4 category spills

1 – Any amount that enters a protected body of water (lake, ocean, etc…)

2- 1000 gal or more

3 – Under 1000 gal

4-PSLD (Private Sewer Lateral Discharge)-voluntary reporting

Traffic Control

The four traffic control zones are;

1. Advanced warning zone
2. Transition zone
3. Work zone
4. Termination zone
* Cones shall be 28”
* Standard size signs shall be 48”
* Stop signs shall be 18”

Four classes of hazards

* Toxicity
* Flammability
* Reactive
* Corrosive

Document maintenance activity

* Historical records
* Analysis
* Predict failure
* Required by regulatory agency

Goal of SSMP (Sewer System Management Plan)

* Is to provide a planned schedule to properly maintain, manage, and operate a sewer system

General Knowledge

* Collections system is an open gravity system flows from higher to lower elevation
* Storm events affect flow in volume (Inflow and/or Infiltration = I & I )
* Inflow: Water that enters through an open orifice
* Infiltration: Soaked through the ground through joints and cracks
* Storm water can enter a collection system through manholes, castings, lift stations, hatch covers, open clean out caps
* Hydraulic overflow during a wet weather event would most likely be a result of inflow or infiltration
* Rotating nozzles are for emulsifying grease and/or root intrusions
* Chisel and penetrating nozzles for sewer blockages – 15 and 20 degree nozzles
* Floor cleaning: Flat bottom nozzles
* Climbing steep grades: 15 degree nozzle should be used
* Cleaning action is done coming back down stream: A 45 degree angle is best to clean when coming back
* If stoppage occurs while using balling method a back-up can occur
* The best way to ensure that line cleaning methods are effective is to CCTV inspect behind crews
* The tool most likely used to verify the diameter of a newly installed line is a proofing tool or mandrill
* Infiltration can be verified by CCTV
* Organic composition is caused by hydrogen sulfide
* Call Dig-Alert 2 days prior to digging
* USA marks are good for 28 days
* USA markings: Red – power, Yellow – gas, Blue – water, Orange – communications, green-sewer
* Pipe materials include: VCP (verified clay pipe), ductile Iron, steel, thermo plastic pipe
* VCP not typically used for force main
* Spring line: theoretical center of a pipeline
* Invert: bottom of a pipeline
* Smoke testing is used to look for: Illegal connections, cracked pipe, offset joints, inflow, infiltration
* Purpose of a manhole is to allow access to mainline piping

Lift Stations

* Slide rails are to pull pumps out
* Pumps waste to higher elevations through force mains
* Centrifugal/submersible pumps are typically used

All of the following tools are used in conjunction with a power rodding operation are:

* Guide
* Sand leader
* Double point
* Corkscrew

Hand Rodding:

* Sectional rodding is in 10 – 20 ft sections
* Continuous rodding can be performed in any direction
* Always be aware of and careful with torque – over rotating/torqueing can cause injuries.

Emergency stoppage in pipelines should: Not be cleaned by the use of bucket machine

SSO: Sanitary sewer overflow

Trench/Shoring

* Provides framework to work in
* Supports evacuation walls

Factors for shores include:

* Soil classification
* Depth/cut
* Water content for soil
* Changed due to weather climate
* Changes due to uncertainty

Trench/Shoring Facts

* Shoring shall be used in excavations exceeding 5 ft or greater and or determination of soil
* Ladder must extend 3 ft/3ladder rungs above ground
* Ladders shall be placed within 25 ft of workers at all times
* Spoils shall be placed at least 2 ft from the edge of trench

Confined Space

* Minimum oxygen level is 19.5%
* Maximum oxygen level is 23.5%
* Hydrogen levels = rotten egg smell
* Min 3 people required for permit required confined space entry: Supervisor, Entry, Attendant
* Methane gas is heavier than air
* Carbon Monoxide is lighter than air
* Hydrogen Sulfide is heavier than air
* Atmospheric testing of a confined space shall continue while the confined space is occupied
* The min. crew size when working on a permit required confined space is 3
* A sewer system confined space is different than others is due to possibility of changing atmospheres and lack of ability to completely isolate







