



Manhole Cover Removal

General Guidelines

- ❑ Follow provincial/municipal regulations for control of vehicle and pedestrian traffic (i.e., barricades, traffic signs, cones, high level flags, flagman etc.).
- ❑ **Always wear appropriate PPE including hard hat, safety glasses, work gloves, safety boots and coveralls.**
- ❑ Assemble the equipment required to gain entry, tools will vary due to variety of sizes and styles of covers:
 - calibrated and charged Multi-Gas Monitoring Unit
 - manhole cover lifting tools and equipment which could include:
 - two function pick with a point and horizontal claw
 - a long heavy flat screwdriver or a hammer with flat claw
 - a sledge hammer
 - explosive proof light source
 - magnetic manhole lifters or magnetic lift dolly system
 - manhole hook or key
 - camlift manhole cover tool
 - hydraulic lift dolly system
 - pressure washer
- ❑ Assess the type size and weight of the manhole cover to determine the best method of safe removal
 - establish if the design of the cover includes holes in the top or if it is solid surface, removal procedures will depend on the type
 - determine the number of workers required for the task, to prevent risk of personal injury
- ❑ Clear the manhole cover with a shovel if dirt and debris have built up, then use a heavy duty broom to further clean
- ❑ Determine the procedure to be followed:
 - If the manhole cover has access holes follow the procedure for "*two hole*" manhole cover removal, if not follow the procedure for "*solid surface*" manhole cover removal.



Manhole Cover Removal

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Two Hole Manhole Cover Removal

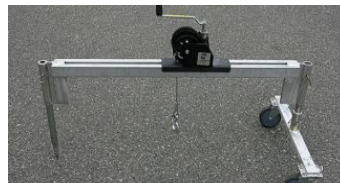
1. Test the atmosphere at the top of the manhole for flammable or toxic gases using the Multi-Gas Monitoring Unit with an aspirator pump. Insert the aspirator tube through the cover access hole and test for a minimum of 60 seconds. **Do not smoke, light open flames or produce sparks.**
2. If the atmosphere test indicates toxic or flammable gases do not proceed and notify your supervisor.
3. If the atmosphere is safe, proceed by clearing around the rim to remove dirt and debris wedged between the cover and the rim. This can be accomplished by using a pressure washer or a heavy screwdriver to scrape it free.
4. Any of the manhole cover removal devices can now be used to remove the cover. The most common are a two function pick or a manhole hook or key. This procedure involves elevating the cover above the edge of the rim and dragging.
5. Lift manhole covers with the legs, never lift with the back muscles.
6. Place the cover away from the work area. **Never place fingers or feet under the lid.**

Solid Surface Manhole Cover Removal

1. Test the atmosphere above the top of the manhole for flammable or toxic gases with the Multi-Gas Monitoring Unit.
2. If the atmosphere is safe, proceed by removing the dirt and debris between the cover and the rim using a heavy flat screwdriver. **Do not smoke, light open flames or produce sparks.**
3. Remove the manhole cover by using a cover removal tool that is capable of lifting the cover vertically to displace it. The tools for this removal include manual (T handle), hydraulic, or cam lifting tools. The connection of the lifting device to the manhole cover can include:
 - lifting magnets - they are rated for maximum capacity. They can be modified using a spreader bar which allows an additional magnet for stability or increased lifting force.
 - chain and hook assembly - each hook unit has varying adaptations, as manhole covers can have different style lifting ports.



Cam Lifting Tool



Chain & Hook Assembly (manual winch)



Hydraulic Lift



Magnetic Lift

4. Retest the atmosphere at the top of the manhole for flammable or toxic gases. If either is present, do not proceed and notify your supervisor.