Chemical Receiving Safety

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Necessity for Chemical Receiving SOP

- Promoting a culture of personal safety
- Avoid complacency! “We know what we’re doing; we don’t need no stinking procedure!”
- Verification of chemical concentration
- Verification of chemical storage tank capacity
- Identifying the wrong or contaminated chemical BEFORE it is offloaded!
  - Examples (fluoride, caustic, aqua ammonia)
  - Wrong chemical into the wrong tank can make for a very bad (and expensive) day
- Avoid water treatment process upsets

Personal Protection Equipment

- Chemical rated suit
- Hardhat w/splash guard
- Goggles
- Nitrile and leather gloves
- NIOSH respirator
  - aqua ammonia
  - sodium fluoride (dust)

Collect a Tanker Sample for Analysis

- Prior to offloading chemical!
- Potential checks:
  - Verify proper chemical footprint
    - color
    - pH (litmus paper)
    - specific gravity
    - chemical Concentration
    - verifying supplier's paperwork and C of A

Collecting a Tanker Sample for Analysis

Chemical Receiving SOP

- Advise Driver of the following:
  - Location of emergency eye showers;
  - Location of the in-house phone system;
  - Alarm lights in chemical receiving bay and their meaning;
  - Muster point (Source Protection Building) in case of emergency;
  - Certificate of Analysis required for all bulk chemical deliveries;
  - Driver must wear appropriate PPE;
  - Tanker wheels must be chocked;
  - Driver will remain with vehicle during chemical off-loading;
  - No washing vehicles or smoking in the chemical receiving area;
  - The driver is responsible to collect a 500 mL chemical sample;
  - Analyze sample for color, pH, and specific gravity before off loading

Chemical Receiving Ancillary Equipment

Chemical Receiving SOP

- Chemical sampling apparatus and testing equipment
  - Sample bottles (dedicated & labeled)
  - Specific gravity
  - pH strips (litmus paper)
- A minimum of two operators must be on site
- Second operator will verify all chemical receiving requirements are met before allowing the driver begin offloading chemical.
- Operators maintain control of the chemical spigot locks/keys and will remove the lock to the proper receiving vessel door driver's connection.
- Spigots remain locked at all times, except when offloading chemicals.

Chemical Receiving SOP

Chemical	Specific Gravity	Acceptable Range	pH	Acceptable Range	Color	Lab Test Acceptable Range
Aqua Ammonia*	0.89	(0.894-0.898)	13	(12.0-14.0)	Clear	28.5-31% NH3
Hydrofluorosilicic Acid*	1.23	(1.17-1.30)	1.2	(1.0-2.0)	<200 PtCo	24-26% F-
Sodium Hydroxide	1.28	(1.27-1.30)	>13	(13.0-14.0)	Clear	24-25% Caustic
Sodium Hypochlorite*	1.21	(1.15-1.27)	13	(12.0-14.0)	Yellow/ Green	11.5-14.3% CL2
Zinc Orthophosphate*	1.36	(1.29-1.43)	<1	(1.0-2.0)	Clear	34-38% PO4

Chemical Receiving SOP

- Verify SLWTF ordered chemical was ordered for delivery on that day.
- Assist driver in backing the tank truck into place.
- Don appropriate PPE for the chemical being delivered.
- Place chemical delivery warning sign, chemical booms, and confirm the vehicles wheels are chocked.
- Complete the safety checklist before proceeding with the delivery.
- Check the driver's ID and paperwork to confirm the following:
  - The driver's name on the paperwork and personal pictured ID match.
  - The chemical supplier and transport company should be the normal provider.
  - The tanker placard agrees w/paperwork and the chemical
  - Advise Chief Operator or Plant/Systems Foreman of any discrepancies
  - Certificate of analysis has been received (fax) prior to delivery

Chemical Receiving Checklist

Operator:

Driver Name/ID#:

Sebago Lake Water Treatment Facility
Bulk Chemical receiving Checklist

Delivery Date/Time	Vendor	Product	PWD PO#	Transporter	Tanker #	Placard #	Gallons

Seals in place	Pick-Up Date	Loading Temp	Delivery Temp	Tare Date	Tare Weight	Gross Weight	Net Weight

Bulk Chemical Placard Numbers

Aqua Ammonia	Hydrofluosilicic Acid	Sodium Hydroxide	Sodium Hypochlorite	Zinc Orthophosphate
2672	**1778**	**1824**	**1791**	**3264**

Specific Gravity and pH Check

Product concentration	pH Result	pH within acceptable range?	Specific Gravity Result	Specific Gravity within acceptable range?
		Yes / No		Yes / No

Chemical Receiving Checklist

Second Operator available for the duration of the off-loading process?	Yes	No
Bulk Chemical was ordered and expected on this date?	Yes	No
Driver's ID agrees with the paperwork?	Yes	No
Truck Placard agrees with the product ordered?	Yes	No
Truck Wheel Chocks in place?	Yes	No
Chemical containment booms set in place?	Yes	No
Supplier and transporter of the chemical are the normal supplier?	Yes	No
Certificate of Analysis received (Update Fluoride WIMS, as necessary.)	Yes	No
Personal Protection Equipment in use (PWD Operator & Driver)	Yes	No
Adequate capacity in receiving storage tank?	Yes	No
Confirm hose connection secured	Yes	No
*Ammonia only: Product to be offloaded by pump, no air pressure used. Confirm return line connection to tanker.	Yes	No
Advise driver of location of emergency showers; intercom system; alarm lights; muster points in case of emergency; and that driver must remain with vehicle at all times.	Yes	No
Second operator has reviewed all paperwork, test results, and hose connections?	Yes	2nd Initials:
Delivery completed without spill or incident?	Yes	Initials:
Sample delivered to lab? Sample labeled and lab notified? (Fluoride, Ammonia and Hypochlorite only)	Yes	No
Chemical receiving mini-lab cleaned/neutralized and all chemical receiving equipment neutralized and picked up?	Yes	Initials:

Chemical Receiving

- Chemical receiving procedure will add 20 minutes to every delivery
- Write the chemical receiving requirements into the contract
- Some suppliers will try to charge for additonal time on site

Procedure for Transferring and Distributing Drinking Water Chemicals

- Pertains to chemicals that are transferred from their original NSF/ANSI Std. 60, to a secondary container
- Definition:
  - Original Container: Provided by chemical supplier; indicates NSF/ANSI Std. 60 compliance; for bulk chemicals, the storage tank into which the tanker offloads is considered an original container

Secondary Containers

- Must comply with labeling requirements list under “Permanent”
  - Material is not used within a single shift
  - Work who made the transfer leaves the area
  - Container is moved to another area and no longer in possession of the worker who filled the container
  - Labels are not required on portable containers if worker who made transfer uses all of the contents during the work shift

Permanent Container Labels

- Identify chemical and hazard warning
- Hazard warning identifies health and/or physical hazard(s)
- Name & address of manufacturer
- Hazard label must be legible