Section 22 – HRSD Safety Program

I. Introduction - This Section addresses the various safety programs and policies of HRSD that apply to design and construction efforts. HRSD staff, as well as professional service firms (FIRM), contractors, and others involved with implementing work on HRSD facilities and on behalf of HRSD are to be in compliance with the following paragraphs. FIRMs will need to verify that appropriate edits are made to Bid Documents to capture these items.

II. Safety Programs

A. Hazard Communication Program – HRSD is required, in accordance with 29 CFR 1910.1200, to inform HRSD and contractors' personnel who work within HRSD of the hazardous chemicals on site. HRSD and contractor's personnel may be exposed to these hazardous chemicals while working at HRSD facilities. A written Hazard Communication Program, along with Response Procedures, has been developed to inform personnel about the specific hazardous chemicals present at HRSD facilities and the related safety information, including protective measures, special precautions, emergency procedures, and muster points to be observed. The Hazard Communication Program, including Safety Data Sheets (SDS) for each hazardous chemical at the HRSD facility site, will be made available to contractors. HRSD utilizes an online program for Safety Data Sheets (SDS) known as MSDSonline. Contractors will be provided with the link to MSDSonline. Contractors are responsible for communicating the information contained in the SDS to their personnel working at the HRSD facility. Contractors shall attend an *Outside Contractor Safety Briefing* conducted by the HRSD Safety Department, Plant Superintendent, or Lead Operator prior to the start of work. Contractors are responsible for informing HRSD of hazardous chemicals they bring on the plant site or to HRSD facilities. Contractors are responsible for obtaining Safety Data Sheets (SDS) for hazardous chemicals they use and store at HRSD facilities, and for providing these SDS to HRSD upon request. Contractors are responsible for using and storing the hazardous chemicals in an appropriate method while on site at an HRSD facility. Contractors are responsible for the disposal and labeling of hazardous chemicals that they use or store at HRSD facilities.

B. The HRSD Hot Work Permit Program requires that HRSD employees and/or Contractors who perform work involving electric or gas welding, cutting, brazing or similar flame producing or spark producing operations on or in close proximity to (within 25 feet or where posted) hazardous chemical process systems/equipment, within HRSD confined space, or within the fence line/property line of an HRSD Pump Station be issued a hot work permit prior to beginning work. Contractors must attend an Outside Contractor Safety Briefing conducted by the HRSD Safety Department, Plant Superintendent, or Lead Operator prior to the start of work. The

Contractor must comply with this requirement and obtain a daily hot work permit from HRSD site management before engaging in any hot work. Contractors must utilize their own Fire Watch for hot work permit operations. Note: No hot work is permitted within 50 feet of the methanol storage and feed areas.

C. Lockout/Tagout Program – Contractors are responsible for compliance with the OSHA Lock Out/Tag Out Standard. Whenever Contractors are involved in lock out/tag out activities at an HRSD facility, the equipment, process, or system shall be locked and tagged out in accordance with the HRSD Lock Out/Tag Out Program by the work center supervisor overseeing the work. The HRSD Supervisor overseeing the work will ensure that the Contractor is shown the location to apply their lock(s) and tag(s). The HRSD employee overseeing the work must be an "Authorized Employee." Only in emergency situations are equipment, processes, or systems shut down by other than an HRSD "Authorized Employee." The HRSD work center supervisor must be notified immediately if this occurs. Whenever Contractors are involved in lock out/tag out activities covered by this program, HRSD and the Contractor will inform each other of their lockout/tagout programs and procedures. The work center supervisor will inform the Contractor on the precautionary measures involved in performing lock out/tag out at the HRSD facility. All Contractors performing work at an HRSD treatment plant or pump station will receive an *Outside Contractor Briefing* prior to starting work. The briefing will be given by the Plant Superintendent, Lead Operator, or the HRSD Safety Department. Engineering Project Managers, will specify in contracts, bids, and requisitions that Contractors must comply with the Occupational Safety and Health Administration's (OSHA) 29 CFR 1910.147 standard while working at an HRSD facility.

D. Confined Space Entry Program – The HRSD Confined Space Entry Program provides HRSD employees with training and awareness of the potential hazards of entering and working in confined spaces. All tanks, manholes, vessels, as well as other areas designated by signs or otherwise instructed, are considered confined spaces HRSD's employees cannot act as "qualified person" for the Contractor, cannot complete confined space entry permits for Contractors, nor will HRSD's owned gas detection monitors or other confined space entry equipment be loaned to the Contractor. The Contractor must comply with all Federal and Virginia OSHA Confined Space Standards. Contractors can request information regarding the known hazards associated with HRSD Confined Spaces. HRSD's Safety Department, Plant Superintendent, or Lead Operator will brief the Contractor's key personnel on the confined spaces located on the project site during the *Outside Contractor Safety Briefing*.

E. Plant Access Procedures for Contractors Performing Long-Term Projects at HRSD Treatment Plants. [Note: Human Resources and/or IT staff code the

badges, and plant staff, the Project Manager, or the Safety Department provides badges to the Contractor.]

1. The Contractor will be issued a limited number of access badges for distribution among direct employees or sub-contractors. The badges will allow access through the plant gate during normal working hours. Each badge must be assigned to an individual and that individual's name logged on a form to be provided to the appropriate HRSD Plant Superintendent or Project Manager. The Contractor is responsible for periodically verifying the possession of the badges by the assigned individual. Any discrepancy in the possession or location of any badge must immediately be reported to a member of the plant supervisory staff. Any misuse of the badges will result in immediate revocation of access privileges.

2. If a Contractor badge is lost, immediate notification to the Project Manager or Human Resources is required. If necessary, a replacement card will be issued.

3. The Contractor may be issued a limited number of badges for supervisory personnel with extended access to the plant at the discretion of HRSD personnel.

4. In the event that the Department of Homeland Security raises the threat level of the country to "Red", all Contractor access badges will be disabled. Access to the plant at that time will require individual identification verification and entry only via plant staff.

5. Contractor to develop and submit an approvable plan to the HRSD Project Manager for site access procedures and protocols. This plan shall include, but not be limited to, daily login entry, current emergency contact information, management of gate openings, and daily logout procedures. Plan must be approved by HRSD Project Manager and HRSD Safety Manager. Changes to the approved plan must be submitted in writing and approved by HRSD.

6. Contractor work hours will be discussed and approved by the HRSD plant or facility.

7. Security guards shall be provided if Treatment Plant gates are to be left open during normal work hours. The following are requirements and expectations of a security guard:

    a. The Security Guard is expected to be alert and awake while guarding the open gate.

    b. The Security Guard is expected to check cars and trucks in and out of the plant site.

c. If the Security Guard is not on duty the plant gate will be closed and secured.

d. The Security Guard must turn unwanted site visitors away.

8. Perimeter fencing must be maintained during construction at HRSD Workcenters.

9. In the event of a site evacuation, the Contractor Site Supervisor will be notified by plant personnel to evacuate and instructed to report to the muster point location. Plant supervisors will be responsible for accounting for all Contractor firms are present and the Contractor Site Supervisor will be responsible for accounting for contractor personnel.

F. NFPA 70E – Contractors hired to install or modify electrical components will do so in compliance with NFPA 70E. Only qualified HRSD Electricians, Instrumentation employees, or qualified Contractors are to perform work on electrical circuits, components, and equipment. Contractors hired to perform electrical work at an HRSD plant or pump station must receive an *Outside Contractor Safety Briefing* by the HRSD Safety Department, Plant Superintendent, or Lead Operator, and the HRSD Electricians assigned to that facility. The *Outside Contractor Safety Briefing* will include information on existing electrical hazards, personal protective equipment/clothing requirements, arc flash labeling system as appropriate, and where to lock and tag out sources of power. HRSD electrical personnel and affected Operations personnel will be involved in the planning of work. Contractors are required to contact HRSD electrical personnel prior to tapping into existing HRSD electrical sources or shutting off equipment (unless an emergency exists). Warning and/or barricading are required to be used when live electrical components are exposed in areas utilized by HRSD staff.

G. Fall Protection – Contractors that are removing existing guardrails, hatch covers, deck grating, etc. in which an employee could fall four feet or greater must install temporary guardrails. Temporary guardrails include a 42-inch top rail, a 21-inch mid-rail, and a 4-inch toeboard. Temporary guardrails must sustain 200 pounds of pressure applied in any direction. When construction is complete, permanent guardrails must be installed or reinstalled, deck grating replaced and secured down, and/or hatch covers replaced. If utilizing temporary covers, temporary covers must be secured and labeled “hole.” Contractors are responsible for compliance with OSHA fall protection standards when working at heights such as on roofs, off of scaffolding, or when using mobile elevated work platforms.

H. New construction buildings and processes cannot be turned over to HRSD until all safety issues have been corrected. Contact the Safety Department for a safety walk through prior to the release of a new building or processes to HRSD.

I. Excavations and Trenching – Contractors involved in excavation work must be in compliance with OSHA Standards 1926.651 and 1926.652. Trenches 5 feet or greater in depth must have a protection system prior to employees working inside. Trenches or excavations 4 feet or greater in depth are required to have safe access and egress devices located within 25 feet of all workers. Open excavations must have adequate fall protection for personnel if greater than 4 feet and must have adequate protection (e.g., barricades) if next to areas accessed by vehicles. If an HRSD employee must enter a Contractor's excavation and is unsure about its safety, they must contact the Safety Department immediately. Contractors are responsible for evaluating their trenches or excavations for a safe atmosphere. Contractors are responsible for identifying existing utilities in areas in which they plan to dig. Contractors are responsible for not getting too close to overhead electrical lines with construction equipment.

J. Fire Protection Systems – Anytime a contractor's work may impact installed fire detection or protection systems, the HRSD work center, Safety Department, and Facilities Maintenance must be notified.

K. Housekeeping – The contractor is responsible for the overall housekeeping within their work areas.

1. All exit doors, electrical panels, fire extinguishers, emergency eyewash/showers, and first aid kits must have clear access maintained for emergencies.

2. Trash and debris must not accumulate nor impede travel on designated walkways.

3. Weeds and grass must be maintained during the project by the contractor in their designated areas so as not to create fire hazard or harborage of vermin.

L. Outside Contractor Briefing – All contractors working at an HRSD Plant or Pump Station will be given an Outside Contractor Safety Briefing by the Plant Superintendent, Lead Operator, or HRSD Safety Department prior to starting work. The briefing will cover the following:

1. HRSD Safety Rules

2. Evacuation Procedures

3. Chemicals on site

4. HRSD Safety Programs relevant to the work that is being done

5. Personal Protective Equipment (PPE) Requirements for location

M. Asbestos Awareness Program. HRSD's program objectives include employee awareness of regulations, health issues, and proper procedures for working around and handling products or materials containing asbestos. Attachment A to this Section is a checklist that should be used on each project. For existing HRSD buildings, contact the HRSD Safety Department for a list of building materials that contain asbestos.

N. Weapons Policy – Weapons, if brought onto HRSD property, must be kept locked in a personal vehicle. No weapons are permitted in HRSD buildings or vehicles.

O. Use of HRSD Equipment – Contractor must provide all equipment necessary to perform work on HRSD property. Use of HRSD equipment is prohibited. This includes:

1. Ladders
2. Forklifts
3. Telehandlers
4. Mobile Elevated Work Platforms
5. Rolling Gantry Cranes
6. Slings

P. Emergency Eyewash and Showers.

1. Emergency eyewash and shower equipment are to be provided at locations where personnel may be exposed to hazardous materials that can cause injuries to the eyes or body. The following are potential locations where emergency eyewash and showers are required:

i. Corrosive Chemicals
ii. Toxic or irritant substances
iii. Chemical Storage Tanks
iv. Battery Charging Stations
v. Fueling or chemical unloading areas

2. Emergency eyewashes and showers shall meet ANSI/ISEA Z358.1 standard.

3. Emergency eyewashes and showers shall allow for immediate flushing to minimize injury.

4. Emergency eyewashes and showers shall be located within 10 seconds of travel on the same level, without the use of stairs or ladders, and with an unobstructed path from the hazard.

5. Emergency eyewashes and showers shall be highly visible, located in well-lit areas, and identified with standard signage.

6. Performance Requirements:
    i. Equipment shall be activated in one second or less, and valves shall remain open without the use of hands.
    ii. Minimum flow rate for emergency eyewash: 0.4 gallons per minute (gpm) for 15 minutes.
    iii. Minimum flow rate for emergency shower: 20 gallons per minute (gpm) for 15 minutes.
    iv. Tepid water shall be provided between 60°F and 100°F.
    v. Emergency shower head shall be 82”- 96” above the standing surface.
    vi. The center of the shower spray pattern shall be located at least 16 inches from any obstruction.
    vii. The shower spray pattern shall be a minimum of 20” in diameter at 60” above the standing surface.
    viii. The nozzle height of the emergency eyewash shall be no less than 33” and no more than 45” above the standing surface.
    ix. Emergency eyewashes shall be capable of flushing both eyes simultaneously.
    x. Eyewash flow shall be soft and low velocity.
    xi. Protective covers shall be provided on eyewash nozzles to prevent contamination.

7. Design and Installation Requirements:

    xii. Plumbed units shall be connected to a potable water supply.
    xiii. Piping shall be designed to provide continuous flow for a minimum of 15 minutes.
    xiv. Freeze protection shall be provided for outdoor environments (ex. heat tracing, insulated enclosures)
    xv. Floor drains or other means shall be provided to safely manage discharged water.
    xvi. Materials shall be corrosion-resistant and suitable for the installation environment.

8. Inspection and Maintenance

   xvii. Emergency eyewash and shower units shall be activated weekly to verify proper operation.
   xviii. Units shall be inspected annually for compliance with ANSI/ISEA Z358.1.
   xix. Inspection and testing records shall be maintained.

Q. Noise Abatement for Installed Stationary Equipment

1. Noise abatement requirements apply to permanently installed mechanical, electrical, and process equipment and are intended to:
   a. Ensure installed equipment meets environmental and occupational noise limits.
   b. Require noise control to be addressed during design and procurement.
   c. Provide enforceable requirements for equipment suppliers and contractors.

2. All permanently installed equipment shall be selected, designed, and installed such that noise levels at the property line and within occupied areas comply with specified limits.

3. Noise abatement shall comply with OSHA 29 CFR 1910.95 for occupational noise exposure, ANSI S12 acoustics standards, and ISO 1996 for environmental noise. All applicable local noise ordinances shall be followed.

4. Noise control shall be addressed during equipment selection and design.

5. Equipment suppliers shall provide octave band sound power levels.

6. Equipment and associated systems shall be designed such that overall facility noises comply with OSHA, ANSI, and local community ordinances.

7. Equipment suppliers shall identify and provide required noise control measures, including silencers or enclosures, as part of the equipment scope of supply.

8. Acoustic enclosures shall be provided for high-noise equipment where required. The enclosures shall be fully sealed except for treated ventilation

openings. The minimum sound transmission class rating shall be 25 unless otherwise required.

9. Intake and discharge silencers shall be installed on blowers, compressors, and generators as required. Silencers shall be selected based on the frequency spectrum.

10. Barriers shall be installed where line of sight exists between equipment and receptors. The minimum surface density shall be 4 lb/ft^2.

11. All rotating equipment shall be mounted on vibration isolators. Flexible connections shall be provided on piping and ductwork.

12. Ductwork shall include acoustic lining where required. Openings shall not create direct noise paths.

13. Equipment and noise control systems shall be installed per manufacturer requirements. All gaps, seams, and penetrations shall be sealed. Improper installation resulting in increased noise levels shall be corrected.

14. Contractors shall perform post-installation noise measurements, and these measurements shall be conducted under normal operating conditions.

R. Methanol Safety Work Practices

1. HRSD personnel must be trained and instructed on the use and handling of methanol, methanol equipment, methanol detection meter(s), and methanol emergency response (refer to the Safety Data Sheet and HRSD Response Procedures for the work center).

    i. Use <u>extreme</u> care and caution when handling methanol. Never walk through spilled methanol.
    ii. There is no smoking, hot work, or open flames allowed within 50 feet of methanol storage, handling, or pump facilities.
    iii. Ensure methanol storage tanks or containers are properly labeled. The NFPA label should read as follows:

Health	1
Flammability	3
Reactivity	0

2. When handling methanol or servicing the methanol system, a calibrated, direct-reading meter for methanol must be used to monitor the atmosphere. If methanol levels are below the permissible exposure limit (PEL) for methanol of 200 ppm, the following Personal Protective Equipment (PPE) is needed: rubber boots, silver shield or disposable 0.9 mm nitrile gloves, face shield, splash-proof safety goggles, impervious rain gear, and a full face negative pressure respirator or powered air purifying respirator with organic vapor cartridges.

3. For airborne concentrations above the PEL of 200 ppm, ventilate until methanol levels are below 200 ppm. If the methanol meter is alarming due to high levels above 800 ppm and the source cannot be isolated or contained, contact a plant supervisor or local fire department (911) for emergency response.

4. Ensure that an eyewash/shower or hose with potable water is in the immediate area and operational before working on methanol system or with methanol.

5. When working around methanol or methanol systems, electronic devices that are not intrinsically safe are prohibited. Such devices include: cell phones; laptops; MP3 players; radios; flashlights; temporary lighting; IPods; Smartwatches; etc. (These electronic devices are not intrinsically safe). Intrinsically safe radios for communication will be used when around methanol or methanol systems.

6. Before working on methanol pumps or piping systems, de-energize and use non-potable water to flush methanol residual out of pumps and lines. Once system is flushed and there is no %LEL present and 0 ppm of methanol, normal tools can be used to complete work. If the methanol system cannot be flushed, non-sparking tools must be used.

   Note: If unsure about the location of valves and flush points, check process schematic in Response Procedures.

7. Before putting the methanol system into service, check to ensure that the flush valves are closed.

   Note: If unsure about the location of the above valves, check process schematic in Response Procedures.

8. When putting methanol system into service, remember that only one (1) storage tank can supply methanol to the feed pumps at any given time.

9. Flush chemical feed system for methanol if it is to be out of service for a prolonged period of time.

10. When taking the chemical feed system for methanol out of service, **NEVER** close a valve while a pump is running. Severe damage or injury could result.

11. Periodically inspect methanol chemical feed system for leaks.

    Note: If %LEL detectors or leak detectors within the methanol feed system room start to alarm, don full PPE for methanol response and use a calibrated direct-reading methanol meter to determine methanol levels using remote monitoring procedures prior to entering the room. If levels are above the PEL of 800 ppm, do not enter the room. Use intrinsically safe ventilation to lower methanol levels to below the PEL. If levels below 800 ppm cannot be obtained, notify a supervisor or call the local fire department for emergency response.
    Note: Refer to Safety Equipment: Methanol Gas Detection Equipment for meter specifications.

12. Report any problems or leaks of methanol to plant supervisors immediately.

    Note: When the leak/spill of methanol exceeds five thousand (5000) pounds, it must be reported using HRSD's Chemical Release Reporting procedure. Refer to HRSD Response Procedures.

13. Call the local fire department (911) if a person is incapacitated by methanol.

14. Perform CPR immediately on the person who has been incapacitated by methanol and is not breathing.

    Caution: Administration of mouth-to-mouth resuscitation may expose the first aid provider to the chemical within the victim's lungs or vomit – perform chest compressions only. Summon medical attention as soon as possible.

15. Place a person who does not have difficulty breathing and is contaminated with methanol into a shower immediately. Remove methanol-soaked clothing under running water and wash all portions of the body that were exposed to methanol. Get medical attention immediately.

    Caution: lethal amounts of methanol can be absorbed through intact skin.

16. Flush eyes contaminated with methanol immediately with running water for at least fifteen (15) minutes, occasionally lifting the eyelids.

17. If methanol is accidentally ingested, DO NOT VOMIT. Get medical attention immediately. Swallowing even small amounts of methanol can be life threatening. Also, the onset of symptoms may be delayed for 18 to 24 hours.

18. Methanol burns with a clear blue flame, and it is very difficult to see burning. The only indication that methanol may be burning is a shimmering heat haze or something burning nearby. Anytime the fire suppression system activates in the methanol area, call 9-1-1.
19. Methanol vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Therefore, use non-potable water to dilute any methanol spills that occur, if possible.

20. A foam system within the methanol building is available to reduce fire potential.

21. During methanol deliveries, the HRSD employee will stay with the driver during the delivery and will make sure that the truck is grounded. (Follow delivery procedures within the Plant's Response Procedures.)

22. Never bypass the safety features on the control system, including grounds, valves, detectors, etc.

III. Attachments:

A. Asbestos Checklist

End of Section