather, a nonfreezing solution may be necessary. The vacuum box is placed over the coated section of the seam and vacuum is applied to the box. The presence of porosity in the seam is indicated by bubbles or foam produced by air sucked through the welded seam.
- (c) A vacuum can be drawn on the box by any convenient method, such as connection to a gasoline or diesel motor intake manifold or to an air ejector or special vacuum pump.
- (d) The gage should register a partial vacuum of at least 2 psi.

Roof Testing (Not Mandatory)

The tank roof can be tested by applying internal air pressure or external vacuum to the seams, using soapsuds, linseed oil, or other suitable material for the detection of leaks. The internal pressure shall not exceed the weight of the roof plates.

Repairs

- (1) Pinhole leaks or porosity in tank-bottom joints or shell joints may be repaired by applying an additional weld bead over the



defective area. Other defects or cracks in tank-bottom joints shall be repaired by chipping or melting out from one or both sides of the joint as required and rewelding. Only sufficient cutting out of defective joints necessary to correct the leak is required.

- (2) Isolated pinhole leaks in roof joints may be caulked mechanically; but for any indication of considerable porosity in the joints or of cracking, an additional bead of weld metal shall be laid over the affected sections. Mechanical caulking is not permitted for any other repairs.
- (3) Repairs of defects discovered after the tank has been filled with water for test shall be made with the water level at least one foot below the point being repaired or with the tank empty if repairs are on or near the tank bottom. No welding shall be done on any tank unless all lines connecting thereto have been completely blanked off. No repairs shall be attempted on a tank while filled with oil nor on a tank which has contained oil until the tank has been emptied, cleaned, and gas-freed in a safe manner. No repairs shall be attempted on a tank which has contained oil, except in a manner approved by the Base Maintenance Office.

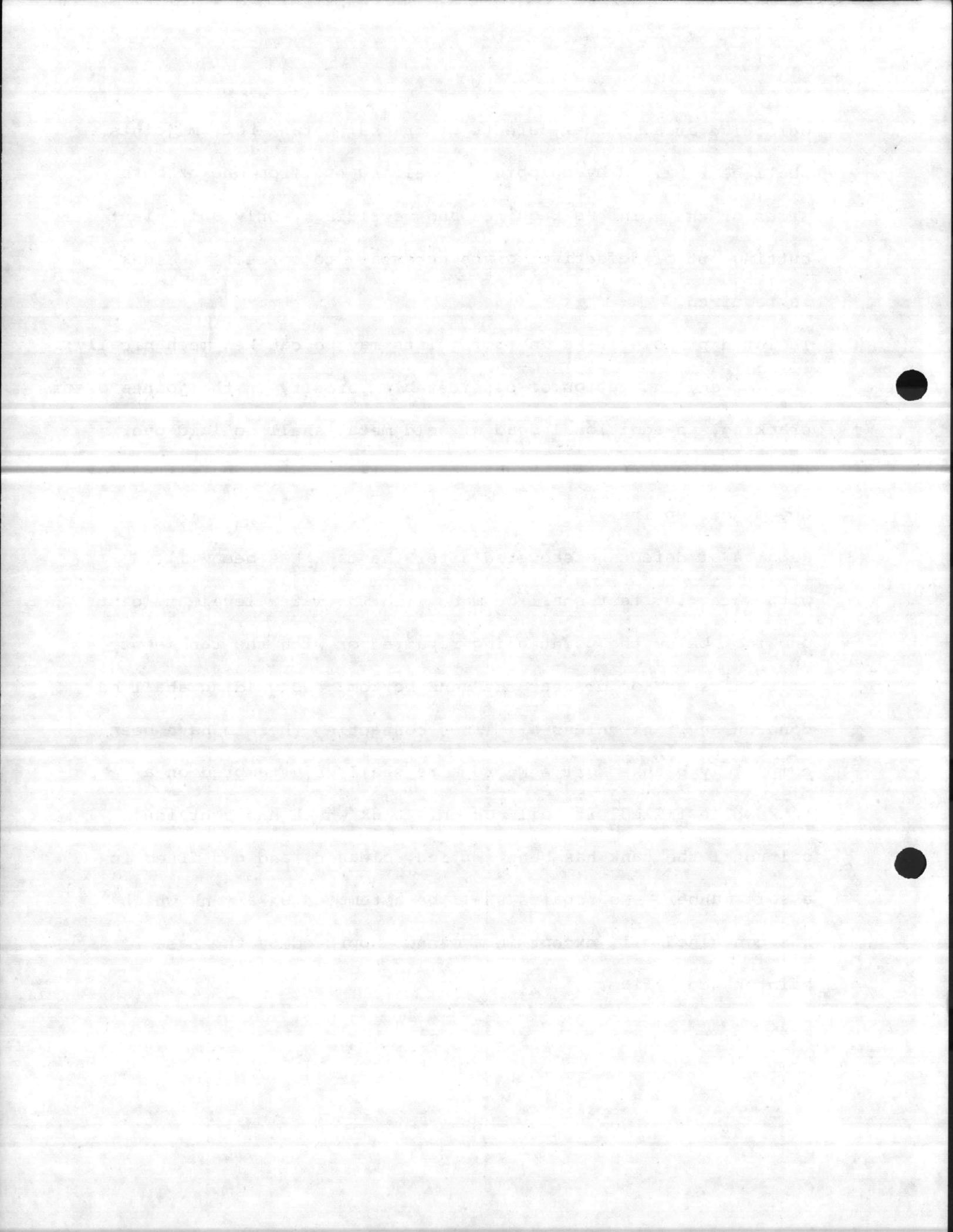


TABLE I
BURIED STORAGE TANKS
TYPE OF PRODUCT - No. 2 Fuel Oil

* LOCATION	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
MP	M-230	10,000			None
MP	M-230	10,000			None
MP	S-M-195	5,000			None
TT	TT-43	1,000			None
TT	TT-44	1,000			None
TT	TT-48	1,000			None
TT	TT-48	3,000			None
TT	TT-60	10,000			None
TT	2455	1,000			None
TT	2457	1,000			None
TT	2459	1,000			None
MDP	40	2,000			None
MDP	40	2,000			None
MDP	4003	3,000			None
MDP	4022	?			?
MDP	4025	?			?
PP	1915	3,000			?
PP	1943	10,000			None
BM	5400	10,000			None
BM	825	30,000			None
NH	H-120	1,000			None
NH	H-119	15,000			None
CHB	BB-48	5,000			None
CHB	BB-49	5,000			None
HDP	1765	1,000			None
FC	FC-202	10,000			None
AT	S-A-28	10,000			None
BA	BA-106	10,000			Yes
MCAS	3502	1,000			None
MCAS	3504	5,000			None
	TOTAL	167,000			

* Refer to Appendix B for abbreviation of location.

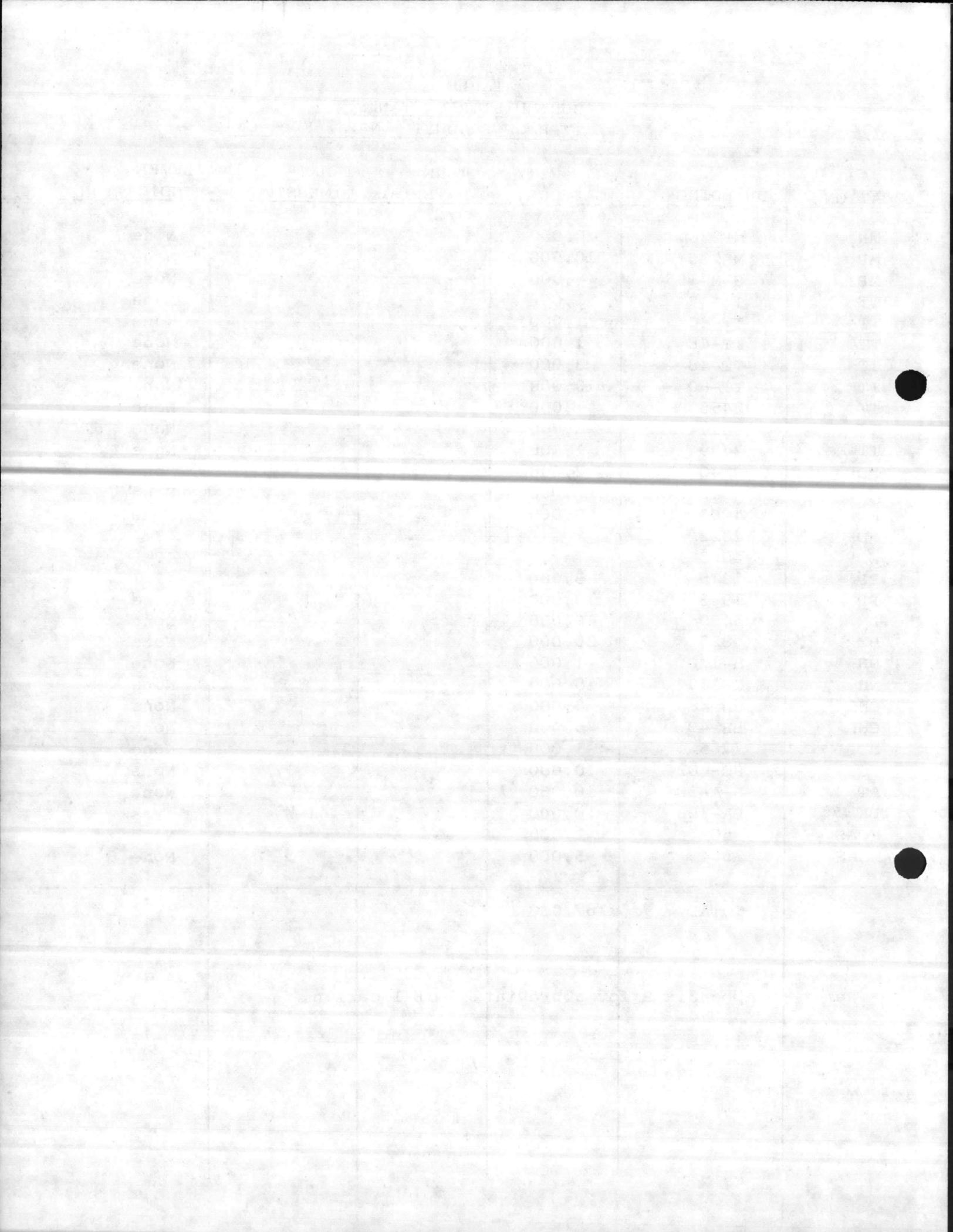


TABLE II
BURIED STORAGE TANKS
TYPE OF PRODUCT No. 6 Fuel Oil

LOCATION	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
MP	M625	20,000			None
MP	M625	30,000			None
PP	PP-2615	8,000			Yes
PP	PP-2615	8,000			Yes
NH	H-118	15,000			None (Maybe No. 2)
NH	H-121	15,000			None (Maybe No. 2)
CG	RR-15	10,000			Yes
CG	RR-15	10,000			Yes
CHB	BB-9	15,000			Yes
CHB	BB-9	15,000			Yes
CHB	BB-9	15,000			Yes
	TOTAL	161,000			

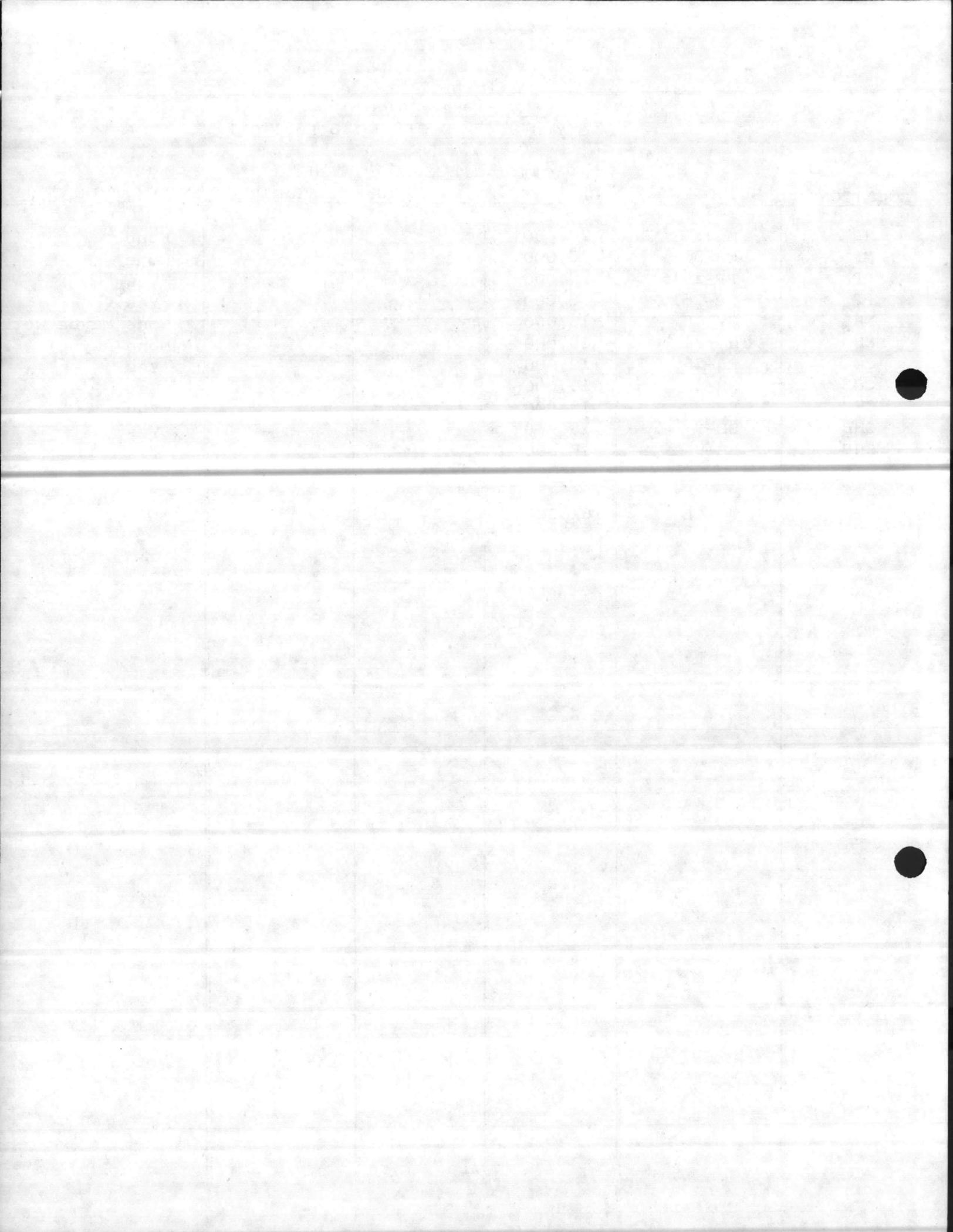


TABLE III
BURIED STORAGE TANKS
TYPE OF PRODUCT MOGAS

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
MP	M-101	550			None
MP	M-171	5,000			?
MP	M-171	5,500			?
MP	M-171	5,600			?
MP	S-M-195	5,500			None
MP	S-M-193	1,000			None
TT	2453	6,000			None
TT	2453	3,000			?
TT	2453	3,000			?
MDP	PMO	550			None
PP	1932	1,000			None
PP	1919	1,000			None
NH	H-114	10,000			None
HDP	1612	10,000			None
HDP	1614	10,000			None
HDP	1614	10,000			None
HDP	1614	30,000			None
HDP	1614	30,000			None
HDP	S-715	1,000			None
HDP	1024	15,000			None
HDP	1026	15,000			None
HDP	1027	15,000			None
HDP	1028	15,000			None
HDP	1029	15,000			None
HDP	1030	12,000			None
HDP	S-1031	15,000			None
HDP	S-1032	12,000			None
HDP	S-1033	12,000			None
HDP	S-1034	12,000			None
HDP	S-1035	15,000			None
HDP	S-1036	15,000			None
HDP	1002	1,000			None
HDP	1002	1,000			None
HDP	1002	1,000			None
HDP	1002	1,000			None
HDP	1841	5,000			None
HDP	S-1843	10,000			None
HDP	S-1813	5,000			None
CG	TC-912	4,000			None

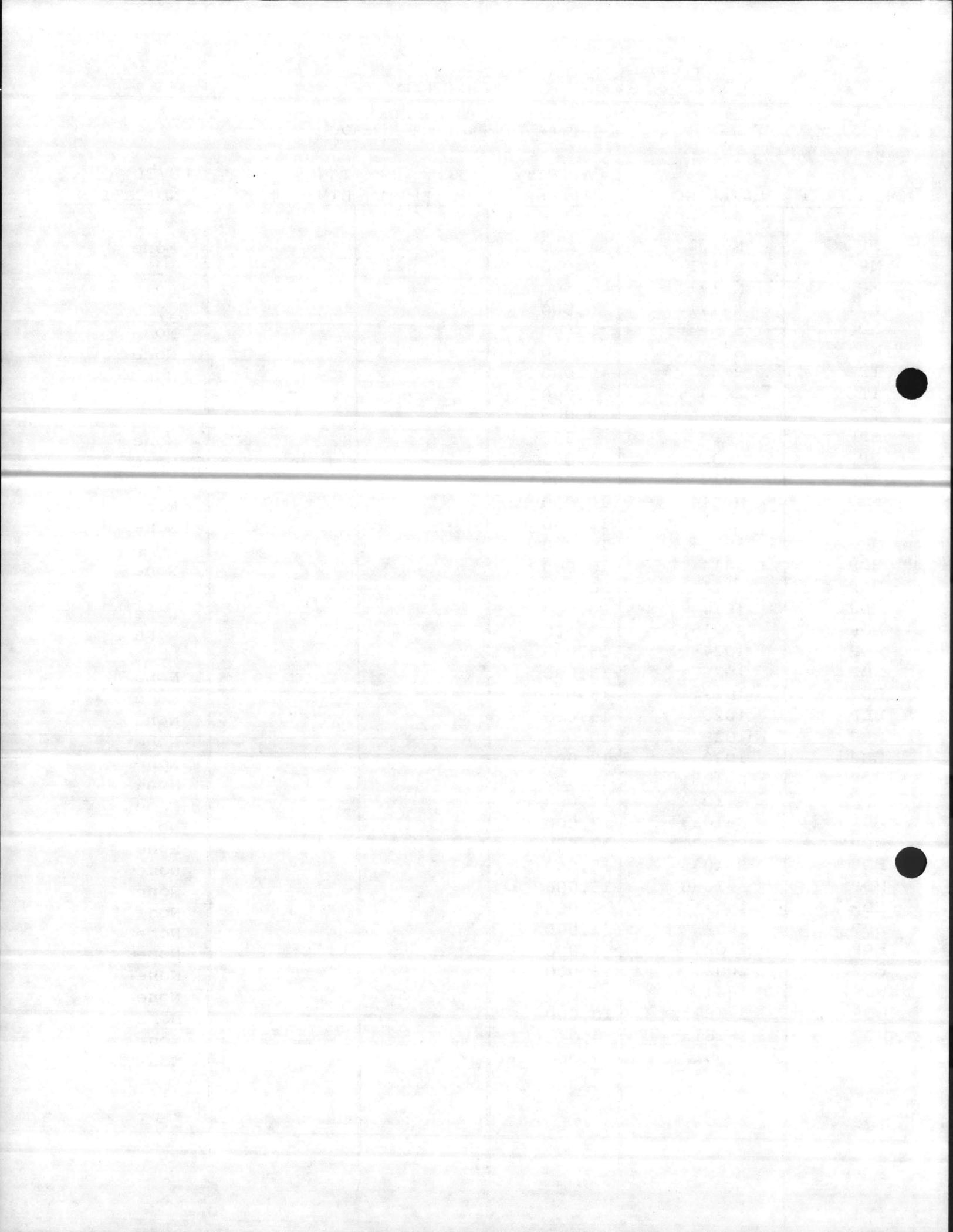


TABLE III
BURIED STORAGE TANKS
TYPE OF PRODUCT MOGAS

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
CG	TC-912	6,000			None
CG	TC-912	6,000			None
CG	RR-84	15,000			None
RR	RR-72	4,000			None
RR	RR-72	6,000			None
RR	RR-72	5,000			None
AT	S-A-28	10,000			None
CHB	BB-177	6,000			None
CHB	BB-177	6,000			None
CHB	BB-177	6,000			None
CHB	BB-31	1,000			None
CHB	BB-31	2,000			None
CHB	S-BB-70	550			None
BA	BA-154	1,000			None
MCAS	143	10,000			None
MCAS	410	4,000			None
MCAS	410	4,000			None
MCAS	410	4,000			None
MCAS	410	4,000			None
MCAS	410	4,000			None
MCAS	410	4,000			None
MCAS	3512	1,200			None
MCAS	2804	550			None
CHB	BB-46	1,000			?
	TOTAL	456,000			

* Refer to Appendix B for abbreviation of locations.

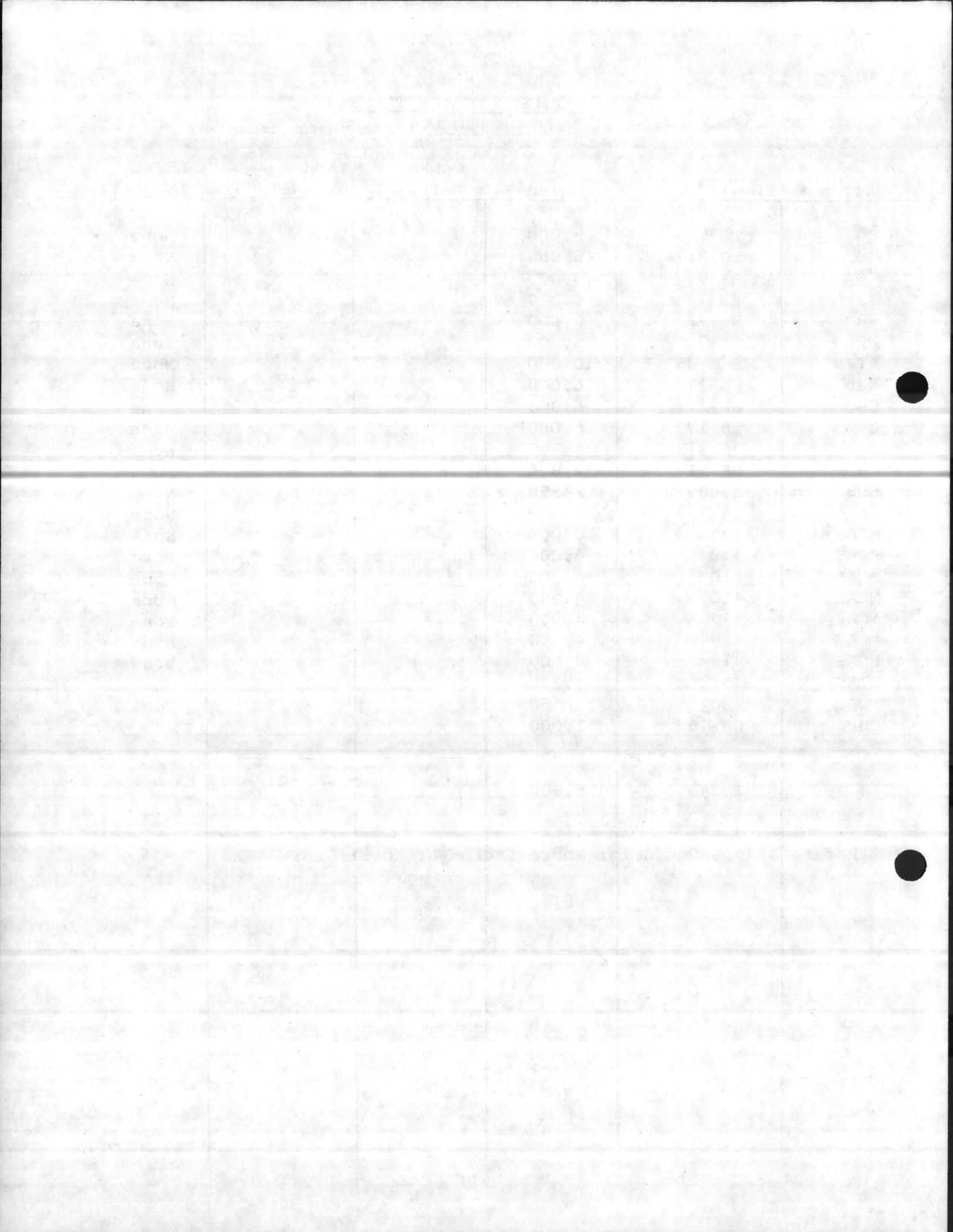


TABLE IV
BURIED STORAGE TANKS
TYPE OF PRODUCT KEROSENE

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
HDP	S-1023	12,000			None
HDP	S-1025	12,000			None
HDP	S-1037	3,500			None
HDP	S-1037	3,500			None
* Refer	TOTAL	31,000			
	to Appendix B for abbreviation of locations.				

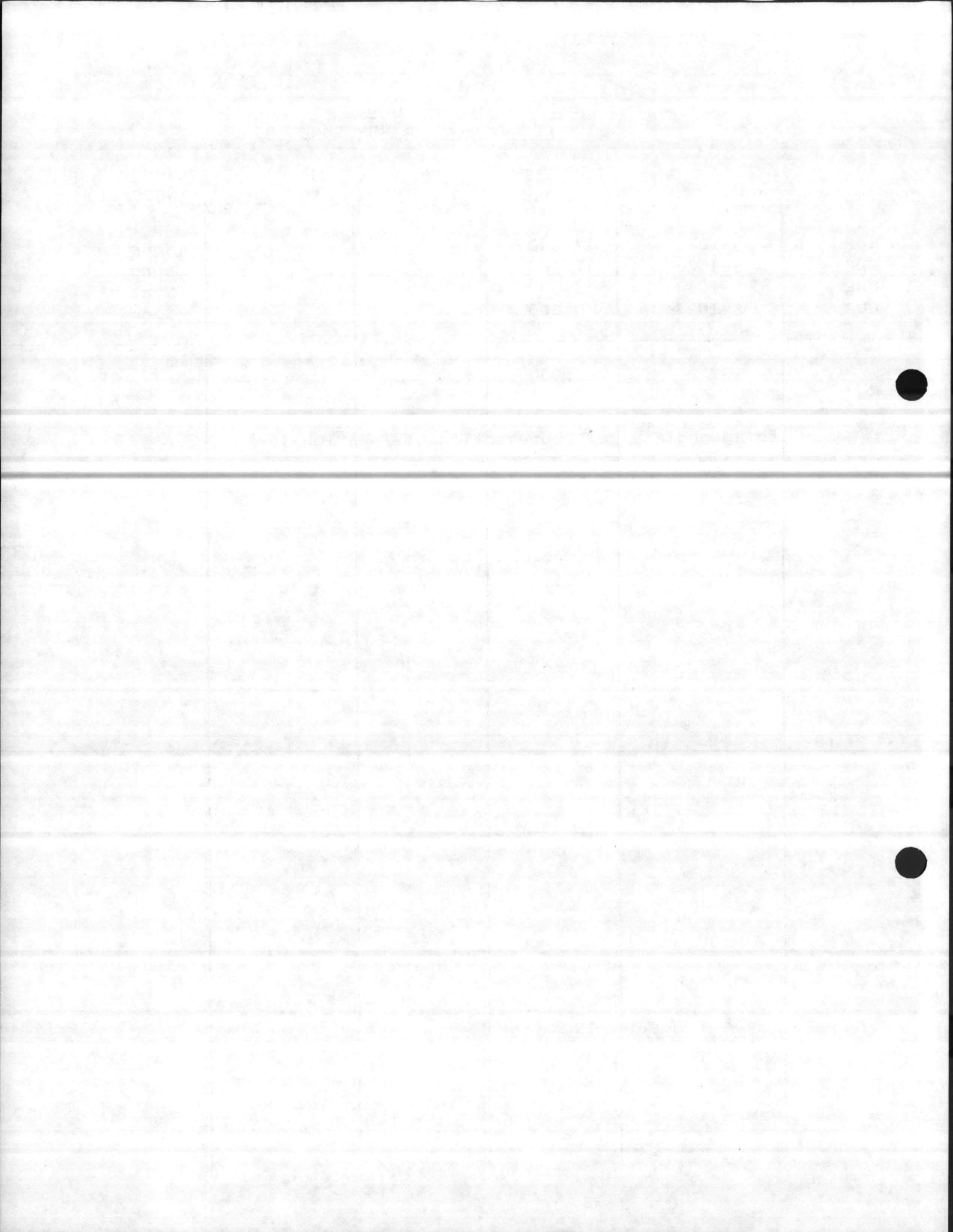


TABLE V
BURIED STORAGE TANKS
TYPE OF PRODUCT WASTE OIL

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
TT	2453	500			None
HDP	1612	1,000			None
HDP	1780	1,000			None
HDP	1502	1,000			
HDP	1601	1,000			None
CG	TC-912	?			None
CG	TC-942	280			None
CG	STC-868	280			None
CHB	BB-177	600			None
MCAS	410	1,000			None
HDP	589	?			None
HDP	1750	?			None
FC	FC-100	1,000			None
FC	FC-200	1,000			None

TOTAL 8,660

* Refer to Appendix B for location abbreviation.

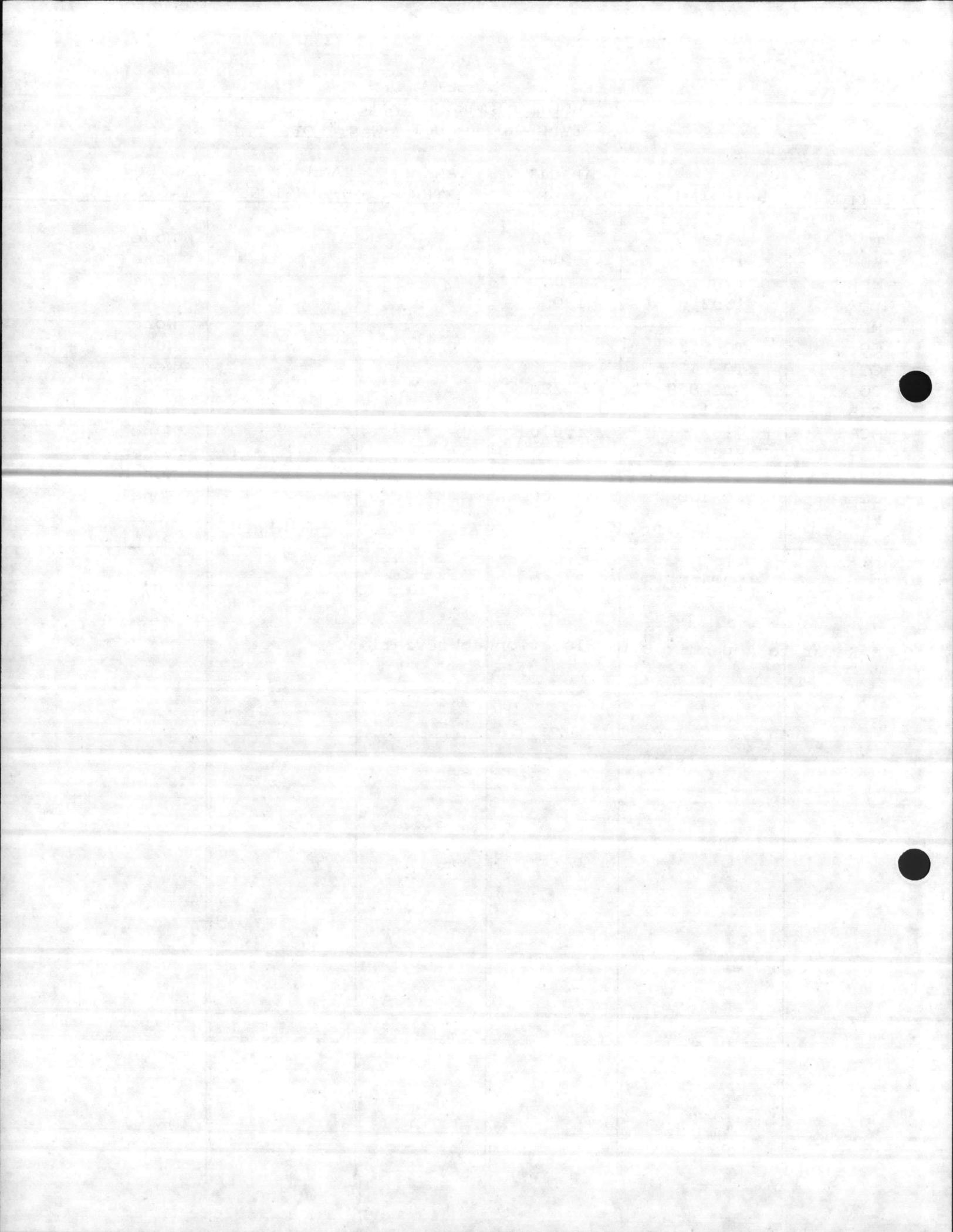


TABLE VI
BURIED STORAGE TANKS
TYPE OF PRODUCT DIESEL FUEL

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
MP	M-101	550			None
HDP	S-1840	10,000			None
HDP	S-1813	10,000			None
CHB	S-BB-70	5,000			None
MCAS	3511	1,200			None
HDP	S-1002	1,000			None

	TOTAL	27,750			
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* Refer to Appendix B for location abbreviation.

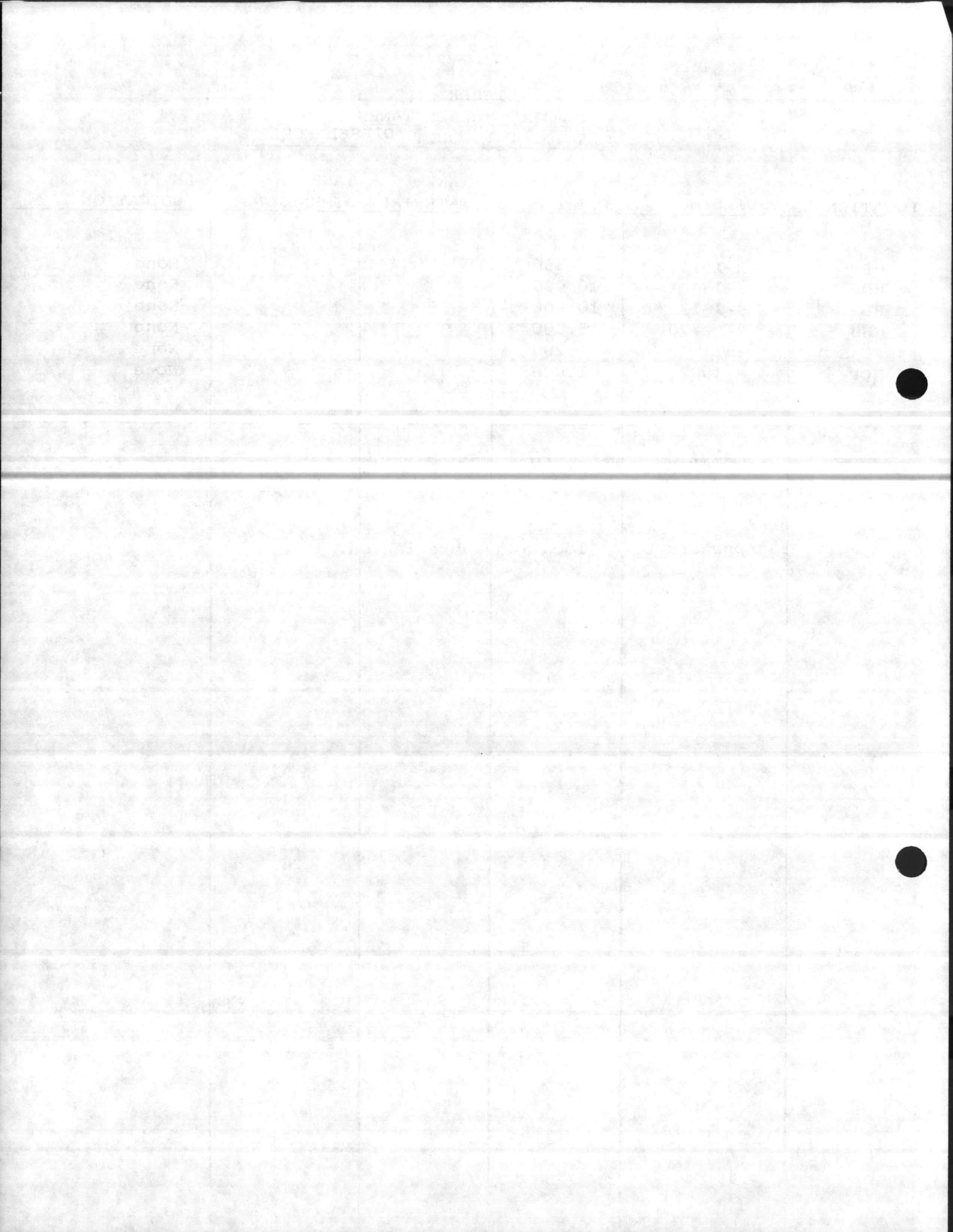


TABLE VII
BURIED STORAGE TANKS
TYPE OF PRODUCT JP-5

LOCATION *	BUILDING	CAPACITY GALLONS	TANK MATERIAL	TANK DIMENSIONS	LEVEL INDICATION
MCAS	Tank Farm 137	50,000			High Level Alarm
MCAS	Tank Farm 138	100,000			High Level Alarm
MCAS	Tank Farm 151	50,000			High Level Alarm
MCAS	Tank Farm 150	105,000			High Level Alarm
MCAS	Tank Farm 154	120,000			High Level Alarm
MCAS	507	20,000			High Level Alarm
MCAS	508	20,000			High Level Alarm

	TOTAL	465,000			
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* Refer to Appendix B for location abbreviation.

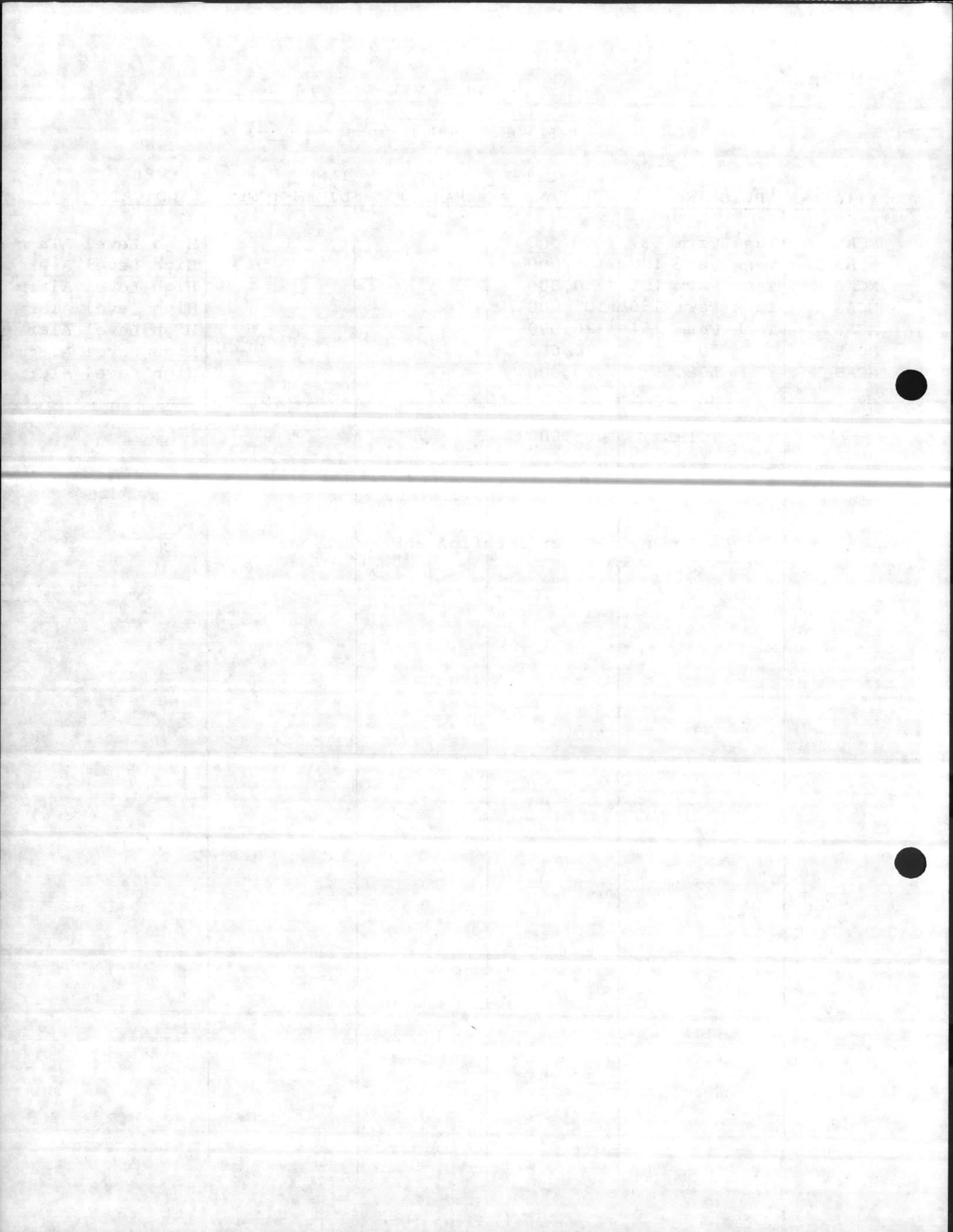


TABLE VIII
 ABOVE GROUND STORAGE TANKS
 TYPE OF PRODUCT-NO. 2 FUEL OIL

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
MP	USO	1,000	None	None	Surface Only
MDP	45	1,000	None	None	None
HDP	730	3,000	None	Brick Dike	Open
HDP	31	500	None	None	None
HDP	728	1,000	None	None	None
HDP	1021	1,000	None	None	Surface
HDP	1022	1,000	None	None	Surface
AT	A-1	3,000	None	Brick Dike	No Pipe Discharge
CHB	34	1,000	None	Brick Dike	No Discharge
MCAS	710	6,000	None	Brick Dike- Limit	No Discharge Valve
MCAS	701	6,000	None	Block Dike- Not Large	
MCAS	703	6,000	None		
HDP	S-1009	615,000		Earth Berm	Valved Outlet

TOTAL 645,500

*Refer to Appendix B for location abbreviations.

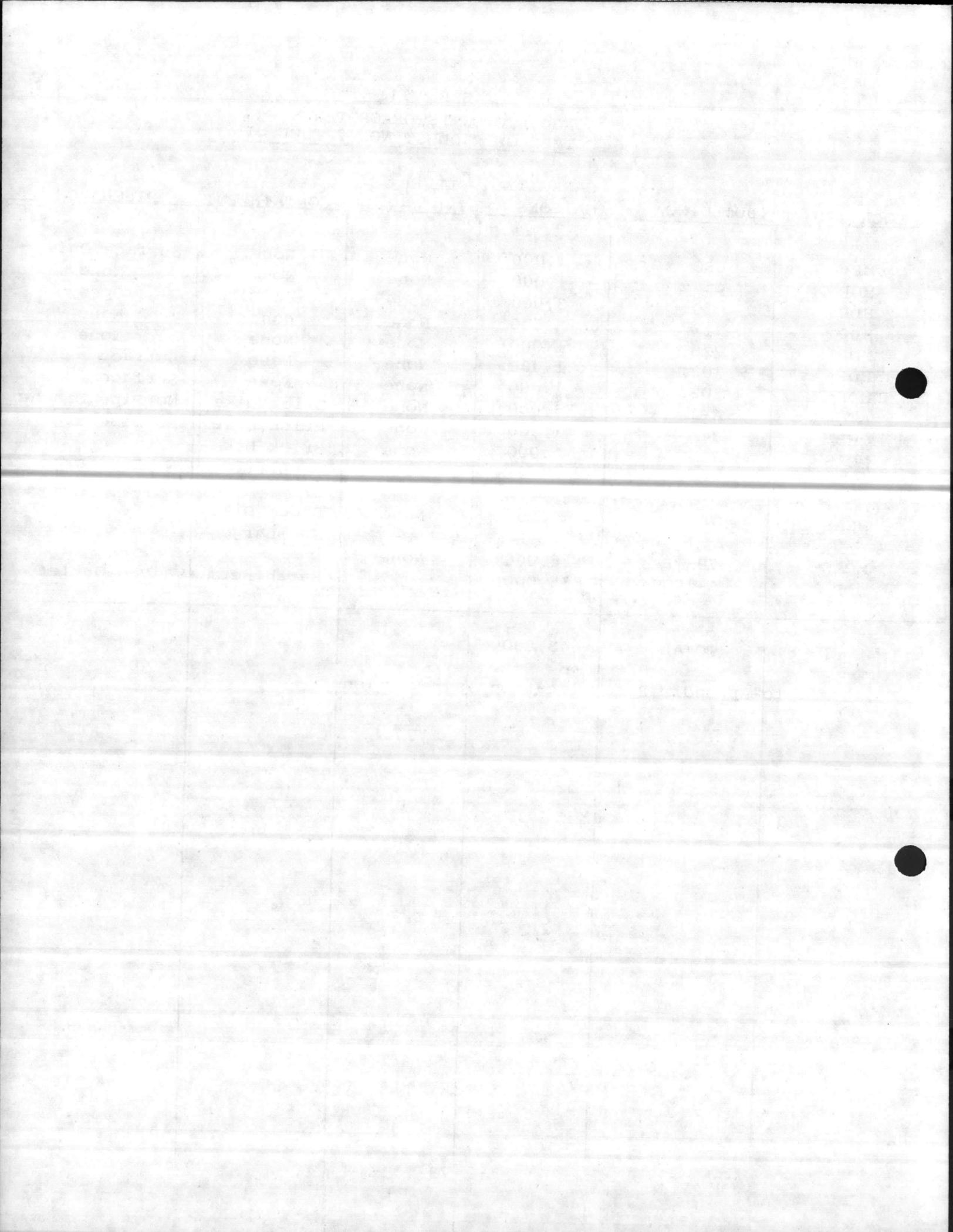


TABLE IX
ABOVE GROUND STORAGE TANKS
TYPE OF PRODUCT - KEROSENE

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
MDP	4015	15,000	Visual	Brick Dike	Drain Valve
MDP	4015	15,000	Visual	Brick Dike	Drain Valve
MDP	4015	15,000	Visual	Brick Dike	Drain Valve
HDP	1022	1,000	None	None	Surface
CG	Fuel Farm	15,000	Yes	Earth Dike	Drain Valve
CG	Fuel Farm	12,000	Yes	Earth Dike	Drain Valve
BA	Parking Area	500	None	None	Surface

TOTAL 73,500

* Refer to Appendix B for location abbreviations.

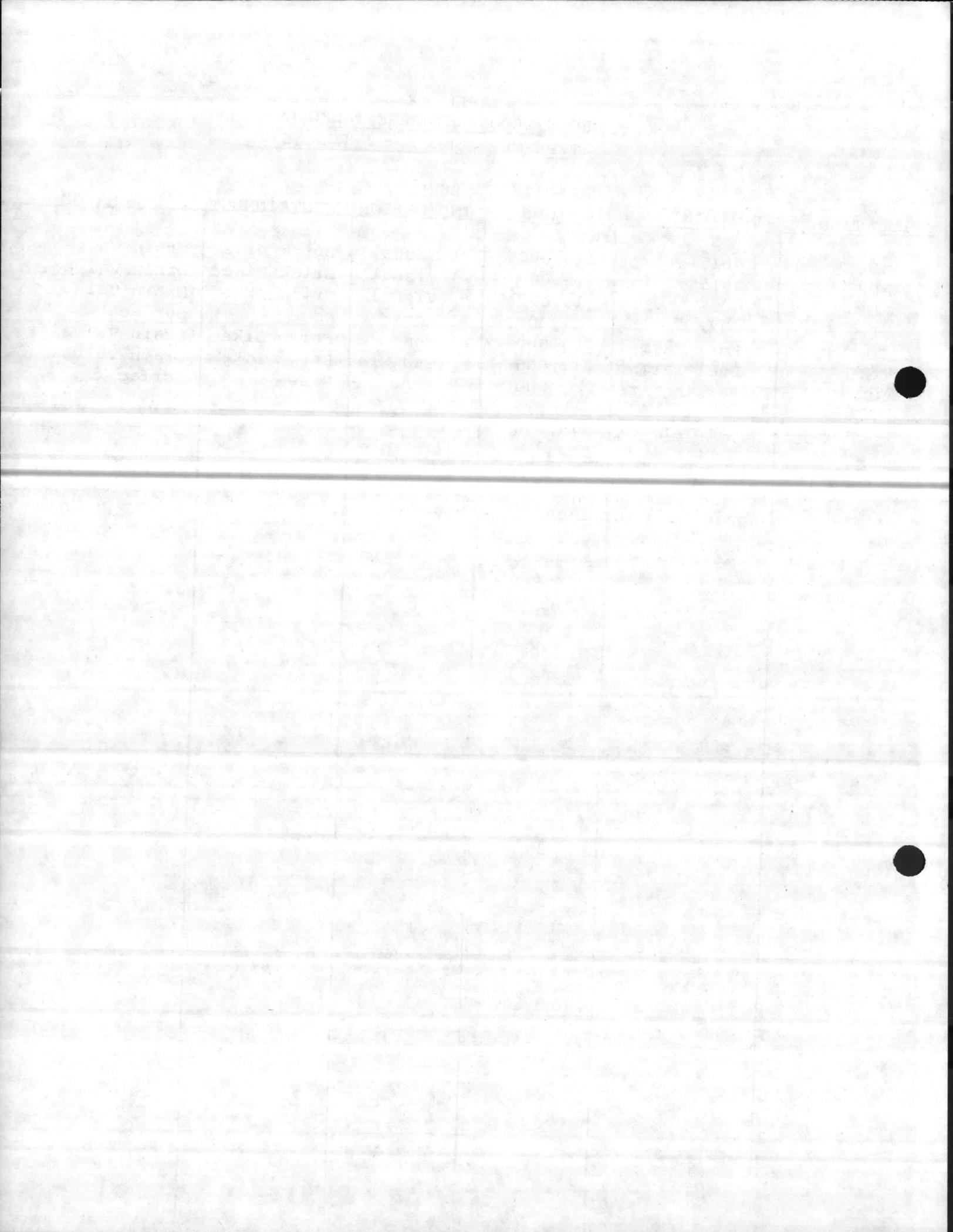


TABLE X
 ABOVE GROUND STORAGE TANKS
 TYPE OF PRODUCT - MOGAS

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
AT	S-A-21	30,000	None	Earth Berm	Pipe but no valve
AT	Fuel Bladder	20,000	None	Earth Berm	None
CHB	BB-46	550	None	None being replaced	
MCAS	2804	1,000			
MDP	4015	10,000	?	Earth Berm	4" Valve
MDP	4015	10,000	?	Earth Berm	do
MDP	4015	10,000	?	Earth Berm	do
MDP	1843				
MDP	Fuel Bladder	20,000	None	Earth Berm	None
CG	Fuel Farm	15,000	Yes	Earth Dike	Drain Valve

TOTAL 116,550

*Refer to Appendix B for location abbreviations.

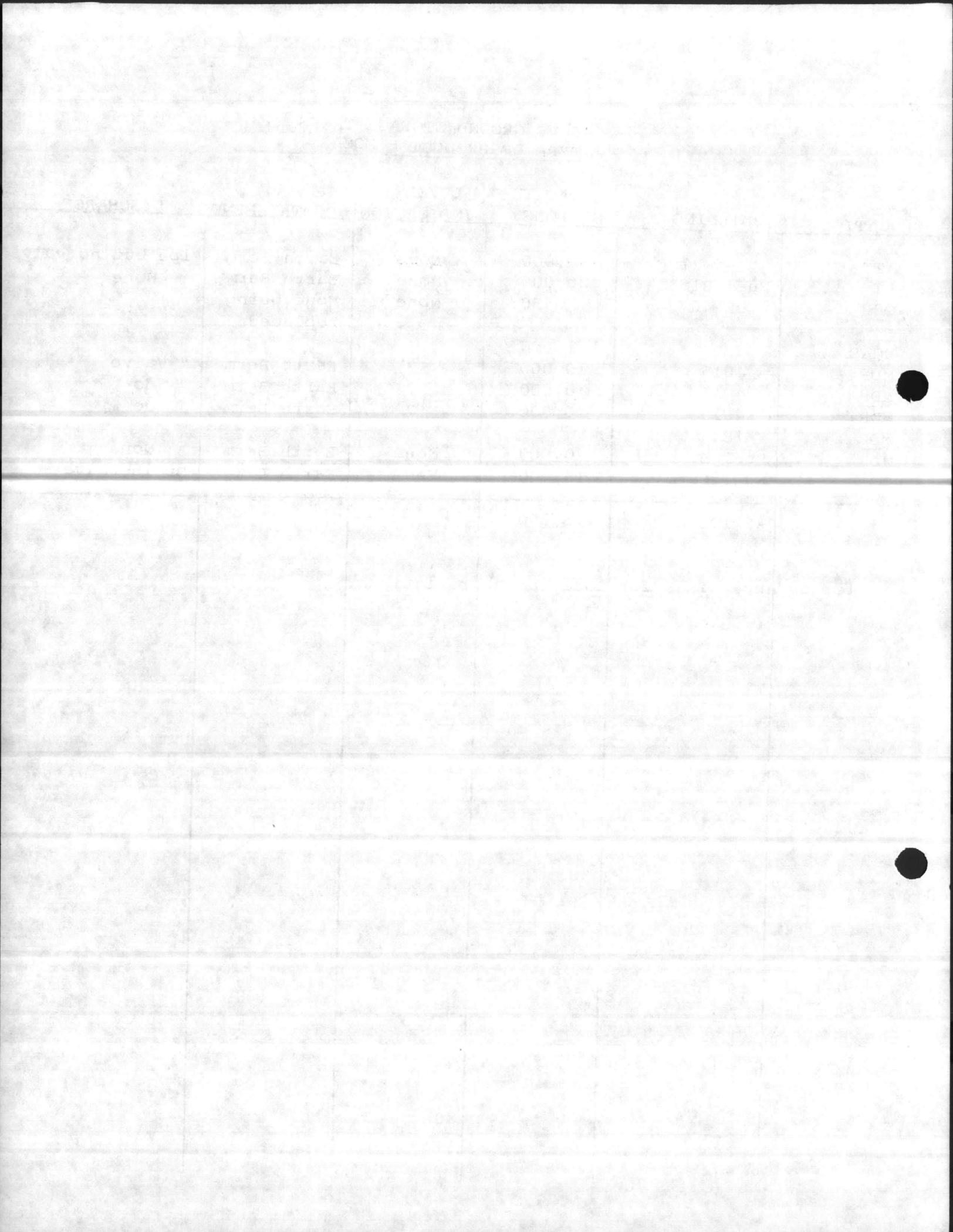


TABLE XI
 ABOVE GROUND STORAGE TANKS
 TYPE OF PRODUCT - WASTE OIL

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
MP	S-M-191	280	None	Partially Buried	Surface Valves
MDP	S-781	272,000	Tank Side	Earth Dike	
NH	H-36	280	None	Partially Buried	Surface
HDP	1604	260	None	Partially Buried	Surface
HDP	1310	260	None	Partially Buried	Surface
HDP	1405	280	None	Partially Buried	Surface
HDP	1505	?	None	Partially Buried	Surface
HDP	S-923	280	None	None	Surface
HDP	S-923	280	None	None	Surface
HDP	1106	550	None	Partially Buried	Surface
CG	952	500	None	None	Surface
CG	952	500	None	None	Surface
RR	S-RR-80	1,000	None	None	Surface
AT	A-2	100	None	Partially Buried	Surface
AT	A-14	300	None	Partially Buried	Surface
HDP	1205	?	None	Partially Buried	Surface
CG	S-777	?	None	Partially Buried	Surface
AT	A-3	?	None	Partially Buried	Surface
CHB	S-BB-161	?	None	Partially Buried	Surface
TOTAL		276,870			

*Refer to Appendix B for location abbreviations.

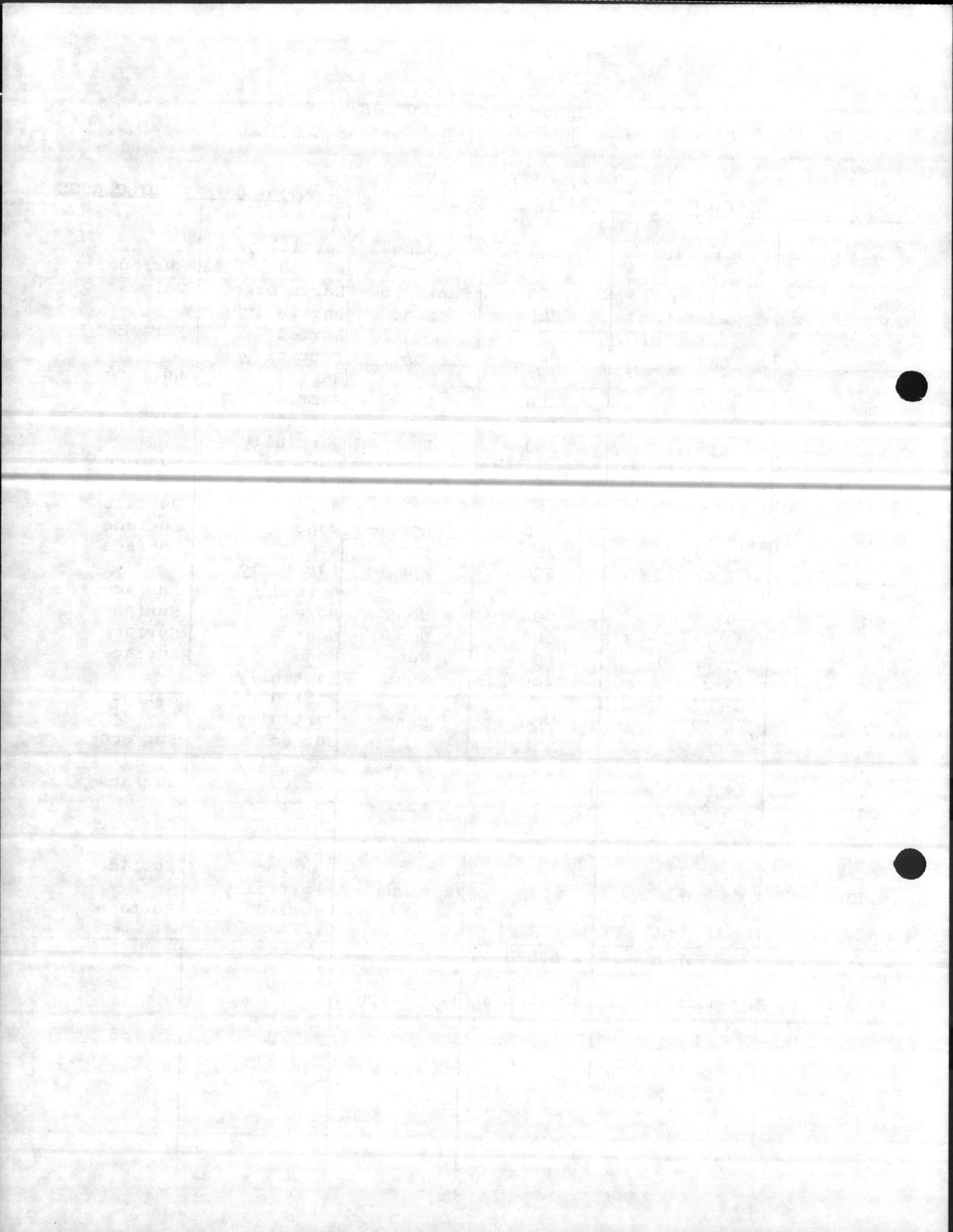


TABLE XII
ABOVE GROUND STORAGE TANKS
TYPE OF PRODUCT JP-5 Fuel

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
HDP	1841	500	None	Portable- None	Surface
HDP	1841	500	None	Portable- None	Surface
<p data-bbox="97 672 1023 714">*Refer to Appendix B for location abbreviations.</p>					

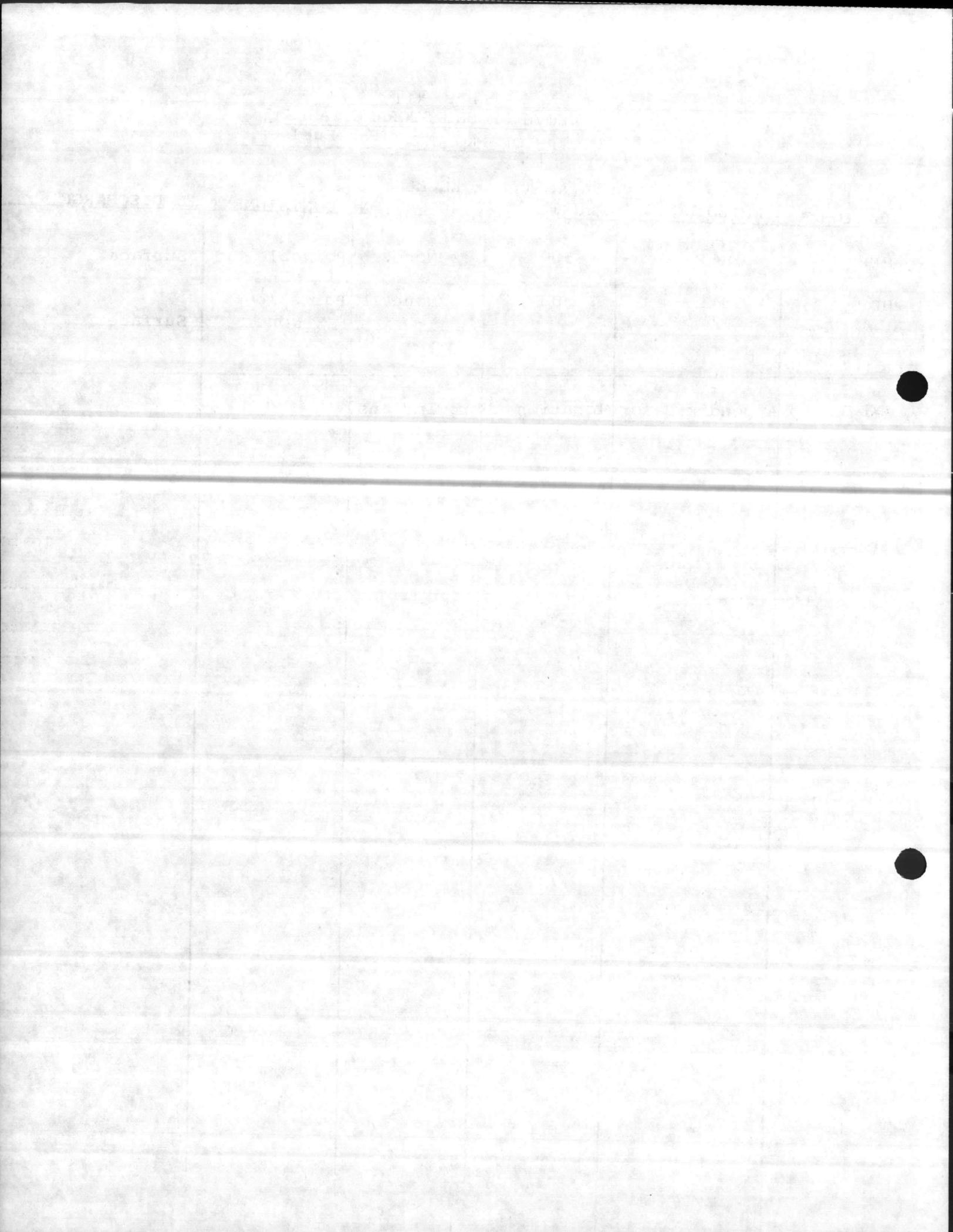


TABLE XIII
 ABOVE GROUND STORAGE TANKS
 TYPE OF PRODUCT - No. 6

LOCATION *	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
HDP	S-1701	420,000	N/A	Earth Dike	Valve with Separator
HDP	S-1735	168,000	N/A	Concrete Dike	Valve with Separator
CG	G-650	60,000	Yes	Earth Dike	Valve with Separator
CG	G-650	60,000	Yes	Earth Dike	Valve
MCAS	419	25,000	N/A	Earth Dike	To be replaced by new heating plant
MCAS	420	25,000	N/A	Earth Dike	
MCAS	421	25,000	N/A	Earth Dike	
MCAS	New Heating Plant	100,000	Yes	Earth Dike	Drain & Separator
MCAS	New Heating Plant	100,000	Yes	Earth Dike	Drain & Separator
MCAS	New Heating Plant	100,000	Yes	Earth Dike	Drain & Separator

TOTAL 1,083,000

*Refer to Appendix B for location abbreviations.

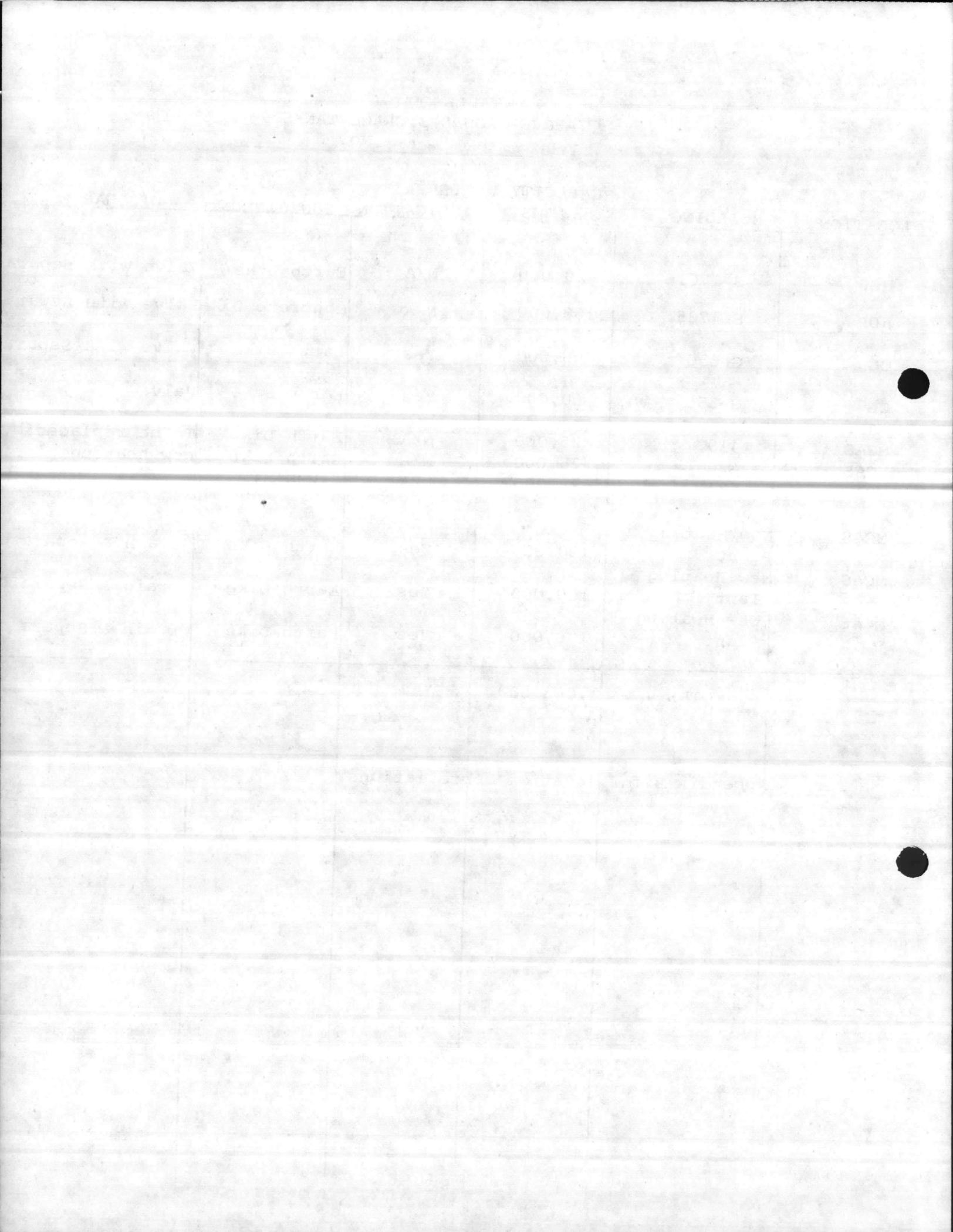


TABLE XIV
ABOVE GROUND STORAGE TANKS
TYPE OF PRODUCT - DIESEL

LOCATION	BUILDING	CAPACITY GALLONS	LEVEL INDICATION	CONTAINMENT	DISCHARGE
CHB	S-BB-161	3,000	None	None	Surface
BA	Parking Area	500	None	None	Surface
MCAS	Fuel Bladder	10,000	None	Earth Berm	Drain Valve
CG	Fuel Farm	15,000	Yes	Earth Berm	Drain Valve

TOTAL 25,800

*Refer to Appendix B for location abbreviations.

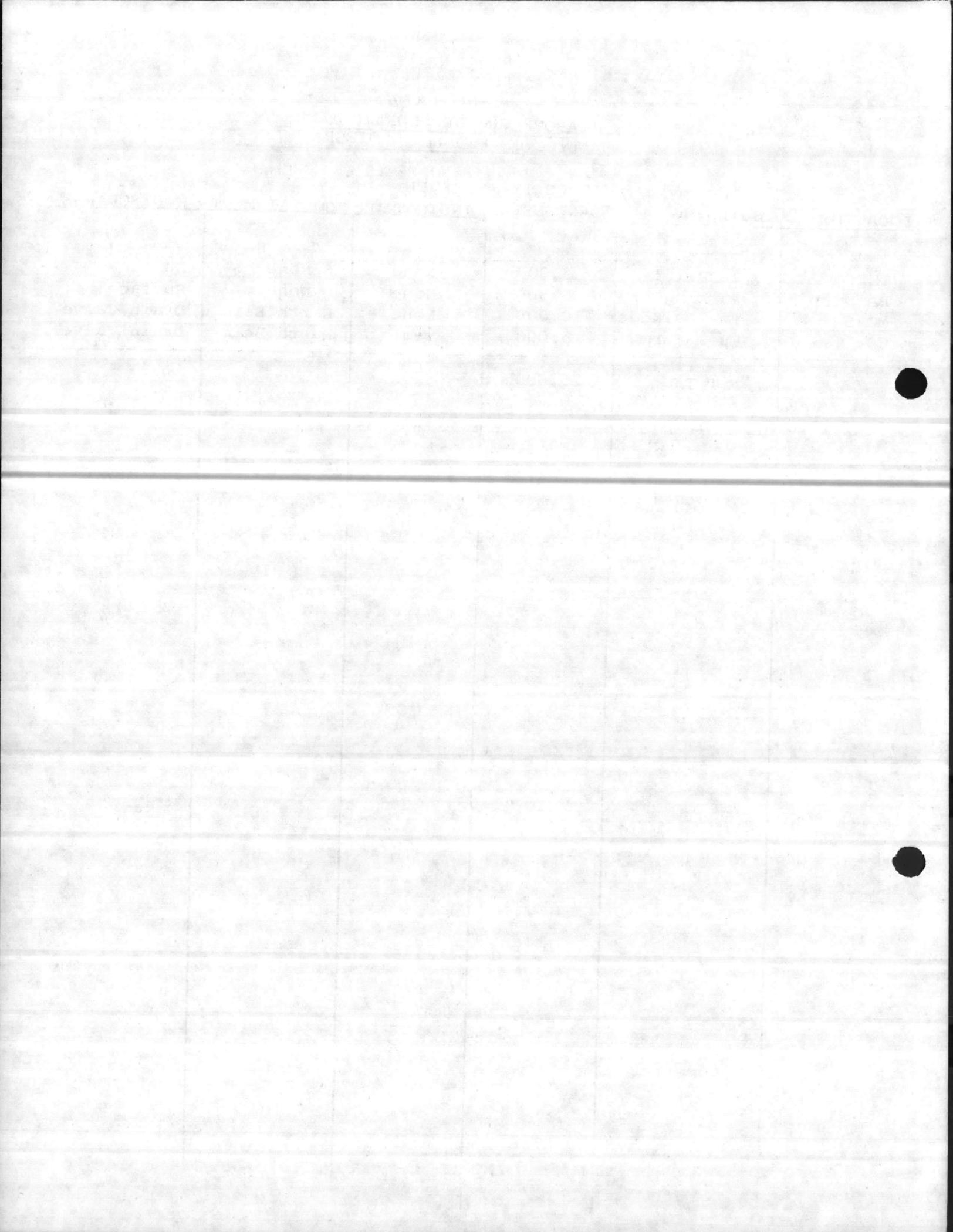
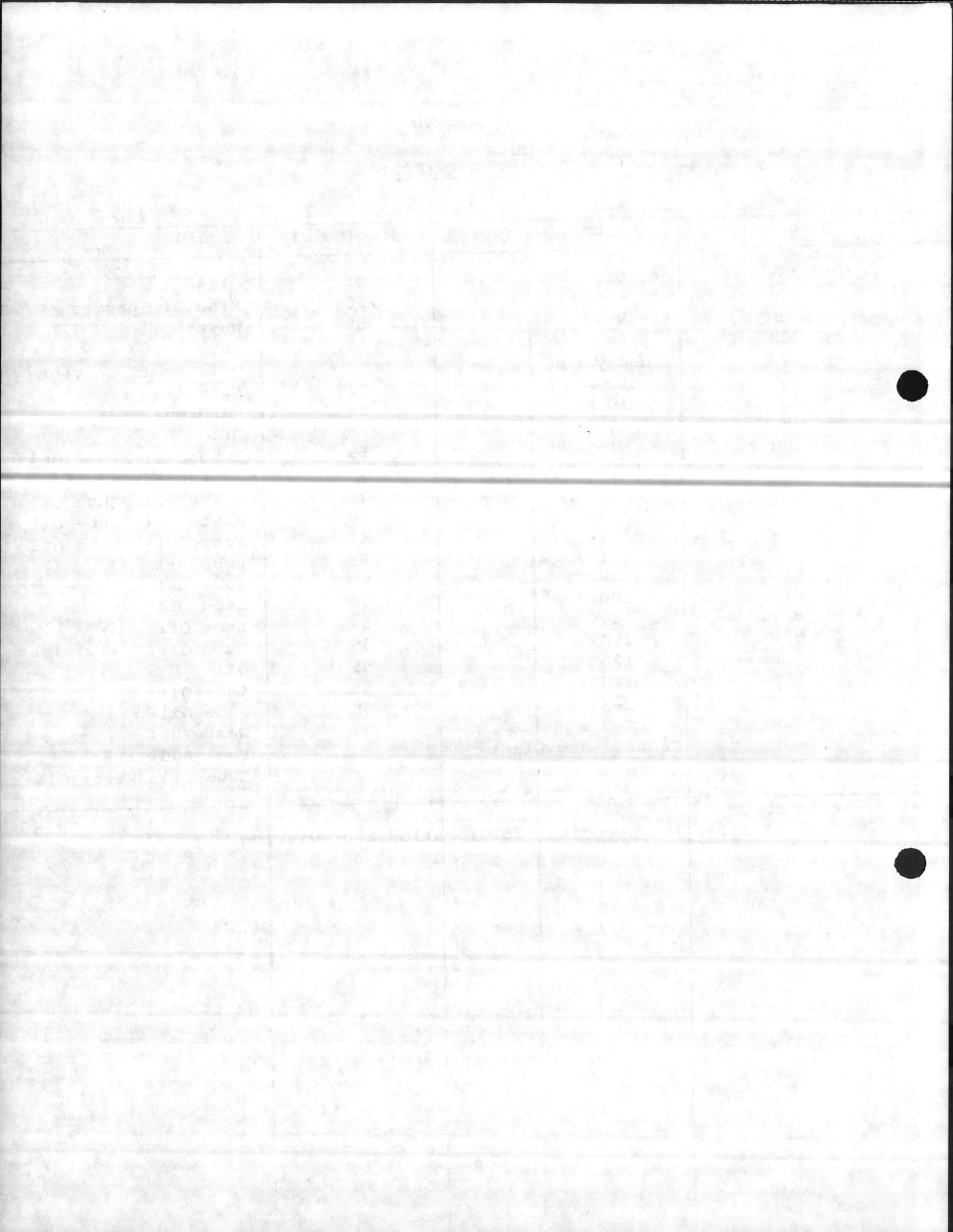
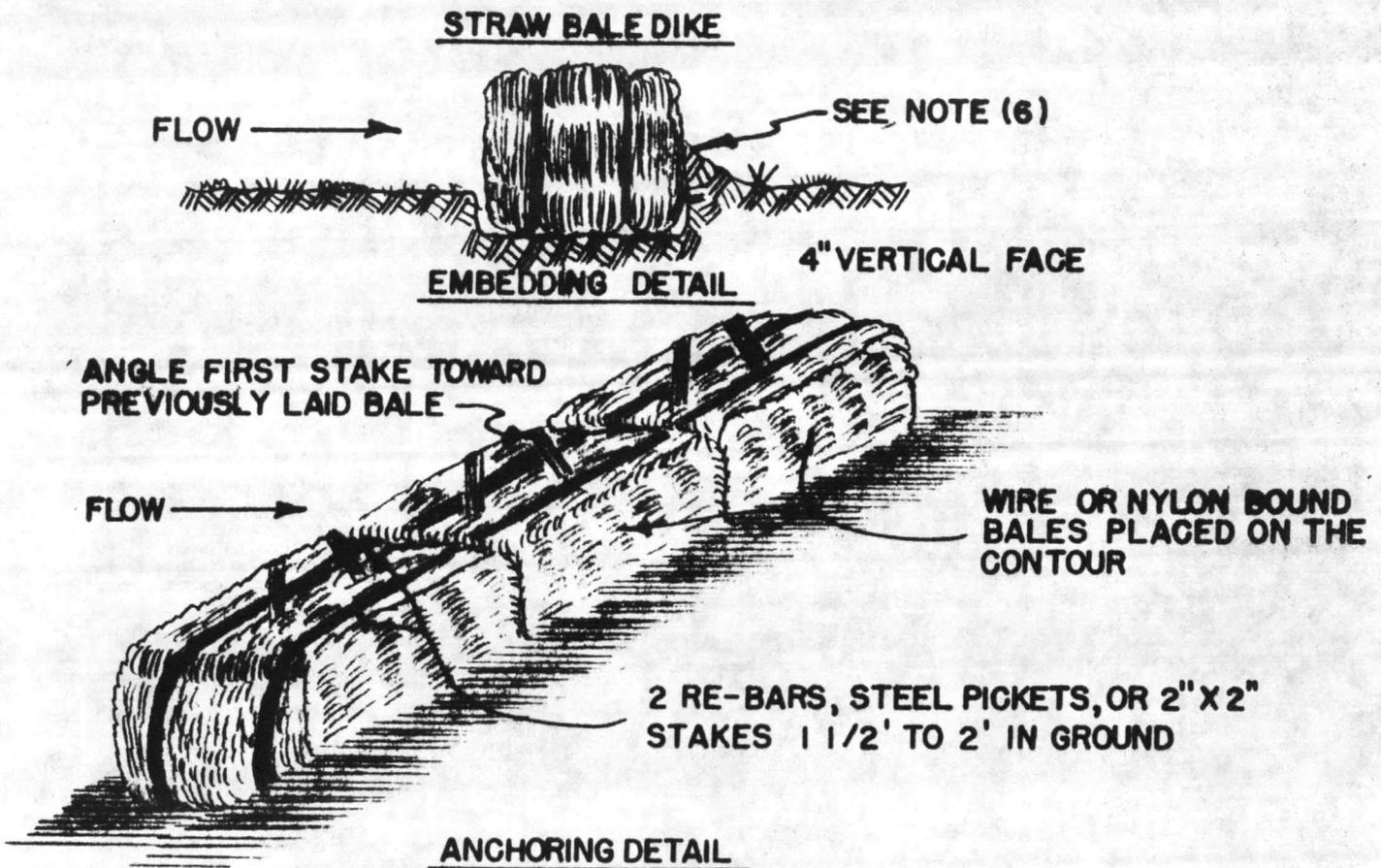


TABLE XV

DRUM STORAGE LOCATION

Location	Building	No.	Size (Gal.)	Liquid
MP	SM-176		55	Oil
MP	M-625		55	Mineral Spirits
MP	M-171	5	55	Waste Oil
MDP	PMO		55	Lube Oil
MDP	Heavy Equ.			Oil, Fuel, Solvents
PP	PP-2615	2	55	Solvents
PP	1916	6	55	Kerosene
PP	1932		55	Oil
HDP	816		55	Lube Oil, Waste Oil & Anti-freeze
HDP	589		55	Waste Oil, Lube Oil
HDP	1842		55	Waste Oil, Lube Oil
HDP	1750		55	Waste Oil, Lube Oil
HDP	S-1875		55	Lube Oil
HDP	1502		55	Lube Oil
HDP	1001		55	Lube Oil
HDP	1504		55	Lube Oil
HDP	1607		55	Lube Oil, Waste Oil
HDP	1205		55	Oil
HDP	1203		55	Lube Oil
HDP	S-923		55	Lube Oil
HDP	S-931		55	Waste Oil
HDP	Central Htg. Plant		55	Fuel Additives
AT	A-11			Lube Oil, Waste Oil
* Refer to Appendix B for location abbreviation.				

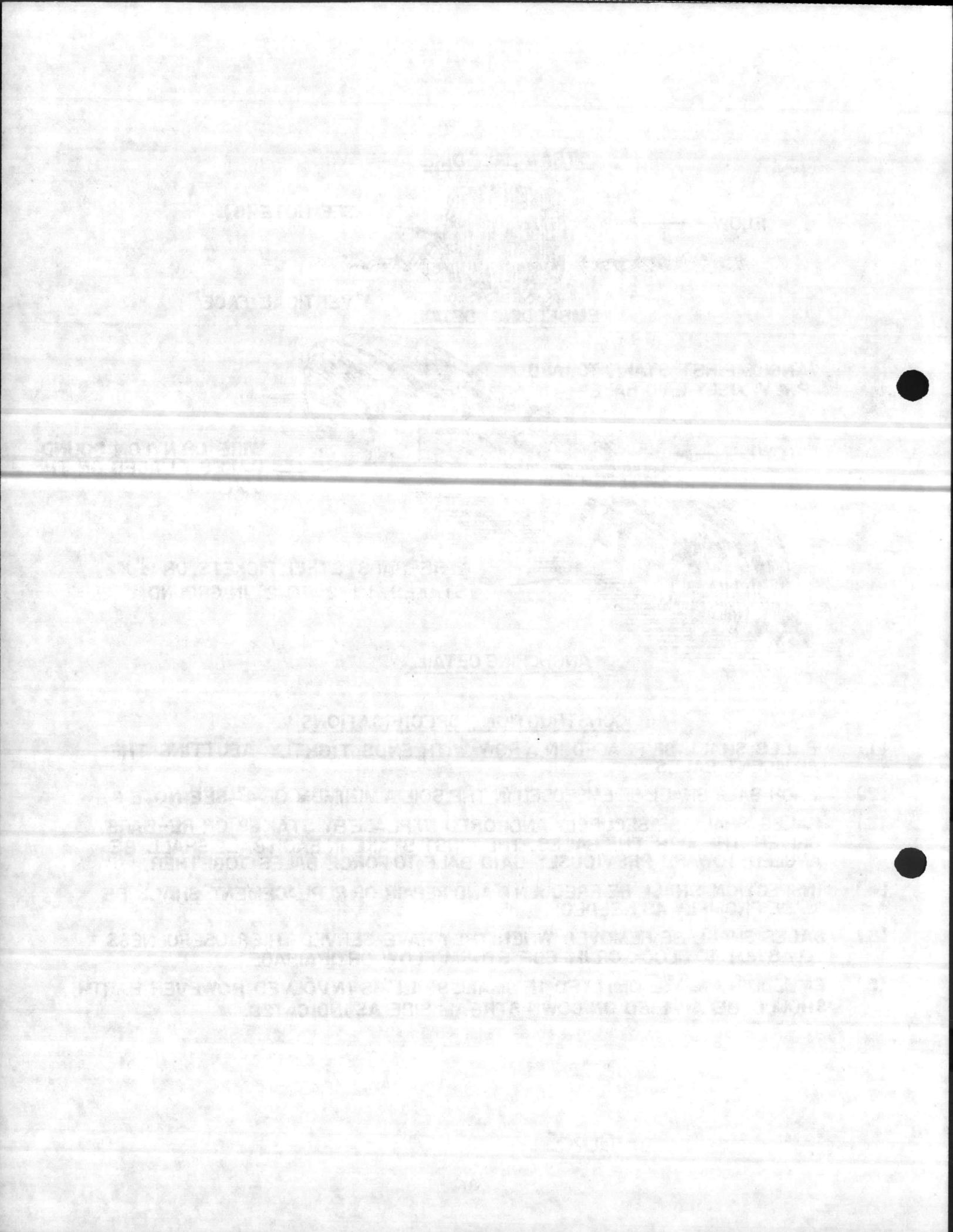


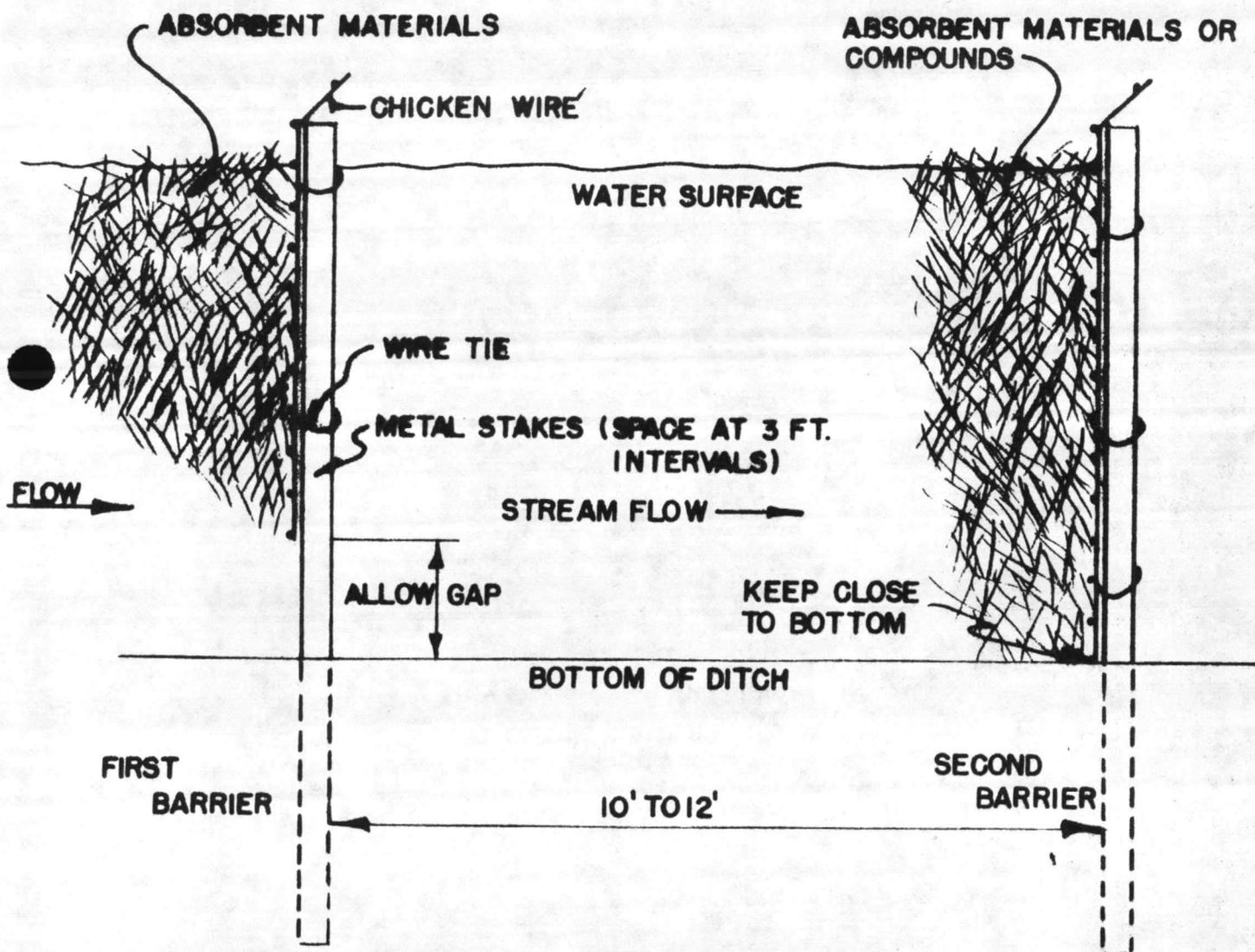


CONSTRUCTION SPECIFICATIONS

- (1.) BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- (2.) EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" (SEE NOTE 6).
- (3.) BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
- (4.) INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- (5.) BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- (6.) EMBEDDING MAY BE OMITTED IF SMALL SPILL IS INVOLVED HOWEVER EARTH SHOULD BE APPLIED ON DOWN STREAM SIDE AS INDICATED.

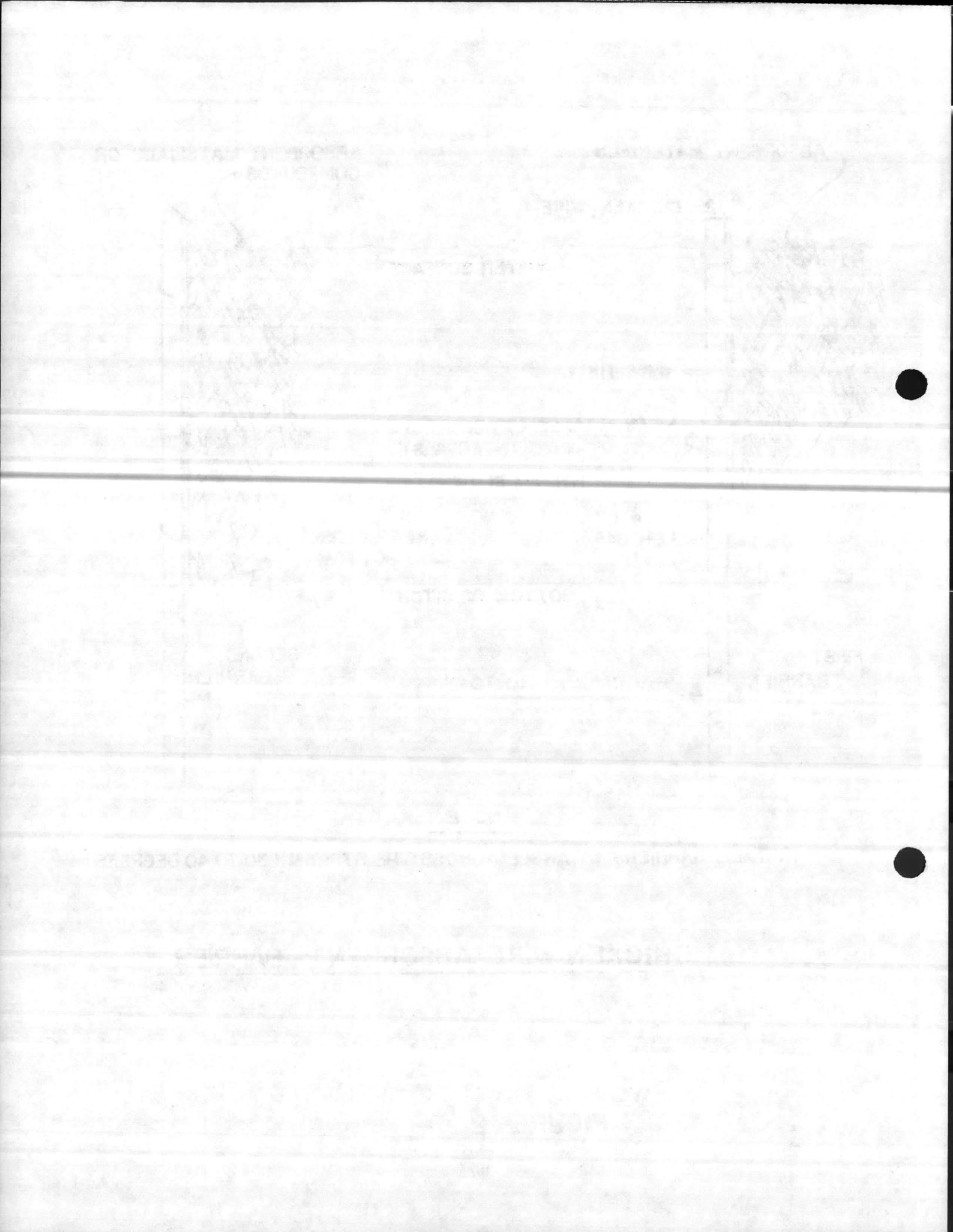
FIGURE 1

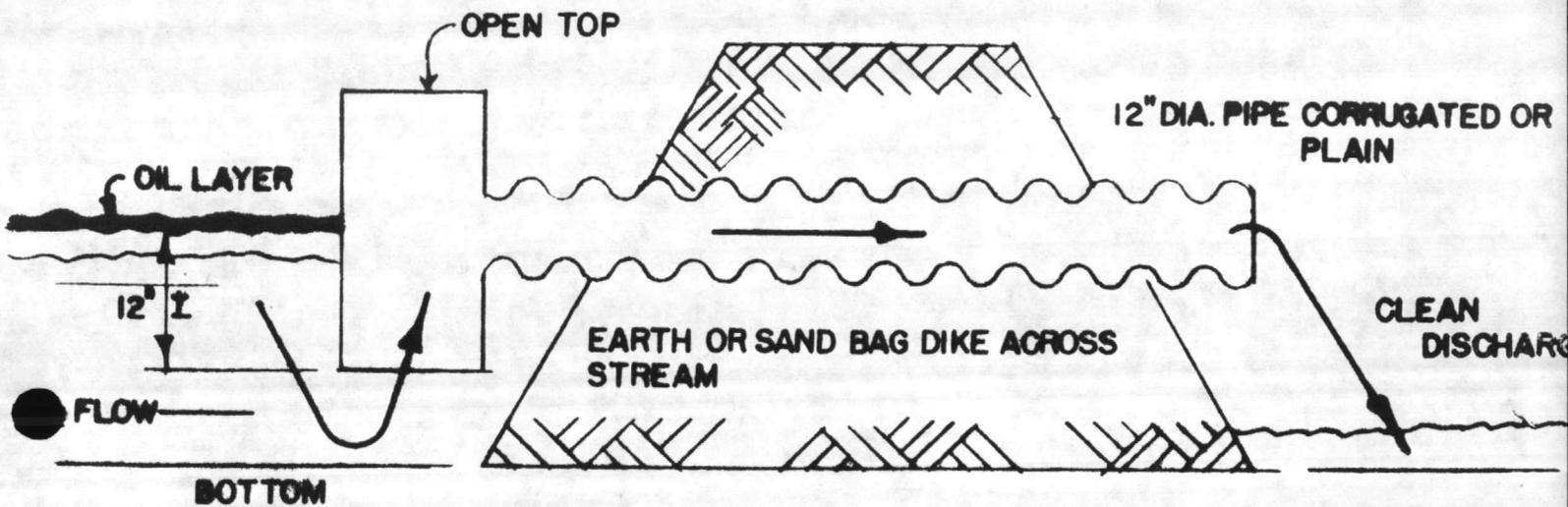




CHICKEN WIRE ABSORBENT BARRIER

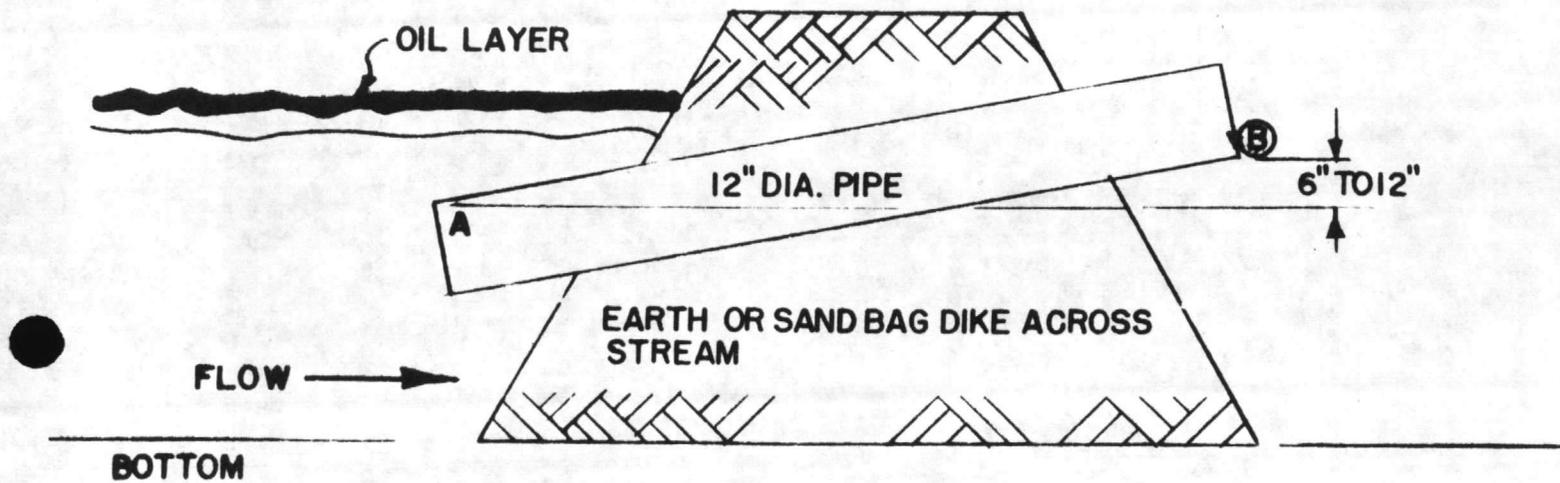
FIGURE 2





UNDERFLOW DAM TYPE A

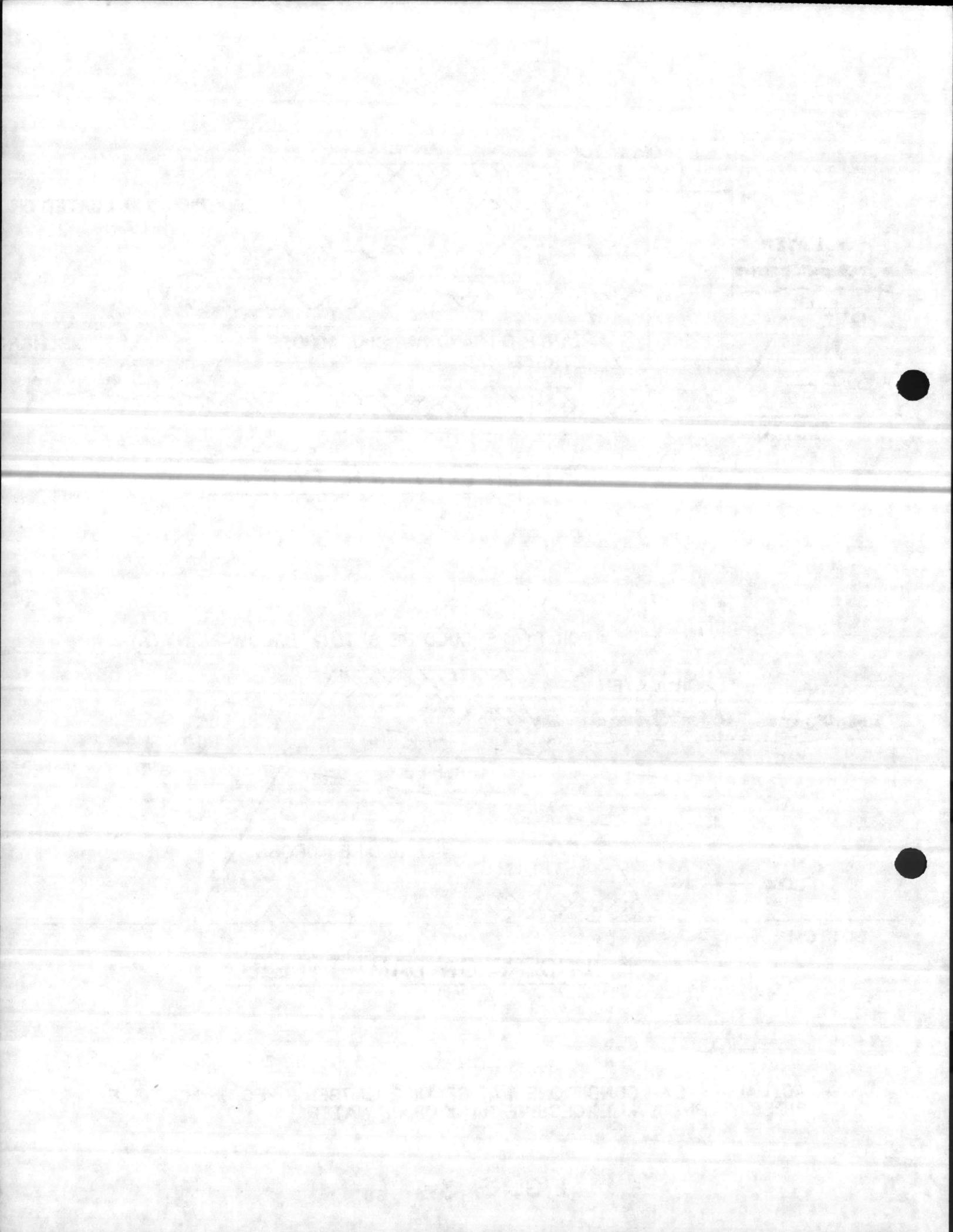
POINT (A) SHOULD BE 6" TO 12" BELOW POINT (B)



UNDERFLOW DAM TYPE B

NOTE

ACTUAL STREAM CONDITIONS MAY REQUIRE LARGER PIPES OR MULTIPLE PIPES TO PREVENT EXCESSIVE BACK UP OF WATER.

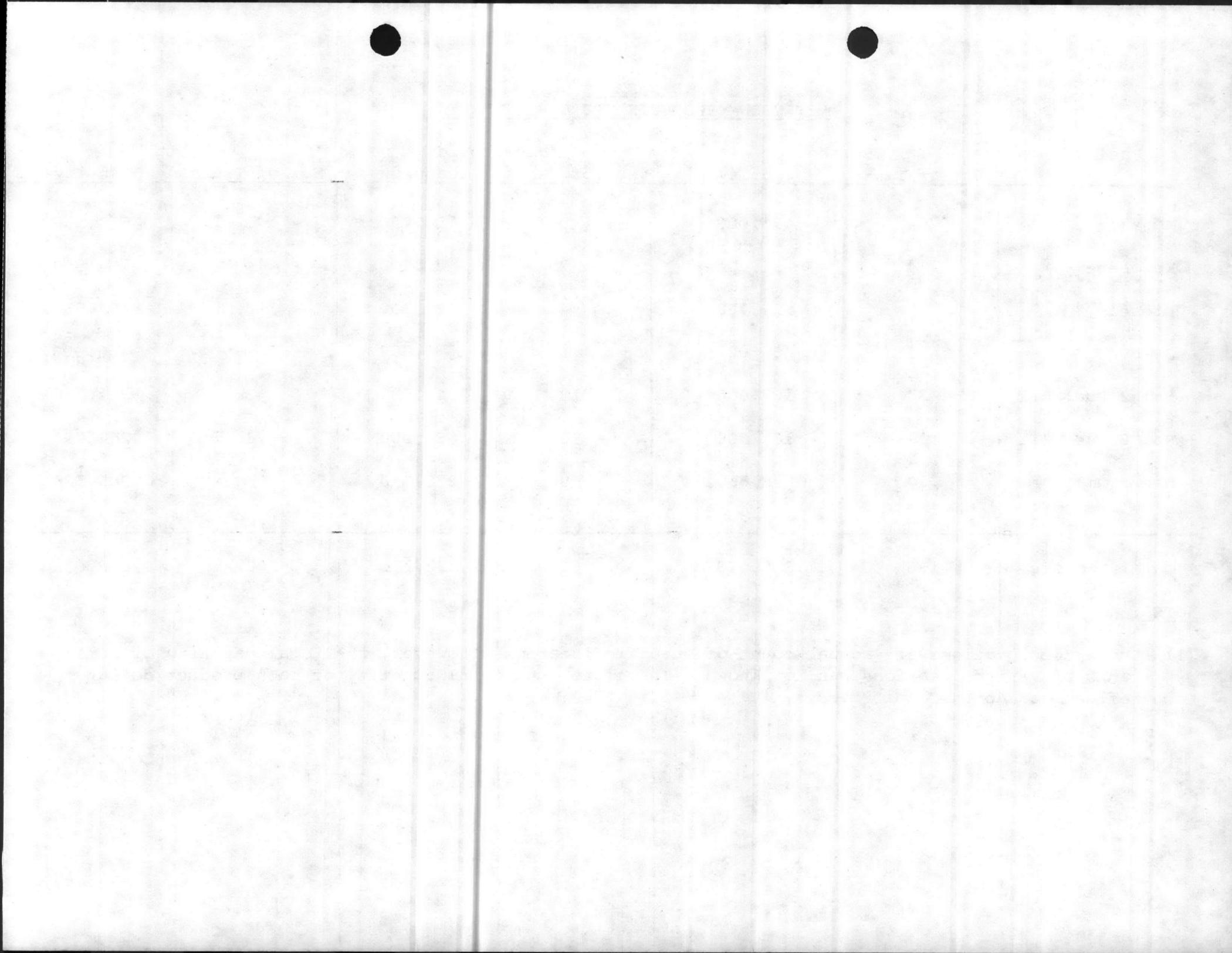


APPENDIX A
PETROLEUM PRODUCTS STORAGE SUMMARY

Fuel	Buried		Aboveground		Total	
	No. of Tanks	Quantity	No. of Tanks	Quantity	No. of Tanks	Quantity
Mogas	64	456,000	9	116,550	73	572,550
Kerosene	4	31,000	7	73,500	11	104,500
Diesel	6	27,750	4	25,800	10	53,550
JP-5	7	465,000	2	1,000	9	466,000
No. 2 Fuel Oil	30	167,000	13	645,500	43	812,500
No. 6 Fuel Oil	11	161,000	10	1,083,000	21	1,244,000
Waste Oil	14	8,660	19	276,870	33	285,530
Totals	136	1,316,410	64	2,222,220	200	3,538,630

NOTES:

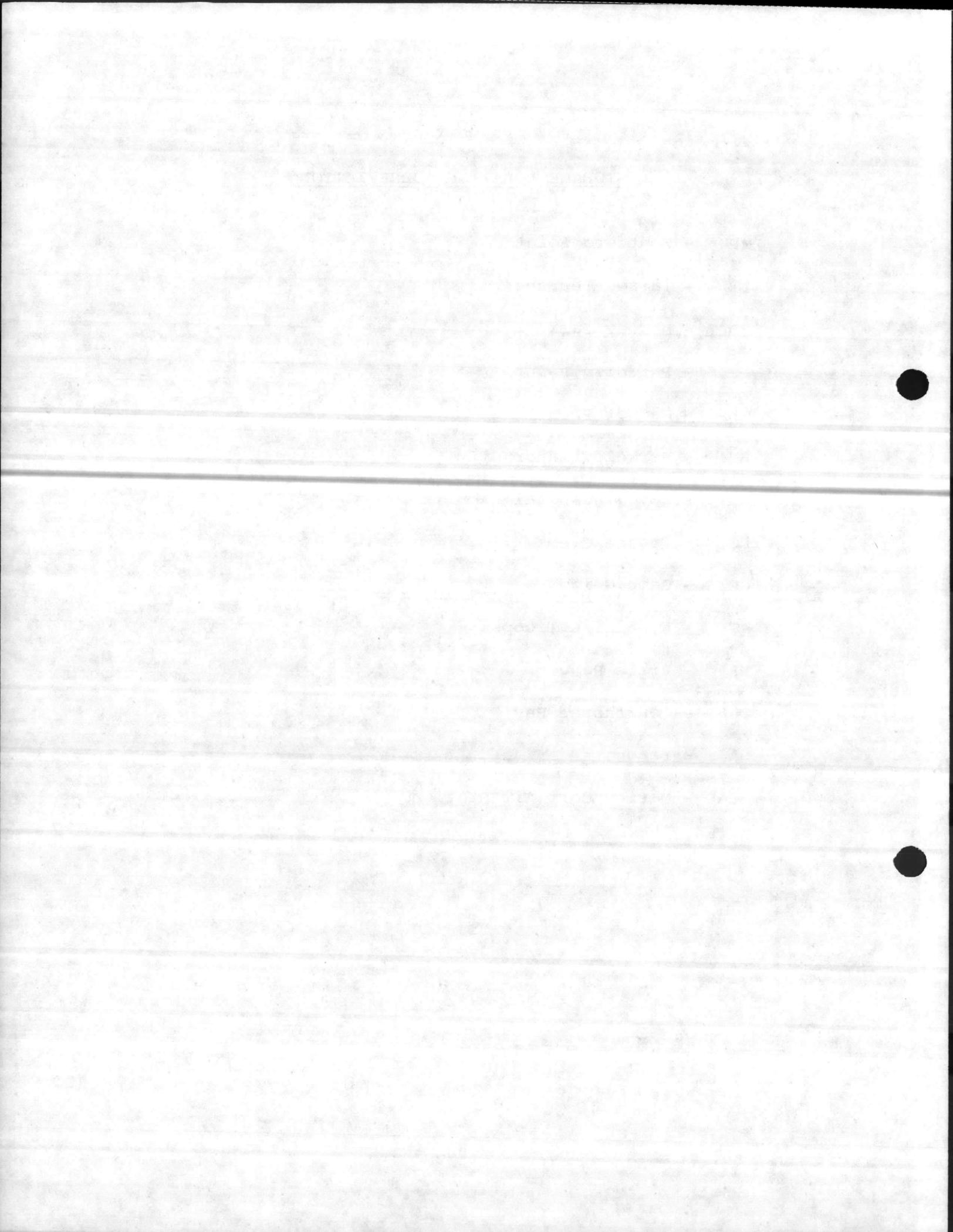
- (1) Number of locations are actual count of specific locations, however, the total capacity of some tanks at varied locations was not known. Therefore, the total quantity of each product do not reflect the actual capacities.



APPENDIX B

STORAGE LOCATION ABBREVIATION

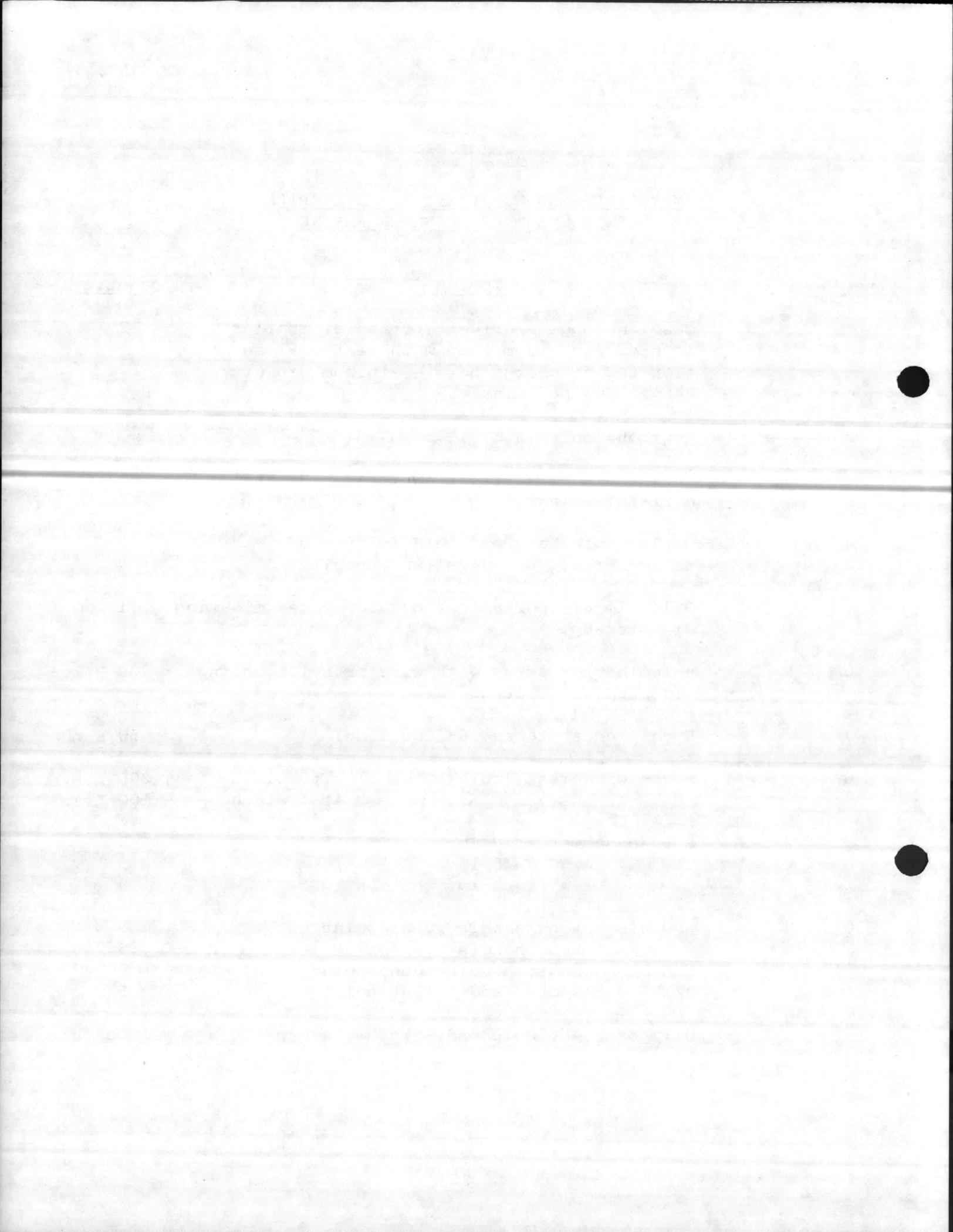
MP - Montford Point
TT - Tarawa Terrace
MDP - Midway Park
PP - Paradise Point
HDP - Hadnot Point
BM - Berkeley Manor
NH - Naval Hospital
FC - French Creek
CG - Camp Geiger
AT - Amphibian Troops
RR - Rifle Range
CHB - Courthouse Bay
BA - Beach
MCAS - Marine Corp Air Station



APPENDIX C

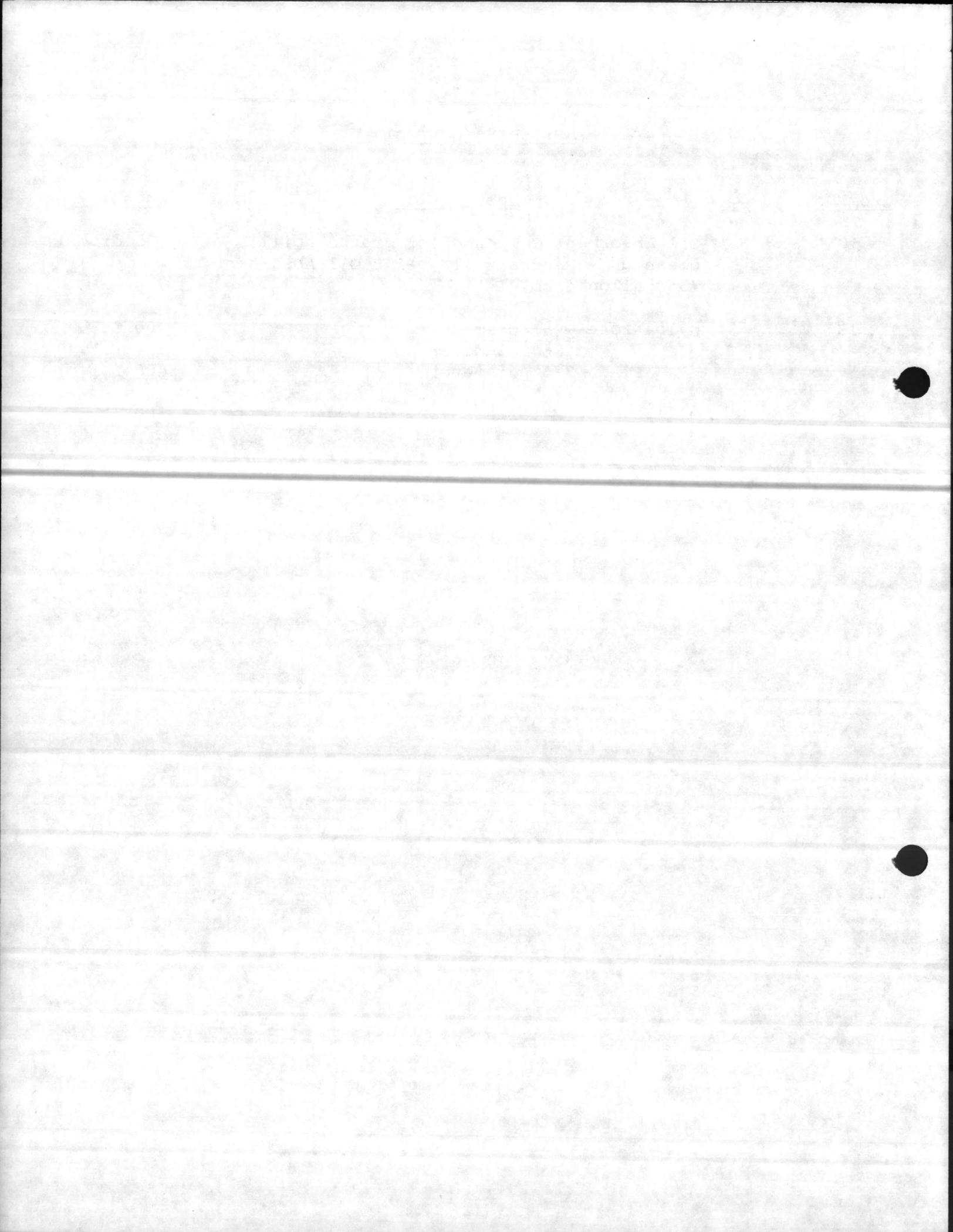
MATERIALS AND EQUIPMENT FOR OIL SPILL
CONTAINMENT AND COUNTERMEASURE

<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>
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.

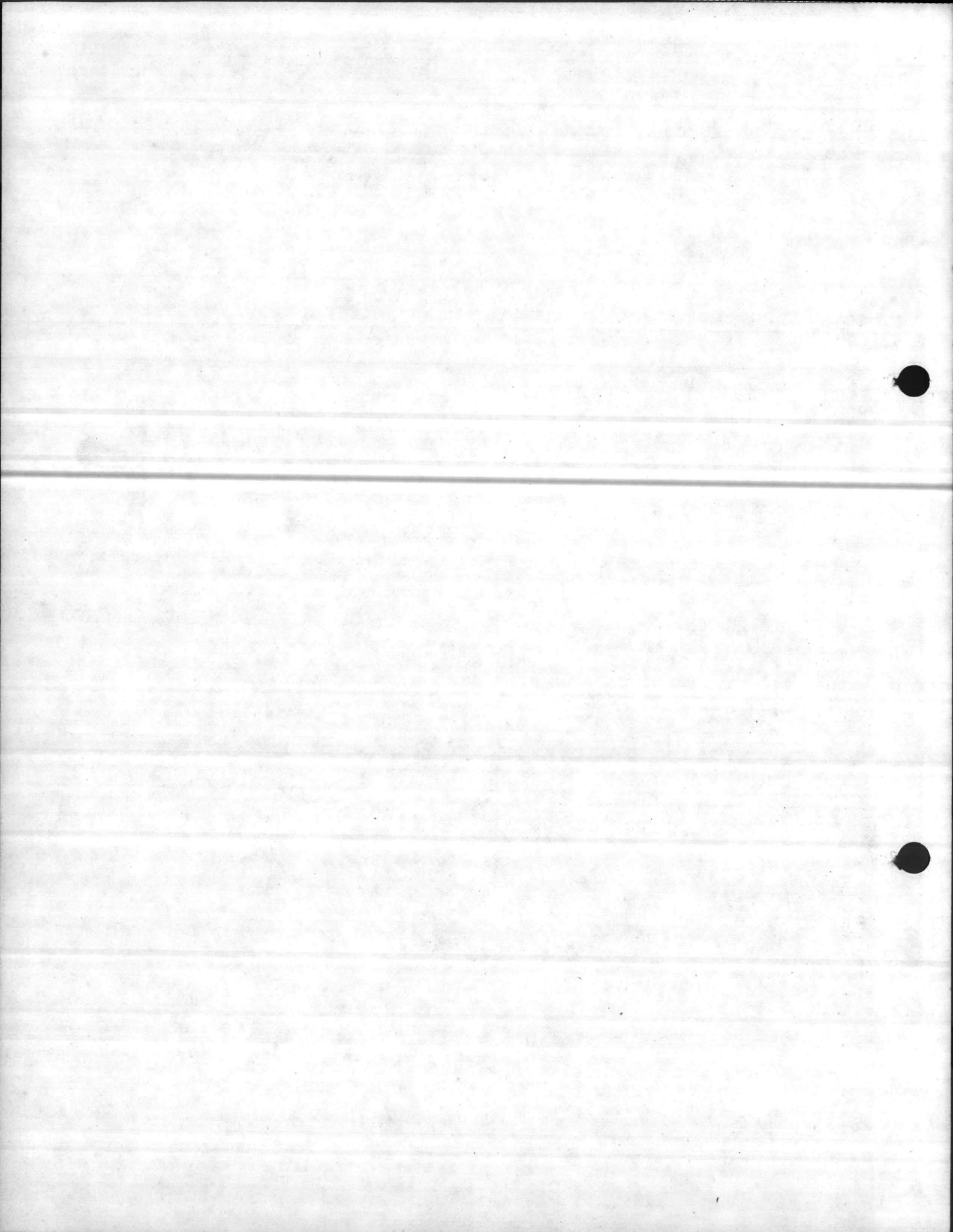


APPENDIX (CONT'D)

<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>
12	Oil Absorbent Compound for ground spill clean up - Randustrial P-218 Oil Absorbent (55 gallon drum)	25 drums
13	Nylon rope - $\frac{1}{4}$ " diameter	200 L.F.
	$\frac{1}{2}$ " diameter	400 L.F.
	$\frac{3}{4}$ " diameter	400 L.F.
14	Oil Sorbent Material - 3M, Conwed or Grefco	500 lb.







ACCOMPLISHSM

250/00
250/01
250/02
250/03
250/04
250/05
250/06
250/07
250/08
250/09

GENUINE PINE ASSOCIATE

ACCO INTERNATIONAL, INC.
CHICAGO, ILLINOIS 60610

