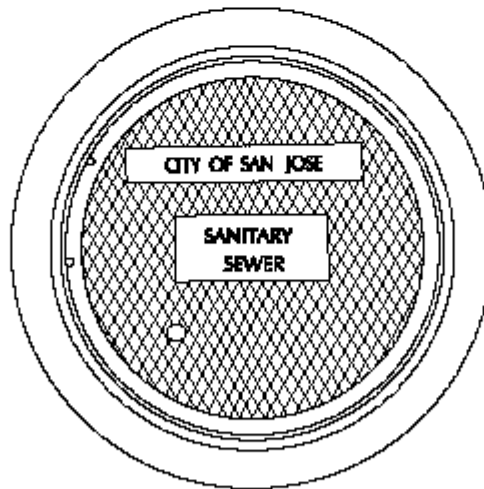


**Appendix A**  
**City of San Jose Design Guidelines for Sanitary Sewers**

**CITY OF SAN JOSE  
DESIGN GUIDELINES  
FOR  
SANITARY SEWERS**



**Appendix B**  
**City of San Jose Construction Inspection Guidelines**



Construction  
Inspection Guidelines

**Appendix C**  
**City of San Jose DOT Standard Operating Procedures**



## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE: THREE MAN CREW ,  
BALLING**

### **PPE Required**

Gloves (rubber or leather)  
Safety vest  
Safety Goggles (optional)  
Steel Toe boots

### **Specific Hazards**

Moving traffic  
Open manholes  
Trip hazards  
Heavy lifting / pulling  
Hazardous material

### **Safety Precautions**

#### **STANDARD OPERATING PROCEDURE LINE CLEANING - BALLING - THREE MAN CREW**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable)

NOTE: **Important. Do not** set up and ball sani mains that have a downward slope greater than 10%. If you are unsure as to the degree of slope of the hill, contact the supervisor. Use an HP to line clean the sani main. If an HP is unavailable, use a power rodder. The chances of flooding out a customer are greatly increased when balling hills.

## **I. Pre-check (in yard)**

1. Vehicle pre-check flatbed truck and water tanker. Refer to BIT Log Book. Verify hoist works on flatbed truck.
2. Verify flatbed truck is stocked with appropriate equipment.
3. Verify water tanker is stocked with appropriate equipment.
4. Do pre-check on power rodder.
  - a. Fuel level
  - b. Oil level
  - c. Hydraulic level
  - d. Beacon light
  - e. Are there enough rods?
5. Start up power rodder.
6. Verify power rodder is stocked with appropriate equipment.

## **II. Balling Procedure (in field)**

1. Drop off power rodder in a safe location. Put a safety cone in front of and behind the power rodder.
2. Assess situation.
3. Turn on warning lights.
4. Set up appropriate high lever warning aprons.
5. Send co-worker to fill water tanker. (Follow operation procedure “filling tanker”). If situation dictates the use of a manhole ring or continuous water set up, discontinue step 4.
6. Use co-worker to align rear of flatbed five feet away from sani main on the downstream side of manhole.
7. Set up taper, transition and work zone area with safety cones.
8. Water set-ups:
  - A. Tanking
    1. Assist tanker operator to position vehicle safely in worksite. Align spout at rear of vehicle over upstream side of manhole.
  - B. Tanker – Continuous water set up
    1. Assist tanker operator to position vehicle safely into worksite as a buffer to on-coming traffic. Align spout at rear of vehicle over upstream side of manhole.
    2. Set out fill hoses to hydrant.
    3. Purge hydrant and connect hose.
    4. Set up hose ramp(s), if necessary.
  - C. **Manhole Water Ring – Continuous water set up**
    1. If room permits, assist tanker operator to position vehicle in worksite as a buffer to on-coming traffic.
    2. Take manhole water ring, elbow and wrench from vehicle.
    3. Open manhole.
    4. Position manhole water ring in opening of manhole.

5. Secure manhole water ring. Use wrench or assembly tool to tighten bolts.
  6. Insert elbow into bracket and tighten bolt. Make sure the bottom of elbow is positioned above the manhole opening.
  7. Set out fill hoses.
  8. Connect one end of hose to hydrant and one to the elbow attached to the manhole water ring.
- D. Set up water on a side street
1. Set up appropriate high-level warning aprons.
  2. Set up safety cones.
  3. If using the tanker, refer to "Water Set Up, A or B".
  4. If using manhole water ring, refer to "Water Set Up, C".
  5. Co-worker must remain at set up until instructed to pick up.
- E. Enough flow in system.
1. Assist tanker operator to position vehicle safely into worksite to act as a buffer to on-coming traffic.
9. Use hoist and co-worker to lower reel down to the ground. Position on downstream side of manhole.
  10. Unhook reel from hoist. Secure hoist hook.
  11. Attach appropriate Wayne ball to clevis at the end of rope on reel.
  12. Use hook pole to insert ball into mouth of sani main.
  13. Drop down plug(s) into manhole to plug any out flowing pipes.
  14. Use hook pole to insert plug(s) into mouth of out-flowing pipe(s).
  15. Connect pump to hose of plug and pump up to 30-35 psi.
  16. Disconnect pump from plug's hose. Secure pump on bed of truck. Tie off plug's rope to reel.
  17. Use hook pole and co-worker to drop jack stand down manhole. Place fork of jack against wall on opposite side of line to be balled.
  18. Use pole with mukehead. Jab mukehead on flat area on top of jack stand to lock jack into place. Make sure rope of ball loops through pulley on jack. Tie off jack's rope to reel.
  19. Turn on water supply. (water set ups A, B, C, D, or E)
  20. Allow water level to rise (build a head).
  21. While lightly grasping the balling rope, allow the water pressure to propel the ball down the pipe.
  22. The chasing team can now slowly proceed to the next downstream manhole.

### **III. The Baller**

There are several scenarios that may occur.

- A. The ball will travel down the pipe without any problems to the next Manhole.
- B. The ball may encounter an offset or bad joint and stop.

1. Pull the ball back via the balling rope.
  2. Initially the baller will have to pull very hard. Suddenly the ball releases. It's then easier to pull back.
  3. Use hand signal to inform chasing team that there is an offset.
  4. Allow the water to rise.
  5. Slowly creep the ball to the offset.
  6. Keep tension on the ball and allow it to creep slowly through the offset.
  7. Continue balling until you reach the downstream manhole.
  8. Pull rope back to reel when given the "pick up" signal.
  9. If unable to pass ball, give crew downstream "pick up" hand signal.
  10. Proceed to pull ball all the way back to reel.
  11. If too difficult, get help from crew.
- C. Grease stoppage. While balling, the ball stops. If it is grease, when You first pull on the rope, it will be easier than it was with an offset.
1. Pull ball back 20-30 feet. Build a head
  2. Allow ball to fly down pipe and slam (bounce) into grease.
  3. If ball stops again, pull ball back again and let fly. This may need to be repeated several times until the ball breaks through the grease. This technique is called "bouncing."
  4. The chasing team should give you the hand signal for grease. Chunks of grease should break away as you slam the ball into the grease.
  5. Continue balling until the ball reaches the next manhole; pull back rope to reel when given the hand signal.
  6. If you are unable to pass the stoppage, give hand signal for "pick up" to crew downstream.
  7. Pull ball back to reel.
- D. Root Stoppage. Ball will stop. Pull on the rope. It should be easier to pull back than it initially was when dealing with an offset.
1. Use the same technique as dealing with a grease stoppage.
  2. The chasing team should see roots float down. You will be given the hand signal for roots.
  3. Continue bouncing until ball passes root obstruction.
  4. Continue balling until ball reaches downstream manhole.
  5. If you can't pass ball through stoppage, give "pick up" hand signal to crew downstream.
  6. Pull ball back to reel.
- E. Debris. Generally the ball will travel very slowly down the pipe when Debris is present. At times so much debris builds up in front of the ball, the ball will stop. Give crew "debris" sign.
1. Use the bouncing technique described under grease stoppage.

2. Each time you bounce the ball, the pile of debris in front of the ball is pushed forward.
  3. The ball may again travel for awhile without bouncing.
  4. Keep balling until the crew downstream gives you directions.
  5. You will be given the hand signal to stop or bring the ball back 10 feet.
  6. You will be given the signal to proceed slowly and stop again.
  7. Eventually, the ball will be allowed to come out at the next manhole.
- F. Dropped Manhole
1. Crew downstream will give you the signal for a dropped manhole.
  2. Ball will stop before the mouth at downstream manhole.
  3. Continue feeding out rope.
  4. Crew downstream will give signal to stop. They will use hook pole to hook rope. They will then pull out the rope and ball from upper pipe.
  5. Crew downstream will give the signal to pick up.
  7. Reel rope back to reel.
- G. Flushing Inlet or F.I.
1. Set up the same as a manhole.
  2. No plugs or jack stand is used.
  3. Ball as though it was a normal manhole.
  4. Same signals apply.
  5. Same set of problems may occur.
- H. Passing the ball
1. When ball reaches downstream manhole, the ball will go dead. The water pressure or tugging action of the ball will stop.
  2. The chasing team will give the "stop" signal.
  3. The chasing team will give the "slack" signal as they pass the ball to the next pipe to be balled.
  4. As the water pressure builds, the ball will start to pull on the rope.
  5. Signal the chasing team that the ball is going.

#### **IV. Two-man Chasing crew**

- A. Set up
1. Have co-worker align rear of truck over downstream side of manhole. Front of truck should be facing direction of downstream flow.
  2. Set up safety cones around vehicle.
  3. Open manhole.
  4. Paint arrows.

5. Put hook pole in manhole. Position pole in front of out-flowing pipe.

There are several scenarios that may occur.

A. Ball arrives. No problems.

1. As ball emerges out of pipe in manhole.
2. Signal baller for slack.
3. Signal baller to stop.
4. Use hook pole to hook ball.
5. Signal baller for slack.
6. Once ball is out of manhole, signal baller to stop.
7. Remove ball from clevis. Place ball in bed of truck.
8. Give baller "pick up" signal.
9. Secure equipment.
10. Close manhole.
11. Pick up safety cones.
12. Return to balling set up.

B. Offset

1. Baller will give signal for offset/bad joint.
2. Wait for ball to come out of pipe. This could be a while.
3. Give baller "slack" signal.
4. Give baller "stop" signal.
5. Use hook pole to hook ball.
6. Give baller "slack" signal.
7. Pull ball out of manhole.
8. Give baller "stop" signal.
9. Remove ball from clevis hook.
10. Give baller "pick up" signal.
11. Secure equipment.
12. Close manhole.
13. Pick up safety cones.
14. Return to balling set up.

C. Grease problem or stoppage

1. If baller has encountered grease, grease chunks will float by in channel.
2. Give baller "grease" signal.
3. Use hook pole to break up large chunks of grease before they continue down pipe.
4. When ball arrives at manhole, give baller "slack" signal.
5. Give baller "stop" signal.
6. Use hook pole to hook ball.
7. Give baller "slack" signal.
8. Pull ball out of manhole.
9. Give baller "stop" signal.
10. Remove ball from clevis hook.
11. Give baller "pick up" signal.
12. Secure equipment.

13. Cover manhole. Pick up safety cones.
14. Return to balling set up.

D. Roots

1. If baller has encountered roots, roots will float by in channel.
2. Give baller "root" signal.
3. Set hook pole at mouth of out-flowing pipe.
4. Use clam tool to remove any large balls of roots that come out of pipe being balled.
5. When ball comes out of pipe, use hook pole to hook ball.
6. Give baller signal for "slack".
7. Use hook pole to pull ball out of manhole.
8. Give baller signal to "stop".
9. Remove ball from rope.
10. Drop rope back into manhole.
11. Give baller "pick up" signal.
12. Secure tools.
13. Close manhole. Pick up safety cones.
14. Return to balling set up.

E. Debris

1. Baller will give signal for debris.
2. Use hook pole to drop debris plate down in front of mouth of out-flowing pipe.
3. Get clam from truck. Place into manhole.
4. As ball proceeds down the pipe, you will visually see more and more debris coming into channel.
5. As debris piles up, use clam to clam it out.
6. Just before ball comes out, a lot of debris will start flowing out, water will be jetting out also.
7. Give baller "stop" signal.
8. Clam out debris.
9. Give baller signal to "proceed" slowly.
10. Depending on severity of debris, you may have to stop the ball again, clam out debris.
11. Continue this process until there is no more debris and/or ball comes out.
12. Once ball is out, use hook pole to hook ball.
13. Give baller "slack" signal.
14. Pull ball out of manhole.
15. Give baller "stop" signal.
16. Remove ball from rope.
17. Give baller "pick up" signal.
18. Use hook pole to retrieve debris plate.
19. Pick up debris.
20. Secure tools. Close manhole.
21. Pick up safety cones and return to balling set up.

F. Dropped manhole.

1. When you look down manhole, you will see two mouths - one on top of the other. Give the baller the “dropped manhole” signal.
  2. When rope comes out of top mouth, use hook pole to hook rope.
  3. Pull rope until you can hold the rope with your hands.
  4. Give baller “stop” signal.
  5. Continue pulling rope out.
  6. You may need co-worker to help pull the ball out.
  7. Disconnect ball from rope.
  8. Give baller “pick up” signal.
  9. Wait until all the rope is pulled into pipe by the baller.
  10. Close manhole.
  11. Secure equipment.
  12. Pick up safety cones.
  13. Return to balling set up.
- G. Flushing Inlet (F.I.)
1. Ball retrieval or passing is done just like any other set up.
- H. Passing the ball
1. Insert pole with crow’s foot into manhole.
  2. When ball emerges from mouth of pipe, give the baller the “slack” signal. Use the crow’s foot to seat the ball at the mouth of the next pipe to be balled.
  3. Allow the water level to rise.
  4. Ball should get sucked into the pipe.
  5. Signal the baller, “Is it going?”
  6. Baller should respond “yes”.
  7. Secure equipment.
  8. Close manhole.
  9. Pick up safety cones.
  10. Move to next manhole.

## **V. Breakdown Operation**

1. Downstream crew will return to balling set up.
2. Breakdown water set up and secure equipment.
3. Breakdown and secure all balling equipment to flatbed truck.
4. Close manhole.
5. Pick up safety cones.
6. Pick up high level warning devices.
7. Turn off warning lights. Leave jobsite.

## **VI. Operating Procedure (Retrieving a stuck Wayne ball)**

### **A. Flatbed pick up**

1. Use co-worker to back rear of truck to manhole.
2. Secure rope to ball hitch on truck.

3. Close the pentil hitch over ball.
4. Direct driver to proceed forward slowly with warning lights on.
5. Stop driver.
6. Step on rope.
7. Motion driver backwards.
8. Open pentil hitch over ball.
9. Undo rope.
10. Re-tie rope to ball hitch. Step off rope.
11. Repeat steps 4 through 10 until ball comes out.
12. Remove ball from clevis.
13. Reel in rope.
14. Pick up and secure equipment.
15. Leave jobsite.

**B. Power Rod**

1. Use co-worker to align rear of rodder at downstream manhole.
2. Set up safety cones.
3. Open manhole.
4. Insert hose guide with pigtail auger into manhole at mouth of pipe with ball.
5. Start rodder.
6. Send pigtail into pipe at a slow rate of speed. Do not rotate pigtail.
7. When pigtail reaches ball, stop forward motion.
8. Slowly rotate pigtail to catch onto or puncture the ball.
9. Stop rotation of pigtail.
10. Bring rod back. Do not rotate rod.
11. Ball should be stuck on pigtail or should float out of mouth.
12. Pick up and secure equipment.
13. Pick up safety cones.
14. Return to balling set up.

**C. High Pressure Unit**

1. Have hp operator set up at downstream manhole.
2. Hp operator will set up and hp pipe with ball.
3. Hp is used to pop the ball using the penetrating nozzle.
4. Once ball is popped, rope and ball can be manually brought back to reel.

**IX. Operation Procedure (sealing a noisy manhole cover)**

1. Assess job situation.
2. Set up high level warning aprons. Not needed if on H.P. or Vaccon.
3. Turn on warning lights.
4. Use co-worker to align rear of vehicle with manhole.
5. Set out safety cones around vehicle. Open manhole.

6. Sweep ring of manhole with a broom.
7. Get out caulking gun and cartridge of roof cement.
8. Cut tip off cartridge. Puncture seal in tip.
9. Load cartridge into caulking gun.
10. Squeeze trigger of caulking gun until black caulk starts to come out.
11. Squeeze 3-4 large beads of caulking onto manhole ring.
12. Close manhole cover.
13. Secure equipment.
14. Pick up safety cones and high-level aprons, if used.
15. Turn off warning lights.
16. Leave jobsite.
17. Make contact with reporting party or leave a door hanger.

#### **X. Operation Procedure (sealing a manhole cover for odor)**

1. Follow procedures 1 through 10 in sealing a noisy manhole cover.
2. Squeeze out a bead of caulking around the entire ring of manhole.
3. Close manhole cover.
4. Squeeze out caulking in holes on top of manhole cover.
5. Continue following procedures 14 through 18 of sealing a noisy manhole cover.

#### **XI. Operation Procedure (replacing a manhole cover)**

1. Assess situation.
2. Turn on warning lights.
3. Set up high level warning aprons.
4. Use co-worker to align rear end of vehicle five feet from manhole.
5. Set up safety cones around vehicle.
6. Measure diameter and thickness of manhole cover.
7. Is the manhole cover a safety concern? If it is, barricade it make it safe.
8. If the manhole cover is located on a busy thoroughfare, proceed into surrounding neighborhood to find a replacement cover. Put a barricade over that manhole. Proceed to the warehouse or other corporation yards for a replacement. SEE NOTE
9. If the manhole cover is not located on a busy thoroughfare, proceed to the warehouse or other corporation yards for a replacement. SEE NOTE

NOTE: In steps 8 and 9, if a replacement cover can't be located, forward the job to the Sewer Repair Crew for a new ring and cover.

## CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATION PROCEDURE - ARROWBOARD**

### PPE Required

1. **Gloves**
2. **Hearing Protection**
3. **Steel toe boots**

### Specific Hazards

1. **Damaged or improperly used cable or chains may allow board to fall**
2. **High winds may also cause board to fall**
3. **Wheels not blocked can allow equipment to move**

### Standard Operating Procedure

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable)

#### I. Pre-Operation Check (in yard)

1. Check overall condition of unit.
  - A. Fluid leaks on ground.
  - B. Tires
  - C. Cable, Tow chains, pigtail and locking pin
  - D. Hoisting cables for frays and pulleys
  - E. Check three fuses on passenger side of board (bottom right hand corner)
2. Raise arrowboard
  - A. Loosen turnbuckle on chain and unhook board from frame.
  - B. Use crank handle to raise board (turn clockwise)
  - C. When board is in its full upright position, lock pin into side of upright.
  - D. Raise engine cover cage and check fuel and oil levels, battery terminals, belt and general condition.

3. Start engine
  - A. Set choke.
  - B. Turn on engine switch (up).
  - C. Push in and hold "start" button.
  - D. Once started, turn choke off (push in).
4. Power up board, ensure board lights work
  - A. Turn "alternator" switch up (on).
  - B. Turn on "power" switch.
  - C. "Function" switch on auto.
  - D. Rotate board control knob to each setting.
  - E. Check all lights on both sides of board.
  - F. Check brightness controls.
5. Turn unit off
  - A. "Power" switch off (down).
  - B. "Alternator" switch off (down).
  - C. "Engine" switch off (down).
6. Close cage over engine.
7. Remove lock pin from side of upright.
8. Use crank handle to lower arrowboard down (turn counter-clockwise).
9. Replace hook on end of chain in loop on frame.
10. Tighten turnbuckle.
11. Using co-worker to guide truck, back up vehicle to arrowboard.
12. Lower landing gear to engage ball hitch on vehicle.
13. Release lock pin on landing gear and rotate it to its travel position.
14. Engage pentil hitch.
15. Connect safety chain.
16. Connect electrical cable to outlet on vehicle.
17. Test trailer lights, brake, turn signal and hazards.

## **II. Operation Procedure (Field use set up)**

1. Once at jobsite, park in a safe location.
2. Assess job situation. Beware of windy operating conditions.
3. Raise arrowboard (refer to Part I, section 2, A through D). Set board to "travel".
4. Start engine. (Refer to Part I, section 3, A through D).
5. Raise up arrowboard (refer to Part 1, section 4, A through F). Close engine cover cage in case cables snap board won't be damaged if it falls.
6. Set up high level warning aprons.
7. When safe to do so, maneuver truck and arrowboard into lane you want to shut down.
8. Have co-worker get out of truck and set arrowboard control knob to the desired setting to channel traffic away.
9. Proceed to set up taper.

10. Toward the beginning of your taper, disconnect arrowboard from truck.
  - A. Set landing gear.
  - B. Unlatch pentil hitch.
  - C. Raise landing gear.
  - D. Disconnect safety chain and electrical cable.
  - E. Lower and stabilize legs.
11. Continue taper.
12. Set cones out for buffer and work zone.
13. Perform work task.
14. During the course of working, monitor arrowboard's operation. Is it still working?

### **III. Breakdown**

1. Warning lights on.
2. Back vehicle with co-worker on foot, proceed to pick up cones in reverse order of initial set up.
3. Cautiously work back towards arrowboard, picking up cones as you go.
4. Once vehicle reaches arrowboard, have co-worker connect arrowboard to vehicle.
  - A. Raise the four stabilizing legs.
  - B. Lower hitch ring of arrowboard down onto ball hitch of vehicle.
  - C. Pull out lock pin of landing gear. Raise landing gear to travel position. Engage landing gear's lock pin.
  - D. Connect safety chain to vehicle.
  - E. Connect electrical cable to vehicle.
  - F. Engage the pentil hitch.
  - G. Turn the control knob on the arrowboard to "Travel".
5. Pick up remainder of safety cones.
6. Check traffic. When safe, proceed to a side street.
7. Park vehicle and arrowboard.
8. Turn arrowboard off. (Refer to Part I, step 5, A through C)
9. Close cage over engine.
10. Remove lock pin from side of upright.
11. Use crank handle to lower arrowboard. (turn counter-clockwise)
12. Replace hook on end of chain in loop on frame.
13. Tighten turnbuckle.
14. Turn off vehicle's warning lights.
15. Go to next jobsite or return to yard.

**SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - CAUSTIC SODA POUR**

**PPE Required**

- 1. Eye Protection**
- 2. Hearing Protection**
- 3. Vest**
- 4. Gloves**
- 5. Hard Hat (as needed)**
- 6. Boots**

**Specific Hazard**

- 1. Hazardous Materials**
- 2. Eye**
- 3. Splashing**
- 4. Slipping**
- 5. Tripping**
- 6. Noise**

**Procedure**

**PRODUCT NAME: CAUSTIC SODA SOLUTION 50%, COMMERCIAL GRADE**

MSDS #DW15216

**Caustic Soda is used in sanitary mains to control odors. It is colorless and odorless. Caustic Soda may react violently with water and can cause severe eye and skin burns. It causes respiratory tract irritation and can enter your lungs and cause damage.**

When assisting with a caustic pour, stay well out-of-range of the truck pouring the chemical. When the truck finishes the pour and leaves the site, set up traffic control, wash down the area around the manhole and the walls of the manhole. Be sure to wear the personal protective equipment listed below. This is a dangerous chemical with severe consequences if you come in contact with it. This product is a "hazardous chemical" as defined by the OSHA Hazard

Communication Standard, 29 CFR 1910.1200. Before assisting with a pour, **READ** the attached MSDS sheet and the precautions listed on it.

Personal Protective Equipment: to be used:

1. Face shield
2. Rubber gloves
3. Rubber boots
4. Body suit – rain gear, apron if available



Caustic Soda MSDS.pdf

NOTE: If unable to open MSDS sheet, go to My computer, V-drive and look under Dan Suriaga's name "CSOP" and access it from there.

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - CONFINED SPACE  
ENTRY/TRIPOD**

### **PPE Required**

- 1. Boots**
- 2. Gloves**
- 3. Hard hat**
- 4. Vest**

### **Specific Hazards**

- 1. Falling**
- 2. Slipping**
- 3. Pulling**
- 4. Cave in**

### **Procedure**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

#### **I. Pre-Operation Check (in yard)**

1. Crew leader discusses work to be performed, assigns who will be entrant, attendant and supervisor.
2. Ensure crew has equipment to perform the work before leaving the yard.

#### **II. Operation Procedure (set up in field)**

1. Assess worksite situation.
2. Turn on warning lights.
3. Set up high-level warning aprons.
4. Use co-worker to align rear of vehicle to manhole. Leave enough room to set up and perform work.
5. Place safety cones around vehicle.
6. Open manhole.

7. Entry Supervisor performs initial gas detector check and fills out “Confined Space Reclassification” form and signs it.
8. Remove any hazards from manhole.
9. If a water source is available, flush out manhole.
10. Sweep surface area around manhole.
11. Entrant puts on all personal protective equipment, checks condition of harness and puts it on.
12. Set up tripod
  - Stand tripod up next to manhole.
  - Pull out and lock all three legs.
  - Position tripod over manhole.
  - Make sure non-slip pads on feet (3) are secure on the ground.
  - Layout safety chain at bottom of legs around manhole.
  - Check pulleys and lock pins.
  - Attach winch to tripod. Engage push pin (2).
  - Reel out winch cable and feed over to pulley of tripod. Engage lock pins (2) of pulley.
  
  - Attach fall arrestor to tripod. Engage push pin.
  - Reel out cable and feed over pulley on side of tripod leg. Engage lock pins (2) of pulley.
  - Visually inspect tripod set up.
13. Set up Ventilator
  - Set ventilator on ground, position fan away from vehicles exhaust. Hook up to vehicle battery. Drop hose down manhole.
14. Position fire extinguisher, first aid kit and hand pack radio by confined space.
15. Attendant will visually check that entrant is wearing all personal protective equipment. Check condition of harness.
16. Attendant hooks the winch and fall arrestor to entrant’s harness.
17. Attendant lowers entrant into manhole.
18. Supervisor lowers tools necessary to perform work down to entrant.
19. Attendant visually and verbally monitors entrant’s progress.
20. Supervisor notes atmospheric conditions of manhole every 15 minutes, notes on reclassification form.
21. Remove hose of ventilator from manhole. Disconnect electrical cable from vehicle’s battery. Attendant will raise entrant from manhole when work is completed.
22. Attendant will unhook winch and fall arrestor.
23. Breakdown tripod.
  - Pull out lock pins (2) in pulley. Pull out push pin. Remove winch from tripod.

- Pull out lock pins (2) in pulley. Pull out push pin. Remove fall arrestor.
  - Tilt tripod to one side. Pull out (disengage) each of the three legs.
  - Secure all equipment to vehicle.
  - Close manhole.
24. Pick up safety cones.
  25. Pick up high-level warning aprons.
  26. Turn off warning lights.
  27. Leave jobsite.

## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - FORKLIFT**

### PPE Required

1. Hard hat
2. Gloves
3. Steel boots

### Specific Hazards

1. tipping due to unbalanced loads
2. dropping your load
3. watch for pedestrians
4. be careful of blind spots or corners

### Procedure

**Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).**

#### I. Safety Notes

1. Elevating employees should be done only in accordance with current OSHA rules – contact nearest OSHA office. (General Industrial Safety Order #3657, 3659, (1985)).
2. Operating rules (General Industrial Safety Order #3664 [1985]). Every employer shall post and enforce a set of rules including those listed below:
  - a. Only qualified personnel shall operate. Method SHALL be devised to train said personnel.
  - b. Stunt driving, horseplay PROHIBITED.
  - c. No riders, unless provided with adequate riding facilities.
  - d. Employees shall not ride on forks.
  - e. Employees shall not place any part of the body outside running lines or between mast upright or other parts of lift truck where shear or crushing hazards exist.
  - f. Drivers shall check vehicle at least ONCE per shift. Foreman or mechanic shall be notified immediately for any unsafe condition, and lift truck shall be taken out of service until condition has been resolved.
  - g. NO truck shall be operated with fuel leak.
  - h. Operate at safe speed.

- i. Sound horn when vision is obstructed.
- j. If load obstructs view, operator shall travel with load trailing.
- k. Operators SHALL look in direction of travel and shall NOT move until certain that ALL persons are in the clear.
- l. Trucks shall not be driven up to anyone that is standing IN FRONT of a bench or any fixed object of such size that person could be pinned.
- m. Drive forward uphill, backward downhill (upgrade). Grades shall be ascended, descended SLOWLY.
- n. Forks ALWAYS carried low as possible. Empty forks never higher than 6" from ground.
- o. When vehicle is left unattended: EITHER:
  - 1. Power OFF, brakes set, mast vertical, forks down. On an incline, wheels WILL be chocked, OR
  - 2. Power ON, brakes set, mast vertical, forks down, wheels BLOCKED front and rear.
- p. When operator is dismounted and WITHIN 25' AND IN VIEW, load-engaging means shall be fully lowered, controls neutralized and brakes set.
- q. Railroad crossings shall be crossed diagonally, whenever possible.
- r. Know the capacity of your machine.
- s. A loaded vehicle shall NOT be moved until load is SAFE and SECURE.
- t. Extreme care shall be taken when TILTING loads. Tilting forward with the load-engaging means elevated shall be prohibited UNLESS picking up a load. Elevated loads shall not be tilted forward EXCEPT when load is being deposited onto storage rack or equivalent. When stacking or tiering, backward tilt SHALL be limited to that necessary to stabilize the load.
- u. The load-engaging device shall be placed in such a manner that the load will be securely held or supported.
- v. Special precautions shall be taken in the securing and handling of loads by trucks equipped with attachments and during the operation of these trucks after the loads have been removed.

## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - HARBEN HIGH PRESSURE UNIT**

### PPE Required

1. Safety Boots
2. Safety Vest
3. Hard hat ( as Needed)
4. Gloves

### Specific Hazards

1. Lifting
2. Pulling
3. Bending

### Procedure

**Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).**

#### I. Pre-Operation Check (in yard)

- |  |   |
|--|---|
| <input type="checkbox"/> Engine Oil      | <input type="checkbox"/> Quarts added           |
| <input type="checkbox"/> Battery         | <input type="checkbox"/> Low, dirty             |
| <input type="checkbox"/> Hydraulic Fluid | <input type="checkbox"/> Quarts added           |
| <u>Lights</u>                            |   |
| <input type="checkbox"/> Brake lights    | <input type="checkbox"/> Tires and lugs         |
| <input type="checkbox"/> Turn signals    | <input type="checkbox"/> Doors and compartments |
| <input type="checkbox"/> Hazards         | I   |

#### Hitch Assembly

- |   |  |
|---|--|
| <input type="checkbox"/> Hitch            | <input type="checkbox"/> Electrical Cable          |
| <input type="checkbox"/> Landing gear     | <input type="checkbox"/> Emergency brake and chain |
| <input type="checkbox"/> Hose (rips/cuts) | <input type="checkbox"/> Safety chains and hook    |

#### Accessories

- |  |  |
|--|--|
| <input type="checkbox"/> Cleaning nozzle       | <input type="checkbox"/> Mini skid plates  |
| <input type="checkbox"/> Penetrating nozzle    | <input type="checkbox"/> Proofer           |
| <input type="checkbox"/> Plastic relief valves | <input type="checkbox"/> Adjustable wrench |

## **II. Start Procedure (in yard)**

1. Check water level.
2. Remove nozzle from hose.
3. Feed hose through hose guide.
4. Turn key to start engine.
5. Use hose reel control lever to reel out 10-15 feet of hose.
6. Step on hose.
7. Pull up water pressure valve.
8. Pull out throttle control knob until water pressure gauge reads 500 psi.
9. Observe water flow.
10. Push in throttle control knob.
11. Push down water pressure valve.
12. Use hose reel control lever to return hose to reel.
13. Turn key off.

## **III. Operation Procedure (Filling water tank)**

1. Pull alongside of fire hydrant on passenger side of vehicle.
2. Place safety cones around vehicle.
3. Remove fill hose and hydrant wrench from vehicle.
4. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.
5. Turn on hydrant. Purge discolored, rust filled water until clear.
6. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
7. Once filled, slowly turn hydrant off.
8. Disconnect hose. Replace and tighten hydrant's cap.
9. Secure hose and hydrant wrench in vehicle.
10. Pick up safety cones and proceed to jobsite.

## **IV. Operation Procedure (wye cleanout)**

1. Assess situation.
2. Turn on warning lights.
3. Check upstream and downstream manholes. Paint arrows.
4. Use co-worker to align rear of harben with cleanout.
5. Set up safety cones around vehicle.
6. Start engine.
7. Feed hose through hose guide.
8. Attach penetrating nozzle to hose.
9. Use hose reel control lever to reel out enough hose into cleanout.  
Manually feed hose into cleanout until obstruction is found.
10. Pull up water pressure lever to "on".
11. Pull out the throttle control knob to raise water only high enough to be able pass obstruction. When the obstruction is cleared, send the hose back

- and forth through the lateral to effectively clean.
12. Push throttle control knob in.
  13. Push down water pressure lever.
  14. Pull hose out of cleanout.
  15. Remove penetrating nozzle from hose.
  16. Insert hose 2-3 feet into cleanout.
  17. Step on hose at cleanout.
  18. Pull up water pressure lever to "on".
  19. Pull out throttle control knob until water pressure gauge reads 500 psi.
  20. Run water 1-2 minutes to ensure that the lateral is taking water and does not back up.
  21. Push in throttle control knob.
  22. Pull down water pressure lever.
  23. Remove hose from cleanout.
  24. Power up system. (Refer to steps 18 & 19).
  25. Hose down any debris back into cleanout.
  26. Power down system (refer to steps 21 & 22).
  27. Use hose reel control lever to return hose to reel.
  28. Stop engine. (Turn key off).
  29. Replace cleanout cap.
  30. Make contact with reporting party or leave a door hanger.
  31. Pick up safety cones.
  32. Turn off warning lights.
  33. Leave jobsite.

#### **V. Operation Procedure (clearing an obstruction in sani main)**

1. Assess situation.
2. Turn on warning lights.
3. Set up high-level warning aprons.
4. Use co-worker to align rear of vehicle over dry, downstream manhole.
5. Set up safety cones around vehicle.
6. Open manhole. Paint arrows.
7. Start engine. (Turn key on)
8. Use hose reel control lever to feed hose through hose guide.
9. Attach penetrating nozzle to hose.
10. Insert hose through tiger tail.
11. Use hose reel control lever to lower hose down to mouth of main.
12. Pull up water pressure lever to "on."
13. Start hose 10-15 feet into main.
14. Drop down tiger tail.
15. Pull out throttle control knob far enough to allow hose to travel slowly upstream until it stops at the obstruction.
16. Use hose reel control lever to bring hose back 10-15 feet.
17. Pull out throttle control knob until water pressure gauge reads 2000 psi.

18. Using hose reel control lever, allow hose to proceed forward to clear obstruction.
19. Use hose reel control lever to clean back and forth through the obstruction.
20. Push throttle control knob in.
21. Pull down water pressure lever to "off".
22. Use hose reel control lever to return hose to within 10-15 feet of the hose guide on reel.
23. Remove penetrating nozzle.
24. Pull up water pressure lever to "on".
25. Pull throttle control knob out until water pressure gauge reads 500 psi.
26. Hose down any sewage back into manhole. If a storm drain is affected, use 1,000 gallons of water to flush. If a hydrant is close at hand, use it to flush.
27. Power down system. (Refer to steps 21 & 22).
28. Use hose reel control lever to return hose to reel.
29. Turn engine off. (Turn key off).
30. Secure equipment.
31. Close manhole.
32. Pick up safety cones. Turn off warning lights.
33. Make contact with reporting party or leave a door hanger.
34. Fill out spillage report.
35. Pick up high- level warning aprons.
36. Leave jobsite.

#### **IV. Operation Procedure (line cleaning)**

1. Assess situation.
2. Turn on warning lights.
3. Set high-level aprons.
4. Use co-worker to align rear of harben over manhole.
5. Set up safety cones.
6. Open manhole. Paint arrows.
7. Turn engine on. (Turn key on)
8. Use hose reel control lever to feed out hose through hose guide.
9. Attach line-cleaning nozzle to hose.
10. Insert hose through tiger tail.
11. Use hose reel control lever to drop hose down to mouth of sani main.
12. Pull up water pressure lever to "on".
13. Pull out throttle control knob just enough to get hose started 10-15 feet into pipe.
14. Drop down tiger tail.
15. Pull out throttle control knob until water pressure gauge reads 2000 psi.
16. Use hose reel control lever to send hose upstream manhole.
17. Use hose reel control lever to bring hose back to downstream manhole. Stop 10 feet before nozzle comes out.
18. Push in throttle control knob.

19. Use hose reel control lever to bring hose out of manhole.
20. Remove line-cleaning nozzle from hose.
21. Use hose reel control lever to return hose to reel.
22. Secure equipment.
23. Pick up cones and high-level warning aprons.
24. Turn off warning lights.
25. Leave jobsite.

## **VII. Operating Procedure (clearing an obstruction in storm lateral)**

1. Assess situation.
2. Set up high level warning aprons.
3. Use co-worker to align rear of harben over manhole.
4. Set up cones around vehicle.
5. Open storm main.
6. Turn engine on. (Turn key on)
7. Use hose reel control lever to feed hose through hose guide.
8. Attach penetrating nozzle to hose.
9. Feed hose through tiger tail.
10. Use hose reel control lever to lower hose down to mouth of flooded catch basin's lateral.
11. Pull up water pressure lever to "on".
12. Use hose reel control lever to send hose 10-15 feet into pipe.
13. Drop tiger tail down manhole.
14. Pull throttle control knob far enough to allow hose to travel slowly into pipe until it stops at the obstruction.
15. Use hose reel control lever to bring hose back 10-15 feet.
16. Pull out throttle control knob until water pressure gauge reads 2000 psi.
17. Use hose reel control lever to allow hose to proceed forward to clear obstruction.
18. Use hose reel control lever to clean back and forth through obstruction.
19. Use hose reel control lever to return hose to reel. Stop 10 feet before nozzle comes out.
20. Push in throttle control knob. Pull down water pressure lever.
21. Use hose reel control lever to return hose to guide. Remove nozzle.
22. Use hose reel control lever to return hose to reel.
23. Turn engine off.
24. Secure equipment. Close manhole.
25. Pick up safety cones and high-level warning aprons.
26. Leave jobsite.

**SPECIAL NOTE:** In case of emergency, push throttle control knob all the way in first, then push water pressure control lever down to shut off.

## **VIII. Operation Procedure (Flushing Inlet)**

A flushing inlet (F.I.) is the beginning of a sani main. When dealing with a F.I., take caution so that the hose of the h.p./vaccon does not exit the F.I.

1. When line cleaning, refer to Part V.
2. When clearing a plugged main, refer to Part IV.

### **IX. Operation Procedure (Dropped Manhole)**

A dropped manhole consists of two openings – one on top of the other. Insert the hose of the h.p./vaccon into the top opening. If you put the hose in the bottom opening, it will come out of the top opening.

1. When line cleaning, refer to Part V.
2. When clearing a plugged main, refer to Part IV.

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE – HIGH PRESSURE SEWER  
CLEANING VEHICLE-REAR UNIT (GMC)**

### **PPE Required**

- 1. Safety Vests**
- 2. Steel Toe Boots**
- 3. Hearing Protection**
- 4. Eye Protection (as needed)**
- 5. Gloves**
- 6. Hard Hat (as needed)**

### **Specific Hazards**

- 1. Tripping**
- 2. Falling**
- 3. Lifting**
- 4. Pulling**
- 5. Noise**
- 6. Slipping**
- 7. Flying Objects**
- 8. Hydraulic Pressure**

### **Standard Operating Procedure**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

#### **I. Pre-Operation Check**

Conduct BIT Inspection – refer to BIT Log Book

#### **II. Operating Procedure (filling water tank)**

10. Pull alongside of fire hydrant on passenger side of vehicle.
11. Place safety cones around vehicle.
12. Remove fill hose and hydrant wrench from vehicle.
13. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.

14. Turn on hydrant. Purge discolored, rust filled water until clear. Note: if you are in Great Oaks Water District, attach water meter before purging.
15. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
16. Once filled, slowly turn hydrant off.
17. Disconnect hose. Replace and tighten hydrant's cap.
18. Secure hose and hydrant wrench in vehicle.
10. Pick up safety cones and proceed to jobsite.

### **III. Operating Procedure (wye cleanout)**

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XII and XIII.
4. Check upstream and downstream sani manholes. Paint arrows.
5. Use co-worker to align rear of vehicle with clean out.
6. Set up safety cones.
7. Open wye clean out cover, check for City approved clean out.
8. If clean out is submerged use plunger to try and get relief. If procedure is not Successful, proceed with step # 9
9. Raise control panel door.
10. Attach penetrating nozzle to hose.
11. Using hose reel control lever, reel out enough hose to insert into riser of cleanout until the obstruction location is found. The hose may be marked with tape to identify distance.
12. Push pressure lever up to ON position.
13. Pull out pump control knob.
12. Using throttle knob, raise psi only high enough to be able to pass obstruction. A second or third obstruction could exist. this is why psi should be kept to a minimum so as to reduce the amount of back wash. When the obstruction(s) are cleared, pull out throttle control knob until water pressure gauge reads 2000 psi. Send the hose back and forth through the lateral to effectively clean.
13. Shut down system
  - a. Push throttle knob all the way in.
  - b. Push pump control knob all the way in.
  - c. Pull pressure lever down to "OFF" position.
14. Remove hose from cleanout.
15. Remove nozzle from hose.
16. Insert hose 2-3 feet into cleanout.
17. Have co-worker step on hose at cleanout.
18. Power up system
  - a. Push pressure lever up to "ON" position.
  - b. Pull out pump control knob.
  - c. Pull out throttle control knob until water pressure is 500 psi.

19. Run water pressure for 1-2 minutes to ensure that lateral takes water and does not back up.
20. Shut down system (refer to step 11)
21. Remove hose from cleanout.
22. Power up system (refer to step 16)
23. Hose down any backwash into cleanout.
24. Use hand rodding with 3" auger to ensure clarity. Rod from approved clean out to City main. Flush lateral thoroughly and advise for video of lateral if there is suspected damage. If unable to pass 3" auger to city main, RP must be signed up for repair.
25. Replace cleanout cover.
26. Secure equipment.
27. Make contact with reporting party or leave a door hanger.
28. Fill out spillage report.
29. Pick up safety cones. Turn off warning lights.
30. Leave jobsite.

#### **IV. Operating Procedure (clearing an obstruction in sanitary main)**

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XII and XIII.
4. Use co-worker to align rear of vehicle over downstream manhole.
5. Set up safety cones around vehicle.
6. Open sani manhole. Paint arrows.
7. Put penetrating nozzle on hose.
8. Insert hose through tiger tail.
9. Use hose reel control lever to lower hose down to mouth of sani main.
10. Power up system
  - a. Push pressure lever up to "ON" position.
  - b. Pull out pump control knob.
11. Use hose reel control lever to start hose 10-15 feet into main. Drop tiger tail down to mouth to protect hose.
12. Pull throttle knob out far enough to allow hose to travel slowly upstream until it stops at an obstruction.
13. Use hose reel control lever to bring hose back 10-15 feet.
14. Pull throttle knob out until water pressure guage shows 2,000 psi.
15. Use hose reel control lever to clean back and forth through the obstruction. Allow hose to proceed forward to clear obstruction.
16. Shut down system (refer to Part III, step 12)
17. Use hose reel control lever to return hose to reel.  
To increase rate of hose return, pull throttle knob out. Remember to push throttle knob in before start of whip hose comes out of mouth.
18. Remove nozzle
19. Power up system (refer to Part III, step 16).
20. Hose down any sewage back into manhole.

21. Shut down system (refer to Part III, step 12).
22. Use hose reel control to return hose to reel.
23. Secure equipment.
24. Pick up safety cones. Turn off warning lights.
25. Make contact with reporting party or leave a door hanger.
26. Fill out spillage report.
27. Leave jobsite.

If the situation requires the set-up at the wet end, the crew should follow the procedures listed below:

1. Do not use the penetrating nozzle, use the round cleaning nozzle.
2. Locate depth of the manhole and mouth with pole.
3. Attach 1" diameter 12" long galvanized pipe to end of whip hose.
4. Attach round cleaning nozzle to end of 1" diameter 12" galvanized pipe.
5. Use pole to guide nozzle pipe and whip hose into mouth of pipe.
6. Operator should not exceed 500 psi until hose is 5 feet inside channel of pipe.
7. Assistant should monitor the progress of the hose and nozzle in main.
8. If unable to get hose/nozzle past 5 feet or not sure that hose/nozzle is in pipe, stop operation and use power rodder.

#### **V. Operating Procedure (line cleaning)**

1. Assess situation.
2. Turn on warning lights.
3. Use co-worker to align rear of vehicle over downstream manhole.
4. Set up safety cones around vehicle.
5. Open manhole. Paint arrows.
6. Put line cleaning nozzle on hose.
7. Insert hose through tiger tail.
8. Use hose reel control lever to lower hose down to mouth of sani main.
9. Power up system (refer to Part IV, step 9)
10. Start hose into main 10-15 feet. Drop tiger tail down to mouth to protect hose.
11. Pull out throttle knob until water pressure gauge reads 2,000 psi.
12. Use hose reel control lever to send hose upstream to manhole.
13. Slow hose reel speed.
14. Use hose reel control lever to bring hose back to downstream manhole. Stop when beginning of black whip hose comes out of sani mouth.
15. Shut down system (refer to Part III, step 11).
16. Use hose reel control lever to return hose to reel.
17. Secure equipment.
18. Pick up safety cones. Turn off warning lights.
19. Leave jobsite.

## **VI. Operating Procedure (flushing inlet)**

A flushing inlet (F.I.) is the beginning of a sani main. When dealing with an F.I., take caution so that the hose of the h.p./vaccon does not exit the F.I.

3. When line cleaning, refer to Part V.
4. When clearing a plugged main, refer to Part IV.

## **VII. Operating Procedure (dropped manhole)**

A dropped manhole consists of two openings – one on top of the other. Insert the hose of the h.p./vaccon into the top opening. If you put the hose in the bottom opening, it will come out of the top opening.

3. When line cleaning, refer to Part V.
4. When clearing a plugged main, refer to Part IV.

## **VIII. Operating Procedure (clearing an obstruction in storm lateral)**

1. Assess situation.
2. Turn on warning lights.
3. Use co-worker to align rear of vehicle over manhole.
4. Set up safety cones around vehicle.
5. Open manhole.
6. Put penetrating nozzle on hose.
7. Insert hose through tiger tail.
8. Use hose reel control to lower hose down to mouth of flooded catch basin's lateral.
9. Power up system
  - a. Push pressure lever to "ON" position.
  - b. Pull out pump control knob.
10. Use hose reel control lever to start hose 10-15 feet into main. Drop tiger tail down to mouth to protect hose.
11. Pull throttle knob out far enough to allow hose to travel slowly upstream until it stops at the obstruction.
12. Use hose control lever to bring hose back 10-15 feet.
13. Pull throttle knob out until water pressure gauge shows 2,000 psi.
14. Use hose reel control lever. Allow hose to proceed forward to clear obstruction.
15. Use hose reel control lever to clean back and forth through obstruction.
16. Shut down system (refer to Part III, step 11).
17. Use hose reel control lever to return hose to reel. To increase rate of hose return speed, pull throttle knob out. Remember to push throttle knob in before start of whip hose comes out of mouth.
18. Secure equipment.
19. Pick up safety cones. Turn off warning lights.
20. Leave jobsite.

**\*Special Note: In case of emergency, push in throttle knob all the way.**

**IX. Operating Procedure (sealing a noisy manhole cover)**

10. Assess job situation.
11. Set up high level warning aprons. Not needed if on H.P. or Vaccon.
12. Turn on warning lights.
13. Use co-worker to align rear of vehicle with manhole.
14. Set out safety cones around vehicle. Open manhole.
15. Sweep ring of manhole with broom.
16. Get out caulking gun and cartridge of roof cement.
17. Cut tip off cartridge. Puncture seal in tip.
18. Load cartridge into caulking gun.
10. Squeeze trigger of caulking gun until black caulking starts to come out.
11. Squeeze 3-4 large beads of caulking around manhole ring.
12. Close manhole cover.
13. If manhole cover is cracked or broken and can't be sealed, advise Investigator or Supervisor to refer to rodding or balling crew for replacement.
18. Secure equipment.
19. Pick up safety cones and high level aprons, if used.
20. Turn off warning lights.
21. Leave jobsite.
22. Make contact with reporting party or leave a door hanger.

**X. Operating Procedure (sealing a manhole cover for odor)**

6. Follow procedures 1 through 10 in Part IX.
7. Squeeze out a bead of caulking around the entire ring of manhole.
8. Close manhole cover.
9. Squeeze out caulking in holes on top of manhole cover.
10. Continue following procedures 14 through 18 in Part IX.

**XI. Operating Procedure (replacing a manhole cover)**

10. Assess situation.
11. Turn on warning lights.
12. Set up high level warning aprons.
13. Use co-worker to align rear end of vehicle five feet from manhole.
14. Set up safety cones around vehicle.
15. Measure diameter and thickness of manhole cover.
16. Is the manhole cover a safety concern? If it is, barricade it, make it safe.
17. If the manhole cover is located on a busy thoroughfare, proceed into surrounding neighborhood to find a replacement cover. Put a barricade

over that manhole. Proceed to the warehouse or other corporation yards for a replacement (see note).

18. If the manhole cover is not located on a busy thoroughfare, proceed to the warehouse or other corporation yards for a replacement. SEE NOTE

NOTE: In steps 8 and 9, if a replacement cover can't be located, forward the job to the Sewer Repair Crew for a new ring and cover.

## **XII. Operating Procedure (sanitary intrusion in curb and gutter)**

1. Using sandbags and/or absorbent, contain spill.
2. Have Vactor or Vaccon respond to spill site.
3. Extract standing sewage, sandbags and/or absorbent.

## **XIII. Operating Procedure (sanitary intrusion into storm system)**

1. Contain spill in catch basin, lateral and main using sandbags and/or absorbent.
2. Have Vactor or Vaccon respond to spill site.
3. Flush out storm system with fresh water to containment area and extract.

## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE – HIGH PRESSURE SEWER  
CLEANING VEHICLE REAR UNIT (INTERNATIONAL)**

### **PPE Required**

- 1. Safety Vest**
- 2. Steel Toe Boots**
- 3. Hearing Protection**
- 4. Gloves**
- 5. Eye Protection (as needed)**
- 6. Hard Hat (as needed)**

### **Specific Hazards**

- 1. Tripping**
- 2. Falling**
- 3. Lifting**
- 4. Pulling**
- 5. Noise**
- 6. Slipping**
- 7. Flying Objects**
- 8. Traffic**
- 9. Hydraulic Pressure**

### **Standard Operating Procedure**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

#### **I. Pre-Operation Check**

Conduct BIT Inspection – refer to BIT Log Book

#### **II. Operating Procedure (filling water tank)**

- 1. Pull alongside of fire hydrant on passenger side of vehicle.**
- 2. Place safety cones around vehicle.**
- 3. Remove fill hose and hydrant wrench from vehicle.**

4. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.
5. Turn on hydrant. Purge discolored, rust filled water until clear. Note: If you are in the Great Oaks Water District, attach water meter before purging hydrant.
6. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
7. Once filled, slowly turn hydrant off.
8. Disconnect hose. Replace and tighten hydrant's cap.
9. Secure hose and hydrant wrench in vehicle.
10. Pick up safety cones and proceed to jobsite.

### **III. Operating Procedure (wye cleanout)**

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XII and XII.
4. Check upstream and downstream mains. Paint arrows.
5. Use co-worker to align rear of vehicle with cleanout. Turn on PTO.
6. Set up safety cones around vehicle.
7. Open wye clean out cover, check for City approved clean out.
8. If clean out is submerged use plunger to try and get relief. If procedure is Not successful, proceed with step # 9
9. Raise control panel door.
10. Attach penetrating nozzle on hose.
11. Using hose reel control lever, reel out enough hose to insert into riser of cleanout until the obstruction is located. The hose may be marked with tape to identify distance.
12. Push pressure lever up to ON position.
13. Pull pump control knob out.
14. Throttle up (hold switch) to 15 rpm or until water pressure is at 500 psi.
15. Using the throttle switch, raise water pressure (PSI) only high enough to be able to pass obstruction. A second or third obstruction could exist. This is why psi should be kept to a minimum to reduce the amount of back wash. When the obstruction(s) are cleared, send the hose back and forth through the lateral to effectively clean.
16. Shut down system
  - a. Switch throttle to OFF position.
  - b. Push pump control knob all the way in.
  - c. Pull pressure lever down to OFF position..
17. Remove hose from cleanout.
18. Remove nozzle from hose.
19. Insert hose 2-3 feet into cleanout.
20. Have co-worker step on hose at cleanout.
21. Power up system
  - a. Push pressure lever up to ON position.
  - b. Pull pump control knob out.

- c. Turn throttle on.
  - d. Throttle up (hold switch) to 15 rpm or until water pressure is at 500 psi.
22. Run water pressure for 1-2 minutes to ensure that lateral takes water and does not back up.
  23. Shut down system (refer to Step 14).
  24. Remove hose from cleanout.
  25. Power up system (refer to Step 19).
  26. Hose down any backwash into cleanout.
  27. Shut down system (refer to Step 14).
  28. Use hose reel control lever to return hose to reel.
  29. Use hand rodding with 3" auger to ensure clarity. Rod from City approved Clean out to City main. Flush lateral thoroughly and advise for video of lateral if there is suspected damage. If unable to pass 3" auger from the approved clean out to City main, RP must be signed up for repair.
  30. Replace cleanout cap and cover.
  31. Make contact with reporting party or leave a door hanger.
  32. Fill out spillage report.
  33. Pick up safety cones. Turn off warning lights.
  34. Turn off PTO and leave jobsite.

#### **IV. Operating Procedure (clearing an obstruction in sanitary main)**

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XII and XIII.
4. Check main. Paint arrows.
5. Use co-worker to align rear of vehicle over downstream manhole.
6. Turn on PTO.
7. Set up safety cones around vehicle.
8. Open sani manhole cover.
9. Attach penetrating nozzle to hose.
10. Insert hose through tiger tail. Using hose reel control lever, lower hose down to mouth of sani main.
11. Power up system.
  - a. Push pressure lever up to ON position.
  - b. Pull pump control knob out.
  - c. Turn throttle on. Throttle up (hold switch) to 15 rpm or until water pressure is at 500 psi.
12. Start hose into main 10-15 feet. Drop tiger tail down.
13. Pull pump control knob out far enough to allow hose to travel upstream until it stops at the obstruction.
14. Use hose reel control level to bring hose back 10-15 feet.
15. Pull pump control out until water pressure gauge registers 2,000 psi.
16. Using hose reel control lever, allow hose to proceed forward to clear obstruction.

17. Use hose reel control lever to clean back and forth through the obstruction.
18. Shut down system (refer to Part III, Step 14).
19. Use hose reel control lever to return hose to reel.
20. Remove nozzle.
21. Use hose reel control lever to feed out 10-15 feet of hose.
22. Power up system (refer to Part III, step 19).
23. Hose down any sewage back into manhole.
24. Shut down system (refer to Part III, step 14).
25. Use hose reel control to return hose to reel.
26. Secure equipment.
27. Pick up safety cones. Turn off warning lights.
28. Turn off PTO.
29. Make contact with reporting party or leave a door hanger.
30. Fill out spillage report. Leave jobsite.

If the situation requires the set-up at the wet end, the crew should follow the procedures listed below:

- 1. Do not use penetrating nozzle, use cleaning nozzle.**
- 2. Locate depth of manhole and mouth with pole.**
3. Attach a 1" diameter 12" long galvanized pipe to end of whip hose.
4. Attach round cleaning nozzle to end of 1" diameter, 12" long galvanized pipe.
5. Use pole to guide nozzle/pipe and whip hose into mouth of pipe.
6. Operator should not exceed 500 psi until hose is 5 feet inside channel of pipe.
7. Assistant should monitor the progress of the hose and nozzle in the main.
8. If unable to get hose/nozzle past 5 feet or not sure that hose/nozzle is in pipe, stop operation and use power rodder.

#### **V. Operating Procedure (line cleaning)**

1. Assess situation.
2. Turn on warning lights.
3. Use co-worker to align rear of vehicle over downstream manhole. Turn on PTO.
4. Set up safety cones around vehicle.
5. Open sani manhole.
6. Attach cleaning nozzle to hose.
7. Insert hose through tiger tail.
8. Use hose reel control lever to lower hose down to mouth of sani main.
9. Power up system (refer to Part IV, step 11).
10. Start hose into main 10-15 feet. Drop tiger tail down.
11. Pull pump control knob out until water pressure gauge reads 2,000 psi.
12. Use hose reel control lever to send hose upstream to manhole.

13. Slow hose reel speed.
14. Use hose reel control lever to bring hose back to downstream manhole.  
Stop when beginning of black whip hose comes out of sani mouth.
15. Shut down system (refer to Part III, step 14).
16. Use hose reel control lever to return hose to reel.
17. Secure equipment.
18. Pick up safety cones. Turn off warning lights.
19. Turn off PTO.
20. Leave jobsite.

#### **VI. Operating Procedure (flushing inlet)**

A flushing inlet (F.I.) is the beginning of a sani main. When dealing with a F.I., take caution so that the hose of the h.p./vaccon does not exit the F.I.

5. When line cleaning, refer to Part V.
6. When clearing a plugged main, refer to Part IV.

#### **VII. Operating Procedure (dropped manhole)**

A dropped manhole consists of two openings – one on top of the other. Insert the hose of the h.p./vaccon into the top opening. If you put the hose in the bottom opening, it will come out of the top opening.

5. When line cleaning, refer to Part V.
6. When clearing a plugged main, refer to Part IV.

#### **VIII. Operating Procedure (clearing a plugged catch basin)**

1. Assess situation.
2. Turn on warning lights.
3. Use co-worker to align rear of vehicle over storm main manhole. Turn on PTO.
4. Set up safety cones around vehicle.
5. Open storm manhole.
6. Attach penetrating nozzle to hose.
7. Insert hose through tiger tail.
8. Use hose reel control lever to lower hose down to mouth of storm lateral.
9. Power up system (refer to Part IV, step 11).
10. Start hose 10-15 feet into storm lateral. Drop tiger tail down.
11. Pull pump control knob out far enough to allow hose to travel slowly into the storm lateral until it stops at the obstruction.
12. Use the hose reel control lever to bring the hose back 10-15 feet.
13. Pull pump control out until water pressure gauge registers 2,000 psi.
14. Use hose reel control lever, allow hose to proceed forward to clear obstruction. Holding water at catch basin will recede.
15. Use hose reel control lever to clean back and forth where the obstruction

was.

16. Shut down system (refer to Part III, step 14).
17. Use hose reel control lever to return hose to reel.
18. Secure equipment.
19. Pick up safety cones.
20. Turn off PTO and leave jobsite.

**Special Note: In case of emergency, turn off throttle.**

**IX. Operating Procedure (sealing a noisy manhole cover)**

1. Assess job situation.
2. Set up high level warning aprons. Not needed if on H.P. or Vaccon.
3. Turn on warning lights.
4. Use co-worker to align rear of vehicle with manhole.
5. Set out safety cones around vehicle. Open manhole.
6. Sweep ring of manhole with broom.
7. Get out caulking gun and cartridge of roof cement.
8. Cut tip off cartridge. Puncture seal in tip.
9. Load cartridge into caulking gun.
10. Squeeze trigger of caulking gun until black caulking starts to come out.
11. Squeeze 3-4 large beads of caulking around manhole ring.
12. Close manhole cover.
13. If manhole cover is cracked or broken and can't be sealed, advise Investigator or Supervisor to refer to rodding or balling crew for replacement.
14. Secure equipment.
15. Pick up safety cones and high level aprons, if used.
16. Turn warning lights.
17. Leave jobsite.
18. Make contact with reporting party or leave a door hanger.

**X. Operating Procedure (sealing a manhole cover for odor)**

1. Follow procedures 1 through 10 in Part IX.
2. Squeeze out a bead of caulking around the entire ring of manhole.
3. Close manhole cover.
4. Squeeze out caulking in holes on top of manhole cover.
5. Continue following procedures 14 through 18 in Part IX.

**XI. Operating Procedure (replacing a manhole cover)**

1. Assess situation.
2. Turn on warning lights.
3. Set up high level warning aprons.
4. Use co-worker to align rear end of vehicle five feet from manhole.
5. Set up safety cones around vehicle.

6. Measure diameter and thickness of manhole cover.
7. Is the manhole cover a safety concern? If it is, barricade it and make it safe.
8. If the manhole cover is located on a busy thoroughfare, proceed into surrounding neighborhood to find a replacement cover. Put a barricade over that manhole. Proceed to the warehouse or other corporation yards for a replacement (see note).
9. If the manhole cover is not located on a busy thoroughfare, proceed to the warehouse or other corporation yards for a replacement (see note).

NOTE: In steps 8 and 9, if a replacement cover can't be located, forward the job to the Sewer Repair Crew for a new ring and cover.

**Special Note: In case of emergency, turn off throttle.**

**XII. Operating Procedure (sanitary intrusion into curb and gutter)**

1. Using sandbags and/or absorbent, contain spill.
2. Have Vactor or Vaccon respond to spill site.
3. Extract standing sewage, sandbags and/or absorbent.

**XIII. Operating Procedure (sanitary intrusion into storm system)**

- 1. Contain spill in catch basin, lateral and main using sandbags and/or absorbent.**
- 2. Have Vactor or Vaccon response to spill site.**
- 3. Flush out storm system with fresh water to containment area and extract.**

**REVISED 1/22/08**

SPECIFIC CODE OF SAFE PRACTICES

TITLE: STANDARD OPERATING PROCEDURE – WARTHOG NOZZLE

**PPE Required**

1. Gloves
2. Boots
3. Vest
4. Hard hat (as needed)
5. Ear Protection
6. Eye Protection

**Specific Hazards**

1. Pulling
2. Falling
3. Tripping
4. Flying Objects
5. Noise

**Procedure**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

**TURN IN LEAKING WARTHOG AS SOON AS POSSIBLE DUE TO RUST SITUATION.**

**THERE ARE TWO TYPES OF REPAIRS, MINOR AND MAJOR, THE DIFFERENCE IS MINOR AFFECTS THE HEAD OF THE NOZZLE ONLY AND THE MAJOR IS NOTICABLE DUE TO OIL LEAKING FROM THE BODY OF THE NOZZLE. THERE ARE TWO SEPARATE KITS, ONE FOR EACH TYPE OF REPAIR.**

1. Remove hose from Warthog.
2. Place Warthog in vise with nozzle head relieved cutouts in vise. Use a wrench suited to the main shaft. Remove nozzle head.
3. Remove weep seal from inlet nut. Place Warthog body in vise and tighten body at fixed body nut. Remove large inlet nut. Do not remove Warthog from vise. Pluck out brass seal from shaft.

- (NOTE: Brass seal taper faces up.) Remove high pressure seal with “o” ring.
4. Replace high pressure seal with “o” ring. Lube seal “o” ring with light oil. Refit into shaft by hand and replace brass seal, making sure taper faces up.
  5. Check oil level. Make sure shaft turns smoothly. Refit inlet nut and tighten very tight. Replace weep seal.
  6. Remove Warthog from vise. Put nozzle head into vise. Plastic tape threaded position of shaft thread shaft on nozzle and tighten very tight with suitable wrench. Make sure shaft rotates smoothly. It should have a smooth hydraulic feel.

REVISED 7/5/06

SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - HYDRAULIC SEWER HOSE  
SWAGE TOOL - EQUIPMENT COMPETENCY CERTIFICATION**

**PPE Required**

- 1. Eye Protection**
- 2. Gloves**
- 3. Steel Toe Boots**

**Specific Hazards**

- 1. Pinching**
- 2. Smashing**

**Procedure**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

**I. Operating Procedure (installing a new coupling on hose)**

NOTE: For installing male, female and mender hose ends

1. Cut the end of the hose squarely.
2. Align shoulder of coupling alongside end of hose. Leave a ¼" gap between shoulder and end of hose.
3. Use a ballpoint or felt tip pen to mark end of coupling on hose.
4. Push the end of coupling onto the end of the hose all the way to mark on hose.
5. Do not use petroleum base oil as lubricant. Use water-soluble detergent to lube if necessary.
6. Place hose with coupling into swage machine. Position end of hose up to top opening of machine.
7. Insert solid, round die, angled end up into top hole of swage machine. Insert tip of coupling into die hole.
8. Place the two-piece die, angled edge down around hose and into bottom opening of swage machine. Squeeze lubricant into two-piece die and hose.
9. Close the pressure relief valve on the jack.
10. Insert handle into slot on hydraulic jack.
11. Begin swaging by pumping the jack handle.
12. Continue pumping until the upper and lower dies meet. Stop.
13. Open the pressure relief valve on the jack and allow the swage machine to open fully.

14. Remove hose from swage machine.
15. Tap the dies lightly to remove them from the coupling.  
Inspect the coupling. Make sure swage is uniform.

Revised Date 7/7/06

SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE – ITX MULTI-GAS MONITOR EQUIPMENT AND COMPETENCY CERTIFICATION**

**PPE Required**

1. None

**Specific Hazards**

1. None

**Procedure**

**I. Operating Instructions**

- \_\_\_ To turn the iTX on, press and hold **ON/OFF MODE** button until the instrument emits a short beep and the iTX “**WELCOME**” appears on the display.
- \_\_\_ Display shows “**WARM UP**”.
- \_\_\_ Display shows the four elements and a countdown to zero begins.
- \_\_\_ Display shows the four elements with current levels and battery (level) in center.
- \_\_\_ Detector is now in the gas-reading zone, ready to use.
- \_\_\_ To turn the iTX off, press and hold **ON/OFF MODE** button down until “**RELEASE**” is displayed on the screen.
- \_\_\_ Release **ON/OFF MODE** button. iTX will now turn off.

**II. Zeroing Unit in Fresh Air (must be done before each use)**

- \_\_\_ Place iTX in fresh air.
- \_\_\_ Turn iTX on by pressing and holding the **ON/OFF MODE** button until the instrument emits a short beep and the iTX “**WELCOME**” screen appears on the display.
- \_\_\_ Allow iTX to go through it’s start up phase until the unit displays the four elements and battery charge level.
- \_\_\_ Press and hold **ON/OFF MODE** button until “**ZERO SENSORS**” appears on the screen.
- \_\_\_ Push the “**E**” button until “**ZEROING SENSORS**” is displayed on the screen.

- \_\_\_ The iTX will then zero its sensors to the fresh air. Zeroing is complete when “**ZEROING COMPLETE**” is displayed on the screen.
- \_\_\_ Press **ON/OFF MODE** button. “**CALIBRATE SENSORS, NO**” is displayed on the screen.
- \_\_\_ Pressing **ON/OFF MODE** button will return the iTX to its ready mode.
- \_\_\_ The iTX is now ready for use.

### III. Battery Operation

- The lithium-ion battery pack must be fully charged before and after each use.
- When fully charged, the iTX will function continuously for up to 19 hours (10 hours with iSP sampling pump attached).
- As the battery life decreases, the shaded area of the battery icon in the center of the display will decrease.
- Within 15 minutes of battery life remaining, the iTX will emit a periodic tone alerting the user to charge / replace the battery.
- Should the lithium-ion battery fail, an optional alkaline battery pack may be installed.

#### A. Recharging battery

- \_\_\_ Remove charger from case.
- \_\_\_ Plug lead from charger into the socket on the back of iTX.
- \_\_\_ Plug charger into electrical outlet.
- \_\_\_ Allow iTX to charge for at least five hours.

#### B. Replacing Lithium-ion Battery with Alkaline Battery Pack

In the event the iTX should run out of power in the field, the user may install an alkaline battery pack.

- \_\_\_ Using the assembly tool in case, unscrew the two screws on the large panel on back of iTX.
  - \_\_\_ Remove panel.
  - \_\_\_ Remove lithium-ion battery.
  - \_\_\_ Insert alkaline battery pack (with fresh batteries) into iTX.
  - \_\_\_ Replace cover.
  - \_\_\_ Tighten both screws.

### IV. Installing iSP Motorized Sampling Pump

- \_\_\_ To use the iSP, slide the iTX monitor face-up, sensors first into the iSP pump.
- \_\_\_ With the iTX turned on and the iSP fully engaged, the user will hear a short audible beep and the pump motor will begin to run. During normal operation, the green LED will be illuminated on the iSP signaling the pump is operating normally.
- \_\_\_ Insure a “dust filter” is securely screwed on to tip of the iSP.

- \_\_\_ Attach appropriate length of sampling line to the “dust filter” on the iSP.
- \_\_\_ Attach a “water stop filter” to the end of the sampling line being dropped into the manhole.
- \_\_\_ Should the sampling line become obstructed, the iSP will emit an audible alarm and the red LED will illuminate. Check for kinks in sampling line and/or replace “water stop filter”.
- \_\_\_ Sampling time. . .Allow one second for each foot of tube/hose (example: 10 feet of hose, add 10 seconds)

#### **V. Safety**

- The iTX multi-gas monitor has been designed for the detection of oxygen deficiencies, flammable gas, and toxic vapor accumulations. An alarm condition indicating the presence of a potentially life threatening hazard should be taken very seriously.
- In the event of an alarm condition, the safest course of action is to immediately leave the affected area and return only after further testing, along with appropriate safety procedures, determine that the area is once again safe for entry.
- During normal operations the screen should display: O2-20.9, H2S-0.0, C.O.-0.0, L.E.L-0.0, and the battery indicator at full charge.

#### **VI. Cleaning**

- When necessary, wipe the outside of the instrument with a soft, clean cloth. Never use solvents or cleaning solutions of any type. Make sure the sensor diffusion membrane is free of debris. Clean sensor openings with a soft, clean cloth or soft brush.

Revised Date 7/7/06

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - POWER RODDER**

### **PPE Required**

- 1. Safety Boots**
- 2. Safety Vest**
- 3. Hard hat ( as Needed)**
- 4. Gloves**

### **Specific Hazards**

- 1. Lifting**
- 2. Pulling**
- 3. Bending**
- 4. Sharp edges**

### **Procedure**

#### **I. Start Procedure (in yard)**

1. Reel speed and rotation control off.
2. Rotation and forward/reverse control levers in neutral.
3. Push throttle control knob all the way in. Pull knob out ¼”.
4. Pull out choke control knob.
5. Turn key to “on” position.
6. Push choke control knob in.
7. Allow engine to warm up 3 – 4 minutes.
8. Turn on and check beacon.

#### **II. Stop Procedure (in yard)**

1. Push throttle knob in.
2. Turn off beacon.
3. Turn key to “off” position.

#### **III. Operating Procedure (clearing an obstruction in sani main)**

1. Assess job situation.
2. Turn on warning lights.
3. Set up high-level warning aprons.

4. Use co-worker to help back up rear of rodder to within 5-10 feet of downstream manhole. Whenever possible, position vehicle and rodder between the manhole and oncoming traffic.
5. Set up cones around vehicle.
6. Start engine (refer to Part II, Steps 1-8).
7. There are two control levers
  - a. Left lever – controls in and out motion of rod.
  - b. Right lever – controls rotation of rod, clockwise and counter-clockwise.Both levers should not be engaged simultaneously or damage to rodder may occur.
8. Use left lever to feed rod through hose guide and bowtie. Allow rod to extend one foot past hose guide.
9. Attach appropriate auger to knuckle using two assembly tools.
10. Open manhole. Insert hose guide with auger in upstream manhole.
11. Pull throttle halfway out.
12. Turn speed reel control to a slow rate.
13. Use left control lever to send rod into line without rotation until you hit obstruction.
14. When obstruction has been met, stop rod.
15. Use left control lever to back up rod one foot.
16. Turn reel speed up.
17. Use right lever to rotate rod in a clockwise motion.
18. Work rod back and forth until obstruction is cleared.
19. Stop rod rotation.
20. Rotate rod in counter clockwise. Return rod to manhole.
21. Pull hose guide and auger out of manhole.
22. Use left control lever to feed out enough rod to expose the knuckle.
23. Use two assembly tools to remove auger.
24. Use left control lever to return rod to reel.
25. Secure hose guide to rodder.
26. Close manhole.
27. Clean up any debris.
28. Pick up cones.
29. Pick up high-level warning aprons.
30. Turn off warning lights and leave jobsite.

#### **IV. Operating Procedure (clearing an obstruction in a catch basin lateral)**

1. Assess situation.
2. Turn on warning lights.
3. Set up high-level warning aprons.
4. Use co-worker to help back up rear of rodder to within 5-10 feet of storm main. Whenever possible, position vehicle and rodder between the manhole and oncoming traffic.
5. Set up cones around vehicle.

6. Start engine (refer to Part II, steps 1-8).
7. There are two control levers
  - a. Left lever – controls in/out motion of rod.
  - b. Right lever – controls rotation of rod, clockwise and counter-clockwise.Both levers should not be engage simultaneously or damage to rodder may occur.
8. Use left lever to feed rod through hose guide and bowtie. Allow rod to extend one foot past hose guide.
9. Attach appropriate auger to knuckle using two assembly tools.
10. Open storm main manhole. Identify lateral leading to flooded catch basin. Insert hose guide with auger into mouth of lateral.
11. Pull throttle halfway out.
12. Turn speed reel control to a slow rate.
13. Use left control lever to send rod into line without rotation until you hit obstruction.
14. When obstruction has been met, stop rod.
15. Use left control lever to back up rod one foot.
16. Turn reel speed up.
17. Use right lever to rotate rod in a clockwise motion.
18. Work rod back and forth until obstruction is cleared.
19. Stop rod rotation.
20. Rotate rod in counter-clockwise. Return rod to manhole.
21. Pull hose guide and auger out of manhole.
22. Use left control lever to feed out enough rod to expose the knuckle.
23. Use two assembly tools to remove auger.
24. Use left control lever to return rod to reel.
25. Secure hose guide to rodder.
26. Close manhole.
27. Clean up any debris.
28. Pick up cones.
29. Pick up high-level warning aprons.
30. Turn off warning lights and leave jobsite.

#### **V. Operating Procedure (retrieving a stuck or broken auger)**

1. Assess job situation.
2. Turn on warning lights.
3. Set up high-level warning aprons.
4. Use co-worker to help back up rear of rodder to within 5 – 10 feet of downstream manhole. Whenever possible, position vehicle and rodder between the manhole and oncoming traffic.
5. Set up cones around vehicle
6. Start engine (refer to Part II, steps 1-8).
7. There are two control levers
  - a. Left lever – controls in/out motion of rod.

- b. Right lever – controls rotation of rod, clockwise and counter-clockwise.

Both levers should not be engage simultaneously or damage to rodder may occur.

8. Use left lever to feed rod through hose guide and bowtie. Allow rod to Extend one foot past hose guide.
9. Attach retrieval auger to knuckle using two assembly tools.
10. Open manhole. Insert hose guide with auger in upstream manhole.
11. Pull throttle halfway out.
12. Turn speed reel control to a slow rate.
13. Use left control lever to send rod into line without rotation until you reach the auger, stop the forward motion.
14. Use right control lever to rotate rod clockwise.
15. Use left control lever to creep rod forward until the broken or stuck auger is hooked.
16. Stop rotating and forward motions.
17. Turn reel speed up.
18. Use left control lever to bring rod back with stuck or broken auger.
19. You may need to repeat steps 13-18 several times.
20. Return rod to downstream manhole.
21. Pull hose guide out of manhole.
22. Use left control lever to feed out enough rod to expose knuckle.
23. Use two assembly tools to remove auger from rod. Remove broken or stuck auger.
24. If broken or stuck auger drops down manhole, use hook pole to retrieve it.
25. Use left control lever to return rod to reel.
26. Secure hose guide to rodder.
27. Close manhole.
28. Clean up any debris.
29. Pick up cones.
30. Pick up high-level warning aprons.
31. Turn off warning lights and leave jobsite.

## VI. Operating Procedure ( Dusk to dawn)

1. Employees must wear **class 3** safety vest.
2. Employees must use **reflective hats** on traffic safety cones.

**NOTE:** Do not rod more than one segment at a time unless -

- a. Unable to reach a segment/manhole because of an easement.
- b. A manhole is buried.

## CODE OF SAFE PRACTICES

<b>TITLE: STANDARD OPERATING PROCEDURE SANITARY SEWER SPILLAGE PROCEDURE UNDER 1,000 GALLONS</b>
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This letter describes the recommended procedures for notification; reporting and cleanup response action for sewage spills under 1000 gallons.

### **PLUGGED MAIN**

1. Respond to location
2. Assess the situation Refer to Standard Operation Procedure No. 41, High Pressure Sewer Cleaning Vehicle (HP) Part IV.
3. Contain the overflow, if possible. Should assistance be needed to prevent overflow from entering storm system, contact general complaint truck or dispatch for sandbags.
4. Wash down debris back into sanitary main.
5. Contact vactor unit to remove contained sewage, if necessary.
6. Fill out Sanitary Sewer Overflow Report Form (attached) Turn in Completed form to supervisor.

### **PLUGGED LATERAL**

1. Respond to location.
2. Assess the situation. Refer to Standard Operation Procedure No. 41, High Pressure Sewer Cleaning Vehicle (HP) Part III.
3. Check upstream and downstream manhole, if plugged, clear.
4. Flush to main to verify lateral is clear.
5. Wash debris back into wye cleanout. For solid debris, shovel into bucket/bag and dump back into sanitary main.
6. Contact vactor unit to remove contained sewage, if necessary.
7. Check with reporting party to ensure facilities are in order. If the reporting party is not home, leave a door hanger.
8. Fill out Sanitary Sewer Overflow form. Turn in completed form to supervisor.

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - SANITARY SEWER SPILLAGE  
OVER 1,000 GALLONS**

### **PPE Required**

- 1. Gloves**
- 2. Boots**
- 3. Hard hat (as needed)**
- 4. Hearing protection**

### **Specific Hazards**

- 1. Traffic**
- 2. Noise**
- 3. Lifting- Pulling**
- 4. Slipping**
- 5. Falling**

### **Procedure**

This letter describes the recommended procedures for notification, reporting and cleanup response action for sewage spills over 1,000 gallons.

#### **I. Operation Procedure**

1. Assess situation.
2. Locate problem that caused spill.
3. Contact The Following Persons  
Senior Maintenance Worker/Supervisor/Superintendent / (DOT Engineer) Phil Lee. If after hours, contact SJ20 @ 277-8956 or Duty Supervisor.
4. Call in additional crews for support.
5. Contact Pump Crew Supervisor (343-3102 or cell 858-2889). Dispatch pumps and/or vactor, plugs if needed.
6. Review attached sheet with cleanup procedures mandated by the South Bay Watershed Management Division.
7. Locate affected waterway, i.e. creek or river.
8. Assign a crew to dam waterway, i.e. sandbags.
9. Assign a crew to clear problem, i.e. plugged main.
10. Assign a crew to post/barricade "sewer spill" signs to warn general public to keep out. If raw sewage signs are not available, direct crews to use the backside of other signs. Use thick, black marker to write "Warning: Raw Sewage Spill – Keep Out" and date of spill on signs

11. Fill out Sanitary Sewer Overflow form. Turn in completed form to Supervisor

**NOTE 1A: Reporting spill**

You have 24 hours to file a report electronically to the California Water Quality Control Board. Go to the website: [https://www.r2esmr.netssso\\_login2.asp](https://www.r2esmr.netssso_login2.asp). Type in username: SanJoseCity. Obtain the password from your Supervisor or Senior Maintenance Worker. Select the appropriate box for which you are filing and follow the directions.

**NOTE 1B:** Contacted agencies may send out representatives to scene. Maintain accurate records of names and agencies responding. Get business cards if possible. Make note of the control number from the Office of Emergency Services.

11. If sewer spill reaches the States waterways, contact California Water Quality Control Board. Contact person is Michael Chee 1-510-622-2333. Call may go to voice mail. Give information from Note A.
12. Contact Office of Emergency Services (OES) @ 1-800-852-7550. Give Information in Note A. Get control number and name of person you spoke with.
13. In case of fish kill, contact the California Department of Fish and Game Larry Wade 1-510-377-3119 or 1-510-792-0222. Give information in Note 1A. They will ask for control number from Office of Emergency Services. Obtain name of person spoken with. Warden will respond to scene.
14. Contact Environmental Services @ 382-8800. Advise them of spill. Use dispatch (ext. 5411), or SJ20 (ext. 8956) if after hours to contact Duty Supervisor.
15. Agencies contacted may want cleanup conducted in a certain way.
16. Check progress and monitor crew's efforts. Insure that the directions of any agencies are being followed. Do your crew's require more personnel and equipment?
17. Take pictures of all posted warning signs and note their locations.
18. Once clean up has been completed, you have five working days to file a written report to the California Regional Water Quality Control Board (Michael Chee). Fax number 1-510-622-2460.

**Written Report**

**The follow-up written report shall include all of the above information in addition to agency contacts made during the initial notification, a detailed description of the cleanup actions and repairs taken or in process, and a description of actions that will be taken to minimize or prevent future spills. (SEE ATTACHED SAMPLE REPORT.)**

**Cleanup Response and Warning Sign Posting:  
Dry Weather Conditions:**

7. **Warning Signs:** Signs warning the public of a sewage release should be posted in the affected area. Signs should include, at a minimum, the wording of “raw sewage.”
8. **Warning Sign Removal:** Warning signs should remain posted until County Health or Regional Board staff authorizes their removal, or until receiving water sample results indicate background levels (levels as determined by upstream samples) have been attained.
9. **Sewage Flow Containment:** All sewage flows should be contained and diverted to the nearest sanitary sewer or removed by vactor truck.
10. **Sewage Solids Cleanup:** After the flows have been stopped and repairs made, rake and/or vactor up the sewage solids.
11. **Cleanup Flushing:** The affected area should be flushed with clean water. All flush water should be contained and subsequently pumped to the nearest sanitary sewer or removed by vactor truck. Cleanup flushing should be done only with clean water. Disinfectants should not be used due to their toxicity to fish and wildlife.
12. **Receiving Water Sampling:** If the spill or overflow volume exceeds 10,000 gallons, sampling should be conducted both upstream and downstream of the point where sewage has entered the receiving water. Samples should be analyzed for Fecal Coliform, Dissolved Oxygen and Ammonia Nitrogen.

**Wet Weather Conditions:**

The response cleanup and warning sign posting procedures given above for Dry Weather Conditions should be followed, except that steps 5 and 6 (Flushing and Sampling) may be omitted if storm waters are high and sampling is impractical.

If you have any questions about these procedures, please contact Michael Chee at 1-510-622-2333.

Sincerely,  
South Bay Watershed Management Division

## CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE – SEWER  
INTRUSION AND CLEAN UP CREW**

### PPE Required

- |                   |             |
|-------------------|-------------|
| 1. Rubber gloves  | 5. Earplugs |
| 2. Safety glasses | 6. Mask     |
| 3. Rubber boots   | 7. Vest     |
| 4. Coveralls      | 8. Hard hat |

### Specific Hazards

- |                           |                          |
|---------------------------|--------------------------|
| 1. Slipping               | 6. Air borne pathogens   |
| 2. Tripping               | 7. Blood borne pathogens |
| 3. Lifting                | 8. Falling objects       |
| 4. Pushing & pulling      | 9. Water and electricity |
| 5. Unidentified chemicals |                          |

### Standard Operating Procedure

#### **STANDARD OPERATING PROCEDURE FOR A RESPONSE TO A SEWER INTRUSION INTO BUSINESS OR RESIDENCE INCLUDING THE USE OF A CLEAN UP TRAILER**

Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).

#### **I. PRE-OPERATION CHECK**

- A. A walk around inspection is required before towing the trailer to a clean up location.
- B. Inspect the tires for air pressure and unusual wear.
- C. Inspect the frame for stress cracks at the welds.
- D. Inspect the wiring and lights
- E. Inspect the hitch
- F. Open trailer combination **West Yard # 5172, Mabury Yard # 1404**
- G. Make everything in the trailer is tied down (secure for travel)

**II. INSPECT THE INVENTORY OF THE TRAILER PRIOR TO DEPARTURE.  
THERE IS AN INVENTORY LIST INSIDE THE TRAILER RIGHT SIDE OF DOOR.  
COMPLETE ITEMS LIST BELOW.**

	Big orange graffiti remover		3-gallon hand held service sprayer
	Plastic buckets		
Towels (rolls)		Castex powered squeegee	
Trash bags		Wet dry vacuum	
Hand cleaner		Portable fans	
Brushes short and long handled		Electrical cords (2 each 100')	
Mops, Mop heads, Mop bucket		Traffic cones	
Squeegees		Service requests	
Brooms		Copies of sanitary sewage backup logs	
Plunger		Business cards to Cinda McCann (investigator)	
Whistle cleaner spray		City Attorney's Office	
Cleaner degreaser		Flashlights	
Street locator		Disposable cameras	
Batteries		Copies of claims forms	

**III. POLICY**

The Department of Transportation (DOT) and the City of San Jose will take all reasonable measures to insure the habitability of a residence or business should there be an intrusion of sanitary sewage into the building caused by a blockage of a City's sanitary main. Departmental personnel shall perform clean up operations in accordance with Departmental guidelines and procedures. In the event that additional cleaning operations or temporary living accommodations are required, the assigned City Attorney Investigator will make the authorization. If an Investigator is unavailable, the DOT Duty or on-call Supervisor can make the authorization as specified below.

**IV. OPERATING PROCEDURE (RESPONSE)** Upon notification of a sanitary sewer main blockage with an accompanying back up onto private property, the DOT or Fire Dispatcher will make the following notifications:

- If a Sewer Response Unit is on duty, it will be dispatched immediately to the event site and will take appropriate measures to remove the blockage from the City's main. The Unit Supervisor or the DOT Duty Supervisor will also be notified at the same time.
- If a Sewer Response Unit is not available, the City Dispatcher will notify the Unit Supervisor or DOT Duty Supervisor. The responsible Supervisor will make the necessary calls to assemble a clean up crew and will have the crew respond with equipment to the work site.

**V. OPERATING PROCEDURE (CLEAN UP)** The Sewer Response Unit will perform clean up operations consisting of, but not limited to, collection of solid waste material (if any), removal of standing fluids, extraction of fluids from carpets (in place) and flooding in the effected areas.

- Prior to responding to the work site, the clean up crew will gather the appropriate tools and equipment, along with the supply trailer containing the necessary clean up supplies. Inventory of supplies should be taken at this time. An inventory list is on the front cover.
- If the clean up trailer needs supplies contact the Pump Crew #343-3102 or Section 71 #277-5509. After hours contact the Duty Supervisor.
- The crew needs to get a Service Request for the job that includes the address of the site, the owner or contact person, and phone number to the contact person as well as information about the extent of damages. If there is no Service Request available then one needs to be started. Dispatch or San Jose 20 will have this information.
- The clean up crew shall always conduct themselves in a positive professional manner at all times. The Sewer Division will be conducting annual mandated Customer Service Training to provide the guidelines for providing excellence customer service.
- In event that a resident is so irate that the clean up crew feels threaten by their actions. The crew is to inform the resident that they won't be able to continue the clean up and that they will be contacting the Unit Supervisor, Senior Maintenance or the DOT Duty Supervisor to respond to the jobsite.
- When the clean up crew arrives on site, members will determine the extent of the damage and complete the DOT Sanitary Sewage Back-Up-Log. At this time the crew leader shall take pictures of all the affected areas, and all surrounding areas even if not affected by the intrusion. If affected address is a multi level home determine if any other levels in the home were affected and take pictures accordingly. If the homeowner does not allow crew to take pictures of none affected areas note under comments and advise your Supervisor and City Adjuster.
- The clean up crew will remove any sanitary sewer debris introduced into the building, vacuum up any standing fluids on the floor, extract fluid from the carpets (if needed), mop all impacted floors with pine oil or equal and set fans in the affected area to aid in the drying of the carpets. (It is up to the clean up crew to decide if the fan's need to be left overnight, and if they are, it should be documented on the SR for the morning crew to pick them up.)

- All fluids and or solids will be disposed of appropriately. Never dispose of fluids in storm drains or on lawns etc. Only authorized dumping areas are permitted such as a sanitary manhole or sewer clean out. All rags and solids will be disposed of at the Sewage Treatment Plant or given to the pump crew at the West Yard for them to dispose of properly.
- Assist the resident in removing any **portable** belongings or furnishings (i.e. Towels, chairs, throw rugs, etc) and place them outdoors or as directed by the resident. At no time should any contaminated items be removed from the property unless directed by the City Adjuster. Removed items will be noted on the Back-up Log.
- When a line blockage causes an overflow onto private property, an information packet (City claim form and other useful info.) prepared by the City Attorney's Office should be left with the resident. Cinda McCann is working with Jim Brennan to revise the information packets for us. In the mean time we will carry City claim forms in the clean up trailers for the residents.
- If the City's Claims Adjuster is present and authorizes removal of furniture items or carpets/padding, the crew is to remove the items.
- If the City's Claims Adjuster is not present, crews are **not** to remove any attached /permanently installed items (i.e. carpets, drywall/sheetrock baseboards, counters, etc). If there is a question of whether an item is attached /permanently installed, it is **not** to be removed.
- To minimize the city's liability, and to provide the highest level of customer service the clean up crews are **not** to leave the site until the job is completed or they have been relieved.
- When clean up is completed, the crew leader is to contact the resident or business owner to confirm that the work has been done in a satisfactory manner. The crew leader is also to explain that if the resident wishes to seek damages from the City, he/she is to contact Jim Brennan, Senior Claims Adjuster at (408) 535-1900 from 8:00am to 5:00pm. The crew leader will then take pictures of the effected areas that have been cleaned, and any damages caused by the intrusion. The clean up crew needs to contact the City Claims Adjuster before leaving the jobsite to see if the adjuster wants them to standby until their arrival.
- Procedures for the cameras. Even if all of the exposures have **not** be used. We only want one jobsite per camera. Use a marker to write the location on the camera. Then route the cameras to Bill Avila at the West Yard.
- Bill Avila will have the pictures developed onto a disc, and establish a file.

The following work day, the DOT Supervisor in charge of sanitary sewer line cleaning for that section of the City is to dispatch a line cleaning crew to re-clean that segment of sewer in which the blockage occurred, as well as investigate the nearby segments to determine if cleaning adjoining segments is required.

## **VI. SANITARY BACK-UP LOG**

### **1. Fill out the Sanitary Sewage Back-up Log form**

- A. Start with the Citizen's name address and date affected.
- B. If there is a claims adjuster on site from the city then fill in the adjuster section top right side of the form.
- C. Fill in the time and date you were called out to the clean up
- D. Enter each persons section number to the log
- E. Enter the time and date you arrived at the site
- F. Include all the personnel there for the clean up and the time they each arrived
- G. Write down the condition of each room in the comments section
- H. Rate each room for severity from Minor to Severe
- I. Note any response or comments the resident has made
- J. List the items asked to be removed by the City's adjuster only!
- K. Print and sign your name to the bottom of the form and date it. Turn it into the area Line Cleaning Supervisor.
- L. The area Line Cleaning Supervisor will write a service request for the Video Inspection Crew to video the main to determine the cause of the back up.
- M. The area Line Cleaning Supervisor will provide the Video Inspection Crew with footage of the blockage on the service request.
- N. The Video Inspection Crew will save a copy of the CD in its library, and inform the area Line Cleaning Supervisor of the results.
- O. There is a section in red that is to be filled out by the Area Line Cleaning Supervisor
- P. The original back-up log should be sent to the Sewers Superintendent, and a copy to Phil Lee.
- Q. The area Line Cleaning Supervisor is to keep a copy on file

## **VI. SERVICE REQUEST FORM**

- A. Write in the address of the site where the clean-up occurred
- B. Write in the request taker
- C. The category is a clean-up
- D. Include any comments needed to explain what was done or what still needs to be preformed.
- E. Include information about the caller such as their name, phone, and time of call.
- F. State any comments pertaining to the job in the comments section
- G. Close out the request form if all work is complete
- H. Send the service request to dispatch

**VII. AFTER EACH CLEAN-UP (NO MATTER WHAT TIME)**

1. Rinse and clean all power vacuums used, of all debris and towel dry
2. Bag all used items and dispose of at the west yard pump section or the sewage treatment plant
3. Most of all please keep trailer clean and stocked for the next clean-up
4. Keep the sanitary log book up to date
5. Rinse and clean all mop buckets
6. Restock the trailer and/or contact the pump crew (for the West Yard Trailer) at #343-3102 or section 71 (for the Mabury Yard Trailer) with a list of items used at #277-5509.
7. Trailer should be clean, stocked, and organized after each use.
8. If there are any mechanical problems inform the pump crew or section 71 immediately and turn trailer in to mechanic for immediate repair.
9. Park the trailer in the same place it was picked up.

**VII. Customer Service Training**

The Sewer Division will undergo mandated Customer Service Training annually. This will consist of viewing and discussing videos, and reviewing some customer service material that is tailored to the type of service that we provide our customers and the issues that might arise. Bill Avila will keep and check out the Customer Service videos and materials.

**Revised**  
**Date: 11-7-06**

## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - SMT 1 ROOT CUTTER KIT**

### PPE Required

1. **Gloves**
2. **Vest**
3. **Boots**
4. **Hard Hat (as needed)**

### Specific Hazards

1. **Lifting**
2. **Pulling**
3. **Flying Objects**

### Procedure

**Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).** (To be used with 1" HP hose only.)

#### I. Pre-Operation Check

Ensure all parts are present in kit:

- \_\_\_ hex key set
- \_\_\_ T - bar wrench
- \_\_\_ 1/2" combo wrench
- \_\_\_ lube
- \_\_\_ 4" skid (2 rings)
- \_\_\_ 6" - 8" skid
- \_\_\_ 10" - 12" skid
- \_\_\_ motor assembly
- \_\_\_ 4", 6", 8", 10", 12", 15" root saw
- \_\_\_ 1/2" deep socket
- \_\_\_ 3/8" drive extension
- \_\_\_ 3/8" drive ratchet
- \_\_\_ 7/16" deep socket
- \_\_\_ 7/16" combo wrench
- \_\_\_ Augar mounting bolts

**II. Operation Procedure – Assembly of Skid Root Saw to Motor**

Assembly of 4" skid and 4" root saw to motor

- \_\_\_ Slide first 4" ring onto HP hose connection end about 1/2" onto motor.
- \_\_\_ Using the 5/32" hex key, tighten the three hex screws on the ring.
- \_\_\_ Slide second 4" ring onto root saw side of motor 1" in.
- \_\_\_ Using 5/32" hex key, tighten the three hex screws on the ring.
- \_\_\_ Align the slot on the inside of the root saw's shaft with the square bar on the arbor of the motor.
- \_\_\_ Slide root saw onto motor's arbor until the holes align.
- \_\_\_ Using the 1/8" hex key, tighten the hex screw on the shaft of the root saw.
- \_\_\_ Insert bolt through hole in shaft of root saw and motor's arbor.
- \_\_\_ Using the 7/16" socket / ratchet and a 7/16" combination wrench, tighten the Aervo nut.
- \_\_\_ You are now ready to attach root saw assembly to HP whip hose.

**Assembly of 6" skid and 6" root saw to motor**

- \_\_\_ Slide 6" skid onto motor. Position hex screws of skid in middle of motor.
- \_\_\_ Using a 3/16" hex key, tighten the four set screws on 6" skid.
- \_\_\_ Slide root saw arbor onto motor arbor.
- \_\_\_ Align the slot on the inside of the root saw's shaft with the square bar on the arbor of the motor.
- \_\_\_ Slide 3/16" hex head bolt through hole in root saw arbor and motor arbor.
- \_\_\_ Using a 7/16" deep socket / ratchet and a 7/16" combination wrench, tighten the Aervo nut to the end of the bolt.
- \_\_\_ You are now ready to attach root saw to HP whip hose.

**Assembly of 8" skid and 8" root saw to motor**

- \_\_\_ Slide motor into 6 - 8" skid.
- \_\_\_ Insert the three hex bolts and lock washers into the three holes in the rear of 6 - 8" skid.
- \_\_\_ Using a 1/2" deep socket / ratchet, tighten the three bolts.
- \_\_\_ Align slot inside 8" root saw arbor to square key on arbor of motor.
- \_\_\_ Slide root saw arbor onto motor arbor.
- \_\_\_ Slide 3/16" hex head bolt through hole in root saw arbor and motor arbor.
- \_\_\_ Using a 7/16" deep socket / ratchet and a 7/16" combination wrench, tighten the Aervo nut to the end of the bolt.
- \_\_\_ You are now ready to attach root saw to HP whip hose.

**Assembly of 10" skid and 10, 12, 15" root saw to motor**

- \_\_\_ Slide motor in 10" skid.
- \_\_\_ Insert the three 1/4" hex head bolts and lock washers into the three holes in the rear of the 10" skid.
- \_\_\_ Using a 1/2" deep socket / ratchet, tighten the three bolts.
- \_\_\_ Align slot inside appropriate root saw (10, 12, 15) arbor to square key on arbor or motor.
- \_\_\_ Slide root saw arbor onto motor arbor.
- \_\_\_ Slide 3/16" hex head bolt through hole in root saw arbor and motor arbor.
- \_\_\_ Using a 7/16" deep socket / ratchet and a 7/16" combination wrench, tighten the Aero nut to the end of the bolt.
- \_\_\_ You are now ready to attach root saw to HP whip hose.

Operation Procedure

**Using Root Saw Assembly in Sani / Storm Main with Video Inspection**

- \_\_\_ Select and assemble appropriate root saw to fit the sani / storm main pipe.
- \_\_\_ Slide HP whip hose through tiger tail.
- \_\_\_ Screw root saw assembly onto end of HP's whip hose.
- \_\_\_ Lower root saw assembly down upstream mainhole to mouth of main.
- \_\_\_ Use a hook pole to insert root saw assembly into mouth of main.
- \_\_\_ Drop down and position the tiger tail at mouth of pipe.
- \_\_\_ Bring pressure of HP up to 1,000 psi.
- \_\_\_ Using the hose reel control lever on the HP, allow root saw assembly to propel down the pipe until it reaches an obstruction. When that occurs, the hose will stop going forward and it may twist slightly.
- \_\_\_ Use hose reel control level to pull hose back a few feet and slowly allow root saw to move forward again.  
(The previous two steps may have to be repeated several times before obstruction is removed.)
- \_\_\_ Once obstruction is removed, allow root saw assembly to continue upstream until you reach the next manhole.
- \_\_\_ Visually inspect saw when it reaches downstream manhole.
- \_\_\_ Remove any material bound up in saw.
- \_\_\_ Bring root saw assembly back through pipe to HP at 1,000 psi.
- \_\_\_ Shut down HP.
- \_\_\_ Raise root saw assembly out of manhole and tiger tail.
- \_\_\_ Unscrew root saw assembly from whip hose.

Using Root Saw Assembly in Sani / Storm Main without Video Inspection

\_\_\_ **Assemble a root saw assembly at least one size down from the size of pipe you are cleaning. For example, when cleaning an 8" line, start with a 6" saw. An 8" root saw may be used after cleaning with the 6".**

- \_\_\_ Slide HP whip hose through tiger tail.
- \_\_\_ Screw root saw assembly onto end of HP's whip hose.
- \_\_\_ Lower root saw assembly down upstream manhole to mouth of main.
- \_\_\_ Use a hook pole to insert root saw assembly into mouth of main.
- \_\_\_ Drop down and position the tiger at mouth of pipe.
- \_\_\_ Bring pressure of HP up to 1,000 psi.
- \_\_\_ Using the hose reel control lever on the HP, allow root saw assembly to propel down the pipe until it reaches an obstruction. When that occurs, the hose will stop going forward and it may twist slightly.
- \_\_\_ Use hose reel control lever to pull hose back a few feet and slowly allow root saw to move forward again.  
(The previous two steps may have to be repeated several times before obstruction is removed.)
- \_\_\_ Once obstruction is removed, allow root saw assembly to continue upstream until you reach the next manhole.
  - \_\_\_ Visually inspect saw when it reaches downstream manhole.
  - \_\_\_ Remove any material bound up in saw.
- \_\_\_ Bring root saw assembly back through pipe to HP 1,000 psi.
- \_\_\_ Shut down HP.
- \_\_\_ Raise root saw assembly out of manhole.
- \_\_\_ Unscrew root saw assembly from whip hose.

**IV. Operation Procedure - Safety**

- \_\_\_ Use proper traffic control procedures.
- \_\_\_ Use personal protective equipment.
- \_\_\_ In operation, the root saw assembly works similar to a nozzle.
- \_\_\_ Never have the HP on when coming in contact with the root saw assembly.
- \_\_\_ Never touch the root saw assembly when the saw is rotating or physical injury may result.
- \_\_\_ Apply root saw in main AGAINST FLOW ONLY.

**SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: SEWER HAND RODDING**

**PPE Required**

1. Leather gloves
2. Safety vest
3. Safety boots

**Specific Hazards**

1. Tension on turning bar, maintain secure grip
2. Watch end of rods when turning might hit someone/something
3. Muscle strains, pulling and pushing rods

**Procedure**

**1. Operation Safety**

**Tools needed:**

- (2) assembly tools
- (1) turning bar
- sewer rods
- soft rod corkscrew or root cutter (2", 3" or 4")



**STEEL ROD**

**SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - TRUCK, POWER CABLE WINCH**

**PPE Required**

- 1. Eye Protection**
- 2. Hearing Protection**
- 3. Vest**
- 4. Gloves**
- 5. Hard hat (as needed)**

**Specific Hazards**

- 1. Flying Objects**
- 2. Lifting**
- 3. Bending**
- 4. Pulling**
- 5. Tripping**
- 6. Falling Objects**
- 7. Noise**

**Procedure**

**Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).**

**1. Cable Wench Operation**

Complete pre-op checks (fluids, working parts, gauges).

- a. Start engine of vehicle.
- b. Lower stabilizers.
- c. While transmission is in neutral mode (brakes should be activated) engage PTO switch to "on" position. PTO indicator light should be on in cab.
- d. Adjust throttle in cab.
- e. Check hydraulic operation of cable reel.
- f. Check hydraulic speed control knob and gauge.
- g. Check cable reel brake.
- h. Raise winch control lever up to let out slack on cable.
- i. Press down winch control lever to pull back cable.
- j. Adjust pull pressure as necessary using winch drum pull pressure switch located on top of winch above cable. Turn counter clock wise to increase pressure.

To Return Cable

- a. Press winch control lever down to bring cable back.**
- b. Secure eyebolt to chain.
- c. Return stabilizers to travel position.
- d. Turn off PTO.

**NOTE: This equipment has the potential of causing great bodily injury, either from moving parts or the cable breaking from tension, frayed, or worn parts. Make a thorough inspection of all working parts and devices listed above in the pre-check section. Knowledge of proper methods of use in assignments should be covered prior to use.**

SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - STANELY  
POWER UNIT PAVEMENT BREAKER**

**PPE Required**

1. **Gloves**
2. **Eye Protection**
3. **Hearing Protection**
4. **Steel Toed Boots**

**Specific Hazards**

1. **Flying Objects**
2. **Lifting Procedure**

**I. Pre-Operation Check**

1. Check hoses for damage, tears or leaks.
2. Insure the four couplings on black hoses are clean and not leaking hydraulic fluid.
3. Inspect pavement breaker:
  - a. Check hoses for damage, tears or leaks.
  - b. Couplers are clean and not leaking hydraulic fluid.
  - c. Bolts are secure.
  - d. Handles are in good working condition.
  - e. Gat is not broken or chipped.

**II. Pre-start Procedure (In yard)**

1. Check engine oil level (yellow dipstick)
2. Check hydraulic fluid level. Refer to diagram on hydraulic fluid reservoir to the left of "red" start knob.
3. Check fuel level.
4. Make sure governor pin is in "auto location".
5. Connect fittings and hoses to power unit & pavement breaker.  
**NOTE:** Do this when unit is cold. Once hydraulic fluid in hoses warms up, connections become difficult.

**III. Start Procedure (in yard)**

1. Cold start may require choke (located over fuel tank).
2. Switch engine to "ON".
3. Move control lever to "start". Press down to "crank engine".
4. Allow engine to warm up for approximately one minute.  
NOTE: If engine is not allowed to warm up, once pavement breaker is used engine will cut out.
5. Move control lever to "tool on". Make sure pavement breaker operates.

#### **IV. Stop Procedure (in yard)**

1. Check that governor pin is in auto location.
2. Move control lever to "tool off".
3. Switch engine off.

#### **V. Operating Procedure – Loading into Vehicle (in yard)**

1. Pull out the handle bars located in front, at top of unit.
2. Pick up unit using handles. Roll out to hoist at rear of truck.
3. Secure hoist hook to triangular shaped loop located on top of unit.
4. Use wench controls to raise unit onto bed of truck.
5. Secure unit with rope or bungee cords.
6. Secure hose, pavement breaker and gad on bed of truck next to unit.

#### **VI. Operating Procedure – Raising a manhole**

1. Assess job situation.
2. Turn on warning lights.
3. Set up high level warning aprons.
4. Position vehicle between manhole to be raised and on-coming traffic.
5. Use you co-worker to align the rear of vehicle to the manhole to be raised. Allow enough room to work.
6. Set up safety cones.
7. Use steel toe boots, safety glasses, ear protection, and leather gloves.
8. Use proper lifting techniques to remove hose and pavement breaker and set on ground.
9. Pull down locking lever on pavement breaker and insert gad. Make sure gat is locked in by pushing lever up and against pavement breaker.
10. Start engine. (refer to Part III, Start Procedure)
11. Use proper lifting techniques to raise pavement breaker to an upright position.
12. Position the gat & pavement breaker in the center of the marked location of the buried manhole.
13. Work the tool towards the outer edge of manhole cover ring.
14. Continue this process until the entire manhole cover is exposed.

15. Shut down engine. (refer to Part V Stop Procedure).
16. Remove gat from pavement breaker.
17. Disconnect hoses from pavement breaker.
18. Using proper lifting techniques, secure pavement breaker in bed of truck.
19. If there are more manholes to raise, do not do steps 15 & 16.
20. Clean up debris from work.
21. Pick up traffic control and safety cones.
22. Turn off warning lights and leave jobsite.

#### **VI. Operating Procedure (unloading from vehicle)**

1. Position vehicle alongside cage.
2. Use proper lifting techniques to remove hose and pavement breaker from vehicle. Secure them in cage. Put gat next to pavement breaker.
3. Using hoist, lower unit to the ground. Disconnect hoist hook from triangular loop on top of unit.
4. Pull out handle bars. Lift and roll unit into cage, push in handle bars.
5. Cover unit.
6. Lock cage.

SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE – SUNOL SANITARY DISTRICT**

**PPE Required**

- 1. Vests**
- 2. Gloves**
- 3. Boots**
- 4. Hard hat (as needed)**
- 5. Hearing protection**
- 6. Traffic**

**Specific Hazards**

- 1. Pulling**
- 2. Slipping**
- 3. Falling**
- 4. Traffic**
- 5. Noise**

**Procedure**

Attached you will find a copy of the Sunol Sanitary District Agreement.

The City shall provide the following maintenance services to the District:

- a. The City shall only attempt to clear stoppages in any sewer main or lateral having an approved wye cleanout.
- b. The City's attempt to clear any stoppages in the main or lateral shall be limited to rodding, hydro-jet flushing or some similar technique that does not require any excavation work.
- c. The City shall only attempt to clear stoppages in a lateral that occurs between the approved wye cleanout and the main. The City shall not be responsible for attempting to clear a stoppage that it determines to be between the cleanout and the structure on the property creating the sewage.
- d. If the main backs up and floods a private residence, the City will provide a cleanup crew and plumber if necessary. The plumber's bill and time for clean up will be forwarded to the Sunol Sanitary District for payment. Dave Pasquinelli's fax number is 702-897-1911.

- e. Follow the steps listed in the Standard Operation Procedure for a Sewer Intrusion into a Private Residence or Business starting on page 2 of this document.

After responding to a service request in the Sunol Sanitary District, contact Dave Pasquinelli and advise him of the nature of the call, the address of the call, the amount of hours to be charged to the District, and if a plumber was dispatched and the company's name if applicable. Dave Pasquinelli can be reached at (home) 702-897-9220 or (cell) 702-206-2758. If no one answers, leave a message with the information and a call back number. If after several attempts to make contact with Dave is not successful, the alternate contacts are: Kurt Hogan, cell 408-393-6136 or home, 408-729-5212; then Steven Oster who can be reached at 530-886-8225; then Bobby Bottu-Manzi at 408-203-1391. **These alternates are back up only. Please go down the list in the order provided.** The Sunol Sanitary District charge number is 541-735250 day shift or 541-745250 for swing shift.

The District must approve any other line cleaning or repairs within the Sunol Sanitary District. They may request other sewer related maintenance and repair services that the City routinely provides in the following manner:

- a. The District shall provide the City with a written request that describes the nature of the maintenance and repair service the District wants the City to perform.
- b. The City shall provide a response stating whether or not the City is interested in performing the requested service. The City is under no obligation to perform the work requested by the District. If the City is interested in performing the requested work, the City shall include in response an estimate of when the City can perform the work, an estimate of the time it will take to do the work and an estimate of the cost for performing the service.
- c. The District shall provide the City with a written authorization if it desires to have the City proceed with the requested service.

## **STANDARD OPERATING PROCEDURE – SEWER INTRUSION INTO A PRIVATE RESIDENCE OR BUSINESS.**

### **Policy**

The Department of Transportation (DOT) and the City of San Jose will take all reasonable measures to insure the habitability of a residence or business should there be an intrusion of sanitary sewage into the building caused by a blockage of a sanitary main. Departmental personnel shall perform clean up operations in accordance with Departmental guidelines and procedures. In the event that additional cleaning operations

or temporary living accommodations are required, the Sunol Sanitary District must authorize it.

The City shall have no liability for any damage to property or any injury to persons resulting from allegations or claims that the City did not respond in a sufficiently timely manner, and the District agrees to defend, indemnify and hold harmless from liability the City from any such allegations or claims pursuant to Section 6 of this agreement.

**I. Operating Procedure (Response)** Upon notification of a sanitary sewer main blockage with an accompanying backup onto private property, the DOT or Fire Dispatcher will make the following notifications:

- If a Sewer Response Unit is on duty, it will be dispatched immediately to the event site, determine whose jurisdiction it is in (Sunol District or City's) and take appropriate measures to remove the blockage from the main. The Unit Supervisor or the DOT Duty Supervisor will also be notified at the same time. Daytime crews can check the jurisdiction with Dispatch. Swing and Graveyard shifts should check the Sunol Sanitary District map. When unsure whose jurisdiction it is, give the benefit of doubt and clear the stoppage. Find out later who is responsible for the location.
- If a Sewer Response Unit is not available, the City Dispatcher will notify the Unit Supervisor or DOT Duty Supervisor. The responsible Supervisor will make the necessary calls to assemble a clean up crew and will have the crew respond with equipment to the work site.

**II. Operating Procedure (Clean up)** The Sewer Response Unit will perform clean up operations consisting of, but not limited to, collection of solid waste material (if any), removal of standing fluids, extraction of fluids from carpets (in place) and flooding in the effected areas.

- Prior to responding to the work site, the cleanup crew will gather the appropriate tools and equipment, along with the supply trailer containing the necessary clean up supplies.
- Once the cleanup crew arrives on site, members will determine the extent of the damage and complete the DOT Sanitary Sewage Back-Up-Log.
- The cleanup crew will remove any sanitary sewer debris introduced into the building, vacuum up any standing fluids on the floor, extract fluid from the carpets (if needed), mop all impacted floors with pine oil or equal and set fans in the affected area to aid in the drying of the carpets.
- Assist the resident in removing any portable belongings or furnishings (i.e. towels, chairs, throw rugs, etc) and place them outdoors or as directed by the resident.

- When a line blockage causes an overflow onto private property, the resident should be provided with information to contact the Sunol Sanitary District. The Sunol Sanitary District may be contacted by calling Dave Pasquinelli at (702) 897-9220 or (702) 206-2758; or Steve Oster at (530) 886-8225. The District's mailing address is P.O. Box 28451, San Jose, CA 95159.
- Crews are **not** to remove any attached /permanently installed items (i.e. carpets, drywall/sheetrock baseboards, counters, etc). If there is a question of whether an item is attached /permanently installed, it is **not** to be removed.
- When clean up is completed, the crew leader is to contact the resident or business owner to confirm that the work has been done in a satisfactory manner. The crew leader is also to explain that if the resident wishes to seek damages from the District, he/she is to contact Dave Pasquinelli.
- The following work day, the DOT Supervisor in charge of sanitary sewer line cleaning for that section of the City is to dispatch a line cleaning crew to re-clean that segment of sewer in which the blockage occurred, as well as investigate the nearby segments to determine if cleaning adjoining segments is required. Notify Dave Pasquinelli of the time charged to the District for the follow up line cleaning.

**Special Circumstances/ Accommodations.** Should the Unit Supervisor or DOT Duty Supervisor determine that the scope of the work is beyond the Sewer Response Unit's capacity, or the resident or owner feels that the clean up efforts are not sufficient and/or temporary living accommodations are necessary, the following will apply:

- If the owner wishes to relocate to a motel, then the Unit Supervisor or Duty Supervisor should immediately contact Dave Pasquinelli or the Sunol Sanitary District for authorization to do so. **Without prior authorization, it is the resident's responsibility.**

REVISED 7/5/06

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE –2,000 GALLON WATER TRUCK**

### **PPE Required**

- 1. Gloves**
- 2. Boots**
- 3. Vest**
- 4. Hard hat (as needed)**
- 5. Hearing Protection**

### **Specific Hazards**

- 1. Pulling**
- 2. Slipping**
- 3. Tripping**
- 4. Driving**
- 6. Falling**
- 7. Noise**

### **Procedure**

**Operating Requirements: Demonstrated competence in operating the vehicle or equipment safely and appropriate license (as applicable).**

#### **I. Pre-Operation Check**

**Conduct BIT Inspection – refer to BIT Log Book.**

#### **II. Safety**

1. A valid California's driver's license and City of San Jose Driving Permit are required when operating City Vehicles.
2. Drive defensively and comply with all State vehicle code regulations.
3. Safety belts shall be used at all times.
4. A daily pre-check of your vehicle's signal lights, brake lights, etc. shall be made at the beginning of each work shift.
5. All drivers shall perform periodic inspections of their vehicles.
6. Practice good housekeeping and keep tools and materials secure in their proper place.

### **III. Field Procedures (Filling Tanker)**

1. Pull alongside of fire hydrant on passenger side of vehicle.
2. Place safety cones around vehicle.
3. Remove fill hose and hydrant wrench from vehicle.
4. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.
5. Turn on hydrant. Purge discolored, rust water until clear. Note: If in Great Oaks Water District, attach meter to hydrant before purging hydrant.
6. Connect hose to hydrant. Slowly turn on hydrant to fill vehicle's tank.
7. Once filled, slowly turn off hydrant.
8. Disconnect hose. Replace and tighten hydrant's cap.
9. Secure hose and hydrant wrench in vehicle.
10. Pick up safety cones and proceed to jobsite.

### **IV. Field Procedure (Jobsite)**

1. Safely enter work zone.
2. Use a crewmember to back you up to manhole.
3. Position rear spout of tanker over manhole opening.
4. Open valve to fill manhole.
5. When tanker is empty, repeat steps **III & IV** if necessary.
6. Assist with the break down of traffic control.
7. Leave jobsite.

### **V. After Trip Inspection**

1. Let engine idle for at least 2–3 minutes before turning off.
2. Go over above list and fill out Vehicle Repair Report for any items needing repair.
3. Drain air tanks (if applicable).

REVISED 7/5/06

## SPECIFIC CODE OF SAFE PRACTICES

<b>TITLE: STANDARD OPERATING PROCEDURE - CUTTING TORCH USING ACETYLENE FUEL GAS</b>
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Standard Operating Procedure for the Cutting Torch Using Acetylene for Fuel Gas, Equipment Competency Certification

<b>PPE Required</b>
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- 1. Eye Protection**
- 2. Leather Gloves**
- 3. Leather Apron**
- 4. Steel Toe Boots**
- 5. Fire Resistant Clothing**

<b>Specific Hazards</b>
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- 1. Asphyxiation**
- 2. Gas Leaks**
- 3. Explosion**
- 4. Fire, Combustion, Heat & Sparks**
- 5. Flashback**

<b>Procedure</b>
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### **I. Pre-Operation Check**

- Check cylinder labels for testing date, type of gas stored and specific hazards.
- Secure cylinders in upright position.
- Inspect cylinder valves for damage, grease, oil or lubricants.
- Visually inspect regulator connection hoses and torch.
- Inspect for damage to "O" rings and other seating surfaces.
- Ensure work area is free of flammables (within 50ft), and clear of trip hazards.
- Make sure cylinder valve connections are clean on both cylinders
- Have an approved fire extinguisher on hand.
- Assure that all safety devices are in place such as flashback arrestors and reverse flow check valves.
- Make sure your work area is well ventilated.

### **II. Start Procedure (in yard)**

1. Crack the oxygen valve for a couple seconds before using to blow out any loose dust or debris.

2. Attach and tighten the regulator to the acetylene tank making sure to position the dial face in an upward position. (always use the appropriate regulator for the gas you are using)
  - If there is a groove on the fuel gas connection, it indicates a left handed thread.
  - If acetylene is the chosen fuel gas, be sure that delivery pressure gauge shows a red line at 15psi.
3. Clean connection of both the hose and cylinder before connecting regulator.
4. Visually inspect hoses for any damage
  - If there is any damage to the hoses like cuts or cracks remove and replace immediately.
5. Insure that you are using the correct hose for the application.
6. Close the valves on the torch.
7. Check the regulator by adjusting the screws to make sure they are in the (out) off positions.
8. Position yourself with the cylinder between you and the regulator for safety.
9. Open the oxygen cylinder valve slowly to the fully opened position.
10. The oxygen valve should always be fully opened or fully closed.
11. Turn the adjusting screw on the fuel gas regulator to approximately 10 psi. delivery pressure
12. Open the acetylene cylinder but only to about  $\frac{3}{4}$  of a turn.
13. Test all connections by using a leak detecting solution or oil free soap & water combination.
14. Turn the fuel gas regulator adjusting screw in to 10 lbs. psi. delivery pressure.
15. Set the oxygen regulator adjusting screw to 20 psi.
16. Set the acetylene to 10psi.
17. Purge the gas line of all gas by first, opening the fuel valve on the torch and allowing it to run for a few seconds then closing it up before doing the same for the oxygen.

You are now safe and ready to light.

### **III. Lighting Torch Procedure**

1. Open oxygen valve on cutting torch fully.
2. Open fuel valve on torch  $\frac{1}{8}^{\text{th}}$  to  $\frac{1}{4}$  of a turn, to allow a low volume of fuel gas to flow out of the tip.
3. Ignite the fuel gas.
4. Set the acetylene flame by opening the torch valve till there is no longer any soot being discharged from the outer flame.
5. Once the soot discharge from the flame disappears, or the flame just appears to jump away from the tip, this is the minimum requirement of acetylene gas flow.

- If a large amount of soot is allowed to discharge from the flame, it will cause a gas starvation situation, which will result in the torch tip overheating.
6. Slowly open the torch oxygen preheat valve.
    - Watch for what's known as the secondary flame, or acetylene fether, to shorten or recede until it is even with the primary or luminous cone. This is called a neutral flame.

#### **IV. Cutting the Rod**

1. Heat the portion of the rod you would like to cut until it is red hot but not molten.
2. Move flame just to the side of the rod and depress the oxygen jetting cut lever.
3. Drag flame across heated rod at an even moderate speed fairly close to the surface of the rod. If this was performed correctly then you should have cut the rod off.
4. If there is an uneven surface at the end of the rod you may need to either file down the edge or cut the rod again until you have a clean cut.
5. Place the threaded bolt portion of the knuckle assembly, with threads facing away from the rod, on the remaining portion of the rod and slide it back about a foot or so.
6. With a neutral flame, heat the rod about 6 inches from the end until it is red hot but not molten.
7. Using a wrench, or tool of your choice, bend rod to an 80° angle.
8. Using steps 1-3 cut the excess rod leaving about a ¼ of an inch for the knuckle to rest on.
9. Attach knuckle.

#### **IV. Shutting the Torch Down**

1. Extinguish the flame by turning off the fuel valve on the torch handle.
2. Turn off the oxygen valve on the torch handle.
3. Shut down the cylinders.
4. Drain the oxygen by opening the torch valve until both the needles on the regulator drops to zero.
5. Close the valve.
6. Back out the oxygen regulating screw to the out and off position.
7. Repeat steps 1-6 with the acetylene gas system.

#### **NOTES:**

- ❑ Never use matches or a lighter to light your torch.
- ❑ Do not keep combustible fuel on your person such as: lighters, matches etc.
- ❑ Always keep your work area clear. Sparks can fly up to 50' from your torch and cause a fire.

- ❑ Never use oxygen to do anything other than cutting and heating, such as dusting off clothing or a work surface as it will create a highly flammable situation.
- ❑ Always purge each line separately before igniting the torch.
- ❑ Never use damaged or worn equipment.
- ❑ Never withdraw more than 1/7<sup>th</sup> of the cylinder's capacity per hour.
- ❑ Never transport cylinders in an enclosed vehicle.
- ❑ Always cap the cylinders when they are not secured to protect the cylinder valve.
- ❑ Cylinders must always be stored in a vertical position with the valve end up.
- ❑ Do not store acetylene tanks next to oxygen tanks. If an oxygen tank leaks it will create a more combustible atmosphere.
- ❑ When in operation, keep sparks from coming in contact with the fuel tank.
- ❑ Never strike an ark on any cylinder.
- ❑ Never use acetylene at pressures above 15psi.
- ❑ Do not lay an acetylene tank on its side. If you have no choice but to do so, then be sure to store the cylinder in an upright position for **twice** as long as it had been laying on its' side.
- ❑ Never completely empty the entire contents of the cylinder. Be sure to leave a minimum of 20psi. in the cylinder. This will help prevent the possible reverse flow of the opposite gas into that cylinder.
- ❑ Be sure that no oils, grease or lubricants are allowed to come into contact with the oxygen cylinder or valve.

## SPECIFIC CODE OF SAFE PRACTICES

**TITLE: STANDARD OPERATING PROCEDURE - ONE TON  
UTILITY TRUCK WITH HOIST**

### PPE Required

1. **Gloves**
2. **Safety Vest**
3. **Steel Toe Boots**

### Specific Hazards

1. **Hoist position may change during travel.**
2. **Watch for cars and pedestrians when opening rear doors to load debris.**
3. **Be alert for changes in traffic conditions when responding to a call.**
4. **Potential contact with hazardous materials.**

Operator must read and understand the operations portion of the owner's manual

## Safety Precautions and General Information

### 1. PRE-START INSPECTION

\_\_\_ Check outside condition of vehicle.

#### Engine

___ Engine Oil	___ Quarts added
___ Battery	___ Low, dirty
___ Brake Fluid	___ Quarts added
___ Fuel	___ Gallons added
___ Coolant Level	___ Quarts added
___ Transmission Fluid	___ Quarts added
___ Power Steer Fluid	___ Quarts added
___ Hydraulic Fluid	___ Quarts added
___ Check hoses	

#### Tires

\_\_\_ Front Tires  
\_\_\_ Rear Dual Tires  
\_\_\_ Brake Fluid Leaks Y / N

#### Condition

Left Side \_\_\_ Right Side \_\_\_  
Left Outside \_\_\_ Right Outside \_\_\_

#### Lights – Warning Devices – Gauges – Working Parts

___ Beacon lights	___ Taillights
___ Emergency Flashers	___ Dash Lights
___ Headlights	___ Brake Lights

Interior Lights       Right Turn Signals    Front\_\_ Rear\_\_  
 Rear Compart. Lights     Left Turn Signals    Front\_\_ Rear\_\_  
 Rear Compart. Gauges     Reverse Lights     Cab Int. Gauges  
 Back up Warnings     Steer. Wheel Horn     Windshield Wipers  
 Mirrors                     Seatbelts                     Heater/Defroster  
 Hoist       Hoist cable controller     Pintel Hitch/Pin  
Damage

Make note of any damage to body or equipment. Note any items not functioning properly.

NOTE: The one-ton utility vehicle is used for transporting tools and crew safety equipment. It is also used for towing the air compressor and various other pieces of equipment up to 5,000 lbs.

## II. Safety Check

Fire Extinguisher  
 First Aid Kit  
 Radio

## III. After Trip Inspection

1. Let engine idle for at least 2-3 minutes before turning off.
2. Go over above list and fill out vehicle repair report for any items needing repair.

## HOIST OPERATION

1. Open back doors, secure to truck bed.
2. Back truck up to object to be removed
3. Access situation and determine if you need to use a strap or will the cable work.
4. Get hoist cable from side box.
5. Climb into bed of truck – be mindful of the hoist position.
6. Insert pigtail end of hoist cable into connector box on hoist.
7. Pick up controller, lower cable - position yourself to the side of the hoist.
8. Remove the hook from truck bed.
9. Loosen hoist and swing it out to the desired position above the object to be removed.
10. Holding on to cable (so it won't hit you) climb out of truck.
11. Let out enough cable to secure the object or go through the strap wrapped

- around object.
12. With the cable held tight in your hand, raise cable until it is tight. Step aside and proceed to guide and lift the object slightly above the height of the truck bed.
  13. Push object into the truck bed.
  14. Lower the object onto the truck.
  15. Climb into truck and remove the cable/strap from object.
  16. Return hoist to safe position and secure the cable.
  17. Tighten hoist and cable so it will not swing out of position.
  18. Remove hoist cable from hoist and return to sidebox.

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE – HIGH PRESSURE SEWER  
CLEANING VEHICLE FRONT UNIT (VACCON)**

### **PPE Required**

- 1. Safety Vest**
- 2. Steel Toe Boots**
- 3. Hearing Protection**
- 4. Eye Protection**
- 5. Gloves**

**Hard Hat (as needed)**

### **Specific Hazards**

- 1. Tripping**
- 2. Falling**
- 3. Lifting**
- 4. Pulling**
- 5. Noise**
- 6. Slipping**
- 7. Flying Objects**
- 8. Traffic**
- 9. Hydraulic Pressure**

### **Standard Operating Procedure**

Operating Requirements: An appropriate license and demonstrated competence in operating the vehicle or equipment safety.

#### **Pre-Operation Check**

Conduct BIT Inspection – refer to BIT Log Book

#### **II. Operating Procedure (filling water tank)**

1. Pull alongside of fire hydrant on passenger side of vehicle.
2. Place safety cones around vehicle.
3. Remove fill hose and hydrant wrench from vehicle.
4. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.
5. Turn on hydrant. Purge discolored rust filled water until clear. Note: If you are in the Great Oaks Water District, attach water meter before purging hydrant.

6. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
7. Once filled, slowly turn hydrant off.
8. Disconnect hose. Replace and tighten hydrant's cap.
9. Secure hose and hydrant wrench in vehicle.
10. Pick up safety cones and proceed to jobsite.

### **III. Operating Procedure (wye cleanout)**

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XIV and XV.
4. Check upstream and downstream mains. Paint arrows.
5. Use co-worker to align front end of vehicle in a safe location with wye cleanout.
6. Set up safety cones around vehicle.
7. Open wye cleanout cover, Check for City Approved Clean Out.
8. If Clean out is submerged use plunger to try and get relief. If procedure is Not successful, proceed with step # 9.
9. Select penetrating nozzle and attach to end of whip hose.
10. Reel out hose to and into wye cleanout.
11. Insert hose into lateral until the obstruction is found.
12. Power up system.
  - a. Turn on both hose reel and pump control levers.
  - b. Turn on water pump engine, green light on.
  - c. Throttle remote up ON.
  - d. On blower, hold lever to increase rpm's to 15.
  - e. Pull out water knob to increase water pressure (psi). Psi should only be high enough to pass obstruction.
13. Once the obstruction is cleared, shut down system.
14. Power down system.
  - a. Switch off throttle remove.
  - b. Push water pump knob all the way in.
  - c. Turn off water pump engine, green light off.
  - d. Turn off both hose reel and pump control levers.
15. Remove nozzle and return it to truck.
16. Insert whip hose 2-3 feet into wye cleanout, have co-worker step on hose.
17. Power up system (refer to Step 9).
18. Flush wye cleanout to ensure lateral is clear and taking water.
19. Shut down system (refer to Step 11).
20. Reel hose back to truck.
21. Use hand rodding with 3" auger to ensure clarity. Rod from City approved Clean out to City main. Flush lateral thoroughly and advise for Video of Lateral if there is suspected damage. If unable to pass 3" auger from the Approved clean out to City main, RP must be signed up for repair.
22. Replace wye cleanout cover.
23. Make contact with reporting party or leave a door hanger.

24. Fill out spillage report.
25. Pick up safety cones. Turn off warning lights.
26. Leave jobsite.

#### IV. Operating Procedure (clearing an obstruction in sanitary main)

1. Turn on warning lights.
2. Assess situation.
3. Refer to Operation Procedure XIV and XV.
4. Check main and paint arrows.
5. Use co-worker to align front end of vehicle over downstream manhole.
6. Set up safety cones around vehicle.
7. Open sani manhole cover.
8. Select penetrating nozzle and attach to end of whip hose.
9. Insert hose into tiger tail.
10. Lower nozzle and tiger tail down manhole and align it with mouth of the sani main.
11. Turn handle of pump control and hose reel to ON position.
12. Start water pump engine, green light on.
13. Using hose reel control lever, insert nozzle into the pipe positioning the tiger tail in mouth to protect the hose.
14. Switch on "low water warning".
15. Go in 10-15 feet. Throttle remote up ON.
16. Blower – hold lever up to increase rpms to 15.
17. Pull out water pump knob. Water pressure should be low enough so the hose will stop at an obstruction, yet high enough to travel while hose is released by the hydraulic reel control lever.
18. When an obstruction is encountered, use the hydraulic reel control to bring hose back 10-15 feet.
19. Pull water pump out so that water psi is 1500-2000.
20. Use hydraulic reel control lever to propel hose forward to clear obstruction.
21. The hydraulic hose reel control lever should be utilized to clean back and forth the obstructed area.
22. Switch off throttle remote.
23. Push water pump knob all the way in.
24. Turn off water pump engine, green light off.
25. Turn off both hose reel and pump control lever, bring back hose to reel.
26. Remove nozzle from hose.
27. Use hose reel control to let out 1-15 feet of hose.
28. Power up system (refer to Part III, step 9).
29. Flush any sewage back into manhole.
30. Power down system (refer to Part III, step 11).
31. Use hose reel guide to return hose to reel.
32. Secure equipment.
33. Make contact with reporting party or leave a door hanger.
  - a. Ask reporting party to check if plumbing is operational i.e. flush toilets, run water in sink, ask if there is any backup into the house,

restrooms, basement. .

b. If reporting party is still having problems, contact dispatch to have plumber dispatched at city's expense.

34. Fill out spillage report.
35. Pick up safety cones. Turn off warning lights.
36. Leave jobsite.

If the situation requires the set-up at the wet end, the crew should follow the procedures listed below:

1. Do not use penetrating nozzle, use round cleaning nozzle.
2. Locate depth of manhole and mouth with pole.
3. Attach 1" diameter, 12" long galvanized pipe to end of whip hose.
4. Attach round cleaning nozzle to end of 1" diameter, 12" long galvanized pipe.
5. Use pole to guide nozzle pip and whip hose into mouth of pipe.
6. Operator should not exceed 500 psi until hose is 5 feet inside channel of pipe.
7. Assistant should monitor the progress of the hose and nozzle in the main.
8. If unable to get hose/nozzle past 5 feet or not sure that hose/nozzle is in pipe, stop operation and use power rodder.

#### **V. Operating Procedure (line cleaning)**

1. Assess job situation.
2. Turn on warning lights.
3. Use co-worker to align front end of vehicle over downstream manhole.
4. Set up safety cones around vehicle.
5. Open sani manhole cover.
6. Select line cleaning nozzle and attach to end of whip hose.
7. Insert hose into tiger tail.
8. Lower nozzle and tiger tail down manhole and align it with mouth of sani pipe.
9. Turn handle of pump control and hose reel to ON position.
10. Start water pump engine, green light on.
11. Using hose reel control lever, insert nozzle into the pipe positioning tiger tail in mouth to protect hose.
12. Go in 10-15 feet.
13. Switch on "low water warning".
14. Throttle remote up ON position.
15. Blower – hold lever up to increase rpms to 15.
16. Pull out water pump knob until psi reaches 1500-2000.
17. Reset counter on hose reel to zero.
18. Use the hydraulic hose reel control lever to propel hose to next manhole.
19. Reduce feed speed by turning speed control next to the hydraulic hose reel control lever.

20. Once hose reel counter shows that hose has been brought back 10-15 feet, turn off (down) throttle remote. Push in water pump knob. Turn off pump knob. Turn off pump engine (green light off).
21. Using the hydraulic hose reel control lever, return hose fully to reel.
22. Remove nozzle.
23. Secure hose to reel.
24. Pick up safety cones. Turn off warning lights.
25. Leave jobsite.

## **VI. Operating Procedure (flushing inlet)**

A flushing inlet (F.I.) is the beginning of a sani main. When dealing with a F.I., take caution so that the hose of the h.p./vaccon does not exit the F.I.

7. When line cleaning, refer to Part V.
8. When clearing a plugged main, refer to Part IV.

## **VII. Operating Procedure (dropped manhole)**

A dropped manhole consists of two openings – one on top of the other. Insert the hose of the h.p./vaccon into the top opening. If you put the hose in the bottom opening, it will come out of the top opening.

7. When line cleaning, refer to Part V.
8. When clearing a plugged main, refer to Part IV.

## **VIII. Operating Procedure (clearing an obstruction in storm lateral)**

- 1. Assess job situation.**
- 2. Turn on warning lights.**
3. Use co-worker to align front end of vehicle over storm main.
4. Set up safety cones around vehicles.
5. Open storm main manhole cover.
6. Select penetrating nozzle and attach to end of whip hose.
7. Insert hose into tiger tail.
8. Lower nozzle and tiger tail down manhole and align it with the mouth of storm lateral.
9. Turn handle of pump control and hose reel to ON position.
10. Start water pump engine, green light on.
11. Using hose reel control lever, insert nozzle into pipe positioning the tiger tail in mouth to protect the hose.
12. Go in 10-15 feet.
13. Switch on “low water warning”.
14. Throttle remote up ON position.
15. Blower – hold lever up to increase rpms to 15.

16. Pull out water pump knob. Water pressure should be low enough so the hose will stop at an obstruction, yet high enough to travel while hose is released by the hydraulic reel control lever.
17. When an obstruction is encountered, use the hydraulic reel control to bring hose back 10-15 feet.
18. Pull water pump out so that water psi is 1500-2000.
19. Use hydraulic reel control lever to propel hose forward to clear obstruction.
20. The hydraulic hose reel control lever should be utilized to clean back and forth the obstructed area.
21. Switch off throttle remote.
22. Push water pump knob all the way in.
23. Turn off water pump engine, green light off.
24. Turn off both hose reel and pump control lever, bring back hose to reel.
25. Remove penetrating nozzle from hose.
26. Secure equipment.
27. Make contact with reporting party or leave a door hanger.
28. Pick up safety cones. Turn off warning lights.
29. Leave jobsite.

**Special Note: In case of emergency, turn off throttle.**

#### **IX. Operating Procedure (vacuum compressor)**

1. Assess job situation.
2. Turn on warning lights.
3. Use co-worker to position truck at area to be cleaned.
4. Set up safety cones around vehicle.
5. Select appropriate suction tubes and clamps.
6. Unlatch boom from boom support (boom tie down).
7. Use the boom control joystick to raise and lower boom. Joystick will also move boom side to side.
8. Use the telescopic boom switch to move boom in or out.
9. Attach suction tubes and clamps to snorkel. Then position boom over area to clean.
10. Power up system:
  - a. With engine at idle speed, engage stroking lever on hydrostatic pump.
  - b. Switch on throttle remote, switch up blower to increase rpm to appropriate vacuum operating range.
  - c. Vacuum breaker switch must be "on".
11. Once area has been vacuumed, shut down system.
12. Shut down system:
  - a. Switch off throttle.
  - b. Disengage the stroking lever on hydrostatic pump.
13. Remove suction tubes/clamps from snorkel and return them to their proper place.

14. Retract , rotate, and lower boom into boom support and hose guide on to lower bracket. Latch boom tie down.
15. Pick up safety cones and truck is ready for transport.

## **X. Operating Procedure (debris tank)**

### **A. Draining Tank Fluids**

1. Use co-worker to position vehicle over manhole. Open manhole.
2. Use debris tank drain valve, “butterfly valve”, when dumping fluids.
3. Unfold the 10 ft. layflat hose, put into sani manhole. Pull out handle to open the butterfly valve and drain.
4. The debris tank may need to be raised a little to completely drain fluids. Located on the curbside of the truck frame is the “tank lift” switch. Switch up to raise debris tank. Then push in handle to butterfly valve to close.
  5. When drained completely, switch down to lower debris tank. Then push in handle to butterfly valve to close.
6. Fold up layflat hose, secure on hanger. Close manhole.

### **B. Draining Tank Debris**

1. Use co-worker to position vehicle in dumping area. Debris should be dumped as close as possible to the asphalt dirt pile.
2. The door lock control switch is located on the curbside of the truck frame.
3. Loosen the “T” bolt safety handles and swing them out of the way.  
Note: Do not stand directly behind the tank when loosening “T” handles.
4. To open rear door, press the door lock toggle switch up to be sure the hydraulic latches are fully disengaged. Note: Truck engine must be running to supply hydraulic power.

### **Debris Body Flush out Operation**

1. Position the water pump control valve and the hose reel control valve on the front of the hose reel in the OFF position.
2. Start the auxiliary engine and run at idle speed.
3. Open the debris body flushout ball valve, which is located at the water pump.
4. Turn the bottom pump control valve on the front of the hose reel to the ON position. You now have water to flushout head inside the debris body.
5. Turn the water pump control throttle on the hose reel counter clockwise to increase the RPM's of the auxiliary engine, noting the corresponding water

pressure increase.

6. To depressurize the debris body flushout system, turn the auxiliary engine throttle control on the front hose reel clockwise, reducing the auxiliary engine RPM's to idle speed.
7. Turn the bottom pump control valve on the front of the hose reel to the OFF position.
8. Turn the debris body flushout ball valve to the OFF position.
9. You are now ready to use any other water system on your truck. If you are finished with your cleanup procedures, turn OFF the auxiliary engine.
10. When debris tank is flushed, hit the tank lift switch DOWN to lower debris tank. Lock the door by moving the door lock toggle switch UP. Re-engage "T" bolt safety handles and tighten. NOTE: Never lift a full debris tank to drain fluids or to transport without "T" bolt handles securely in place. Utilize the articulating hose reel when unable to position vehicle over manhole.
  1. Remove locking pin located behind hose reel.
  2. Lift flow divider knob (hydraulics).
  3. Using swing in/out lever, position hose reel over manhole.
  4. Use stabilizer lever to lower stabilizing leg.
  5. Reverse 1 thru 4 to secure hose reel when done.

#### **XI. Operating Procedure (sealing a noisy manhole cover)**

1. Assess job situation.
2. Set up high level warning aprons. Not needed if on H.P. or Vaccon.
3. Turn on warning lights.
4. Use co-worker to align rear of vehicle with manhole.
5. Set out safety cones around vehicle. Open manhole.
6. Sweep ring of manhole with broom.
7. Get out caulking gun and cartridge of roof cement.
8. Cut tip off cartridge. Puncture seal in tip.
9. Load cartridge into caulking gun.
10. Squeeze trigger of caulking gun until black caulking starts to come out.
11. Squeeze 3-4 large beads of caulking around manhole ring.
12. Close manhole cover.
13. If manhole cover is cracked or broken and can't be sealed, advise investigator or Supervisor to refer to rodding or balling crew for replacement.
14. Secure equipment.
15. Pick up safety cones and high level aprons, if used.
16. Turn off warning lights.
17. Leave jobsite.
18. Make contact with reporting party or leave a door hanger.

#### **XII. Operating Procedure (sealing a manhole cover for odor)**

11. Follow procedures 1 through 10 in Part IX.
12. Squeeze out a bead of caulking around the entire ring of manhole.
13. Close manhole cover.
14. Squeeze out caulking in holes on top of manhole cover.
15. Continue following procedures 14 through 18 in Part IX.

**XIII. Operating Procedure (replacing a manhole cover)**

19. Assess situation.
20. Turn on warning lights.
21. Set up high level warning aprons.
22. Use co-worker to align rear end of vehicle five feet from manhole.
23. Set up safety cones around vehicle.
24. Measure diameter and thickness of manhole cover.
25. Is the manhole cover a safety concern? If it is, barricade it, make it safe.
26. If the manhole cover is located on a busy thoroughfare, proceed into surrounding neighborhood to find a replacement cover. Put a barricade over that manhole. Proceed to the warehouse or other corporation yards for a replacement (see note).
27. If the manhole cover is not located on a busy thoroughfare, proceed to the warehouse or other corporation yards for a replacement (see note).

NOTE: In steps 8 and 9, if a replacement cover can't be located, forward the job to the Sewer Repair Crew for a new ring and cover.

**XIV. Operating Procedure (sanitary intrusion into curb and gutter)**

1. Using sandbags and/or absorbent, contain spill.
2. Extract standing sewage, sandbags and absorbent.

**XV. Operating Procedure (sanitary intrusion into storm system)**

1. Contain spill in catch basin, lateral and main using sandbags and/or absorbent.
2. Flush out storm system with fresh water to containment area and extract.

REVISED 1/15/08

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - CLEANING CATCH BASINS AND MONTEREY HY K-RAIL SLOTS WITH: HIGH-PRESSURE SEWER CLEANING VEHICLE (FRONT UNIT IN VACCON; REAR UNIT IN VACTOR)**

### **PPE Required**

- 1. Gloves**
- 2. Boots**
- 3. Vest**
- 4. Hard hat (as needed)**
- 5. Hearing protection**
- 6. Eye Protection**

### **Specific Hazards**

- 1. Lifting**
- 2. Pulling**
- 3. Falling**
- 4. Noise**
- 5. Traffic**

### **Procedure**

Operating Requirements: An appropriate license and demonstrated competence in operating the vehicle or equipment safety.

#### **Pre-Operation Check**

Conduct BIT Inspection – refer to BIT Log Book.

#### **II. Operation Procedure (filling water tank)**

10. Pull alongside of fire hydrant on passenger side of vehicle.
11. Place safety cones around vehicle.
12. Remove fill hose and hydrant wrench from vehicle.
13. Using hydrant wrench, slowly remove cap from hydrant in case there is pressure in the hydrant.
14. Turn on hydrant. Purge discolored, rust filled water until clear. Note: If you are in the Great Oaks Water District, attach water meter before purging hydrant.
15. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
16. Once filled (takes about 10 minutes), slowly turn hydrant off.
17. Disconnect hose. Replace and tighten hydrant's cap.
18. Secure hose and hydrant wrench in vehicle.

19. Pick up safety cones and proceed to jobsite.

### III. Operation Procedure – Cleaning CB Sump With Vacuum Compressor

16. Assess job situation.
17. Turn on warning lights.
18. Set up safety cones around vehicle.
19. Remove CB grate by prescribed method (see Part V), noting any discrepancy in the concrete or metal parts of the drain inlet (see Part VI).
20. Use Johnson bar if necessary to break up compacted debris.
21. Use co-worker to position truck at CB sump.
22. Select appropriate suction tubes and clamps.
23. Unlatch boom from boom support (boom tie down).
24. Use the boom control joystick to raise and lower boom. Joystick will also move boom side to side.
25. Use the telescopic boom switch to move boom in or out.
26. Attach suction tubes and clamps to snorkel. Then position boom over CB sump.
12. Power up system:
  - a. With engine at idle speed, engage stroking lever on hydrostatic pump.
  - d. Switch on throttle remote, switch up blower to increase rpm to appropriate vacuum operating range.
  - e. Vacuum breaker switch must be “on”.
13. If necessary, **sprinkle** debris with water from Hose Reel or High Pressure gun to avoid clogging filter and/or damage from airborne particulates to fan and centrifugal system in Vaccon / Vactor (see Part VII).
14. Once sump has been vacuumed, shut down system.
  - a. Switch off throttle.
  - b. Disengage the stroking lever on hydrostatic pump.
  - c. Remove suction tubes/clamps from snorkel and return them to their proper place.
  - d. Retract, rotate, and lower boom into boom support and hose guide on to lower bracket. Latch boom tie down.
  - e. Pick up safety cones and truck is ready for transport.

### IV. Operation Procedure: Cleaning K-Rail Slots on Monterey Highway

#### **Background: Slots in K-Rail become plugged with debris, causing flooding during rains.**

Monterey Highway has 7.5 miles of K-Rail median. Production rate should be about 1 mile per day. Plan on about 7 days from start to finish. Lane closure policy dictates traffic must not be set out until 8:30 A.M. and must be picked up before 3:30 P.M. This allows about 6 hours of work time. It is suggested that the crewmembers each bring a lunch to the job site and stagger lunch times to keep the job moving. If it is possible, schedule a sweeper to go out and sweep the rails. A Porto-potty may be borrowed from AWP.

**Needed equipment and personnel:**

**Total of 15 employees, 3 Vaccon / Vactors, and 4 trucks needed.**

- Three (3) Vaccon/Vactors with a crew of three (3) employees each (2 each on board to go out)
- One (1) traffic truck with mounted arrowboard (FAS: Flashing Arrow Sign) and room to store a large quantity of cones and high rises and sand bags to hold down stands (see below for details). Also the fabricated Vactor/Vaccon hoods (to protect passing motor vehicles from over-splash of debris and water from the operation). This truck will also carry two (2) employees for traffic control.
- One (1) truck for tow-behind arrowboard (FAS) and one (1) employee from the Vactor/Vaccon crew and the 3rd person for traffic control.
- One (1) truck to take out the two (2) remaining Vactor/Vaccon employees.
- One (1) truck to take out the three (3) employees that need to shovel out the slots and pick up any large debris that the Vactor/Vaccon cannot pick up.

**Procedure: Work north to south with three (3) crews.**

1. Start on the north end of Monterey Highway and work south toward Morgan Hill. Traffic control needs a truck with approximately 200-250 cones, 3 sets of high rises that indicate "Road Work Ahead", "Left Lane Closed Ahead" and "Keep Right" (with arrow ->). Also needed are 3 sets of high rises that state "Road Work Ahead" for the side streets.
2. Using 3 Vactor/Vaccons with 3 employees each: One (1) to drive, one (1) to operate the boom, and one (1) to spray with the high-pressure water gun. NOTE: These employees rotate the jobs so as not to have any employee get too fatigued and cramped.
3. Using three (3) employees working traffic control: One (1) employee drives the truck with the arrow board, one (1) employee walks to set out the cones and one (1) employee hands the cones down to the employee walking. NOTE: These positions also get rotated.
4. One of the Traffic Control crew employees sets up the tow-behind arrowboard (FAS) at the beginning of the taper.
5. The Traffic Control crew sets up the high rise warning devices, then sets up a taper and distributes the cones (every other rpm will give good spacing for the travel speed of traffic) along approximately 1/4-1/3 of a mile.
6. Then the Shoveling crew starts to shovel out the slots and dump the material on the opposite side of the highway in line with the slot so as the Vactor/Vaccon can pick it up. It is recommended to rotate this duty as well (for control of fatigue and for cross-training) by periodically exchanging these employees individually between the other two crews.

7. The Vactor/Vacon crew spreads out in the coned area, attaches the hoods (that were brought out by the traffic control truck) puts the snorkels on the opposite side of the k-rail, shoots the slots with the high-pressure gun and vacuums up debris making sure not to cause water or debris to hit personal vehicles on the other side of the k-rail.
8. As the Vactor/Vacon crew units progress forward, the Traffic Control crew comes in from behind and moves up the traffic control, then advances ahead of the Vactor/Vacon units and sets out more traffic control to keep the job running safely.

#### V. CB Grate Removal

NOTE: Using Johnson bar, always strike around the grate at grate frame BEFORE removing the grate, to loosen any debris or corrosion that may immobilize the grate inside the frame. Using a shovel, bar, or grate puller, always clean grate frame of any accumulation AFTER removing the grate.

Every grate must be opened in order to perform the physical inspection of the CB.

**DANGER!: NEVER LIFT OR LOWER A GRATE WITH YOUR FINGERS. ALWAYS USE A GRATE PULLER OR OTHER PRESCRIBED TOOL FOR LIFTING GRATES.**

1. Using a Johnson Bar to raise a large catch basin grate: a Johnson bar is a safe piece of equipment for raising heavy catch basin grates if used in accordance with the following procedure. Lifting these grates and cleaning the catch basin always requires two persons.
  - a. While standing on the curb side, insert the bar into the second or third slot from the outside edge (on the street side) of the grate to allow the blade to clear the wall of the CB when raising.
  - b. The person controlling the bar would then pry/pull the bar back with both hands until the grate is tilted to an upright position. The second worker can then assist by pushing on the top of the grate and allowing the bottom of the grate to slide out slightly, thus tilting the grate back against the bar and locking it in a stable position.
  - c. The second worker should stand to the side of the CB clear of the bar and grate until needed to assist in stabilizing the grate.
  - d. When the grate is lowered, two hands are required to control the bar and grate while the partner stands clear. **DO NOT LET THE GRATE FREE FALL..**

**CAUTION:**

- 1. A person's physical condition should be considered. A certain degree of strength and size are required to safely perform this procedure.**
- 2. If the stops on the catch basin frame are missing, do not attempt to lift the grate, and fill out an SR.**
- 3. If a shrub or other obstacle prevents the bar from being tilted back fully, other methods of removing the grate must be used.**
4. Using modified manhole extractor (can be used on all grates):
  - a. Drop "t" thru grate opening and turn to lock underneath grate.
  - b. Step on diamond-plate footpad while pulling toward you with handle, lifting grate up and out of grate frame.
  - c. Pull unit back as grate slides out.
  - d. Pull grate off sump opening for ease of cleaning.
  - e. To close, lift grate with unit and push back over sump opening.
  - f. Ensure that grate is resting firmly inside frame.
  - g. Turn unit sideways to disengage "t".
5. Opening standard residential grates:
  - a. Using standard grate puller, insert "t" in grate and turn to lock underneath grate.
  - b. Pull up and back as grate slides out.
  - c. Pull grate off sump opening for ease of cleaning.
  - d. To close, remove grate puller from "street end" of grate, insert in "curb end" of grate and pull back over sump opening.
  - e. Ensure that grate is resting firmly inside frame.
  - f. Disengage "t" and remove.
6. Opening wider grates:
  - a. Two employees using two grate pullers insert "t"s into grate openings, turn to lock underneath grate.
  - b. Pull grate up and back in tandem as grate slides out.
  - c. Pull grate off sump opening, for ease of cleaning.
  - d. To close, remove grate puller from "street end" of grate, insert in "curb end" of grate and pull back in tandem over to sump opening.
  - e. Ensure that grate is resting firmly inside frame.
  - f. Disengage "t"s and remove.
7. Opening wider filigreed grates:
  - a. Two employees using two grate pullers or manhole hooks, insert "t"s or hook ends into grate openings.
  - b. Pull grate up and back in tandem, as grate slides out.
  - c. Pull grate off sump opening, for ease of cleaning.

- d. To close, remove grate pullers or manhole hooks from “street end” of grate, insert in “curb end” of grate and pull back in tandem over sump opening.
- e. Ensure that grate is resting firmly inside frame.
- f. Disengage “t”s or hooks and remove.

## **VI. Inspection and Reporting of CB Discrepancies**

**NOTE:** Every grate must be opened in order to perform the physical inspection of the CB.

1. The field crew will inspect the CB grate, hood, and concrete work for any discrepancies:
  - a. The grate will be inspected to see if it is the style with the wide slots that may allow thin bicycle tires to enter. If it is, has it been modified with the cross bars across the slots? What is the condition of the cross bars?
  - b. The grate should be inspected to see that it is held in its proper position and cannot slide back into the catch basin, creating a wide gap.
  - c. The catch basin hood should be inspected to see that it is properly set and aligned with the frame holding the grate.
  - d. The concrete work holding the entire catch basin should be inspected to see that it is not broken or cracked, creating gaps and misalignment of any of the parts.
2. Reporting of deficiencies: Any time that a crew notes a problem with a catch basin inlet, they are to prepare a separate SR (Service Request) and turn it in to the supervisor at the end of the shift.
3. Distribution of Service Request: When a supervisor receives an SR in regards to a drain inlet that requires repair, a field inspection should be conducted for confirmation, with photos if possible. Next, supervisor or Dispatch will forward the SR to the Concrete Crew for concrete work; or to Electrical for metal work, marked “Attention Electrical Superintendent”.
4. Completion of SR: After concrete / metal work has been completed, Concrete Crew and/or Metals Fabricator will return SR to Dispatch for filing.

## **VII. Operation: Wetting CB Sump / Debris**

Note: there are two options for wetting: the front high-pressure hose reel or the high pressure gun on the side of the truck. The front high-pressure hose reel is closer to the area of operation. The high-pressure gun reel is on the side of the truck and may therefore afford greater safety for its operator when the snorkel is in use, and also uses less water.

**A. With high pressure front hose reel**

**IX. To start**

1. Start water pump engine, green engine light on.
2. Turn handles of hose reel, then pump control, to ON position
3. Pull out water pump throttle. Water pressure should be low.
4. Using hose reel control lever to extend hose to CB sump, sprinkle water over debris while vacuuming, using care not to infiltrate storm lateral with pollutants from CB sump.

**R. Shut down**

1. Push water pump throttle all the way in.
2. Turn off water pump engine, green engine light off.
3. Turn off pump control and then hose reel levers.
4. Bring back hose to reel.

**B. With high-pressure gun**

**IX. To start**

1. Pull hose line off reel, ensuring reel lock engages in desired place.
2. Attach high-pressure gun, ensuring coupling locks in place.
3. Open gun valve on side of truck.
4. Turn on secondary HP engine (front).
5. Turn on "Hand Gun" valve (front).
6. Turn on pump control.
7. Pull out water pump throttle valve for more pressure, if desired.

**X. Shut down**

1. Throttle down water pump
2. Turn off pump control
3. Shut off "Hand Gun" valve.
4. Remove high-pressure gun from hose line.
5. Flick hose line to disengage reel lock and reel in.

**VIII. Operation Procedure – Debris Tank**

**A. Draining Tank Fluids**

5. Use co-worker to position vehicle over manhole. Open manhole.
6. Use debris tank drain valve, "butterfly valve", when dumping fluids.
7. Unfold the 10 ft. layflat hose, put into sani manhole. Pull out handle to open the butterfly valve and drain.
8. The debris tank may need to be raised a little to completely drain fluids. Located on the curbside of the truck frame is the "tank lift" switch. Switch up to raise debris tank. Then push in handle to butterfly valve to close.
5. When drained completely, switch down to lower debris tank. Then push in handle to butterfly valve to close.
6. Fold up layflat hose, secure on hanger. Close manhole.

## **B. Draining Tank Debris**

5. Use co-worker to position vehicle in dumping area.
6. The door lock control switch is located on the curbside of the truck frame.
7. Loosen the "T" bolt safety handles and swing them out of the Way. Note: Do not stand directly behind the tank when Loosening "T" handles.
8. To open rear door, press the door lock toggle switch up to Be sure the hydraulic latches are fully disengaged. Note: truck engine must be running to supply hydraulic power.

## **Debris Body Flush out Operation**

1. Position the water pump control valve and the hose reel control valve on the front of the hose reel in the OFF position.
2. Start the auxiliary engine and run at idle speed.
3. Open the debris body flushout ball valve, which is located at the water pump.
4. Turn the bottom pump control valve on the front of the hose reel to the hose reel to the ON position. You now have water to flush out head inside the debris body.
5. Turn the water pump control throttle on the hose reel counter clockwise to increase the RPM's of the auxiliary engine, noting the corresponding water pressure increase.
6. To depressurize the debris body flushout system, turn the auxiliary engine throttle control on the front hose reel clockwise, reducing the auxiliary engine RPM's to idle speed.
7. Turn the bottom pump control valve on the front of the hose reel to the OFF position.
8. Turn the debris body flushout ball valve to the OFF position.
9. You are now ready to use any other water system on your truck. If you are finished with your cleanup procedures, turn OFF the auxiliary engine.
10. When debris tank is flushed, hit the tank lift switch DOWN to lower debris tank. Lock the door by moving the door lock toggle switch UP. Re-engage "T" bolt safety handles and tighten. NOTE: Never lift a full debris tank to drain fluids or to transport without "T" bolt handles securely in place.

Utilize the articulating hose reel when unable to position vehicle over manhole.

6. Remove locking pin located behind hose reel.
7. Lift flow divider knob (hydraulics).
8. Using swing in/out lever, position hose reel over manhole.
9. Use stabilizer lever to lower stabilizing leg.
10. Reverse 1 thru 4 to secure hose reel when done.

## **SPECIFIC CODE OF SAFE PRACTICES**

**TITLE: STANDARD OPERATING PROCEDURE - HIGH PRESSURE SEWER  
CLEANING VEHICLE FRONT UNIT (VACTOR)**

### **PPE Required**

- 1. Safety Vest**
- 1. Steel Toe Boots**
- 3. Hearing Protection**
- 4. Eye Protection**
- 5. Gloves**
- 6. Hard Hat (as needed)**

### **Specific Hazards**

- 1. Tripping**
- 2. Falling**
- 3. Lifting**
- 4. Pulling**
- 5. Noise**
- 6. Slipping**
- 7. Flying Objects**
- 8. Traffic**
- 9. Hydraulic Pressure**

### **Standard Operating Procedure**

Operating Requirements: An appropriate license and demonstrated competence in operating the vehicle or equipment safety.

#### **Pre-Operation Check**

Conduct BIT Inspection – refer to BIT Log Book  
Check auxiliary engine and hose reel during pre-trip. Lubing must be done once a week.

#### **II. Operating Procedure (filling water tank)**

- 20. Pull alongside of fire hydrant on passenger side of vehicle.**
- 21. Place safety cones around vehicle.**
- 22. Remove fill hose and hydrant wrench from vehicle.**
- 23. Using hydrant wrench, slowly remove cap from hydrant in case there**

is pressure in the hydrant.

24. Turn on hydrant. Purge discolored, rust filled water until clear. Flush for one additional minute. Check filter at rear of truck once a month.  
NOTE: If you are in the Great Oaks Water District, attach water meter before purging hydrant.
25. Connect hose to hydrant. Slowly turn hydrant on to fill vehicle's tank.
26. Once filled, slowly turn hydrant off.
27. Disconnect hose. Replace and tighten hydrant's cap.
28. Secure hose and hydrant wrench in vehicle.
29. Pick up safety cones and proceed to jobsite.

### **III. Operating Procedure (wye cleanout)**

27. Turn on warning lights. Beacon switches are located on dash in cab.  
Also use arrowboard panel.
28. Assess situation.
29. Refer to Operation Procedure XIV and XV.
30. Check upstream and downstream mains. Paint arrows.
31. Use co-worker to align front end of vehicle in a safe location with wye cleanout.
32. Set up safety cones around vehicle.
33. Open wye cleanout cover.
34. If clean out is submerged use plunger to try and get relief. If procedure is not successful, proceed with step # 9.
35. Select penetrating nozzle from driver side cabinet and attach to end of whip hose.
36. Reel out hose to and into wye cleanout.
37. Insert hose into lateral until the obstruction is found.
38. Power up system
  - a. Position "rodder" lever up / on.
  - b. Turn on/up rodder pump switch.
  - c. Hold up hose reel lever to let out hose into main 10'. Hose reel lever is located on top of control panel box.
  - d. "Throttle" switch to left / on.
  - e. Hold second "throttle" switch up / on to desired rpm.
39. Hold up / out hose reel lever until obstruction is hit. Bounce hose until obstruction is cleared. Once obstruction is cleared, shut down system.
13. Power down system
  - a. Hold throttle switch down.
  - b. Turn rodder lever down.
  - c. Switch off.
  - d. Hold reel control lever down to bring back hose.
14. Remove nozzle and return it to driver side cabinet.
15. Insert whip hose 2-3 feet into wye cleanout, have co-worker step on hose.
16. Power up system (refer to Step 9)

17. Flush wye cleanout to ensure lateral is clear and taking water.
18. Shut down system (refer to Step 11).
19. Reel hose back to truck.
20. Use hand rodding with 3" auger to ensure clarity. Rod from City Approved clean out to City main. Flush lateral thoroughly and advise For video of lateral if there is suspected damage. If unable to pass 3" Auger, RP must be signed up for repair.
21. Replace wye cleanout cover.
22. Make contact with reporting party or leave a door hanger.
23. Fill out spillage report.
24. Pick up safety cones. Turn off warning lights
25. Leave jobsite.

#### **IV. Operating Procedure (clearing an obstruction in sanitary main)**

37. Turn on warning lights. Beacon switches are located on dash in cab. Also use arrowboard panel.
38. Assess situation.
39. Refer to Operation Procedure XIV and XV.
40. Check main and paint arrows.
41. Use co-worker to align front end of vehicle over downstream manhole.
42. Set up safety cones around vehicle.
43. Open sani manhole cover.
44. Select penetrating nozzle from driver side cabinet and attach to end of whip hose.
45. Insert hose into tiger tail. Tiger tail is located in black box on passenger side of truck.
46. Lower nozzle and tiger tail down manhole and align it with mouth of the sani main.
47. Turn "rodder" lever up / on position.
48. Pump switch / up position.
49. Hold throttle switch up to desired rpm's.
50. Using hose reel control lever, insert nozzle into the pipe positioning the tiger tail in mouth to protect the hose.
51. No switch is needed to activate "low water" warning.
52. Turn off pump switch to cut water in case of emergency.
53. Water pressure should be low enough so the hose will stop at an obstruction, yet high enough to travel while hose is released by the hydraulic reel control lever.
54. When an obstruction is encountered, use the hydraulic reel control to bring hose back 10-15 feet.
55. Pull water pump out so that water psi is 1500-2000.
56. Use hydraulic reel control lever to propel hose forward to clear obstruction.
57. The hydraulic hose reel control lever should be utilized to clean back

and forth the obstructed area.

58. Switch off throttle remote.
59. Switch off / down "rodder" pump switch.
60. Hold "throttle" switch down to turn off.
61. Turn down / off "rodder" lever position.
62. Remove nozzle from hose.
63. Use hose reel control to let out 1-15 feet of hose.
64. Power up system (refer to Part III, step 9).
65. Flush any sewage back into manhole.
66. Power down system (refer to Part III, step 12).
67. Use hose reel guide to return hose to reel.
68. Secure equipment.
69. Make contact with reporting party or leave a door hanger.
  - a. Ask reporting party to check if plumbing is operational i.e. flush toilets, run water in sink, ask if there is any backup into the house, restrooms, basement.
  - b. If reporting party is still having problems, contact dispatch to have plumber dispatched at city's expense.
70. Fill out spillage report.
71. Pick up safety cones. Turn off warning lights.
72. Leave jobsite.

If the situation requires the set-up at the wet end, the crew should follow the procedures listed below:

9. Do not use penetrating nozzle, use round cleaning nozzle.
10. Locate depth of manhole and mouth with pole.
11. Attach 1" diameter, 12" long galvanized pipe to end of whip hose.
12. Attach round cleaning nozzle to end of 1" diameter, 12" long galvanized pipe.
13. Use pole to guide nozzle pip and whip hose into mouth of pipe.
14. Operator should not exceed 500 psi until hose is 5 feet inside channel of pipe.
15. Assistant should monitor the progress of the hose and nozzle in the main.
16. If unable to get hose/nozzle past 5 feet or not sure that hose/nozzle is in pipe, stop operation and use power rodder.

#### **V. Operating Procedure (line cleaning)**

26. Assess job situation.
27. Turn on warning lights.
28. Use co-worker to align front end of vehicle over downstream manhole.
29. Set up safety cones around vehicle.
30. Open sani manhole cover.
31. Select line cleaning nozzle and attach to end of whip hose.

32. Insert hose into tiger tail. Tiger tail is located in black box on passenger side of truck.
33. Lower nozzle and tiger tail down manhole and align it with mouth of sani pipe.
34. Turn “rodder” lever up / on position.
10. Turn on / up “rodder” pump switch.
11. Using hose reel control lever, insert nozzle into the pipe positioning tiger tail in mouth to protect hose.
12. Go in 10-15 feet.
13. No switch is needed to activate “low water” warning.
14. “Throttle” switch on / left.
15. Hold second throttle up / on to 1500 – 2000 psi.
16. Reset counter on hose reel to zero.
17. Hold the hydraulic hose reel control level up to propel hose to next manhole.
18. Reduce feed speed by turning speed control next to the hydraulic hose reel control lever.
19. Hold the hydraulic hose reel control lever down to bring back hose. Once hose reel counter shows that hose is brought back to 10 – 15 feet, turn off / down throttle switch. Turn off water pump switch.
20. Using the hydraulic hose reel control lever, return hose fully to reel.
21. Remove nozzle.
22. Secure hose to reel.
23. Pick up safety cones. Turn off warning lights.
24. Leave jobsite.

#### **VI. Operating Procedure (flushing inlet)**

A flushing inlet (F.I.) is the beginning of a sani main. When dealing with a F.I., take caution so that the hose of the h.p./vaccon does not exit the F.I.

9. When line cleaning, refer to Part V.
10. When clearing a plugged main, refer to Part IV.

#### **VII. Operating Procedure (dropped manhole)**

A dropped manhole consists of two openings – one on top of the other. Insert the hose of the h.p./vaccon into the top opening. If you put the hose in the bottom opening, it will come out of the top opening.

9. When line cleaning, refer to Part V.
10. When clearing a plugged main, refer to Part IV.

#### **VIII. Operating Procedure (clearing an obstruction in storm lateral)**

1. Asses job situation.

2. Turn on warning lights. Beacon switches are located on dash in cab. Also use arrowboard panel.
3. Use co-worker to align front end of vehicle over storm main.
4. Set up safety cones around vehicles.
5. Open storm main manhole cover.
6. Select penetrating nozzle from driver side cabinet and attach to end of whip hose.
7. Insert hose into tiger tail. Tiger tail is located in black box on passenger side of truck.
8. Lower nozzle and tiger tail down manhole and align it with the mouth of mouth of storm lateral.
9. Turn “rodder” lever up / on position.
10. Turn on / up “rodder” pump switch.
11. Hold hose reel control lever up to insert nozzle into pipe positioning the tiger tail in mouth to protect the hose.
12. Go in 10-15 feet.
13. No switch is needed to activate “low water” warning.
14. Turn on “throttle” switch.
15. Hold second throttle switch to 800 psi.
16. Switch in / up water pump switch. Water pressure should be low enough so the hose will stop at an obstruction, yet high enough to travel while hose is released by the reel control lever.
  
17. When an obstruction is encountered, use the hydraulic reel control to bring hose back 10-15 feet.
18. Hold second throttle switch to 1500 – 2000 psi.
19. Use hydraulic reel control lever to propel hose forward to clear obstruction.
20. The hydraulic hose reel control lever should be utilized to clean back and forth the obstructed area.
21. Hold throttle switch down.
22. Pump switch down / off position.
23. Rodder lever down / off position.
24. Remove penetrating nozzle from hose.
25. Secure equipment.
26. Make contact with reporting party or leave a door hanger.
27. Pick up safety cones. Turn off warning lights.
28. Leave jobsite.

**Special Note: In case of emergency, turn off pump switch down.**

**IX. Operating Procedure (vacuum compressor)**

27. Asses job situation.
28. Turn on warning lights. Beacon switches are located on dash in cab. Also use arrowboard panel.

29. Use co-worker to position truck at area to be cleaned.
30. Set up safety cones around vehicle.
31. Select appropriate suction tubes and clamps.
32. Unlatch clamp securing boom.
33. Insert key and turn holding up “permissive” start switch at some time to start auxiliary motor.
34. Use the boom control joystick to raise / lower and move the beam side to side. The joystick is located on bottom left of control panel. Remote control joystick can also be used.
35. Use the telescopic boom switch to move boom in or out {retract / extend switch}.
36. Attach suction tubes and clamps to snorkel. Then position boom over area to clean.
37. Power up system:
  - a. Switch up throttle to increase rpm to appropriate vacuum operating range.
  - a. Switch “manual vacuum” to up position to activate vacuum.
12. Once area has been vacuumed, shut down system.
13. Shut down system:
  - c. Hold down throttle switch to 0 rpm.
  - d. Turn off “manual vacuum” switch.
14. Remove suction tubes/clamps from snorkel and return them to their proper place.
15. Retract, rotate, and lower boom into boom support and hose guide on to lower bracket. Latch boom tie down, then turn off key to stop auxiliary motor.
16. Pick up safety cones and truck is ready for transport.

## **X. Operating Procedure (debris tank)**

### **A. Draining Tank Fluids**

9. Position rear drain sleeve over manhole or drain area.
10. Open manhole cover.
11. Unroll drain sleeve and insert into manhole.
12. Use lever to open valve.
13. With truck on at idle, switch throttle up. Hold to desired rpm.
14. To raise tank body, hold down “bypass valve” while pushing in “raise body” lever.
15. To lower tank body, hold down “bypass valve” while pulling down “raise body” lever.
16. Roll up drain sleeve.
17. Close manhole.

### **B. Draining Tank Debris**

9. Position tank body over dumping area. Debris should be dumped as close as possible to the asphalt/dirt pile.

10. With truck on at idle, switch throttle up. Hold to desired rpm.
11. Push lever on left in to unlock tank door.
12. To raise tank body, hold down "bypass valve" while pushing in "debris body hoist" lever.
13. When tank is empty and to lower tank body, hold down "bypass valve" while pulling down "debris body hoist" lever.
14. Pull lever on left out to lock tank door.
15. Close manhole.

### **Debris Body Flush out Operation**

1. At right rear of truck, lever out position for body wash.
2. Open debris body door.
3. Raise debris tank up – lever on right side of truck.
4. Throttle up rpm's for body wash.
5. Debris tank clean / throttle rpm's down.
6. Lower debris tank.
7. Close debris body door.
8. Lock debris body door – lever on right side of truck.
9. Turn lever to off position for body wash.
10. You are now ready to use water system on your truck. If you are finished with your clean-up procedures, turn off auxiliary engine.

Utilize the articulating hose reel when unable to position vehicle over manhole.

11. Unlock locking pin located on panel.
12. Hold switch to out position.
13. Manually swing hose to desired position.
14. Reverse 1 thru 4 to secure hose reel when done.

### **XI. Operating Procedure (sealing a noisy manhole cover)**

19. Assess job situation.
20. Set up high level warning aprons. Not needed if on H.P. or Vaccon.
21. Turn on warning lights.
22. Use co-worker to align rear of vehicle with manhole.
23. Set out safety cones around vehicle. Open manhole.
24. Sweep ring of manhole with broom.
25. Get out caulking gun and cartridge of roof cement.
26. Cut tip off cartridge. Puncture seal in tip.
27. Load cartridge into caulking gun.
10. Squeeze trigger of caulking gun until black caulking starts to come out.
11. Squeeze 3-4 large beads of caulking around manhole ring.
12. Close manhole cover.
13. If manhole cover is cracked or broken and can't be sealed, advise Investigator or Supervisor to refer to rodding or balling crew for

- replacement.
23. Secure equipment.
  24. Pick up safety cones and high level aprons, if used.
  25. Turn off warning lights.
  26. Leave jobsite.
  27. Make contact with reporting party or leave a door hanger.

**XII. Operating Procedure (sealing a manhole cover for odor)**

16. Follow procedures 1 through 10 in Part IX.
17. Squeeze out a bead of caulking around the entire ring of manhole.
18. Close manhole cover.
19. Squeeze out caulking in holes on top of manhole cover.
20. Continue following procedures 14 through 18 in Part IX.

**XIII. Operating Procedure (replacing a manhole cover)**

28. Assess situation.
29. Turn on warning lights.
30. Set up high level warning aprons.
31. Use co-worker to align rear end of vehicle five feet from manhole.
32. Set up safety cones around vehicle.
33. Measure diameter and thickness of manhole cover.
34. Is the manhole cover a safety concern? If it is, barricade it, make it safe.
35. If the manhole cover is located on a busy thoroughfare, proceed into surrounding neighborhood to find a replacement cover. Put a barricade over that manhole. Proceed to the warehouse or other corporation yards for a replacement (see note).
36. If the manhole cover is not located on a busy thoroughfare, proceed to the warehouse or other corporation yards for a replacement (see note).

NOTES

- In steps 8 and 9, if a replacement cover can't be located, forward the job to the Sewer Repair Crew for a new ring and cover.
- DO NOT drive 94047 on Highway 101 and Monterey Highway with water in tank.

**XIV. Operating Procedure (sanitary intrusion into curb and gutter)**

1. Using sandbags and/or absorbent, contain spill.
2. Extract standing sewage, sandbags and absorbent.

**XV. Operating Procedure (sanitary intrusion into storm system)**

1. Contain spill in catch basin, lateral and main using sandbags and/or absorbent.

2. Flush out storm system with fresh water to containment area and extract.

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