

Olympic View Transfer Station Findings for Conditions Inspection Report

Prepared for

Kitsap County

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Prepared by

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CITATION

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CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned.



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KEY TERMS

County	Kitsap County Solid Waste Division
GFCI	ground fault circuit interrupter
HVAC	heating, ventilation and air conditioning
IMC	International Mechanical Code
LED	light-emitting diode
NEC	National Electrical Code
OVTS	Olympic View Transfer Station
PSE	Puget Sound Energy
PMX	Parametrix, Inc.
RPBA	reduced pressure backflow assembly
UL	Underwriters Laboratories
UPS	uninterrupted power supply
WAC	Washington Administrative Code
WM	Waste Management, Inc.

1. INTRODUCTION

Parametrix, Inc. (PMX) completed a visual facility inspection of the Olympic View Transfer Station (OVTS) on August 16, 2016, as part of the Kitsap County Solid Waste Division (County) biennial facility inspection program. The facility inspection of the OVTS, operated by Waste Management, Inc. (WM), included the site, facilities, buildings, infrastructure, and fixed and mobile County-owned equipment. This inspection report reflects the condition of the facility at the time of the inspection.

Prior to the inspection, PMX reviewed the previous December 2014 facility inspection results to help establish an understanding of the baseline condition of the OVTS facility. PMX also reviewed the facility 2011 Plan of Operations, operating Agreement KC-479-00, and other pertinent information made available by the County to develop a full understanding of facility physical construction, usage, and maintenance activities.

The facility inspection was an independent, onsite conditions assessment of the OVTS. PMX visually evaluated the following areas and features:

- Transfer Building
- Special Waste/Recycling Area
- Transfer Station Office Building
- Scale Facility
- Intermodal/Rail Yard
- Public Recycling Area
- General Site
- County-Owned Equipment

This report includes a summary of findings and discusses the general inspection results taking into consideration the robustness and life expectancy designed and built into the facility. The report also includes an identification of concerns, providing emphasis on the more significant issues encountered. The identification of concerns is supported by the inspection form comments and photographs included in Appendix A – Comments and Evaluation Results.

The inspection forms list facility elements that are rated as “good,” “fair,” or “poor” and provide descriptions of identified deficiencies and causes for concern. The designations were subjective to the inspectors based on the following, general rating approach.

Good: Item or system was fully functional and generally reflected a good physical condition. Some minor maintenance and/or repairs may be needed, but not to an extent that warrants a lower rating.

Fair: Item or system was generally functional, though there were some physical deficiencies requiring repairs and/or maintenance.

Poor: Item or system was functionally impaired and/or has significant physical deficiencies requiring substantial repairs and/or maintenance.

In cases where a system, or group of items, may have variable sub-ratings pertaining to individual items or features, the rating designation was reflective of the system, or group, as a whole and not always

specific to outliers. Photo documentation of some specific issues is included. The inspection included consideration of current code compliance and industry standards while recognizing that the facility was designed and permitted more than 14 years ago. Where applicable, documented industry standards are referenced and used as part of the evaluation. Referenced code has been included in Appendix B – Code Requirements.

Issues identified for tracking were incorporated into the Corrective Action Tracking Form that was prepared following the records review and has been included in Appendix C – Corrective Action Tracking Form for reference. The Corrective Action Tracking Form will be utilized and maintained by the County throughout the tracking process. The ratings provided in the inspection forms as part of the facility inspection will be a consideration in determining the priority level designated in the Corrective Action Tracking Form; however, there will be additional considerations taken into account in establishing the priority level designation including: safety implications; level of importance to the County; and the reasonable time frame for the action to be completed by WM. The Corrective Action Tracking Form included preliminary responsible party and priority level designations as these will be determined by the County in consultation with WM.

2. SUMMARY OF FINDINGS

The OVTS facility was inspected on August 16, 2016 during daylight hours. Weather conditions consisted of clear to partially clouded skies. The dry weather did not facilitate a thorough “wet weather” inspection of stormwater drainage conditions. The facility inspection was performed during operational hours which restricted access to some areas, primarily related to active waste handling and storage locations. Interpretation of the findings in this report should take into consideration the environmental conditions at the time of the facility inspection.

The facility was generally found to be in good overall condition taking into consideration the level of robustness designed and built into the facility, the harsh environment related to the heavy industrial handling of solid waste material, and the age of the facility.

The conditions of the facility reflected a maintenance program focused on the functionality of the waste handling operation; however, there were some consistent findings that the less operations-critical maintenance requirements have not been fully implemented, which could lead to long-term deterioration of the facility. It should be noted that the WM site management of the facility has had staff turnover challenges at the site manager position since 2008, and the current site manager has only been in place since March 2016.

Since the 2014 inspection some significant projects have been undertaken at OVTS.

1. The Transfer Building experienced a tipping floor fire from the evening of July 31 through mid-morning August 1, 2015. The fire restoration resulted in the replacement of damaged translucent panels and wall and ceiling surfaces, electrical systems, and structural component coatings within the vicinity of the fire. Sprinkler heads were also replaced; however, the extent of replacement needs to be confirmed. Additionally, building-wide replacement of roof insulation, due to smoke damage, was in progress at the time of the 2016 inspection.
2. The County implemented a resurfacing and stormwater maintenance project that resulted in the paving of the gravel area east of the Transfer Building. As part of the project, the area’s stormwater drainage and newly hard piped Transfer Building downspouts were redirected to Pond B to preserve Pond D capacity. The Pond D base was also reconstructed to improve infiltration. Pond locations have been identified in Appendix D – Site Plan with Pond Designations.
3. The County and WM utilized a Puget Sound Energy (PSE) grant to re-lamp OVTS interior and exterior lighting with light-emitting diode (LED) lights.
4. The County scale house exterior was improved at the attendant windows to eliminate water infiltration into the building.
5. At the time of inspection, the County was in the process of replacing signage site-wide.
6. In May 2015, the County contracted with Corrosion Probe, Inc. to evaluate the condition of coatings and corrosion at the Transfer Building. The general conclusion was that where corrosion was present, it was typically superficial with no significant metal loss.

It was also evident that general maintenance efforts by WM have improved since the 2014 inspection.

Section 3 discusses the inspection results specific to each of the primary areas and features.

3. CONDITIONS ASSESSMENT RESULTS

The following discussion includes the general condition of the primary areas and features with specific focus on significant, or higher-priority, concerns identified during the facility inspection.

3.1 Transfer Building

The Transfer Building is generally in good condition. The building foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use. The building remains in good condition while being subject to a corrosive, industrial environment with mobile heavy equipment handling a heterogeneous material that is hard to work with. The general condition of the building reflects what would typically be expected at this type of facility. Below are some specific observations and concerns associated with the Transfer Building. The complete list of comments and evaluation results is included in Appendix A.

1. The general cleanliness and maintenance of the building has greatly increased since the 2014 inspection, and the addition of the fire restoration efforts and the new lighting have significantly improved working conditions. However, the need for routine maintenance and cleaning of the buildup of dirt and grime on surfaces both inside and outside of the Transfer Building should still be emphasized. This presents a health concern for those working within the building and creates a safety concern due to reduced light levels that can result from dirty translucent panels and luminaires. This type of condition may also promote accelerated deterioration of building elements and equipment and will make it more difficult to identify developing issues such as metal corrosion. Signage should be cleaned regularly. The consistent buildup of dirt and grime on exhaust fans without routine cleaning could result in failure of that equipment.
2. The installation of new ceiling insulation should be reviewed for conformance with the manufacturer's recommendations. Though not complete at the time of review, there is question as to the mounting method being used and the need to seal panel joints. The installation support bands being used did not reflect the manufacturer's installation methods represented in online available information. Additionally, it is recommended that the insulation be pressure wash tested shortly after installation is complete, or at least within the warranty period, to confirm that the installation method is sufficient to withstand the procedure.
3. The exhaust provisions from the Transfer Building are not functioning properly and are creating a health risk for occupants. Six of the original 10 high-capacity fans have been replaced with in-line vertical fans whose discharge is not connected to the roof openings, resulting in the fans recirculating most of the air in the building rather than exhausting it. The other four original fans have been removed, but have not been replaced. All required fans should be installed with proper ducting to ensure adequate exhausting is being provided for dust and the operation of motorized vehicles.
4. The Transfer Building has a reduced pressure backflow preventer to protect the public water system; however, the current arrangement does pose a backflow hazard to the potable water uses in the Transfer Station Office Building, as well as the potable emergency shower and eyewash uses in the building. The potable water and non-potable water are not separated. The piping is co-mingled with fire hose streams, emergency shower and eye wash fixtures, and hose reels for washdown of the Transfer Building floor. This building would be considered as a "Severe and High Health Cross-Connection Hazard Premises Requiring Premises Isolation by Reduced Pressure Backflow Assembly (RPBA)" per Washington Administrative Code (WAC)

Section 246-290-490. See Appendix B for code requirements. This should be addressed as a high public health risk. It is highly recommended that the entire water piping system be reviewed for code conformance and appropriate labeling, including removal of “Fire Protection Water” from hose reels. The assessment needs to review all of the piping to document and correct the specific cross connection control violations. There are numerous hose reels labeled as fire protection; however, since the operation of the facility does not rely on these hose reels for fire protection, it may be possible to remove the hose reels. If the hose reels are needed, then appropriate backflow prevention needs to be provided. There are also individual hose bibbs without vacuum breakers that could be brought into compliance by replacing the hose bibbs or adding vacuum breakers. The assessment would need to identify the specific violations and develop a plan to reach compliance. Part of compliance requires that backflow prevention devices be tested annually, so adding a lot of individual devices could result in increased testing and operational cost. Chapter 6 of the Uniform Plumbing Code covers the specific requirements for backflow prevention and includes the requirements for proper identification of potable and non-potable water systems

3.2 Special Waste/Recycling Area

The Special Waste/Recycling Area is generally in good condition. The structure foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use. The structure remains in good condition while being subject to a corrosive, industrial environment with mobile heavy equipment handling a heterogeneous material that is hard to work with. The general condition of the building reflects what would typically be expected at this type of facility. Below are some specific observations and concerns associated with the Special Waste/Recycling Area. The complete list of comments and evaluation results is included in Appendix A.

1. The general cleanliness and maintenance of the building is a concern. It does not appear that this area has received the same maintenance attention as the Transfer Building. The lack of routine maintenance and cleaning is evident in the buildup of dirt and grime on surfaces and signage. As this is an open area, there is not the same health concern as for those working within the Transfer Building; however, this type of condition will promote accelerated deterioration of building elements and equipment and will make it more difficult to identify developing issues.

3.3 Transfer Station Office Building

The Transfer Station Office Building is generally in good condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use. Below are some specific observations and concerns associated with the Transfer Station Office Building. The complete list of comments and evaluation results is included in Appendix A.

1. The general cleanliness and maintenance of the building is a concern. Though the space is well organized and uncluttered, the dirt and buildup on floor tiles and moss in exterior window tracks are examples of reduced maintenance attention that should be addressed. Floor tiles need to be cleaned and waxed. Similarly, the walls could benefit from some patching and paint. These concerns are not detrimental to the building, but without consistent upkeep they will diminish the building’s quality and value.

2. The server cabinet has been relocated to the County office space to the left of the sink. The change was made to improve the heat balance for the equipment; however, the power for the cabinet is from a general-use ground fault circuit interrupter (GFCI) receptacle at the sink counter. There is an uninterruptible power supply (UPS) inside the cabinet to protect against a brief power loss, but there is risk of the GFCI tripping and personnel not resetting the outlet. This would result in power loss to the server. It is recommended that a dedicated receptacle be installed to serve the cabinet.
3. The building is provided with an exhaust system that provides exhaust from all required areas in compliance with current code requirements; however, the control of the common exhaust fan is through multiple switches located within each of the areas served, with a master switch located in the Public Unisex restroom which has exterior access only. The fan on/off switch in this room must be on for the exhaust system to operate through any of the other interior switches. During the inspection this switch was off, leaving the building with no active exhaust ventilation. The control of the exhaust should be reconfigured from the multiple interlocking switches to provide exhaust by interlocking with the occupied mode of the building heating, ventilation and air conditioning (HVAC) system heat pump.
4. The domestic water heating system was observed to have a storage tank temperature of approximately 100F. This is a temperature that is known to provide a risk for Legionella growth. The tank should be modified to provide a thermostatic mixing valve in order to allow the tank temperature to be maintained at 140F, and then mixing water for delivery at approximately 120F.

3.4 Scale Facility

The Scale Facility is generally in fair condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use; however, some significant issues prevent an assessment of good condition. Below are some specific observations and concerns associated with the Scale Facility. The complete list of comments and evaluation results is included in Appendix A.

1. The general cleanliness and maintenance of the scale house is a concern. Though the space is reasonably organized and uncluttered, it has experienced significant wear. Floor tiles need to be cleaned and waxed. Similarly, the walls could benefit from some patching and paint, including reinstallation of the toilet paper holder. These concerns are not detrimental to the building, but without consistent upkeep they will diminish the building's quality and require larger maintenance efforts in the future.
2. The scale facility area has significant drainage deficiencies. The resulting ponding has no direct impact on scale facility operations; however, it is likely to contribute to more rapid deterioration of the scale equipment and, during freezing periods, will create a slip hazard for personnel needing to work outside of the scale house. The constant standing water may also be a perceived health concern by the scale facility staff. Review of the design indicates that the ponding is likely a result of poor design/construction and not itself a deteriorating condition. In order to create effective drainage in the area and eliminate the ponding, new area drains and piping will need to be added.
3. The GenTran panel inside the scale house was rewired to allow an external plug-in for a portable standby generator. This indoor panel has original open receptacle contacts that

were intended for connecting the portable generator and, unless this receptacle was internally disconnected within the panel wiring, it would be energized and exposed when the facility is powered from the generator. This would be a very hazardous condition and should be investigated and corrected as required. At a minimum, it is recommended to plug and seal, or remove, the exposed receptacle, even if it is not wired. Also, the Underwriters Laboratories (UL) listing of this panel may be voided as a result of the wiring modification that has been made to it.

4. The HVAC within the scale house is a concern. The electric baseboard heaters in the scale house are covered by cabinets and desks which creates a fire hazard. Electrical cords are also in close proximity to the electric baseboard heaters. Regarding ventilation, the 2015 International Mechanical Code (IMC) does permit the use of natural ventilation through windows, doors, louvers or other openings with a minimum operable opening of 4% of the floor area being ventilated. With the size of the scale house and the existing operable window and doors, natural ventilation will classify the spaces to be in compliance; however, the scale house openings are considered a noxious contamination source in accordance with IMC Chapter 4, Article 401.4 – Intake Opening Location. Alternative ventilation should be provided. See Appendix B for code requirements.
5. Deteriorating exterior conduits are a concern. Some conduits have been pulled out of associated connectors. Other conduits have been broken. Both conditions have resulted in exposed cables. There are also seal-tight flexible conduits that have extensive sun damage which should be replaced before failure. Conduit mounting methods, connectors, transitions, and repairs should be installed in accordance with the National Electrical Code (NEC).
6. The long-term wear on the scales is a concern. A meeting should be scheduled with a knowledgeable mechanic from the scale manufacturer (Unitec) to review the condition of scales and identify any preventive maintenance needed for scales. The fractured inbound commercial concrete deck should be replaced.

3.5 Intermodal/Rail Yard

The Intermodal/Rail Yard is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. The area remains in good condition while being subject to continual wear and loading from heavy equipment and containers; though wear has become more evident. The general condition of the area reflects what would typically be expected at this type of facility. Below are some specific observations and concerns associated with the Intermodal/Rail Yard. The complete list of comments and evaluation results is included in Appendix A.

1. The general maintenance of the area is a concern. The vegetation growth in pavement cracks, on retaining walls, and in landscape and gravel areas are examples that indicate more frequent, routine maintenance is needed. This type of condition will also promote accelerated deterioration of the site, which will require more significant corrections in the future.
2. The continued deterioration of the pavement is a concern. Pavement is showing increased wear compared to 2014 with cracks increasing along the placement strip edges and surface erosion and deformation from containers. Asphalt cracks and joints should be sealed and significantly eroded pavement should be patched. There also continues to be increased

settlement/rutting/dishing occurring along rail spur and at the compactor unload area due to the repetitive use by the top-pick equipment. These heavily used top-pick areas would benefit from replacing the local asphalt with a concrete approach apron.

3.6 Public Recycling Area

The Public Recycling Area is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. Below are some specific observations and concerns associated with the Public Recycling Area. The complete list of comments and evaluation results is included in Appendix A.

1. The general cleaning and maintenance of the area is a concern. The entrance to the adjacent southeast storage yard is dirt and gravel which will result in rutting and sediment tracking into the Public Recycling Area. The yard container ramps have an excessive buildup of litter which should be cleaned. Some oil disposal containers are either missing the spill containment mat or the mats have been damaged and are ineffective.
2. The canopy structure and slab also have some maintenance concerns regarding the deteriorated steel coatings and concrete slab deterioration. The structure should be properly prepared and recoated to avoid further rusting of the columns. The slab would benefit from the addition of a surface topping, which could also be used to raise the slab and promote drainage and eliminate the current ponding.

3.7 General Site

The site is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. The general condition of the site reflects what would typically be expected at this type of facility. Below are some specific observations and concerns associated with the site. The complete list of comments and evaluation results is included in Appendix A.

1. The general maintenance of the area is a concern. There are some minor issues such as asphalt cracks and joints that need to be sealed (some with vegetation growth), worn-out pavement striping, locations with soil and vegetation overgrowing the pavement, and invasive vegetation in landscape areas and ponds. The more significant maintenance concern is Pond A. Pond A is heavily overgrown, including at inlets and outlets that can limit flow and infiltration. The riprap filter berms at all ponds have debris, sediment, and vegetation buildup that reduces filtering ability.
2. The previous stormwater management system was not able to manage flows without operational intervention (portable pumps and hoses temporarily installed to redistribute water volumes between ponds). The revised system may have corrected the issue, but a determination should be made after experiencing the upcoming fall and winter storm events.

3.8 County-Owned Equipment

Some information is uncertain as to the assignment of equipment as County-owned equipment. For the purposes of this inspection, all onsite equipment was visually inspected, with the more significant equipment conditions assessment relying upon the maintenance review results of the OVTS Findings of

Records Review, under separate cover. In general, onsite equipment is in good condition while being subject to a corrosive, industrial environment. The general condition of the equipment reflects what would typically be expected at this type of facility, handling this type of heterogeneous material. Based on our records review, completed at a later date than the site inspection, we believe that WM is doing a reasonable level of preventive maintenance on all of the equipment in use at the site. The complete list of comments and evaluation results is included in Appendix A.

4. LIMITATIONS

This document was prepared solely for the County in accordance with professional standards at the time the services were performed and in accordance with Contract Amendment No. KC-276-14A between the County and PMX dated February 22, 2016. This document is governed by the specific scope of work authorized by the County; it is not intended to be relied upon by any other party.

Appendix A

Comments and Evaluation Results

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **TRANSFER BUILDING**

Inspection Date: August 16, 2016

Building Substructure	Inspector	Overall Condition		
		Good	Fair	Poor
Foundation Walls	KH, IS	✓		
Commercial Tipping Floor - Ponding at commercial entrance; see Photo 1	KH, IS	✓		
Self-Haul Tipping Floor	KH, IS	✓		
Building Superstructure	Inspector	Overall Condition		
Primary Structural Steel Frame	KH, IS	✓		
Primary Structural Steel Columns	KH, IS	✓		
Secondary Wall Framing - Rust visible throughout area	KH, IS	✓		
Secondary Roof Framing - Rust visible throughout area	KH, IS	✓		
Concrete Stem Walls	KH, IS	✓		
Concrete Push Walls	KH, IS	✓		
Metal Wall Panels/Trim - Cleaning needed inside in the vicinity of chutes; see Photo 2 - Wall panel damaged above compactor chute and at north wall	KH, IS	✓		

Translucent Wall Panels/Trim - Cleaning needed inside in the vicinity of chutes	KH, IS	✓		
Metal Roof Panels/Trim - Cleaning needed outside in the vicinity of vents and ridgeline; see Photo 3 - Cleaning needed inside in the vicinity chutes - Exterior fall restraint system boots have failed; see Photo 4	KH, IS	✓		
Translucent Roof Panels/Trim	KH, IS	✓		
Louvers and Vents - Roof ridge cap vent screens need to be cleaned	KH, IS	✓		
Coiling Overhead Doors/Door Operators and Hardware - Safety device wiring damaged - Cleaning needed	KH, IS	✓		
Personnel Doors/Door Hardware	KH, IS	✓		
Roof Insulation - Insulation in the process of being replaced with rigid insulation; see Photo 5 - Some insulation not mounted correctly. Installation requirements should be confirmed (bands, edge tape, joints); see Photo 6	KH, IS		✓	
Gutters and Downspouts - West downspouts recently replaced and hard piped to stormwater system	KH, IS	✓		
Miscellaneous Metals	Inspector	Overall Condition		
		Good	Fair	Poor
Bollards - Damaged bollard at public exit door of transfer building should be repaired	KH, IS	✓		
Guardrails	KH, IS	✓		
Hoppers and Chutes	KH, IS	✓		
Ladders	KH, IS	✓		

Building Signage	Inspector	Overall Condition		
		Good	Fair	Poor
Warning and Instructional Signage <ul style="list-style-type: none"> - Cleaning needed 	KH, IS		✓	
Identification Signage <ul style="list-style-type: none"> - New signage 	KH, IS	✓		
Mechanical Systems	Inspector	Overall Condition		
Good	Fair	Poor		
Potable Water System Piping <ul style="list-style-type: none"> - Existing piping is copper and no evidence of deterioration noted 	LS	✓		
Potable Water System Appurtenances	LS		✓	
<ul style="list-style-type: none"> • Valves 	LS	✓		
<ul style="list-style-type: none"> • Insulation <ul style="list-style-type: none"> - Some areas of piping are covered with insulation without a protective jacket - Some piping does not have insulation. Insulation should be provided. As a minimum, piping that is ran to emergency showers and eyewashes should be verified as insulated. 	LS		✓	
<ul style="list-style-type: none"> • Heat Trace <ul style="list-style-type: none"> - Portions of the exposed piping in the Transfer Station Building appear to have heat trace for protection from freezing; however, there are no records that the heat tracing is periodically tested. As a minimum, piping that is heat traced and ran to emergency showers and eyewashes should be verified as being functional. 	LS			✓
<ul style="list-style-type: none"> • Identification <ul style="list-style-type: none"> - Valves have tags but no valve tag list. Tags serve no purpose. 	LS			✓
<ul style="list-style-type: none"> • Emergency Eyewash and Showers, EEW-1 North <ul style="list-style-type: none"> - The emergency eyewash at the north end of the building is missing the protective cap. There is significant dirt build-up on the eyewash nozzle, showing this is not a new condition. This poses a risk of foreign objects entering the water in case of an emergency. The eyewash should be cleaned and the cover should be replaced and kept closed when not in use. 	JR, LS			✓

<ul style="list-style-type: none"> • Emergency Eyewash and Showers, EEW-1 South - The emergency eyewash/shower at the south end near the public dumping area is blocked by a container - The eyewash did not have the protective cap closed. There was significant dirt build-up on the eyewash nozzle and on the underside of the cap, showing it is regularly left open. This poses a risk of foreign objects entering the water in case of an emergency. The eyewash should be cleaned and the covers should be kept closed when not in use. 	JR, LS			✓
<p>Non-Potable Water System Piping</p> <ul style="list-style-type: none"> - The Transfer Building has a reduced pressure backflow preventer to protect the public water system; however, the potable water and non-potable water are not separated. The piping is co-mingled with fire hose streams, emergency shower and eye wash fixtures and hose reels for spray down of the Transfer Building Floor. The current arrangement is not code-compliant per Uniform Plumbing Code (UPC) Chapter 6, Sections 602.0 – Unlawful Connections and 603.0 – Cross Connection Control and Washington Administrative Code (WAC) 246-290-490 and does pose a backflow hazard to the potable onsite water system, as well as the water supply system serving the facility. See Appendix B for code requirements. This should be addressed as a high public health risk; see Photos 7 and 8. 	LS			✓
<p>Non-Potable Water System Appurtenances</p> <ul style="list-style-type: none"> - Hose reels are being used for washdown as well as being labeled for fire protection - These hose reels are not fire hose reels - It is highly recommended that the entire water piping system be reviewed for code conformance and appropriate labeling, including removal of “Fire Protection Water”, and that potable/non-potable water piping isolation be provided; see Photo 8 	LS			✓
<ul style="list-style-type: none"> • Valves 	LS		✓	
<ul style="list-style-type: none"> • Insulation - Some areas of piping are covered with insulation without a protective jacket - Some piping does not have insulation. Insulation should be provided. 	LS		✓	
<ul style="list-style-type: none"> • Heat Trace - Portions of the exposed piping in the Transfer Station Building appear to have heat trace for protection from freezing; however, there are no records that the heat tracing is periodically tested. As a minimum, piping that is heat traced and ran to emergency showers and eyewashes should be verified as being functional. 	LS			✓

<ul style="list-style-type: none"> • Identification - The current piping arrangement is labeled with potable hot and cold water and fire protection water. Non-potable designations are not used, but the systems are clearly co-mingled and not code compliant. - The current arrangement does pose a backflow hazard to the potable water uses in the Transfer Office Building, as well as the potable emergency shower and eyewash uses in the building - This should be addressed as a high public health risk; see Photo 8 	LS			✓
Fire-Sprinkler System	LS		✓	
<ul style="list-style-type: none"> • Piping - The exterior condition of the piping appears to be normal for the age of the facility – 15 years and did operate satisfactorily during the recent fire 	LS		✓	
<ul style="list-style-type: none"> • Sprinkler Heads - All sprinkler heads in the Transfer Building were replaced as a requirement of the Fire Marshal following the fire. It is not clear if the sprinkler heads outside of the Main Transfer Floor (exterior and in the lower compactor area, recycle area) were replaced. It should be confirmed if these were replaced. If not, they should be replaced to bring the entire facility up to standards. 	LS		✓	
<ul style="list-style-type: none"> • Risers - At the fire sprinkler riser, a note on the 7/2015 inspection card indicated “System Has Deficiencies”; however, it was not confirmed what these deficiencies are, and if they have been addressed. Action required to follow up on this item; see Photo 9. 	LS			✓
Building Drainage System	LS		✓	
<ul style="list-style-type: none"> • Floor Drains and Inlets - The drains under the compactor and under the recycle loading container were not observed. It was noted that personnel clean these areas on a daily basis and very little debris was present. 	LS	✓		
<ul style="list-style-type: none"> • Sumps - The sumps were not opened during the inspection, but were noted to function properly by site personnel. Very little water is collected as the facility is treated as a dry floor without washdown. 	LS	✓		
<ul style="list-style-type: none"> • Pumps - The pumps were not operated during the inspection, but were noted to function properly by site personnel. Very little water is collected as the facility is treated as a dry floor without washdown. 	LS	✓		

<ul style="list-style-type: none"> • Level Alarm - The level alarms were not tested during the inspection, but were noted to function properly by site personnel. Very little water is collected as the facility is treated as a dry floor without washdown. 	LS	✓		
<ul style="list-style-type: none"> • Contact Water Holding Tank - The holding tank is checked weekly for level – this data is not recorded. When tank pump out is required, this activity is recorded. - A new level gauge is scheduled for installation to speed up the level reading, currently done with a dip stick - Very little wastewater is actually collected and is highly dependent upon rain. During the summer months the tank does not fill and has not been pumped since March 2016 	LS		✓	
<p>Building Ventilation System</p> <ul style="list-style-type: none"> - The old abandoned fans noted in 2014 which were not functional have been removed - Of the eight (8) fan locations in the Transfer Building Commercial Tipping Floor, five (5) are installed and three (3) are missing. In the Self Haul Tipping Floor, only one (1) of the two (2) fans is installed. - None of the installed six (6) fans are properly connected to the roof vent. This results in exhaust air being recirculated back into the building which is likely one of the causes for heavy smoke accumulation in the Transfer Building during the fire. - All required fans should be installed to ensure adequate exhaust is being provide for the operation of motorized vehicles; see Photos 10 and 11 - The effectiveness of the exhaust ventilation is highly suspect with the current installation and the condition of the existing fans that have not been replaced. Improvements are necessary along with air balancing to ensure that adequate exhaust levels are being provided to meet code requirements per the International Mechanical Code (IMC) Section 404 – Enclosed Parking Garages requiring 0.75 CFM/SF continuous exhaust. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1 -2010 – Ventilation for Acceptable Indoor Air Quality requires 0.75 CFM/SF for Parking Garages and 1.5 CFM/SF for Auto Repair Rooms. It is recommended that in areas with diesel engines operating at high power, the higher exhaust rate should be available. The original design exhaust rate was 4.5 CFM/SF which was more than adequate when the exhaust system was functional. See Appendix B for code requirements. 	LS			✓
<p>Building Heating System(s)</p> <ul style="list-style-type: none"> - The only heat for the building is located in the Fire Sprinkler Riser Room and the Electrical Room which appear to operate satisfactorily – no lack of heat has been reported - Wall heater in sprinkler riser room has excessive dust build-up and should be cleaned 	JR, LS	✓		
<p>Equipment Fueling System</p> <ul style="list-style-type: none"> - The equipment fueling system was observed, but not tested. This double wall containment tank is of small capacity and is not frequently used 	LS	✓		

Air Compressor <ul style="list-style-type: none"> - Air compressor on Tipping Room Floor at NE corner of building needs to be cleaned. Excessive dust causes heat build-up when running; see Photo 12. - Air compressor belt guard is missing on the rear side; see Photo 13. This is a safety issue and the guard should be replaced. 	JR		✓	
Electrical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Electrical Distribution Equipment	JR	✓		
Conduit Systems	JR	✓		
Cable and Wiring Systems	JR	✓		
Wiring Devices <ul style="list-style-type: none"> - Receptacle in-use cover is missing from GFCI in middle of east wall. Cover should be repaired. 	JR	✓		
Panelboards	JR	✓		
Transformers	JR	✓		
Lighting Fixtures	JR	✓		
<ul style="list-style-type: none"> • Interior Fixtures - New LED fixtures - It is unclear if the carabineer style clips used to hang the pendant lights are rated for that use. They do not appear to be provided by the manufacturer; see Photo 14. The fixtures should be hung from hardware designed and intended for that purpose. 	JR, IS		✓	
<ul style="list-style-type: none"> • Exterior Building Mounted Fixtures - New LED fixtures 	JR, IS	✓		
<ul style="list-style-type: none"> • Exit and Pathway Lighting System - Emergency egress lights should be cleaned 	JR	✓		

<p>Lighting Control Devices</p> <ul style="list-style-type: none"> - Lighting Control Box, CP-3, is located in the main electrical room. The cover has hand written instructions directing to place the control in "Auto" after use in "Hand." The switch was found in "Off." It is unclear if these lights are intended to be in "Auto" or "Off." 	JR	✓		
<p>Fire Detection and Alarm System</p> <ul style="list-style-type: none"> - The fire alarm strobes should be cleaned 	JR	✓		
<p>Video Surveillance System</p> <ul style="list-style-type: none"> - Need adjustment after installation work is complete 	JR	✓		



Photo 1: Water Ponds within Commercial Entrance



Photo 2: Chute Walls and Ceiling



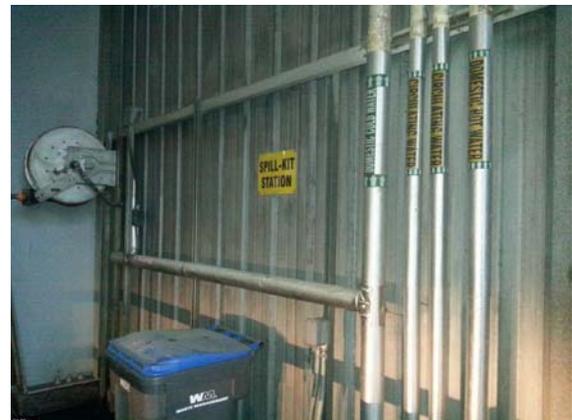
Photos 3 and 4: Roof and Fall Restraint System



Photo 5: Insulation Replacement



Photo 6: Insulation Installation Method



Photos 7 and 8: Potable and Non-Potable Water

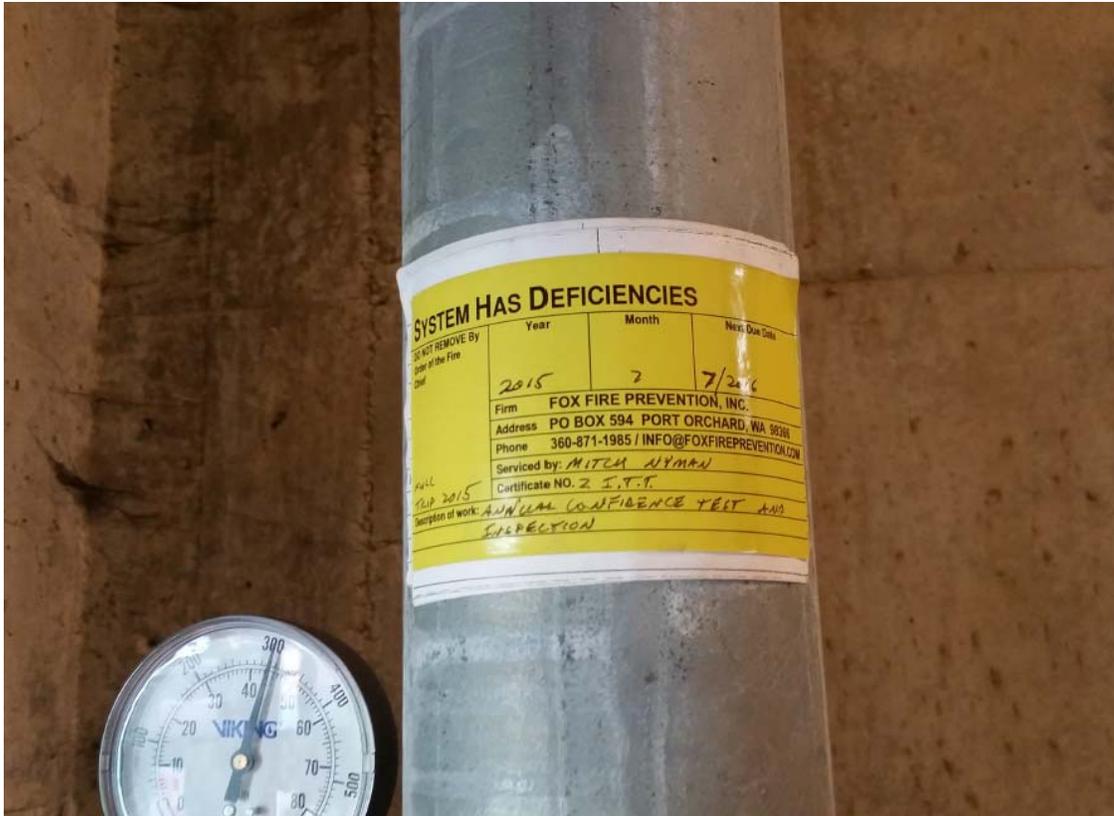


Photo 9: Fire Sprinkler System Riser



Photos 10 and 11: Missing Fans and Exhaust Ductwork



Photos 12 and 13: Air Compressor Dust and Missing Guard



Photo 14: Interior Light Fixture Mounting

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **SPECIAL WASTE/RECYCLING AREA**

Inspection Date: August 16, 2016

Building Substructure	Inspector	Overall Condition		
		Good	Fair	Poor
Foundation Walls	KH, IS	✓		
Commercial Tipping Floor	KH, IS	✓		
Building Superstructure	Inspector	Overall Condition		
		Good	Fair	Poor
Primary Structural Steel Frame	KH, IS	✓		
Primary Structural Steel Columns	KH, IS	✓		
Secondary Wall Framing - Rust visible throughout area, See Photo 1	KH, IS	✓		
Secondary Roof Framing - Rust visible throughout area; see Photo 1	KH, IS	✓		
Concrete Stem Walls	KH, IS	✓		
Concrete Push Walls	KH, IS	✓		
Metal Wall Panels/Trim - Cleaning needed - Wall damage adjacent to south hose reel	KH, IS	✓		
Translucent Wall Panels/Trim - Cleaning needed	KH, IS	✓		

Metal Roof Panels/Trim - Cleaning needed	KH, IS	✓		
Gutters and Downspouts	KH, IS	✓		
Miscellaneous Metals	Inspector	Overall Condition		
		Good	Fair	Poor
Bollards - Some have been recoated, but other still in need	KH, IS	✓		
Guardrails - Some have been recoated, but other still in need	KH, IS	✓		
Hoppers and Chutes	KH, IS	✓		
Ladders - Access ladder needed from Transfer Building roof	KH, IS			✓
Building Signage	Inspector	Overall Condition		
		Good	Fair	Poor
Warning and Instructional Signage - "Fall Hazard" sign needs to be cleaned to ensure legibility			✓	
Mechanical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Potable and Non-Potable Water Systems Piping and Appurtenances - North hose reel is missing; see Photo 2 - Comments for the area are consistent with and discussed in detail in the Transfer Building review	LS			✓
Electrical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Conduit Systems	JR	✓		
Lighting Fixtures	JR		✓	
<ul style="list-style-type: none"> Interior Fixtures - New LED fixtures - Previously, there were 5 ceiling fixtures. Currently, there are only 3, but it appears the area is wired for a fourth in the southwest corner; see Photos 3 and 4. 	JR, IS		✓	

<ul style="list-style-type: none"> • Exterior Building Mounted Fixtures - New LED fixtures 	JR, IS	✓		
Site	Inspector	Overall Condition		
		Good	Fair	Poor
Fire Extinguishers <ul style="list-style-type: none"> - Extinguishers were spot checked and found to have been inspected/serviced in July 2016. 	IS	✓		
Fall Protection <ul style="list-style-type: none"> - Signage in place, but needs to be cleaned 	KH, IS		✓	
Fencing <ul style="list-style-type: none"> - Litter and vegetation along fence line should be cleared 	KH, IS	✓		
Roadway Pavement <ul style="list-style-type: none"> - Debris needs to be cleaned up in vicinity of ecology blocks - Vehicle track-out 	KH, IS	✓		
Stormwater Management System	KH, IS	✓		



Photo 1: Secondary Wall and Roof Framing Rust

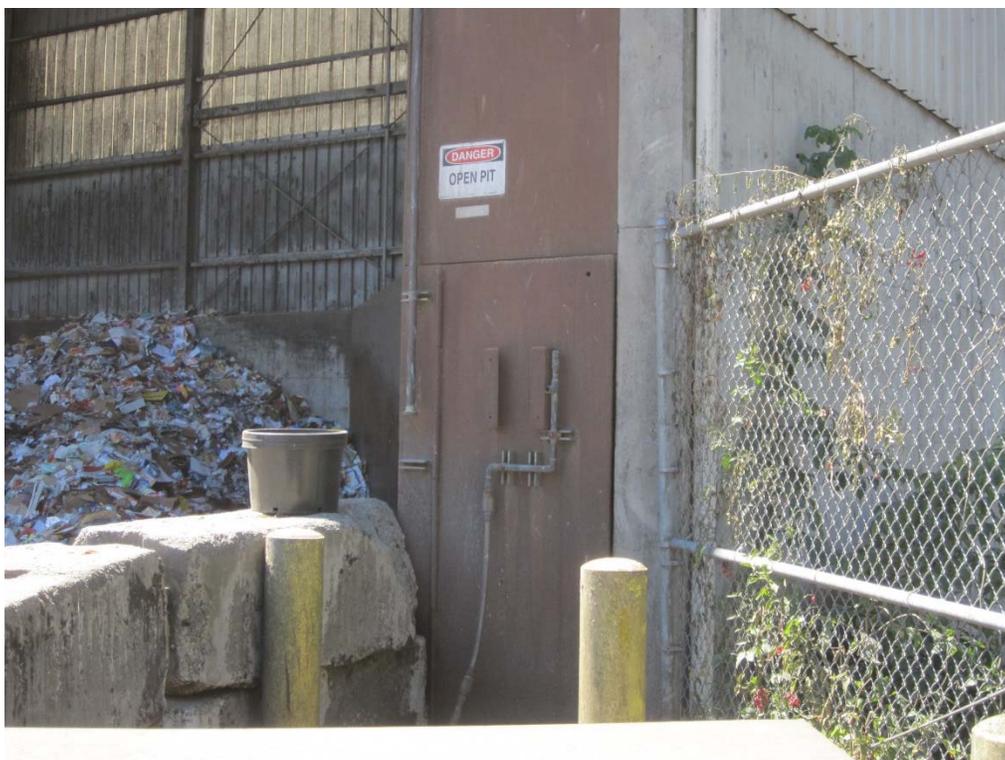


Photo 2: North Hose Reel



Photos 3 and 4: Missing Light Fixture

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **TRANSFER STATION OFFICE BUILDING**

Inspection Date: August 16, 2016

Building Structure	Inspector	Overall Condition		
		Good	Fair	Poor
Foundation Walls	KH, IS	✓		
Metal Wall Panels/Trim - Rust/corrosion at bottom of exterior wall panels should be prepared and recoated	KH, IS	✓		
Metal Roof Panels/Trim - Cover between the office building and Transfer Building is rusting	KH, IS	✓		
Louvers and Vents - West louver housing needs perimeter closure gasket/sealing	KH, IS	✓		
Personnel Doors/Door Hardware	KH, IS	✓		
Windows - Clean exterior tracks	KH, IS	✓		
Gutters and Downspouts	KH, IS	✓		
Ceilings - Damaged, soiled, or stained tiles should be replaced - Some tile not seated properly	KH, IS	✓		
Walls - Worn and marked up needing patching and paint	KH, IS	✓		
Floors - Generally scuffed up needing to be cleaned and waxed	KH, IS	✓		

Building Signage	Inspector	Overall Condition		
		Good	Fair	Poor
Warning and Instructional Signage	KH, IS	✓		
Mechanical Systems	Inspector	Overall Condition		
Potable Water System Piping	LS	Good	Fair	Poor
- Existing water piping system is copper with no visible deterioration		✓		
Potable Water System Appurtenances	LS	✓		
<ul style="list-style-type: none"> Valves - No visible deterioration 	LS	✓		
<ul style="list-style-type: none"> Identification - Valves are provided with numbered valve tags but a valve tag list is not provided 	LS			✓
<ul style="list-style-type: none"> Water Tank and Supply Heater - Existing water heater has no apparent deterioration - Water temperature set at 100F which does present a health hazard from Legionella because of the tank temperature. Temperature should be elevated to 140F to kill bacteria and then be tempered to 120F for distribution. 	LS			✓
<ul style="list-style-type: none"> Plumbing Fixtures - Plumbing fixtures are in fair condition - Fixtures noted in the 2014 inspection to have deficiencies have been properly repaired except the Breakroom Sink Faucet still leaks at the operator 	LS	✓		
Building Drainage System - No deficiencies noted	LS	✓		
Building Ventilation System - Control of the building exhaust system remains an issue. The exterior public restroom switch is the master switch for the central exhaust system. This switch was off and other switches in the building would not activate the system, leaving the building without proper exhaust ventilation. It is recommended that the local switches be rewired and the system control interlocked with the building heating system to activate during the occupied mode.	LS			✓
Building Heating/Cooling System	LS		✓	
<ul style="list-style-type: none"> Baseboard Heaters - Baseboard heating around the perimeter exposure rooms each have individual thermostat control 	LS	✓		

<ul style="list-style-type: none"> • Thermostats - The knob on the Women's Locker Room heater is missing from the thermostat 	LS		✓	
<ul style="list-style-type: none"> • Men's Locker Room - Combustible material is hanging directly over the Men's Locker Room heater creating a fire hazard; see Photo 1 	LS			✓
<ul style="list-style-type: none"> • Heat Pump - The split system heat pump is operational; however, feces noted above T-bar ceiling 	LS		✓	
Electrical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Electrical Distribution Equipment	JR	✓		
Conduit Systems	JR	✓		
Cable and Wiring Systems	JR	✓		
Wiring Devices <ul style="list-style-type: none"> - Receptacle cover plate missing in corridor - Switch cover plate broken in County restroom - In-use receptacle cover outside the County office exterior door has been modified in a way to allow water to enter and should be replaced 	JR	✓		
Panelboards	JR	✓		
Transformers	JR	✓		
Lighting Fixtures	JR	✓		
<ul style="list-style-type: none"> • Interior Fixtures - New LED fixtures - Multiple lighting diffusers had dead bugs and dirt inside diffusers should be removed - Men's restroom lighting diffuser is missing and needs to be replaced 	JR, IS	✓		
<ul style="list-style-type: none"> • Exterior Building Mounted Fixtures - New LED fixtures 	JR, IS	✓		

Exit and Pathway Lighting System	JR	✓		
Lighting Control Devices	JR	✓		
Fire Detection and Alarm System <ul style="list-style-type: none"> - The fire alarm control cabinet is blocked by a piece of communications equipment mounted to the adjoining wall. This prevents the door from closing and allowing proper access. This is in violation of the NEC. The equipment blocking the cabinet should be relocated to provide proper working clearances; see Photo 2. 	JR			✓
Electrical Room UPS <ul style="list-style-type: none"> - UPS in electrical room is currently sitting on a folding metal chair. This is not a secure location with risk of equipment damage. The UPS should be elevated above the floor, but on an appropriate shelf or bracket. 	JR			✓
Server Cabinet <ul style="list-style-type: none"> - New server cabinet is located in the County office space to the left of the kitchen; see Photo 3. Power for the cabinet is from a general use GFCI receptacle at the kitchen counter. There is a UPS inside the cabinet to protect against a brief power loss, but there is risk of the GFCI tripping and personnel not resetting. This would result in power loss to the server. It is recommended that a dedicated receptacle be installed to serve the cabinet. 	JR		✓	
Additional Items	Inspector	Overall Condition		
		Good	Fair	Poor
ADA Compliance <ul style="list-style-type: none"> - Grab bars not installed for ADA restroom 	LS	✓		
Exterior Sidewalk <ul style="list-style-type: none"> - Curb damage should be repaired 	IS	✓		



Photo 1: Baseboard Heater Fire Hazard



Photo 2: Fire Alarm Panel Obstruction



Photo 3: Server Cabinet

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **SCALE FACILITY**

Inspection Date: August 16, 2016

Building	Inspector	Overall Condition		
		Good	Fair	Poor
Foundation Walls	KH, IS	✓		
Metal Wall Panels/Trim - Walls have been repaired to prevent previous leakage	KH, IS	✓		
Roof/Trim - Needs to be cleaned	KH, IS	✓		
Louvers and Vents	KH, IS	✓		
Personnel Doors/Door Hardware	KH, IS	✓		
Windows	KH, IS	✓		
Gutters and Downspouts - Roof downspout needs an additional elbow to direct flow downward	KH, IS	✓		
Ceilings	KH, IS	✓		
Walls - Worn and marked up needing patching and paint - Previous water damage at base in vicinity of scale attendants has been repaired; see Photo 1 - Toilet paper holder has broken from the wall	KH, IS	✓		
Floors - Generally scuffed up needing to be cleaned and waxed - Damaged tile should be replaced, including in front of toilet	KH, IS		✓	

Mechanical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Potable Water System Piping	LS	✓		
Potable Water System Appurtenances - Plumbing fixtures in good condition – lavatory, kitchen sink, exterior hose bib (with vacuum breaker, freezeproof style)	LS	✓		
<ul style="list-style-type: none"> • Valves - Building shutoff valve and shutoff to water heater have limited access within kitchen sink cabinet but condition is acceptable 	LS	✓		
<ul style="list-style-type: none"> • Water Tank and Supply Heater 	LS	✓		
<ul style="list-style-type: none"> • Water Heater HWH-2 - Limited access under kitchen counter 	LS		✓	
<ul style="list-style-type: none"> • Exterior Drain Lines (Condensate and Water Heater Relief) - One is caulked, two have metal flashing without caulk – condition acceptable. Caulking will deteriorate over time - One of the flashed drains is likely from the old cooling unit and is no longer being used for condensate – can be removed 	LS		✓	
Building Drainage System	LS	✓		
Building Ventilation System	LS			✓
<ul style="list-style-type: none"> • Scale House Ventilation - Exhaust only, no ventilation provided through new split system heat pump. The 2015 International Mechanical Code does permit the use of natural ventilation through windows, doors, louvers or other openings with a minimum operable opening of 4% of the floor area being ventilated. With the size of the scale house and the existing operable window and doors, natural ventilation will classify the spaces to be in compliance; however, the scale house openings are considered a noxious contamination source in accordance with International Mechanical Code (IMC) Chapter 4, Article 401.4 – Intake Opening Location. Alternative ventilation should be provided. See Appendix B for code requirements - Ventilation air requirements require 5 CFM/occupant plus 0.06 CFM/SF for the building area per IMC Chapter 4 – Ventilation. 	LS			✓
<ul style="list-style-type: none"> • Bathroom Control Switches - Bathroom exhaust fan is controlled by on/off switch – recommend that a motion sensor with delay timer be installed to control both the lights and the exhaust fan; see Photo 2 	LS		✓	

Building Heating System(s)	LS			✓
<ul style="list-style-type: none"> • Ductless Split System <ul style="list-style-type: none"> - Split system heat pump was installed in 2012 with intent to provide full heating and cooling of Scale House; see Photo 3. Comfort conditions throughout the scale house may need additional consideration due to the heated/cooled air blowing directly into the small area separation wall which inhibits the distribution of air to the operator area. The unit also blows air onto the thermostats that control the unit, as well as the baseboard heater thermostats. This may result in operation of the equipment based on the conditions within the isolated area, rather than the entire scale house. Relocation of thermostats to the operator area would improve temperature control in the scale house. - The system does not functionally provide required ventilation air needed for the area – see “Scale House Ventilation”, above - Split system heat pump is in acceptable condition, exterior unit dirty 	LS		✓	
<ul style="list-style-type: none"> • Baseboard Heaters <ul style="list-style-type: none"> - Existing baseboard electric heaters are located in areas with material (boxes, furniture, etc.) in front of the heaters which is a fire hazard. It is recommended that the electric heaters be moved to a location under the transaction windows where they would be much more effective during the winter; see Photos 4 and 5. 	LS			✓
<ul style="list-style-type: none"> • Electric Heater Controls <ul style="list-style-type: none"> - Controls for the electric heaters have had dials removed, requiring operation by pliers (both the control room heaters and the bathroom heater). These should be added to allow set point control. There are inexpensive line voltage thermostats with digital readout that would be more effective, provided they are installed in proper locations. - There are multiple heater controls on the interior wall separating the kitchen area from the operator area, it is difficult to tell what controls are active and if they function; see Photo 6 	LS			✓
Electrical Systems	Inspector	Overall Condition		
		Good	Fair	Poor
Electrical Distribution Equipment	JR	✓		
Conduit Systems <ul style="list-style-type: none"> - Conduit separated from LB fitting at SE corner of building and should be repaired; see Photo 7 	JR		✓	
Cable and Wiring Systems <ul style="list-style-type: none"> - Miscellaneous equipment cables and wiring under countertops should be better organized - Cabling is in close proximity to baseboard heater and should be relocated 	JR			✓

Wiring Devices - Power strip and splitting extension cords used to feed coffee maker, water cooler, microwave, toaster oven, and refrigerator. This can lead to overloading the circuit. Permanent receptacles should be added, potentially with additional circuits to prevent overloading.	JR		✓	
Panelboards - Interior generator transfer panel has exposed receptacle contacts. It is unclear how the additional exterior receptacle is connected. There is risk of electrical shock while in use if these are connected to each other. Modification to interior panel would void the UL listing. Exterior receptacle should be removed, or interior panel should be replaced with different equipment; see Photos 8 and 9.	JR			✓
Lighting Fixtures	JR	✓		
• Interior Fixtures	JR	✓		
• Exterior Building Mounted Fixtures	JR	✓		
Lighting Control Devices	JR	✓		
Video Surveillance System	JR	✓		
Site	Inspector	Overall Condition		
		Good	Fair	Poor
Scales - Vegetation buildup at/below scale edges should be removed	KH, IS	✓		
• Structural - Load cell slabs are depressed and will pond water - Frames need recoating; see Photos 10 and 11 - Commercial inbound concrete deck is heavily fractured with spalls; see Photo 12	KH, IS		✓	

<ul style="list-style-type: none"> • Electrical - Seal-tight flexible conduit pulled out of connectors at incoming scale and outgoing signal light should be repaired; see Photo 13 - Sun damaged seal-tight flexible conduit should be replaced before failure - Seal-tight flexible conduit is secured to signal light columns with steel hose clamps and plastic zip ties. Some conduit has been crushed by the hose clamps. Appropriate conduit support should be installed per the NEC. - Broken PVC conduit at north end of outgoing scale should be repaired; see Photo 14 - Attempted repairs to broken and separated conduit should be redone per NEC and manufacturer's instructions; see Photo 15 - Improper use of electrical connectors should be corrected using proper fittings. Currently using three different non-compatible items to transition conduit to exposed cable at commercial scale display; see Photo 16. - Electrical support beam clamps are sheet metal construction and have rusted. Hardware should be replaced with different material with improved corrosion protection before failure. Used in multiple locations. 	JR			✓
Pavement <ul style="list-style-type: none"> - Vegetation and soil overlaying pavement edges - Asphalt cracks and joints need to be sealed. Some cracking has vegetative growth - Rutting is wearing into the entrance lanes - Gravel surfacing at the shoulder south of the outbound scale is a dirt and gravel mix, and will likely rut and cause sediment track out 	KH, IS	✓		
Stormwater Drainage <ul style="list-style-type: none"> - Slopes within the vicinity of the scales and scale house do not drain and, though not evident on the dry day, pond significant water 	KH, IS			✓
Roadway Striping <ul style="list-style-type: none"> - Striping is worn out in some locations 	KH, IS		✓	
Bollards and Posts	KH, IS	✓		
Signage <ul style="list-style-type: none"> - New signage added 	KH, IS	✓		
Lighting <ul style="list-style-type: none"> - New LED luminaries 	IS	✓		
Fencing <ul style="list-style-type: none"> - Soil and vegetation buildup at fence base 	KH, IS	✓		

ADA Compliance - Entrance door has a step rather than flat or ramped access	KH, IS		✓	
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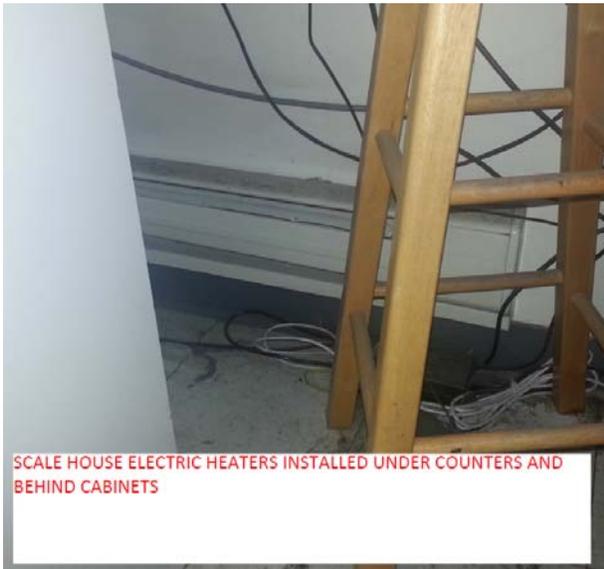
Photo 1: Repaired Attendant Walls



Photo 2: Bathroom Controls



Photo 3: Split System Heat Pump



SCALE HOUSE ELECTRIC HEATERS INSTALLED UNDER COUNTERS AND BEHIND CABINETS



SCALE HOUSE ELECTRIC HEATERS BEHIND FURNITURE

Photos 4 and 5: Baseboard Heaters



Photo 6: Electric Heater Controls



Photo 7: Conduit Separation



Photos 8 and 9: GenTran Receptacles



Photos 10 and 11: Scale Coatings



Photo 12: Inbound Commercial Scale Deck



Photo 13: Flexible Conduit Pulled Out of Connectors



Photo 14: Broken Conduit



Photo 15: Improper Conduit Repairs



Photo 16: Improper Conduit Transition

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **INTERMODAL/RAIL YARD**

Inspection Date: August 16, 2016

Yard Features and Observations	Inspector	Overall Condition		
		Good	Fair	Poor
Stormwater Pump Station - Operational	KH, IS	✓		
Contact Water Tank - Operational	KH, IS	✓		
Stormwater Lift Station - Operational	KH, IS	✓		
Compactor Unload Area - Clean and well maintained area	KH, IS	✓		
Rail Spur Area - Crushed rock has vegetation growth that should be removed	KH, IS	✓		
Stormwater Management System - Pond A is overgrown and has invasive vegetation issues; see Photo 1 - Ponds may have debris and sediment buildup, including at inlets and outlets that can limit flow and infiltration - Riprap filter berms may have debris, sediment, and vegetation buildup that reduces filtering ability - Brush vegetation can create areas to harbor pests	KH, IS	✓		
<ul style="list-style-type: none"> • Catch Basins - Catch basin adjacent to the contact water tank has an improperly sized grate; see Photo 2. - Catch basin grate at the south end of the west most trench drain is high. Condition not evident, but assumed to exit based on no changes since 2014 inspection. 	KH, IS	✓		
<ul style="list-style-type: none"> • Drainage Slopes - A wear and settlement depression has developed along the rail spur trench drain that allows for water to accumulate. This is caused by the repetitive loading and unloading of containers along this area; see Photo 3. 	KH, IS	✓		

Landscaping <ul style="list-style-type: none"> - The fence line and other areas are overgrown with invasive brush and weeds; see Photos 4 and 5 	KH, IS		✓	
Roadway Pavement and Curbs <ul style="list-style-type: none"> - Paving is showing increased wear compared to 2014 with cracks increasing along the placement strip edges - Asphalt cracks and joints need to be sealed; see Photo 6. Some cracking has vegetative growth - Some locations are growing moss and need to be pressure-washed - There is pavement wear, surface erosion, deformation and abrasion from container loading on the pavement; see Photo 7, 8 and 9 - Pavement conditions in the WM pre-packed storage area may want to be considered independently from the remainder of the yard; see Photo 10 - Some settlement/rutting/dishing along rail spur from top-pick loading as discussed under Drainage Slopes; see Photo 3. - Some sections of curb are fractured - Settlement and wear is occurring at the compactor unload area due to the repetitive use by the top-pick equipment. Cold patch asphalt has been utilized for temporary restoration; see Photo 11. 	KH, IS		✓	
Fencing	KH, IS		✓	
Guardrails <ul style="list-style-type: none"> - Bull rails along compactor and top load tunnel need to be cleaned and recoated 	KH, IS		✓	
Lighting System <ul style="list-style-type: none"> - Exterior lighting has been replaced with LED luminaires, which the exception of the two light poles at the south end of the yard; see photo 12 	KH, IS, JR		✓	
Video Surveillance System	KH, IS		✓	
Retaining Walls <ul style="list-style-type: none"> - Walls need to be cleaned of vegetative growth; see Photo 13 - The wall at the north end on the rail spur has been demolished and needs to be restored 	KH, IS		✓	
Fire Hydrants	KH, IS		✓	
Bollards	KH, IS		✓	

French Drains - Silt and refuse buildup needs to be removed	KH, IS	✓		
Gravel Utility Area - Utility area north of Transfer Building has vegetation grown and should be weeded; See Photo 14	KH, IS		✓	
Spill Kit	IS	✓		
Intermodal Worker Shed	Inspector	Overall Condition		
General	KH, IS	✓		
			Good	Fair
				Poor



Photo 1: Pond A Vegetation



Photo 2: Incorrectly Sized Grate



Photo 3: Depression at Rail Spur



Photo 4: Invasive Vegetation



Photo 5: Invasive Vegetation



Photo 6: Pavement Conditions



Photo 7: Pavement Conditions



Photo 8: Pavement Conditions



Photo 9: Pavement Conditions



Photo 10: Pavement Conditions, Pre-Packed Area



Photo 11: Pavement Conditions

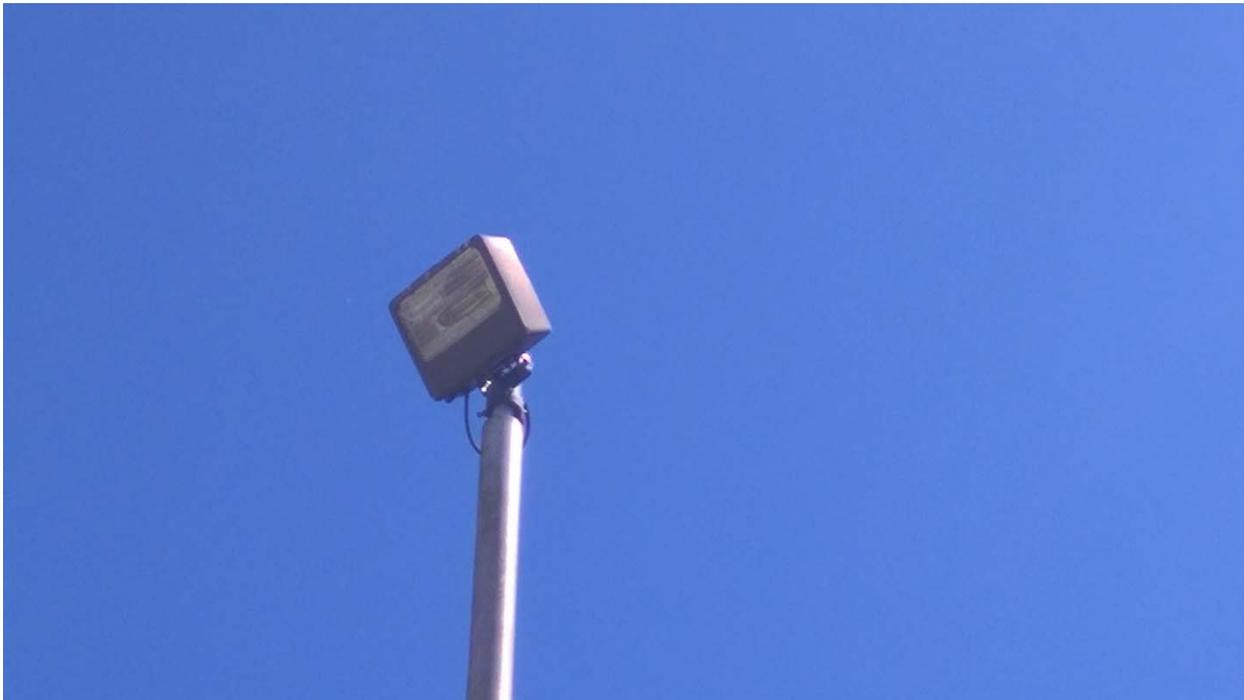


Photo 12: Non-LED Luminaries



Photo 13: Wall Vegetation

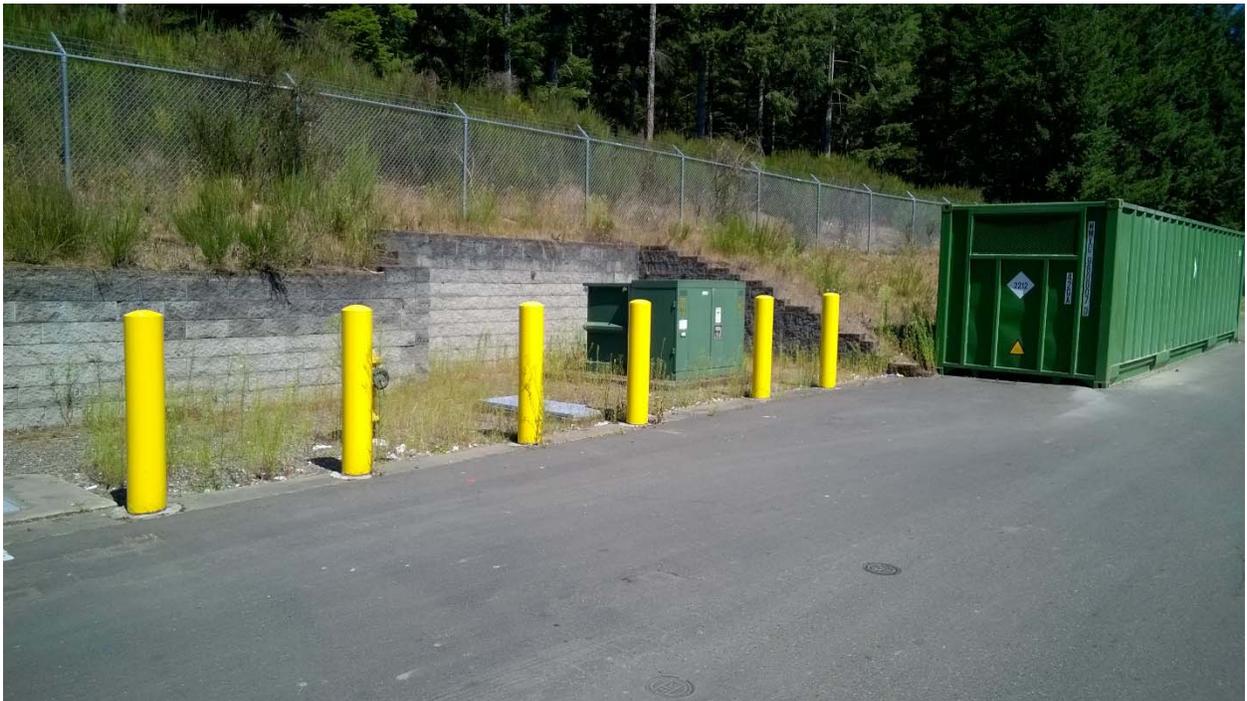


Photo 14: Vegetation in Gravel

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **PUBLIC RECYCLING AREA**

Inspection Date: August 16, 2016

Site Features	Inspector	Overall Condition		
		Good	Fair	Poor
Canopy	KH, IS	✓		
<ul style="list-style-type: none"> • Slab - Surface deterioration which will pond water. New surface topping can raise low areas; see Photo 1. - Concrete/asphalt interface needs to be sealed. 	KH, IS		✓	
<ul style="list-style-type: none"> • Columns - Paint/coating failure and peeling in many locations; see Photos 2 and 3 	KH, IS		✓	
<ul style="list-style-type: none"> • Roof 	KH, IS	✓		
<ul style="list-style-type: none"> • Lights - New LED fixtures; see Photo 4 - Lighting photocell control should be added, limiting use from dusk to dawn - Conduit support beam clamps are sheet metal construction and have rusted. Hardware should be replaced with different material for improved corrosion protection before failure; see Photo 5. 	KH, IS, JR		✓	
Conduits		✓		
Stormwater Management System	KH, IS	✓		
<ul style="list-style-type: none"> • Catch Basins 	KH, IS	✓		
<ul style="list-style-type: none"> • Drainage Slopes - The southeast corner of the area is an access point to an adjacent storage yard. Access is dirt and gravel and will be subject to rutting and sediment into the Public Recycling Area; see Photo 6. 	KH, IS		✓	

Landscaping <ul style="list-style-type: none"> - Some locations have vegetation overgrowing the pavement interface - The fence line is overgrown with brush 	KH, IS		✓	
Roadway Pavement and Curbs <ul style="list-style-type: none"> - Asphalt cracks and joints need to be sealed - Ecology blocks along the east edge have been knocked out of alignment and off the asphalt - The entrance surfacing to the adjacent southeast storage yard is subject to deterioration - A cutoff post is protruding above the asphalt surface at the north end of the area 	KH, IS	✓		
Roadway Striping <ul style="list-style-type: none"> - Striping is worn out 	KH, IS		✓	
Signage <ul style="list-style-type: none"> - Signage and stands are worn and damaged. Kitsap County has already started replacing these signs and is in the process of replacing the remaining signs. 	KH, IS		✓	
Fencing <ul style="list-style-type: none"> - Barbed wire and top rail at the southeast gate are damaged - Pole base embedded in the asphalt have moss growth at the concrete/asphalt interface and need to be sealed 	KH, IS	✓		
Bollards	KH, IS	✓		
Containers and Ramps <ul style="list-style-type: none"> - All but one ramp was replaced since last inspection. Remaining old ramp is worn and missing a middle end rail - On new ramps a total of 5 handrail splice brackets are missing and have been replaced with plastic zip ties and one stair handrail has been damaged and bent - Area around containers and ramps need to be cleaned and have excessive litter; see Photo 7 - Some oil disposal containers are either missing the spill containment mat or the mats have been damaged and are ineffective; see Photos 8 and 9 	KH, IS, JR		✓	
Spill Kit	KH, IS	✓		



Photo 1: Slab Deterioration



Photos 2 and 3: Paint/Coating Failure



Photo 4: New LED Fixtures



Photo 5: Rusted Conduit Clamps



Photo 6: Southeast Corner Dirt and Gravel



Photo 7: Container and Ramp Litter



Photo 8: Missing Spill Containment Mat



Photo 9: Damaged Spill Containment Mat

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **SITE**

Inspection Date: August 16, 2016

Site Features and Observations	Inspector	Overall Condition		
		Good	Fair	Poor
Stormwater Management System <ul style="list-style-type: none"> - Gravel area east of transfer building was recently paved accompanied by stormwater modifications to direct area and transfer building roof drainage to the Pond B instead of the Pond D 	KH, IS	✓		
<ul style="list-style-type: none"> • Catch Basins <ul style="list-style-type: none"> - Outfall to offsite contains litter 	KH, IS	✓		
<ul style="list-style-type: none"> • Ponds <ul style="list-style-type: none"> - Pond D recently had its bottom reconstructed to include an infiltration trench; see Photo 1 - Pond D improvements and redistribution of more stormwater to Pond B is intended to relieve the previous issue of overfilling Pond D - With the exception of Pond A, ponds volumes are generally clear of debris, sediment buildup, and thick vegetation - Inlets and riprap filter berms have debris, sediment, and vegetation buildup that reduces filtering ability and function; see Photo 2 - Brush vegetation is invading pond slopes and can create areas to harbor pests; see Photo 3 	KH, IS		✓	
<ul style="list-style-type: none"> • Drainage Slopes 	KH, IS	✓		
<ul style="list-style-type: none"> • Pumping System <ul style="list-style-type: none"> - Not observed 				
<ul style="list-style-type: none"> • Stormwater Pump Panel Electrical <ul style="list-style-type: none"> - Rust on electrical control enclosure should be treated and coated 	JR	✓		
Sanitary Lift Station <ul style="list-style-type: none"> - Not thoroughly observed - Rust on electrical control enclosure should be treated and coated 	JR	✓		
Landscaping <ul style="list-style-type: none"> - Some locations have soil and vegetation overlaying the pavement interface - The fence line and other areas are overgrown with invasive brush 	KH, IS	✓		

Roadway Pavement and Curbs <ul style="list-style-type: none"> - Asphalt cracks and joints need to be sealed. Some cracking has vegetative growth; see Photo 4 - Some asphalt is starting to show spider cracking - Commercial vehicles are cleaning out their back ends outside of the commercial exit which is creating a litter and vector issue; see Photo 5 	KH, IS	✓		
Roadway Striping <ul style="list-style-type: none"> - Some striping is worn out 	KH, IS		✓	
Gravel Surface Areas	KH, IS	✓		
Signage <ul style="list-style-type: none"> - Signage is in the process of being replaced 	KH, IS	✓		
Fencing	KH, IS	✓		
Lighting System <ul style="list-style-type: none"> - Light pole bases are not grouted. This is acceptable since the void space between the pole base and the concrete bases does not allow for tampering access. - New LED luminaries 	KH, IS	✓		
Retaining Walls	KH, IS	✓		
Fire Hydrants	KH, IS	✓		
Stairs <ul style="list-style-type: none"> - Stairs south of Transfer Building leading to the Intermodal/Rail Yard could benefit from the addition of a handrail; see Photo 6 	KH, IS	✓		
White Goods/Tires Area	KH, IS	✓		
Bollards	KH, IS	✓		

<p>Water System</p> <ul style="list-style-type: none"> - Existing water meters were located as a result of the recent paving project – one for Scale House, one for Transfer Building and one for the Transfer Building Fire Sprinkler System - It was determined that off-site water services are protected with the required backflow prevention devices, including fire sprinkler backflow in a vault north of the Intermodal/Rail Yard and at the northeast corner of the Transfer Building in above grade housing. Concern does remain for potable and non-potable isolation within the Transfer Building and Transfer Station Office Building. 	LS	✓		
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Photo 1: Pond D Bottom



Photo 2: Blocked and Overgrown Riprap Filter Berm



Photo 3: Invasive Pond Vegetation



Photo 4: Pavement Cracks



Photo 5: Litter and Vector Attraction



Photo 6: Stairs to the Intermodal/Rail Yard

**KITSAP COUNTY PUBLIC WORKS DEPARTMENT
SOLID WASTE DIVISION
OLYMPIC VIEW TRANSFER STATION
2016 BIENNIAL FACILITY INSPECTION**

Element: **EQUIPMENT**

Inspection Date: August 16, 2016

Equipment	Inspector	Overall Condition		
		Good	Fair	Poor
<p>Compactor</p> <ul style="list-style-type: none"> - Not operated during inspection 	IS	✓		
<p>Volvo Loader 839385</p> <ul style="list-style-type: none"> - Not located on site for the 2014 inspection. Not operated during inspection. 	IS	✓		

<p>Cat 938 Floor Loader 836258</p> <ul style="list-style-type: none"> - Not located on site during inspection 				
<p>John Deere 644J Floor Loader 839157</p> <ul style="list-style-type: none"> - Not operated during inspection 	IS	✓		
<p>John Deere 644K Floor Loader 836429</p> <ul style="list-style-type: none"> - Actively operated during inspection. Not onsite for the 2014 inspection. 	IS	✓		

<p>Taylor TXLC 975 861645 - Actively operated during inspection</p> 	IS	✓		
<p>Taylor TXLC 975 861646 - Actively operated during inspection</p> 	IS	✓		
<p>Cat 308 Excavator 830569 - Not located on site during 2014 or 2016 inspections</p>				
<p>Caterpillar M312 Excavator 830454 - Not operated during inspection</p> 	IS	✓		

<p>Ottawa Yard Goat 829860</p> <ul style="list-style-type: none"> - Not operated during inspection 	IS		✓	
<p>CAT 924G 835319</p> <ul style="list-style-type: none"> - Not located on site during inspection 				
<p>Taylor 861320</p> <ul style="list-style-type: none"> - Not operated during inspection 	IS		✓	

Appendix B

Code Requirements

CHAPTER 6

WATER SUPPLY AND DISTRIBUTION

601.0 Hot and Cold Water Required.

601.1 General. Except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction, each plumbing fixture shall be provided with an adequate supply of potable running water piped thereto in an approved manner, so arranged as to flush and keep it in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

Exception: Listed fixtures that do not require water for their operation and are not connected to the water supply.

In occupancies where plumbing fixtures are installed for private use, hot water shall be required for bathing, washing, laundry, cooking purposes, dishwashing or maintenance. In occupancies where plumbing fixtures are installed for public use, hot water shall be required for bathing and washing purposes. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories, bidets, bathtubs, whirlpool bathtubs and shower control valves.

601.2 Identification of a Potable and Nonpotable Water System. In buildings where potable water and nonpotable water systems are installed, each system shall be clearly identified in accordance with Section 601.2.1 through Section 601.2.4.

601.2.1 Potable Water. Green background with white lettering.

601.2.2 Color and Information. Each system shall be identified with a colored pipe or band and coded with paints, wraps, and materials compatible with the piping.

Except as required in Section 601.2.2.1, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words "CAUTION: NONPOTABLE WATER, DO NOT DRINK." Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall comply with Table 601.2.2.

The background color and required information shall be indicated every 20 feet (6096 mm) but not less than once per room, and shall be visible from the floor level.

601.2.2.1 Alternate Water Sources. Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows:

- (1) Gray water systems shall be marked in accordance with this section with the words "CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK" in yellow letters (Pantone 108 or equivalent).

- (2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words: "CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK" in black letters.
- (3) On-site treated water systems shall be marked in accordance with this section with the words: "CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK" in yellow letters (Pantone 108 or equivalent).
- (4) Rainwater catchment systems shall be marked in accordance with this section with the words: "CAUTION: NONPOTABLE RAINWATER WATER, DO NOT DRINK" in yellow letters (Pantone 108 or equivalent).

601.2.3 Fixtures. Where vacuum breakers or backflow preventers are installed with fixtures listed in Table 1401.1, identification of the discharge side shall be permitted to be omitted.

601.2.4 Outlets. Each outlet on the nonpotable water line that is used for special purposes shall be posted with black uppercase lettering as follows: "CAUTION: NONPOTABLE WATER, DO NOT DRINK."

602.0 Unlawful Connections.

602.1 Prohibited Installation. No installation of potable water supply piping, or part thereof, shall be made in such a manner that it will be possible for used, unclean, polluted, or contaminated water, mixtures, or substances to enter a portion of such piping from a tank, receptor, equipment, or plumbing fixture by reason of backsiphonage, suction, or other cause, either during normal use and operation thereof, or where such tank, receptor, equipment, or plumbing fixture is flooded or subject to pressure exceeding the operating pressure in the hot or cold water piping.

TABLE 601.2.2
MINIMUM LENGTH OF COLOR FIELD AND SIZE OF LETTERS

OUTSIDE DIAMETER OF PIPE OR COVERING (inches)	MINIMUM LENGTH OF COLOR FIELD (inches)	MINIMUM SIZE OF LETTERS (inches)
½ to 1¼	8	½
1½ to 2	8	¾
2½ to 6	12	1¼
8 to 10	24	2½
Over 10	32	3½

For SI units: 1 inch = 25.4 mm

602.2 Cross-Contamination. No person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by a public or private building supply system, and pipes, conduits, or fixtures containing or carrying water from any other source or containing or carrying water that has been used for a purpose whatsoever, or piping carrying chemicals, liquids, gases, or substances whatsoever, unless there is provided a backflow prevention device approved for the potential hazard and maintained in accordance with this code. Each point of use shall be separately protected where potential cross-contamination of individual units exists.

602.3 Backflow Prevention. No plumbing fixture, device, or construction shall be installed or maintained, or shall be connected to a domestic water supply, where such installation or connection provides a possibility of polluting such water supply or cross-connection between a distributing system of water for drinking and domestic purposes and water that becomes contaminated by such plumbing fixture, device, or construction unless there is provided a backflow prevention device approved for the potential hazard.

602.4 Approval by Authority. No water piping supplied by a private water supply system shall be connected to any other source of supply without the approval of the Authority Having Jurisdiction, Health Department, or other department having jurisdiction.

603.0 Cross-Connection Control.

603.1 General. Cross-connection control shall be provided in accordance with the provisions of this chapter.

No person shall install a water-operated equipment or mechanism, or use a water-treating chemical or substance, where it is found that such equipment, mechanism, chemical, or substance causes pollution or contamination of the domestic water supply. Such equipment or mechanism shall be permitted where equipped with an approved backflow prevention device or assembly.

603.2 Approval of Devices or Assemblies. Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved by the Authority Having Jurisdiction. Devices or assemblies shall be tested in accordance with recognized standards or other standards acceptable to the Authority Having Jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through Section 603.5.21.

Devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. Where found to be defective or inoperative, the device or assembly shall be repaired or replaced. No device or assembly shall be removed from use or relo-

cated or other device or assembly substituted, without the approval of the Authority Having Jurisdiction.

Testing shall be performed by a certified backflow assembly tester in accordance with ASSE Series 5000 or otherwise approved by the Authority Having Jurisdiction.

603.3 Backflow Prevention Devices, Assemblies, and Methods.

603.3.1 Airgap. The minimum airgap to afford backflow protection shall be in accordance with Table 603.3.1.

603.3.2 Atmospheric Vacuum Breaker (AVB). An atmospheric vacuum breaker consists of a body, a checking member, and an atmospheric port.

603.3.3 Hose Connection Backflow Preventer. A hose connection backflow preventer consists of two independent check valves with an independent atmospheric vent between and a means of field testing and draining.

603.3.4 Double Check Valve Backflow Prevention Assembly (DC). A double check valve backflow prevention assembly consists of two independently acting internally loaded check valves, four properly located test cocks, and two isolation valves.

603.3.5 Pressure Vacuum Breaker Backflow Prevention Assembly (PVB). A pressure vacuum breaker backflow prevention assembly consists of a loaded air inlet valve, an internally loaded check valve, two properly located test cocks, and two isolation valves. This device shall be permitted to be installed indoors where provisions for spillage are provided.

603.3.6 Spill-Resistant Pressure Vacuum Breaker (SVB). A pressure-type vacuum breaker backflow prevention assembly consists of one check valve force-loaded closed and an air inlet vent valve force-loaded open to atmosphere, positioned downstream of the check valve, and located between and including two tightly closing shutoff valves and test cocks.

603.3.7 Reduced-Pressure Principle Backflow Prevention Assembly (RP). A reduced-pressure principle backflow prevention assembly consists of two independently acting internally loaded check valves, a differential pressure-relief valve, four properly located test cocks, and two isolation valves.

603.3.8 Double Check Detector Fire Protection Backflow Prevention Assembly. A double check valve backflow prevention assembly with a parallel detector assembly consisting of a water meter and a double check valve backflow prevention assembly (DC).

603.3.9 Reduced Pressure Detector Fire Protection Backflow Prevention Assembly. A reduced-pressure principle backflow prevention assembly with a parallel detector assembly consisting of a water meter and a reduced-pressure principle backflow prevention assembly (RP).

TABLE 603.2
BACKFLOW PREVENTION DEVICES, ASSEMBLIES, AND METHODS

DEVICE, ASSEMBLY, OR METHOD ¹	APPLICABLE STANDARDS	DEGREE OF HAZARD				INSTALLATION ^{2,3}
		POLLUTION (LOW HAZARD)		CONTAMINATION (HIGH HAZARD)		
		BACK-SIPHONAGE	BACK-PRESSURE	BACK-SIPHONAGE	BACK-PRESSURE	
Airgap	ASME A112.1.2	X	—	X	—	See Table 603.3.1 in this chapter.
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	ASME A112.1.3	X	—	X	—	Air gap fitting is a device with an internal air gap and typical installation includes plumbing fixtures, appliances and appurtenances. The critical level shall not be installed below the flood level rim.
Atmospheric vacuum breaker (consists of a body, checking member and atmospheric port)	ASSE 1001 or CSA B64.1.1	X	—	X	—	Upright position. No valve downstream. Minimum of 6 inches or listed distance above all downstream piping and flood-level rim of receptor. ^{4,5}
Antisiphon fill valve (ball-cocks) for gravity water closet flush tanks and urinal tanks	ASSE 1002 or CSA B125.3	X	—	X	—	Installation on gravity water closet flush tank and urinal tanks with the fill valve installed with the critical level not less than 1 inch above the opening of the overflow pipe. ^{4,5}
Vacuum breaker wall hydrants, hose bibbs, frost resistant, automatic draining type	ASSE 1019 or CSA B64.2.1.1	X	—	X	—	Installation includes wall hydrants and hose bibbs. Such devices are not for use under continuous pressure conditions (means of shutoff downstream of device is prohibited). ^{4,5}
Backflow preventer for Carbonated Beverage Dispensers (two independent check valves with a vent to the atmosphere)	ASSE 1022	X	—	—	—	Installation includes carbonated beverage machines or dispensers. These devices operate under intermittent or continuous pressure conditions.
Spill-Resistant Pressure Vacuum Breaker (single check valve with air inlet vent and means of field testing)	ASSE 1056	X	—	X	—	Upright position. Minimum of 12 inches or listed distance above all downstream piping and flood-level rim of receptor. ⁵
Double Check Valve Backflow Prevention Assembly (two independent check valves and means of field testing)	ASSE 1015; AWWA C510; CSA B64.5 or CSA B64.5.1	X	X	—	—	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at bottom for maintenance. May need platform/ladder for test and repair. Does not discharge water.
Double Check Detector Fire Protection Backflow Prevention Assembly (two independent check valves with a parallel detector assembly consisting of a water meter and a double check valve backflow prevention assembly and means of field testing)	ASSE 1048	X	X	—	—	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at bottom for maintenance. May need platform/ladder for test and repair. Does not discharge water. Installation includes a fire protection system and is designed to operate under continuous pressure conditions.

TABLE 603.2
BACKFLOW PREVENTION DEVICES, ASSEMBLIES, AND METHODS (continued)

DEVICE, ASSEMBLY, OR METHOD ¹	APPLICABLE STANDARDS	DEGREE OF HAZARD				INSTALLATION ^{2,3}
		POLLUTION (LOW HAZARD)		CONTAMINATION (HIGH HAZARD)		
		BACK-SIPHONAGE	BACK-PRESSURE	BACK-SIPHONAGE	BACK-PRESSURE	
Pressure Vacuum Breaker Backflow Prevention Assembly (loaded air inlet valve, internally loaded check valve and means of field testing)	ASSE 1020 or CSA B64.1.2	X	—	X	—	Upright position. May have valves downstream. Minimum of 12 inches above all downstream piping and flood-level rim of receptor. May discharge water.
Reduced Pressure Principle Backflow Prevention Assembly (two independently acting loaded check valves, a differential pressure relief valve and means of field testing)	ASSE 1013; AWWA C511; CSA B64.4 or CSA B64.4.1	X	X	X	X	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at bottom for maintenance. May need platform/ladder for test and repair. May discharge water.
Reduced Pressure Detector Fire Protection Backflow Prevention Assembly (two independently acting loaded check valves, a differential pressure relief valve, with a parallel detector assembly consisting of a water meter and a reduced-pressure principle backflow prevention assembly, and means of field testing)	ASSE 1047	X	X	X	X	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at bottom for maintenance. May need platform/ladder for test and repair. May discharge water. Installation includes a fire protection system and is designed to operate under continuous pressure conditions.

For SI units: 1 inch = 25.4 mm

Notes:

- ¹ See description of devices and assemblies in this chapter.
- ² Installation in pit or vault requires previous approval by the Authority Having Jurisdiction.
- ³ Refer to general and specific requirement for installation.
- ⁴ Not to be subjected to operating pressure for more than 12 hours in a 24 hour period.
- ⁵ For deck-mounted and equipment-mounted vacuum breaker, see Section 603.5.14.

603.4 General Requirements. Assemblies shall comply with listed standards and be acceptable to the Authority Having Jurisdiction, with jurisdiction over the selection and installation of backflow prevention assemblies.

603.4.1 Backflow Prevention Valve. Where more than one backflow prevention valve is installed on a single premise, and the valves are installed in one location, each separate valve shall be permanently identified by the permittee in a manner satisfactory to the Authority Having Jurisdiction.

603.4.2 Testing. The premise owner or responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. The periodic testing shall be performed in accordance with the procedures referenced in Table 1401.1 by a tester qualified in accordance with those standards.

603.4.3 Access and Clearance. Access and clearance shall be provided for the required testing, maintenance,

TABLE 603.3.1
MINIMUM AIRGAPS FOR WATER DISTRIBUTION⁴

FIXTURES	WHERE NOT AFFECTED BY SIDEWALLS ¹ (inches)	WHERE AFFECTED BY SIDEWALLS ² (inches)
Effective openings ³ not greater than 1/2 of an inch in diameter	1	1 1/2
Effective openings ³ not greater than 3/4 of an inch in diameter	1 1/2	2 1/4
Effective openings ³ not greater than 1 inch in diameter	2	3
Effective openings ³ greater than 1 inch in diameter	Two times diameter of effective opening	Three times diameter of effective opening

For SI units: 1 inch = 25.4 mm

Notes:

- ¹ Sidewalls, ribs, or similar obstructions do not affect airgaps where spaced from the inside edge of the spout opening a distance exceeding three times the diameter of the effective opening for a single wall, or a distance exceeding four times the effective opening for two intersecting walls.
- ² Vertical walls, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening other than specified in Footnote 1 above. The effect of three or more such vertical walls or ribs has not been determined. In such cases, the airgap shall be measured from the top of the wall.
- ³ The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing that feeds the device or outlet. Where two or more lines supply one outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.
- ⁴ Airgaps less than 1 inch (25.4 mm) shall be approved as a permanent part of a listed assembly that has been tested under actual backflow conditions with vacuums of 0 to 25 inches of mercury (85 kPa).

nance, and repair. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than 12 inches (305 mm) between the lowest portion of the assembly and grade, floor, or platform. Installations elevated that exceed 5 feet (1524 mm) above the floor or grade shall be provided with a permanent platform capable of supporting a tester or maintenance person.

603.4.4 Connections. Direct connections between potable water piping and sewer-connected wastes shall not be permitted to exist under any condition with or without backflow protection. Where potable water is discharged to the drainage system, it shall be by means of an approved airgap of two pipe diameters of the supply inlet, but in no case shall the gap be less than 1 inch (25.4 mm). Connection shall be permitted to be made to the inlet side of a trap provided that an approved vacuum breaker is installed not less than 6 inches (152 mm), or the distance according to the device's listing, above the flood-level rim of such trapped fixture, so that at no time will such device be subjected to backpressure.

603.4.5 Hot Water Backflow Preventers. Backflow preventers for hot water exceeding 110°F (43°C) shall be a type designed to operate at temperatures exceeding 110°F (43°C) without rendering a portion of the assembly inoperative.

603.4.6 Integral Backflow Preventers. Fixtures, appliances, or appurtenances with integral backflow preventers or integral airgaps manufactured as a unit shall be installed in accordance with their listing requirements and the manufacturer's installation instructions.

603.4.7 Freeze Protection. In cold climate areas, backflow assemblies and devices shall be protected from freezing with an outdoor enclosure or by a method acceptable to the Authority Having Jurisdiction.

603.4.8 Drain Lines. Drain lines serving backflow devices or assemblies shall be sized in accordance with the discharge rates of the manufacturer's flow charts of such devices or assemblies.

603.4.9 Prohibited Locations. Backflow prevention devices with atmospheric vents or ports shall not be installed in pits, underground, or submerged locations.

603.5 Specific Requirements.

603.5.1 Atmospheric Vacuum Breaker. Water closet and urinal flushometer valves shall be protected against backflow by an approved backflow prevention assembly, device, or method. Where the valves are equipped with an atmospheric vacuum breaker, the vacuum breaker shall be installed on the discharge side of the flushometer valve with the critical level not less than 6 inches (152 mm), or the distance according to its listing, above the overflow rim of a water closet bowl or the highest part of a urinal.

603.5.2 Ballcock. Water closet and urinal tanks shall be equipped with a ballcock. The ballcock shall be installed with the critical level not less than 1 inch (25.4 mm) above the full opening of the overflow pipe. In cases where the ballcock has no hush tube, the bottom of the water supply inlet shall be installed 1 inch (25.4 mm) above the full opening of the overflow pipe.

603.5.3 Backflow Prevention. Water closet flushometer tanks shall be protected against backflow by an approved backflow prevention assembly, device, or method.

603.5.4 Heat Exchangers. Heat exchangers used for heat transfer, heat recovery, or solar heating shall protect the potable water system from being contaminated by the heat-transfer medium. Single-wall heat exchangers used in indirect-fired water heaters shall meet the requirements of Section 505.4.1. Double-wall heat exchangers shall separate the potable water from the heat-transfer medium by providing a space between the two walls that are vented to the atmosphere.

603.5.5 Water Supply Inlets. Water supply inlets to tanks, vats, sumps, swimming pools, and other receptors shall be protected by one of the following means:

- (1) An approved airgap.
- (2) A listed vacuum breaker installed on the discharge side of the last valve with the critical level not less than 6 inches (152 mm) or in accordance with its listing.
- (3) A backflow preventer suitable for the contamination or pollution, installed in accordance with the requirements for that type of device or assembly as set forth in this chapter.

603.5.6 Protection from Lawn Sprinklers and Irrigation Systems. Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:

- (1) Atmospheric vacuum breaker (AVB)
- (2) Pressure vacuum breaker backflow prevention assembly (PVB)
- (3) Spill-resistant pressure vacuum breaker (SVB)
- (4) Reduced-pressure principle backflow prevention assembly (RP)

603.5.6.1 Systems with Pumps. Where sprinkler and irrigation systems have pumps, connections for pumping equipment, or auxiliary air tanks, or are otherwise capable of creating backpressure, the potable water supply shall be protected by the following type of device where the backflow device is located upstream from the source of backpressure:

- (1) Reduced-pressure principle backflow prevention assembly (RP)

603.5.6.2 Systems with Backflow Devices. Where systems have a backflow device installed downstream from a potable water supply pump or a potable water supply pump connection, the device shall be one of the following:

- (1) Atmospheric vacuum breaker (AVB)
- (2) Pressure vacuum breaker backflow prevention assembly (PVB)
- (3) Spill-resistant pressure vacuum breaker (SVB)
- (4) Reduced-pressure principle backflow prevention assembly (RP)

603.5.6.3 Systems with Chemical Injectors.

Where systems include a chemical injector or provisions for chemical injection, the potable water supply shall be protected by the following:

- (1) Reduced-pressure principle backflow prevention assembly (RP)

603.5.7 Outlets with Hose Attachments. Potable water outlets with hose attachments, other than water heater drains, boiler drains, and clothes washer connections, shall be protected by a nonremovable hose-bibb-type backflow preventer, a nonremovable hose bibb-type vacuum breaker, or by an atmospheric vacuum breaker installed not less than 6 inches (152 mm) above the highest point of usage located on the discharge side of the last valve. In climates where freezing temperatures occur, a listed self-draining frost-proof hose bibb with an integral backflow preventer or vacuum breaker shall be used.

603.5.8 Water-Cooled Equipment. Water-cooled compressors, degreasers, or other water-cooled equipment shall be protected by a backflow preventer installed in accordance with the requirements of this chapter. Water-cooled equipment that produces backpressure shall be equipped with the appropriate protection.

603.5.9 Aspirators. Water inlets to water-supplied aspirators shall be equipped with a vacuum breaker installed in accordance with its listing requirements and this chapter. The discharge shall drain through an airgap. Where the tailpiece of a fixture to receive the discharge of an aspirator is used, the airgap shall be located above the flood-level rim of the fixture.

603.5.10 Steam or Hot Water Boilers. Potable water connections to steam or hot water boilers shall be protected from backflow by a double check valve backflow prevention assembly or reduced pressure principle backflow prevention assembly in accordance with Table 603.2. Where chemicals are introduced into the system a reduced pressure principle backflow prevention assembly shall be provided in accordance with Table 603.2.

603.5.11 Nonpotable Water Piping. In cases where it is impractical to correct individual cross-connections on the domestic waterline, the line supplying such outlets shall be considered a nonpotable water line. No drinking or domestic water outlets shall be connected to the nonpotable waterline. Where possible, portions of the nonpotable waterline shall be exposed, and exposed portions shall be properly identified in a

manner satisfactory to the Authority Having Jurisdiction. Each outlet on the nonpotable waterline that is permitted to be used for drinking or domestic purposes shall be posted: "CAUTION: NONPOTABLE WATER, DO NOT DRINK."

603.5.12 Beverage Dispensers. Potable water supply to beverage dispensers, carbonated beverage dispensers, or coffee machines shall be protected by an airgap or a vented backflow preventer in accordance with ASSE 1022. For carbonated beverage dispensers, piping material installed downstream of the backflow preventer shall not be affected by carbon dioxide gas.

603.5.13 Prohibited Location. Backflow preventers shall not be located in an area containing fumes that are toxic, poisonous, or corrosive.

603.5.14 Deck-Mounted and Equipment-Mounted Vacuum Breakers. Deck-mounted or equipment-mounted vacuum breakers shall be installed in accordance with their listing and the manufacturer's installation instructions, with the critical level not less than 1 inch (25.4 mm) above the flood-level rim.

603.5.15 Protection from Fire Systems. Except as provided under Section 603.5.15.1 and Section 603.5.15.2, potable water supplies to fire protection systems that are normally under pressure, including but not limited to standpipes and automatic sprinkler systems, except in one- or two-family or townhouse residential sprinkler systems, piped in materials approved for potable water distribution systems shall be protected from backpressure and backsiphonage by one of the following testable devices:

- (1) Double check valve backflow prevention assembly (DC)
- (2) Double check detector fire protection backflow prevention assembly
- (3) Reduced pressure principle backflow prevention assembly (RP)
- (4) Reduced pressure detector fire protection backflow prevention assembly

Potable water supplies to fire protection systems that are not normally under pressure shall be protected from backflow and shall be in accordance with the requirements of the appropriate standards referenced in Table 1401.1.

603.5.15.1 Fire Department Connection.

Where fire protection systems supplied from a potable water system include a fire department (siamese) connection that is located less than 1700 feet (518.2 m) from a nonpotable water source that is capable of being used by the fire department as a secondary water supply, the potable water supply shall be protected by one of the following:

- (1) Reduced pressure principle backflow prevention assembly (RP)
- (2) Reduced pressure detector fire protection backflow prevention assembly

Nonpotable water sources include fire department vehicles carrying water of questionable quality or water that is treated with antifreeze, corrosion inhibitors, or extinguishing agents.

603.5.15.2 Chemicals. Where antifreeze, corrosion inhibitors, or other chemicals are added to a fire protection system supplied from a potable water supply, the potable water system shall be protected by one of the following:

- (1) Reduced pressure principle backflow prevention assembly (RP)
- (2) Reduced pressure detector fire protection backflow prevention assembly

603.5.15.3 Hydraulic Design. Where a backflow device is installed in the potable water supply to a fire protection system, the hydraulic design of the system shall account for the pressure drop through the backflow device. Where such devices are retrofitted for an existing fire protection system, the hydraulics of the sprinkler system design shall be checked to verify that there will be sufficient water pressure available for satisfactory operation of the fire sprinklers.

603.5.16 Health Care or Laboratory Areas. Vacuum breakers for washer-hose bedpans shall be located not less than 5 feet (1524 mm) above the floor. Hose connections in health care or laboratory areas shall be not less than 6 feet (1829 mm) above the floor.

603.5.17 Special Equipment. Portable cleaning equipment, dental vacuum pumps, and chemical dispensers shall be protected from backflow by an airgap, an atmospheric vacuum breaker, a spill-resistant vacuum breaker, or a reduced pressure principle backflow preventer.

603.5.18 Potable Water Outlets and Valves. Potable water outlets, freeze-proof yard hydrants, combination stop-and-waste valves, or other fixtures that incorporate a stop and waste feature that drains into the ground shall not be installed underground.

603.5.19 Pure Water Process Systems. The water supply to a pure water process system, such as dialysis water systems, semiconductor washing systems, and similar process piping systems, shall be protected from backpressure and backsiphonage by a reduced-pressure principle backflow preventer.

603.5.19.1 Dialysis Water Systems. The individual connections of the dialysis related equipment to the dialysis pure water system shall not require additional backflow protection.

603.5.20 Plumbing Fixture Fittings. Plumbing fixture fittings with integral backflow protection shall comply with ASME A112.18.1/CSA B 125.1.

603.5.21 Swimming Pools, Spas, and Hot Tubs. Potable water supply to swimming pools, spas, and hot tubs shall be protected by an airgap or a

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Agency filings affecting this section

Cross-connection control.

(1) Applicability, purpose, and responsibility.

(a) All community water systems shall comply with the cross-connection control requirements specified in this section.

(b) All noncommunity water systems shall apply the principles and provisions of this section, including subsection (4)(b) of this section, as applicable to protect the public water system from contamination via cross-connections. Noncommunity systems that comply with subsection (4)(b) of this section and the provisions of WAC 51-56-0600 of the UPC (which addresses the installation of backflow preventers at points of water use within the potable water system) shall be considered in compliance with the requirements of this section.

(c) The purpose of the purveyor's cross-connection control program shall be to protect the public water system, as defined in WAC 246-290-010, from contamination via cross-connections.

(d) The purveyor's responsibility for cross-connection control shall begin at the water supply source, include all the public water treatment, storage, and distribution facilities, and end at the point of delivery to the consumer's water system, which begins at the downstream end of the service connection or water meter located on the public right of way or utility-held easement.

(e) Under this section, purveyors are not responsible for eliminating or controlling cross-connections within the consumer's water system. Under chapter 19.27 RCW, the responsibility for cross-connection control within the consumer's water system, i.e., within the property lines of the consumer's premises, lies with the authority having jurisdiction.

(2) General program requirements.

(a) The purveyor shall develop and implement a cross-connection control program that meets the requirements of this section, but may establish a more stringent program through local ordinances, resolutions, codes, bylaws, or operating rules.

(b) Purveyors shall ensure that good engineering and public health protection practices are used in the development and implementation of cross-connection control programs. Department publications and the most recently published editions of references, such as, but not limited to, those listed below, may be used as guidance for cross-connection program development and implementation:

(i) *Manual of Cross-Connection Control* published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (USC Manual);

(ii) *Cross-Connection Control Manual, Accepted Procedure and Practice* published by the Pacific Northwest Section of the American Water Works Association (PNWS-AWWA Manual); or

(iii) Guidance document: *Cross-Connection Control for Small Water Systems* published by the department.

(c) The purveyor may implement the cross-connection control program, or any portion thereof, directly or by means of a contract with another agency or party acceptable to the department.

(d) The purveyor shall coordinate with the authority having jurisdiction in all matters concerning cross-connection control. The purveyor shall document and describe the coordination, including delineation of responsibilities, in the written cross-connection control program required in (e) of this subsection.

(e) The purveyor shall include a written description of the cross-connection control program in the water system plan required under WAC 246-290-100 or the small water system management program required under WAC 246-290-105. The cross-connection control program shall include the minimum program elements described in subsection (3) of this section.

(f) The purveyor shall ensure that cross-connections between the distribution system and a consumer's water system are eliminated or controlled by the installation of an approved backflow preventer commensurate with the degree of hazard. This can be accomplished by implementation of a cross-connection program that relies on:

(i) Premises isolation as defined in WAC 246-290-010; or

(ii) Premises isolation and in-premises protection as defined in WAC 246-290-010.

(g) Purveyors with cross-connection control programs that rely both on premises isolation and in-premises protection:

(i) Shall comply with the premises isolation requirements specified in subsection (4)(b) of this section; and

(ii) May reduce premises isolation requirements and rely on in-premises protection for premises other than the type addressed in subsection (4)(b) of this section, only if the following conditions are met:

(A) The in-premises backflow preventers provide a level of protection commensurate with the purveyor's assessed degree of hazard;

(B) Backflow preventers which provide the in-premises backflow protection meet the definition of approved backflow preventers as described in WAC 246-290-010;

(C) The approved backflow preventers are installed, inspected, tested (if applicable), maintained, and repaired in accordance with subsections (6) and (7) of this section;

(D) Records of the backflow preventers are maintained in accordance with subsections (3)(j) and (8) of this section; and

(E) The purveyor has reasonable access to the consumer's premises to conduct an initial hazard evaluation and periodic reevaluations to determine whether the in-premises protection is adequate to protect the purveyor's distribution system.

(h) The purveyor shall take appropriate corrective action as authorized by the legal instrument required by subsection (3)(b) of this section, when:

(i) A cross-connection exists that is not controlled commensurate to the degree of hazard assessed by the purveyor; or

(ii) A consumer fails to comply with the purveyor's requirements regarding the installation, inspection, testing, maintenance or repair of approved backflow preventers required by this chapter.

(i) The purveyor's corrective action may include, but is not limited to:

(i) Denying or discontinuing water service to a consumer's premises until the cross-connection hazard is eliminated or controlled to the satisfaction of the purveyor;

(ii) Requiring the consumer to install an approved backflow preventer for premises isolation commensurate with the degree of hazard; or

(iii) The purveyor installing an approved backflow preventer for premises isolation commensurate with the degree of hazard.

(j) Except in the event of an emergency, purveyors shall notify the authority having jurisdiction prior to denying or discontinuing water service to a consumer's premises for one or more of the reasons listed in (h) of this subsection.

(k) The purveyor shall prohibit the intentional return of used water to the purveyor's distribution system. Used water includes, but is not limited to, water used for heating, cooling, or other purposes within the consumer's water system.

(3) Minimum elements of a cross-connection control program.

(a) To be acceptable to the department, the purveyor's cross-connection control program shall include the minimum elements identified in this subsection.

(b) Element 1: The purveyor shall adopt a local ordinance, resolution, code, bylaw, or other written legal instrument that:

(i) Establishes the purveyor's legal authority to implement a cross-connection control program;

(ii) Describes the operating policies and technical provisions of the purveyor's cross-connection control program; and

(iii) Describes the corrective actions used to ensure that consumers comply with the purveyor's cross-connection control requirements.

(c) Element 2: The purveyor shall develop and implement procedures and schedules for evaluating new and existing service connections to assess the degree of hazard posed by the consumer's premises to the purveyor's distribution system and notifying the consumer within a reasonable time frame of the hazard evaluation results. At a minimum, the program shall meet the following:

(i) For connections made on or after April 9, 1999, procedures shall ensure that an initial evaluation is conducted before water service is provided;

(ii) For all other connections, procedures shall ensure that an initial evaluation is conducted in accordance with a schedule acceptable to the department; and

(iii) For all service connections, once an initial evaluation has been conducted, procedures shall ensure that periodic reevaluations are conducted in accordance with a schedule acceptable to the department and whenever there is a change in the use of the premises.

(d) Element 3: The purveyor shall develop and implement procedures and schedules for ensuring that:

(i) Cross-connections are eliminated whenever possible;

(ii) When cross-connections cannot be eliminated, they are controlled by installation of approved backflow preventers commensurate with the degree of hazard; and

(iii) Approved backflow preventers are installed in accordance with the requirements of subsection (6) of this section.

(e) Element 4: The purveyor shall ensure that personnel, including at least one person certified as a CCS, are provided to develop and implement the cross-connection control program.

(f) Element 5: The purveyor shall develop and implement procedures to ensure that approved backflow preventers relied upon to protect the public water system are inspected and/or tested (as applicable) under subsection (7) of this section.

(g) Element 6: The purveyor shall develop and implement a backflow prevention assembly testing quality control assurance program, including, but not limited to, documentation of BAT certification and test kit calibration, test report contents, and time frames for submitting completed test reports.

(h) Element 7: The purveyor shall develop and implement (when appropriate) procedures for responding to backflow incidents.

(i) Element 8: The purveyor shall include information on cross-connection control in the purveyor's existing program for educating consumers about water system operation. The public education program may include periodic bill inserts, public service announcements, pamphlet distribution, notification of new consumers and consumer confidence reports.

(j) Element 9: The purveyor shall develop and maintain cross-connection control records including, but not limited to, the following:

(i) A master list of service connections and/or consumer's premises where the purveyor relies upon approved backflow preventers to protect the public water system from contamination, the assessed hazard level of each, and the required backflow preventer(s);

(ii) Inventory information on backflow preventers that protect the public water system including:

(A) Approved air gaps installed in lieu of approved assemblies including exact air gap location, assessed degree of hazard, installation date, history of inspections, inspection results, and person conducting inspections;

(B) Approved backflow assemblies including exact assembly location, assembly description (type, manufacturer, model, size, and serial number), assessed degree of hazard, installation date, history of inspections, tests and repairs, test results, and person performing tests; and

(C) Approved AVBs used for irrigation system applications including location, description (manufacturer, model, and size), installation date, history of inspection(s), and person performing inspection(s).

(iii) Cross-connection program summary reports and backflow incident reports required under subsection (8) of this section.

(k) Element 10: Purveyors who distribute and/or have facilities that receive reclaimed water within their water service area shall meet any additional cross-connection control requirements imposed by the department in a permit issued under chapter 90.46 RCW.

(4) Approved backflow preventer selection.

(a) The purveyor shall ensure that a CCS:

(i) Assesses the degree of hazard posed by the consumer's water system upon the purveyor's distribution system; and

(ii) Determines the appropriate method of backflow protection for premises isolation as described in Table 8.

**TABLE 8
APPROPRIATE METHODS OF BACKFLOW PROTECTION FOR
PREMISES ISOLATION**

Degree of Hazard	Application Condition	Appropriate Approved Backflow Preventer
High health cross-connection hazard	Backsiphonage or backpressure backflow	AG, RPBA, or RPDA
Low cross-connection hazard	Backsiphonage or backpressure backflow	AG, RPBA, RPDA, DCVA, or DCDA

(b) Premises isolation requirements.

(i) The purveyor shall ensure that an approved air gap, RPBA, or RPDA is installed for premises isolation for service connections to premises posing a high health cross-connection hazard including, but not limited to, those premises listed in Table 9, except those premises identified as severe in (b)(ii) of this subsection.

(ii) For service connections to premises posing a severe health cross-connection hazard including wastewater treatment plants, radioactive material processing plants, and nuclear reactors, the purveyor shall ensure that either an:

(A) Approved air gap is installed for premises isolation; or

(B) Approved RPBA or RPDA is installed for premises isolation in combination with an in-plant approved air gap.

(iii) If the purveyor's CCS determines that no hazard exists for a connection serving premises of the type listed in Table 9, the purveyor may grant an exception to the premises isolation requirements of (b) (i) of this subsection.

(iv) The purveyor shall document, on a case-by-case basis, the reasons for granting an exception under (b)(i) of this subsection and include the documentation in the cross-connection control program annual summary report required in subsection (8) of this section.

**TABLE 9
SEVERE* AND HIGH HEALTH CROSS-CONNECTION HAZARD
PREMISES REQUIRING PREMISES ISOLATION BY AG OR RPBA**

Agricultural (farms and dairies)
Beverage bottling plants
Car washes
Chemical plants
Commercial laundries and dry cleaners
Premises where both reclaimed water and potable water are provided
Film processing facilities
Food processing plants
Hospitals, medical centers, nursing homes, veterinary, medical and dental clinics, and blood plasma centers
Premises with separate irrigation systems using the purveyor's water supply and with chemical addition⁺
Laboratories
Metal plating industries
Mortuaries
Petroleum processing or storage plants
Piers and docks
Radioactive material processing plants or nuclear reactors^{*}

Survey access denied or restricted
 Wastewater lift stations and pumping stations
 Wastewater treatment plants*
 Premises with an unapproved auxiliary water supply
 interconnected with the potable water supply

+ For example, parks, playgrounds, golf courses, cemeteries, estates, etc.

* RPBA's for connections serving these premises are acceptable only when used in combination with an in-plant approved air gap; otherwise, the purveyor shall require an approved air gap at the service connection.

(c) Backflow protection for single-family residences.

(i) For single-family residential service connections, the purveyor shall comply with the premises isolation requirements of (b) of this subsection when applicable.

(ii) If the requirements of (b) of this subsection do not apply and the requirements specified in subsection (2)(g)(ii) of this section are met, the purveyor may rely on backflow protection provided at the point of hazard in accordance with WAC 51-56-0600 of the UPC for hazards such as, but not limited to:

- (A) Irrigation systems;
- (B) Swimming pools or spas;
- (C) Ponds; and
- (D) Boilers.

For example, the purveyor may accept an approved AVB on a residential irrigation system, if the AVB is properly installed under the UPC.

(d) Backflow protection for fire protection systems.

(i) Backflow protection is not required for residential flow-through or combination fire protection systems constructed of potable water piping and materials.

(ii) For service connections with fire protection systems other than flow-through or combination systems, the purveyor shall ensure that backflow protection consistent with WAC 51-56-0600 of the UPC is installed. The UPC requires minimum protection as follows:

(A) An RPBA or RPDA for fire protection systems with chemical addition or using unapproved auxiliary water supply; and
 (B) A DCVA or DCDA for all other fire protection systems.

(iii) For connections made on or after April 9, 1999, the purveyor shall ensure that backflow protection is installed before water service is provided.

(iv) For existing fire protection systems:

(A) With chemical addition or using unapproved auxiliary supplies, the purveyor shall ensure that backflow protection is installed within ninety days of the purveyor notifying the consumer of the high health cross-connection hazard or in accordance with an alternate schedule acceptable to the purveyor.

(B) Without chemical addition, without on-site storage, and using only the purveyor's water (i.e., no unapproved auxiliary supplies on or available to the premises), the purveyor shall ensure that backflow protection is installed in accordance with a schedule acceptable to the purveyor or at an earlier date if required by the code official administering the State Building Code as defined in chapter 51-04 WAC.

(C) When establishing backflow protection retrofitting schedules for fire protection systems that have the characteristics listed in (d)(iv)(B) of this subsection, the purveyor may consider factors such as, but not limited to, impacts of assembly installation on sprinkler performance, costs of retrofitting, and difficulty of assembly installation.

(e) Purveyors may require approved backflow preventers commensurate with the degree of hazard as determined by the purveyor to be installed for premises isolation for connections serving premises that have characteristics such as, but not limited to, the following:

(i) Complex plumbing arrangements or plumbing potentially subject to frequent changes that make it impracticable to assess whether cross-connection hazards exist;

(ii) A repeated history of cross-connections being established or reestablished; or

(iii) Cross-connection hazards are unavoidable or not correctable, such as, but not limited to, tall buildings.

(5) Approved backflow preventers.

(a) The purveyor shall ensure that all backflow prevention assemblies relied upon by the purveyor are models included on the current list of backflow prevention assemblies approved for use in Washington state. The current approved assemblies list is available from the department upon request.

(b) The purveyor may rely on testable backflow prevention assemblies that are not currently approved by the department, if the assemblies:

(i) Were included on the department and/or USC list of approved backflow prevention assemblies at the time of installation;

(ii) Have been properly maintained;

(iii) Are commensurate with the purveyor's assessed degree of hazard; and

(iv) Have been inspected and tested at least annually and have successfully passed the annual tests.

(c) The purveyor shall ensure that an unlisted backflow prevention assembly is replaced by an approved assembly commensurate with the degree of hazard, when the unlisted assembly:

(i) Does not meet the conditions specified in (b)(i) through (iv) of this subsection;

(ii) Is moved; or

(iii) Cannot be repaired using spare parts from the original manufacturer.

(d) The purveyor shall ensure that AVBs meet the definition of approved atmospheric vacuum breakers as described in WAC 246-290-010.

(6) Approved backflow preventer installation.

(a) The purveyor shall ensure that approved backflow preventers are installed in the orientation for which they are approved (if applicable).

(b) The purveyor shall ensure that approved backflow preventers are installed in a manner that:

(i) Facilitates their proper operation, maintenance, inspection, in-line testing (as applicable), and repair using standard installation procedures acceptable to the department such as those in the USC Manual or PNWS-AWWA Manual;

(ii) Ensures that the assembly will not become submerged due to weather-related conditions such as flooding; and

(iii) Ensures compliance with all applicable safety regulations.

(c) The purveyor shall ensure that approved backflow assemblies for premises isolation are installed at a location adjacent to the meter or property line or an alternate location acceptable to the purveyor.

(d) When premises isolation assemblies are installed at an alternate location acceptable to the purveyor, the purveyor shall ensure that there are no connections between the point of delivery from the public water system and the approved backflow assembly, unless the installation of the connection meets the purveyor's cross-connection control requirements and is specifically approved by the purveyor.

(e) The purveyor shall ensure that approved backflow preventers are installed in accordance with the following time frames:

(i) For connections made on or after April 9, 1999, the following conditions shall be met before service is provided:

(A) The provisions of subsection (3)(d)(ii) of this section; and

(B) Satisfactory completion of the requirements of subsection (7) of this section.

(ii) For existing connections where the purveyor identifies a high health cross-connection hazard, the provisions of (3)(d)(ii) of this section shall be met:

(A) Within ninety days of the purveyor notifying the consumer of the high health cross-connection hazard; or

(B) In accordance with an alternate schedule acceptable to the purveyor.

(iii) For existing connections where the purveyor identifies a low cross-connection hazard, the provisions of subsection (3)(d)(ii) of this section shall be met in accordance with a schedule acceptable to the purveyor.

(f) The purveyor shall ensure that bypass piping installed around any approved backflow preventer is equipped with an approved backflow preventer that:

(i) Affords at least the same level of protection as the approved backflow preventer that is being bypassed; and

(ii) Complies with all applicable requirements of this section.

(7) Approved backflow preventer inspection and testing.

(a) For backflow preventers that protect the public water system, the purveyor shall ensure that:

(i) A CCS inspects backflow preventer installations to ensure that protection is provided commensurate with the assessed degree of hazard;

(ii) Either a BAT or CCS inspects:

(A) Air gaps installed in lieu of approved backflow prevention assemblies for compliance with the approved air gap definition; and

(B) Backflow prevention assemblies for correct installation and approval status.

(iii) A BAT tests approved backflow prevention assemblies for proper operation.

(b) The purveyor shall ensure that inspections and/or tests of approved air gaps and approved backflow assemblies that protect the public water system are conducted:

(i) When any of the following occur:

(A) Upon installation, repair, reinstallation, or relocation of an assembly;

(B) Upon installation or replumbing of an air gap;

(C) After a backflow incident involving the assembly or air gap; and

(ii) Annually thereafter, unless the purveyor requires more frequent testing for high hazard premises or for assemblies that repeatedly fail.

(c) The purveyor shall ensure that inspections of AVBs installed on irrigation systems are conducted:

(i) At the time of installation;

(ii) After a backflow incident; and

(iii) After repair, reinstallation, or relocation.

(d) The purveyor shall ensure that approved backflow prevention assemblies are tested using procedures acceptable to the department, such as those specified in the most recently published edition of the USC Manual. When circumstances, such as, but not limited to, configuration or location of the assembly, preclude the use of USC test procedures, the purveyor may allow, on a case-by-case basis, the use of alternate (non-USC) test procedures acceptable to the department.

(e) The purveyor shall ensure that results of backflow prevention assembly inspections and tests are documented and reported in a manner acceptable to the purveyor.

(f) The purveyor shall ensure that an approved backflow prevention assembly or AVB, whenever found to be improperly installed, defective, not commensurate with the degree of hazard, or failing a test (if applicable) is properly reinstalled, repaired, overhauled, or replaced.

(g) The purveyor shall ensure that an approved air gap, whenever found to be altered or improperly installed, is properly replumbed or, if commensurate with the degree of hazard, is replaced by an approved RPBA.

(8) Recordkeeping and reporting.

(a) Purveyors shall keep cross-connection control records for the following time frames:

(i) Records pertaining to the master list of service connections and/or consumer's premises required in subsection (3)(j)(i) of this section shall be kept as long as the premises pose a cross-connection hazard to the purveyor's distribution system;

(ii) Records regarding inventory information required in subsection (3)(j)(ii) of this section shall be kept for five years or for the life of the approved backflow preventer whichever is shorter; and

(iii) Records regarding backflow incidents and annual summary reports required in subsection (3)(j)(iii) of this section shall be kept for five years.

(b) Purveyors may maintain cross-connection control records in original form or transfer data to tabular summaries.

(c) Purveyors may maintain records or data in any media, such as paper, film, or electronic format.

(d) The purveyor shall complete the cross-connection control program summary report annually. Report forms and guidance on completing the report are available from the department.

(e) The purveyor shall make all records and reports required in subsection (3)(j) of this section available to the department or its representative upon request.

(f) The purveyor shall notify the department, authority having jurisdiction, and local health jurisdiction as soon as possible, but no later than the end of the next business day, when a backflow incident is known by the purveyor to have:

(i) Contaminated the public water system; or

(ii) Occurred within the premises of a consumer served by the purveyor.

(g) The purveyor shall:

(i) Document details of backflow incidents contaminating the public water system on a backflow incident report form available from the department; and

(ii) Include all backflow incident report(s) in the annual cross-connection program summary report referenced in (d) of this subsection, unless otherwise requested by the department.

[Statutory Authority: RCW 70.119A.180 and 43.20.050. WSR 08-03-061, § 246-290-490, filed 1/14/08, effective 2/14/08. Statutory Authority: RCW 43.20.050 (2) and (3) and 70.119A.080. WSR 03-08-037, § 246-290-490, filed 3/27/03, effective 4/27/03. Statutory Authority: RCW 43.02.050 [43.20.050]. WSR 99-07-021, § 246-290-490, filed 3/9/99, effective 4/9/99. Statutory Authority: RCW 43.20.050. WSR 91-02-051 (Order 124B), recodified as § 246-290-490, filed 12/27/90, effective 1/31/91. Statutory Authority: P.L. 99-339. WSR 89-21-020 (Order 336), § 248-54-285, filed 10/10/89, effective 11/10/89. Statutory Authority: RCW 34.04.045. WSR 88-05-057 (Order 307), § 248-54-285, filed 2/17/88. Statutory Authority: RCW 43.20.050. WSR 83-19-002 (Order 266), § 248-54-285, filed 9/8/83.]

CHAPTER 4

VENTILATION

SECTION 401 GENERAL

401.1 Scope. This chapter shall govern the ventilation of spaces within a building intended to be occupied. Mechanical exhaust systems, including exhaust systems serving clothes dryers and cooking appliances; hazardous exhaust systems; dust, stock and refuse conveyor systems; slab soil exhaust systems; smoke control systems; energy recovery ventilation systems and other systems specified in Section 502 shall comply with Chapter 5.

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section 402.4.1.2 of the *International Energy Conservation Code*, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403.

401.3 When required. Ventilation shall be provided during the periods that the room or space is occupied.

401.4 Intake opening location. Air intake openings shall comply with all of the following:

1. Intake openings shall be located a minimum of 10 feet (3048 mm) from lot lines or buildings on the same lot.
2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.2.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the closest edge of the street or public way.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening.
4. Intake openings on structures in flood hazard areas shall be at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.

401.5 Intake opening protection. Air intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles. Openings in louvers, grilles and screens shall be sized in accordance with Table 401.5, and shall be protected against local weather conditions. Louvers

that protect air intake openings in structures located in hurricane-prone regions, as defined in the *International Building Code*, shall comply with AMCA 550. Outdoor air intake openings located in exterior walls shall meet the provisions for exterior wall opening protectives in accordance with the *International Building Code*.

**TABLE 401.5
OPENING SIZES IN LOUVERS, GRILLES AND SCREENS
PROTECTING AIR INTAKE OPENINGS**

OUTDOOR OPENING TYPE	MINIMUM AND MAXIMUM OPENING SIZES IN LOUVERS, GRILLES AND SCREENS MEASURED IN ANY DIRECTION
Intake openings in residential occupancies	Not < 1/4 inch and not > 1/2 inch
Intake openings in other than residential occupancies	> 1/4 inch and not > 1 inch

For SI: 1 inch = 25.4 mm.

401.6 Contaminant sources. Stationary local sources producing airborne particulates, heat, odors, fumes, spray, vapors, smoke or gases in such quantities as to be irritating or injurious to health shall be provided with an exhaust system in accordance with Chapter 5 or a means of collection and removal of the contaminants. Such exhaust shall discharge directly to an *approved* location at the exterior of the building.

SECTION 402 NATURAL VENTILATION

[B] 402.1 Natural ventilation. *Natural ventilation* of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

[B] 402.2 Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

[B] 402.3 Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining rooms shall be unobstructed and shall have an area not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m²). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that the openable area between the sunroom addition or patio cover and the interior room has an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m²). The minimum openable area to

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the outdoors shall be based on the total floor area being ventilated.

[B] 402.4 Openings below grade. Where openings below grade provide required *natural ventilation*, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

SECTION 403 MECHANICAL VENTILATION

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or *exhaust air*. The amount of supply air shall be approximately equal to the amount of return and *exhaust air*. The system shall not be prohibited from producing negative or positive pressure. The system to convey *ventilation air* shall be designed and installed in accordance with Chapter 6.

403.2 Outdoor air required. The minimum outdoor airflow rate shall be determined in accordance with Section 403.3. Ventilation supply systems shall be designed to deliver the required rate of outdoor airflow to the *breathing zone* within each *occupiable space*.

Exception: Where the *registered design professional* demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.

403.2.1 Recirculation of air. The outdoor air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one *dwelling* to another or to dissimilar occupancies.
2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where more than 10 percent of the resulting supply airstream consists of air recirculated from these spaces.
3. Where mechanical exhaust is required by Note b in Table 403.3, recirculation of air from such spaces shall be prohibited. All air supplied to such spaces

shall be exhausted, including any air in excess of that required by Table 403.3.

4. Where mechanical exhaust is required by Note g in Table 403.3, mechanical exhaust is required and recirculation is prohibited where more than 10 percent of the resulting supply airstream consists of air recirculated from these spaces.

403.2.2 Transfer air. Except where recirculation from such spaces is prohibited by Table 403.3, air transferred from occupiable spaces is not prohibited from serving as *makeup air* for required exhaust systems in such spaces as kitchens, baths, toilet rooms, elevators and smoking lounges. The amount of transfer air and *exhaust air* shall be sufficient to provide the flow rates as specified in Section 403.3. The required outdoor airflow rates specified in Table 403.3 shall be introduced directly into such spaces or into the occupied spaces from which air is transferred or a combination of both.

403.3 Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed *occupancy* classification that is most similar in terms of occupant density, activities and building construction; or shall be determined by an *approved* engineering analysis. The ventilation system shall be designed to supply the required rate of *ventilation air* continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3 are based on the absence of smoking in occupiable spaces. Where smoking is anticipated in a space other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3 in accordance with accepted engineering practice.

Exception: The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3 where *approved* statistical data document the accuracy of an alternate anticipated occupant density.

403.3.1 Zone outdoor airflow. The minimum outdoor airflow required to be supplied to each zone shall be determined as a function of *occupancy* classification and space air distribution effectiveness in accordance with Sections 403.3.1.1 through 403.3.1.3.

**TABLE 403.3
MINIMUM VENTILATION RATES**

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT ² ^a	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _p CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _a CFM/FT ² ^a	EXHAUST AIRFLOW RATE CFM/FT ² ^a
Correctional facilities				
Cells				
without plumbing fixtures	25	5	0.12	—
with plumbing fixtures [§]	25	5	0.12	1.0
Dining halls (see food and beverage service)	—	—	—	—
Guard stations	15	5	0.06	—
Day room	30	5	0.06	—
Booking/waiting	50	7.5	0.06	—
Dry cleaners, laundries				
Coin-operated dry cleaner	20	15	—	—
Coin-operated laundries	20	7.5	0.06	—
Commercial dry cleaner	30	30	—	—
Commercial laundry	10	25	—	—
Storage, pick up	30	7.5	0.12	—
Education				
Auditoriums	150	5	0.06	—
Corridors (see public spaces)	—	—	—	—
Media center	25	10	0.12	—
Sports locker rooms [§]	—	—	—	0.5
Music/theater/dance	35	10	0.06	—
Smoking lounges ^b	70	60	—	—
Day care (through age 4)	25	10	0.18	—
Classrooms (ages 5-8)	25	10	0.12	—
Classrooms (age 9 plus)	35	10	0.12	—
Lecture classroom	65	7.5	0.06	—
Lecture hall (fixed seats)	150	7.5	0.06	—
Art classroom [§]	20	10	0.18	0.7
Science laboratories [§]	25	10	0.18	1.0
Wood/metal shops [§]	20	10	0.18	0.5
Computer lab	25	10	0.12	—
Multiuse assembly	100	7.5	0.06	—
Locker/dressing rooms [§]	—	—	—	0.25
Food and beverage service				
Bars, cocktail lounges	100	7.5	0.18	—
Cafeteria, fast food	100	7.5	0.18	—
Dining rooms	70	7.5	0.18	—
Kitchens (cooking) ^b	—	—	—	0.7
Hospitals, nursing and convalescent homes				
Autopsy rooms ^b	—	—	—	0.5
Medical procedure rooms	20	15	—	—
Operating rooms	20	30	—	—
Patient rooms	10	25	—	—
Physical therapy	20	15	—	—
Recovery and ICU	20	15	—	—

(continued)

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TABLE 403.3—continued
MINIMUM VENTILATION RATES

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT ² ^a	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _p , CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _a , CFM/FT ² ^a	EXHAUST AIRFLOW RATE CFM/FT ² ^a
Hotels, motels, resorts and dormitories				
Multipurpose assembly		5	0.06	—
Bathrooms/toilet—private ^b		—	—	25/50 ^f
Bedroom/living room		5	0.06	—
Conference/meeting		5	0.06	—
Dormitory sleeping areas		5	0.06	—
Gambling casinos		7.5	0.18	—
Lobbies/prefunction		7.5	0.06	—
Offices				
Conference rooms	50	5	0.06	—
Office spaces	5	5	0.06	—
Reception areas	30	5	0.06	—
Telephone/data entry	60	5	0.06	—
Main entry lobbies	10	5	0.06	—
Private dwellings, single and multiple				
Garages, common for multiple units ^b	—	—	—	0.75
Garages, separate for each dwelling ^b	—	—	—	100 cfm per car
Kitchens ^b	—	—	—	25/100 ^f
Living areas ^c	Based upon number of bedrooms. First bed- room, 2; each addi- tional bedroom, 1	0.35 ACH but not less than 15 cfm/person	—	—
Toilet rooms and bathrooms ^b	—	—	—	20/50 ^f
Public spaces				
Corridors	—	—	0.06	—
Elevator car	—	—	—	1.0
Shower room (per shower head) ^b	—	—	—	50/20 ^f
Smoking lounges ^b	70	60	—	—
Toilet rooms — public ^b	—	—	—	50/70 ^e
Places of religious worship	120	5	0.06	—
Courtrooms	70	5	0.06	—
Legislative chambers	50	5	0.06	—
Libraries	10	5	0.12	—
Museums (children's)	40	7.5	0.12	—
Museums/galleries	40	7.5	0.06	—
Retail stores, sales floors and showroom floors				
Sales (except as below)	15	7.5	0.12	—
Dressing rooms	—	—	—	0.25
Mall common areas	40	7.5	0.06	—
Shipping and receiving	—	—	0.12	—
Smoking lounges ^b	70	60	—	—
Storage rooms	—	—	0.12	—
Warehouses (see storage)	—	—	—	—

(continued)

TABLE 403.3—continued
MINIMUM VENTILATION RATES

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT ² ^a	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _p CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R _a CFM/FT ² ^a	EXHAUST AIRFLOW RATE CFM/FT ² ^a
Specialty shops				
Automotive motor-fuel dispensing stations ^b	—	—	—	1.5
Barber	25	7.5	0.06	0.5
Beauty salons ^b	25	20	0.12	0.6
Nail salons ^{b, h}	25	20	0.12	0.6
Embalming room ^b	—	—	—	2.0
Pet shops (animal areas) ^b	10	7.5	0.18	0.9
Supermarkets	8	7.5	0.06	—
Sports and amusement				
Disco/dance floors	100	20	0.06	—
Bowling alleys (seating areas)	40	10	0.12	—
Game arcades	20	7.5	0.18	—
Ice arenas without combustion engines	—	—	0.30	0.5
Gym, stadium, arena (play area)	—	—	0.30	—
Spectator areas	150	7.5	0.06	—
Swimming pools (pool and deck area)	—	—	0.48	—
Health club/aerobics room	40	20	0.06	—
Health club/weight room	10	20	0.06	—
Storage				
Repair garages, enclosed parking garages ^{b, d}	—	—	—	0.75
Warehouses	—	—	0.06	—
Theaters				
Auditoriums (see education)	—	—	—	—
Lobbies	150	5	0.06	—
Stages, studios	70	10	0.06	—
Ticket booths	60	5	0.06	—
Transportation				
Platforms	100	7.5	0.06	—
Transportation waiting	100	7.5	0.06	—
Workrooms				
Bank vaults/safe deposit	5	5	0.06	—
Darkrooms	—	—	—	1.0
Copy, printing rooms	4	5	0.06	0.5
Meat processing ^e	10	15	—	—
Pharmacy (prep. area)	10	5	0.18	—
Photo studios	10	5	0.12	—
Computer (without printing)	4	5	0.06	—

For SI: 1 cubic foot per minute = 0.0004719 m³/s, 1 ton = 908 kg, 1 cubic foot per minute per square foot = 0.00508 m³/(s · m²), °C = [(°F) - 32]/1.8, 1 square foot = 0.0929 m².

a. Based upon *net occupiable floor area*.

b. Mechanical exhaust required and the recirculation of air from such spaces is prohibited (see Section 403.2.1, Item 3).

c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.

d. Ventilation systems in enclosed parking garages shall comply with Section 404.

e. Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

g. Mechanical exhaust is required and recirculation is prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces (see Section 403.2.1, Items 2 and 4).

h. For nail salons, each nail station shall be provided with a *source capture system* capable of exhausting not less than 50 cfm per station.

403.3.1.1 Breathing zone outdoor airflow. The outdoor airflow rate required in the *breathing zone* (V_{bz}) of the *occupiable space* or spaces in a zone shall be determined in accordance with Equation 4-1.

$$V_{bz} = R_p P_z + R_a A_z \quad \text{(Equation 4-1)}$$

where:

A_z = Zone floor area: the *net occupiable floor area* of the space or spaces in the zone.

P_z = Zone population: the number of people in the space or spaces in the zone.

R_p = People outdoor air rate: the outdoor airflow rate required per person from Table 403.3.

R_a = Area outdoor air rate: the outdoor airflow rate required per unit area from Table 403.3.

403.3.1.2 Zone air distribution effectiveness. The zone air distribution effectiveness (E_z) shall be determined using Table 403.3.1.2.

TABLE 403.3.1.2
ZONE AIR DISTRIBUTION EFFECTIVENESS^{a,b,c,d,e}

Air Distribution Configuration	E_z
Ceiling or floor supply of cool air	1.0 ^f
Ceiling or floor supply of warm air and floor return	1.0
Ceiling supply of warm air and ceiling return	0.8 ^g
Floor supply of warm air and ceiling return	0.7
Makeup air drawn in on the opposite side of the room from the exhaust and/or return	0.8
Makeup air drawn in near to the exhaust and/or return location	0.5

For SI: 1 foot = 304.8 mm, 1 foot per minute = 0.00506 m/s,
°C = [(°F) - 32]/1.8.

- a. "Cool air" is air cooler than space temperature.
- b. "Warm air" is air warmer than space temperature.
- c. "Ceiling" includes any point above the breathing zone.
- d. "Floor" includes any point below the breathing zone.
- e. "Makeup air" is air supplied or transferred to a zone to replace air removed from the zone by exhaust or return systems.
- f. Zone air distribution effectiveness of 1.2 shall be permitted for systems with a floor supply of cool air and ceiling return, provided that low-velocity displacement ventilation achieves unidirectional flow and thermal stratification.
- g. Zone air distribution effectiveness of 1.0 shall be permitted for systems with a ceiling supply of warm air, provided that supply air temperature is less than 15°F above space temperature and provided that the 150 foot-per-minute supply air jet reaches to within 4½ feet of floor level.

403.3.1.3 Zone outdoor airflow. The zone outdoor airflow rate (V_{oz}), shall be determined in accordance with Equation 4-2.

$$V_{oz} = \frac{V_{bz}}{E_z} \quad \text{(Equation 4-2)}$$

403.3.2 System outdoor airflow. The outdoor air required to be supplied by each ventilation system shall be determined in accordance with Sections 403.3.2.1 through 403.3.2.3 as a function of system type and zone outdoor airflow rates.

403.3.2.1 Single zone systems. Where one air handler supplies a mixture of outdoor air and recirculated return air to only one zone, the system outdoor air intake flow rate (V_{oi}) shall be determined in accordance with Equation 4-3.

$$V_{oi} = V_{oz} \quad \text{(Equation 4-3)}$$

403.3.2.2 100-percent outdoor air systems. Where one air handler supplies only outdoor air to one or more zones, the system outdoor air intake flow rate (V_{oi}) shall be determined using Equation 4-4.

$$V_{oi} = \sum_{all\ zones} V_{oz} \quad \text{(Equation 4-4)}$$

403.3.2.3 Multiple zone recirculating systems. Where one air handler supplies a mixture of outdoor air and recirculated return air to more than one zone, the system outdoor air intake flow rate (V_{oi}) shall be determined in accordance with Sections 403.3.2.3.1 through 403.3.2.3.4.

403.3.2.3.1 Primary outdoor air fraction. The primary outdoor air fraction (Z_p) shall be determined for each zone in accordance with Equation 4-5.

$$Z_p = \frac{V_{oz}}{V_{pz}} \quad \text{(Equation 4-5)}$$

where:

V_{pz} = Primary airflow: The airflow rate supplied to the zone from the air-handling unit at which the outdoor air intake is located. It includes outdoor intake air and recirculated air from that air-handling unit but does not include air transferred or air recirculated to the zone by other means. For design purposes, V_{pz} shall be the zone design primary airflow rate, except for zones with variable air volume supply and V_{pz} shall be the lowest expected primary airflow rate to the zone when it is fully occupied.

403.3.2.3.2 System ventilation efficiency. The system ventilation efficiency (E_s) shall be determined using Table 403.3.2.3.2 or Appendix A of ASHRAE 62.1.

TABLE 403.3.2.3.2
SYSTEM VENTILATION EFFICIENCY^{a,b}

Max (Z_p)	E_v
≤ 0.15	1
≤ 0.25	0.9
≤ 0.35	0.8
≤ 0.45	0.7
≤ 0.55	0.6
≤ 0.65	0.5
≤ 0.75	0.4
> 0.75	0.3

a. Max (Z_p) is the largest value of Z_p calculated using Equation 4-5 among all the zones served by the system.

b. Interpolating between table values shall be permitted.

403.3.2.3.3 Uncorrected outdoor air intake. The uncorrected outdoor air intake flow rate (V_{ou}) shall be determined in accordance with Equation 4-6.

$$V_{ou} = D \sum_{all\ zones} R_p P_z + \sum_{all\ zones} R_a A_z \quad \text{(Equation 4-6)}$$

where:

D = Occupant diversity: the ratio of the system population to the sum of the zone populations, determined in accordance with Equation 4-7.

$$D = \frac{P_s}{\sum_{all\ zones} P_z} \quad \text{(Equation 4-7)}$$

where:

P_s = System population: The total number of occupants in the area served by the system. For design purposes, P_s shall be the maximum number of occupants expected to be concurrently in all zones served by the system.

403.3.2.3.4 Outdoor air intake flow rate. The outdoor air intake flow rate (V_{oi}) shall be determined in accordance with Equation 4-8.

$$V_{oi} = \frac{V_{ou}}{E_v} \quad \text{(Equation 4-8)}$$

403.4 Exhaust ventilation. Exhaust airflow rate shall be provided in accordance with the requirements in Table 403.3. Exhaust *makeup air* shall be permitted to be any combination of outdoor air, recirculated air and transfer air, except as limited in accordance with Section 403.2.

403.5 System operation. The minimum flow rate of outdoor air that the ventilation system must be capable of supplying during its operation shall be permitted to be based on the rate per person indicated in Table 403.3 and the actual number of occupants present.

403.6 Variable air volume system control. Variable air volume air distribution systems, other than those designed to supply only 100-percent outdoor air, shall be provided with controls to regulate the flow of outdoor air. Such control system shall be designed to maintain the flow rate of outdoor air at a rate of not less than that required by Section 403.3 over the entire range of supply air operating rates.

403.7 Balancing. The *ventilation air* distribution system shall be provided with means to adjust the system to achieve at least the minimum ventilation airflow rate as required by Sections 403.3 and 403.4. Ventilation systems shall be balanced by an *approved* method. Such balancing shall verify that the ventilation system is capable of supplying and exhausting the airflow rates required by Sections 403.3 and 403.4.

SECTION 404 ENCLOSED PARKING GARAGES

404.1 Enclosed parking garages. Mechanical ventilation systems for enclosed parking garages shall be permitted to operate intermittently in accordance with Item 1, Item 2 or both.

1. The system shall be arranged to operate automatically upon detection of vehicle operation or the presence of occupants by approved automatic detection devices.
2. The system shall be arranged to operate automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers' recommendations.

404.2 Minimum ventilation. Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025 m³/s • m²) of the floor area and the system shall be capable of producing a ventilation airflow rate of 0.75 cfm per square foot (0.0038 m³/s • m²) of floor area.

404.3 Occupied spaces accessory to public garages. Connecting offices, waiting rooms, ticket booths and similar uses that are accessory to a public garage shall be maintained at a positive pressure and shall be provided with ventilation in accordance with Section 403.3.

SECTION 405 SYSTEMS CONTROL

405.1 General. Mechanical ventilation systems shall be provided with manual or automatic controls that will operate such systems whenever the spaces are occupied. Air-conditioning systems that supply required *ventilation air* shall be provided with controls designed to automatically maintain the required outdoor air supply rate during occupancy.

or portions of rooms, without direct openings to the outdoors are ventilated through adjoining rooms, the opening between rooms shall be permanently unobstructed and have a free area of not less than 8% of the area of the interior room nor less than 25 ft² (2.3 m²).

6.4.3 Control and Accessibility. The means to open required operable openings shall be readily accessible to building occupants whenever the space is occupied. Controls shall be designed to properly coordinate operation of the natural and mechanical ventilation systems.

6.5 Exhaust Ventilation. The design exhaust airflow shall be determined in accordance with the requirements in Table 6-4. Exhaust makeup air may be any combination of outdoor air, recirculated air, and transfer air.

6.6 Design Documentation Procedures. Design criteria and assumptions shall be documented and should be made available for operation of the system within a reasonable time after installation. See Sections 4.3, 5.1.3, 5.16.4, 6.2.7.1.5, and 6.3.6 regarding assumptions that should be detailed in the documentation.

7. CONSTRUCTION AND SYSTEM START-UP

7.1 Construction Phase

7.1.1 Application. The requirements of this section apply to ventilation systems and the spaces they serve in new buildings and additions to or alterations in existing buildings.

7.1.2 Filters. Systems designed with particle filters shall not be operated without filters in place.

TABLE 6-4 Minimum Exhaust Rates

Occupancy Category	Exhaust Rate, cfm/unit	Exhaust Rate, cfm/ft ²	Notes	Exhaust Rate, L/s·unit	Exhaust Rate, L/s·m ²	Air Class
Arenas	—	0.50	B	—	—	1
Art classrooms	—	0.70		—	3.5	2
Auto repair rooms	—	1.50	A	—	7.5	2
Barber shops	—	0.50		—	2.5	2
Beauty and nail salons	—	0.60		—	3.0	2
Cells with toilet	—	1.00		—	5.0	2
Copy, printing rooms	—	0.50		—	2.5	2
Darkrooms	—	1.00		—	5.0	2
Educational science laboratories	—	1.00		—	5.0	2
Janitor closets, trash rooms, recycling	—	1.00		—	5.0	3
Kitchenettes	—	0.30		—	1.5	2
Kitchens—commercial	—	0.70		—	3.5	2
Locker/dressing rooms	—	0.25		—	1.25	2
Locker rooms	—	0.50		—	2.5	2
Paint spray booths	—	—	F	—	—	4
Parking garages	—	0.75	C	—	3.7	2
Pet shops (animal areas)	—	0.90		—	4.5	2
Refrigerating machinery rooms	—	—	F	—	—	3
Residential kitchens	50/100	—	G	25/50	—	2
Soiled laundry storage rooms	—	1.00	F	—	5.0	3
Storage rooms, chemical	—	1.50	F	—	7.5	4
Toilets—private	25/50	—	E	12.5/25	—	2
Toilets—public	50/70	—	D	25/35	—	2
Woodwork shop/classrooms	—	0.50		—	2.5	2

A Stands where engines are run shall have exhaust systems that directly connect to the engine exhaust and prevent escape of fumes.

B When combustion equipment is intended to be used on the playing surface additional dilution ventilation and/or source control shall be provided.

C Exhaust not required if two or more sides comprise walls that are at least 50% open to the outside.

D Rate is per water closet and/or urinal. Provide the higher rate where periods of heavy use are expected to occur, e.g., toilets in theatres, schools, and sports facilities. The lower rate may be used otherwise.

E Rate is for a toilet room intended to be occupied by one person at a time. For continuous system operation during normal hours of use, the lower rate may be used. Otherwise use the higher rate.

F See other applicable standards for exhaust rate.

G For continuous system operation, the lower rate may be used. Otherwise use the higher rate.

Appendix C

Corrective Action Tracking Form

OVTS Biennial Facility Inspection and Records Review

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<p>TRANSFER BUILDING</p> <p>The Transfer Building is generally in good condition. The building foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use.</p>											
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1	Commercial tipping floor entrance	Ponding is evident within the Transfer Building at the commercial entrance	App. A, 3.1-1	Area should be cleared of water and reviewed for indications of settlement. A floor topping material can be installed to provide drainage. The floor should be surveyed to determine how best to approach new floor grades.	3	WM	C	3/31/2018			Annually
2	Secondary roof and wall framing	Rust is evident indicating coatings failure	App. A, 3.1-1	In accordance with the May 2015 inspection by Corrosion Probe, Inc., rust is considered superficial, but should be monitored.	4	County	C	3/31/2018			Annually
3	All surfaces	All surfaces have dust and debris buildup, including the roof exterior near roof vents	App. A, 3.1-1 and 3.1-2	Clean all surfaces and add to routine maintenance schedule.	3	WM	A	6/30/2017			Annually
4	Roof	Roof fall protection stanchion boots have failed	App. A, 3.1-2	Replace boots	4	County	B	9/30/2017			Weekly
5	Coiling overhead doors	Safety device wiring has failed	App. A, 3.1-2	Replace or repair wiring	1	WM	A	6/30/2017			Weekly
6	Roof insulation	Installation method is suspect and uneven surfaces are present	App. A, 3.1-2	Installation method should be confirmed with manufacturer. System should be pressure washed in test areas to confirm mounting is sufficient.	5	County	A	6/30/2017			Weekly
7	Bollards	Damaged bollard at public exit	App. A, 3.1-2	Repair bollard	2	WM/County	A	6/30/2017			Weekly
8	Signage surfaces	Surfaces have dust and debris buildup	App. A, 3.1-3	Clean all surfaces	1	WM	A	6/30/2017			Weekly
9	Water piping	Some insulation missing protective jacket, or missing entirely	App. A, 3.1-3 and 3.1-4	Review all piping and provide proper insulation	1	WM	B	9/30/2017			Weekly
10	Water heat trace	Portions of the water system do not include heat trace and existing heat trace could not be determined functional	App. A, 3.1-3 and 3.1-4	Confirm all exposed water piping is properly heat traced and that heat trace is functional	1	WM	B	9/30/2017			Weekly
11	Emergency eyewashes and showers	Fixtures are missing covers and have dust and debris build up	App. A, 3.1-3 and 3.1-4	Replace covers and clean fixtures	1	WM	A	6/30/2017			Daily

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<p>TRANSFER BUILDING</p> <p>The Transfer Building is generally in good condition. The building foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use.</p>											
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12	Non-potable water system	Potable water is not properly isolated from non-potable system or labeled	App. A, 3.1-4 and 3.1-5	Provide a detailed review of the piping system, develop appropriate backflow protection, and properly label piping	1	WM	B	9/30/2017			NA
13	Hose reels	Some hose reels are out of service or removed	App. A, 3.1-4	Restore all hose reels functionality, including items discussed for the potable water system	1	WM	C	3/31/2018			Weekly
14	Fire-sprinkler heads	It is unclear if all heads were replaced within the system as a result of the July fire	App. A, 3.1-5	Confirm all heads were replaced within the system as a result of the July fire, otherwise replace heads	5	County	A	6/30/2017			Annually
15	Fire-sprinkler riser	July 2015 inspection card indicates "System Has Deficiencies"	App. A, 3.1-5	Confirm and address associated deficiencies	1	WM	A	6/30/2017			Annually
16	Contact water holding tank	Level reading currently requires a dip stick method, but a new level gauge is scheduled for installation	App. A, 3.1-6	Install new gauge	1	WM	A	6/30/2017			Weekly
17	Building ventilation	Ventilation system is incomplete	App. A, 3.1-6	Install missing fans. Provide duct connections to outlets for all fans.	1	WM	B	9/30/2017			Quarterly
18	Air compressor	Excessive dust buildup and missing belt guard	App. A, 3.1-7	Clean compressor and replace guard	1	WM	A	6/30/2017			Weekly
19	East wall receptacle	In-use cover missing	App. A, 3.1-7	Replace cover	1	WM	A	6/30/2017			Weekly
20	Interior light fixture mounting	Carabineer style clips have been used to hang pendant lights	App. A, 3.1-7	Confirm mounting method is acceptable to manufacturer	5	County	A	6/30/2017			NA
21	Lighting control box, CP-3	Desired setting unclear	App. A, 3.1-8	Confirm setting	1	WM	A	6/30/2017			Weekly

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SPECIAL WASTE/ RECYCLING AREA	The Special Waste/Recycling Area is generally in good condition. The structure foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use.										
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1	Secondary roof and wall framing	Rust is evident indicating coatings failure	App. A, 3.2-1	In accordance with the May 2015 inspection by Corrosion Probe, Inc., rust is considered superficial, but should be monitored.	4	County	C	3/31/2018			Annually
2	All surfaces	All surfaces have dust and debris buildup	App. A, 3.2-1 and 3.2-2	Clean all surfaces	3	WM	A	6/30/2017			Annually
3	Wall adjacent to south hose reel	Wall shows impact damage	App. A, 3.2-1	Repair or replace wall section	1	WM	C	3/31/2018			NA
4	Bollards, guardrails, and other painted or coated features	Many of the elements have been recoated; however, some recoating is still needed	App. A, 3.2-2	The facility should be reviewed for any items with failed paint or coating. Surfaces should be properly prepared and recoated.	1	WM	A	6/30/2017			Weekly
5	Roof access ladder	Ladder does not exist/was not part of original construction	App. A, 3.2-2	Install ladder	5	WM/County	C	3/31/2018			NA
6	Signage surfaces	Surfaces have dust and debris buildup	App. A, 3.2-2 and 3.2-3	Clean all surfaces	1	WM	A	6/30/2017			Weekly
7	Water piping	Some insulation missing protective jacket, or missing entirely	App. A, 3.2-2	Review all piping and provide proper insulation	1	WM	B	9/30/2017			Weekly
8	Water heat trace	Portions of the water system do not include heat trace and existing heat trace could not be determined functional	App. A, 3.2-2	Confirm all exposed water piping is properly heat traced and that heat trace is functional	1	WM	B	9/30/2017			Weekly
9	Hose reels	North hose reel has been removed	App. A, 3.2-2	Restore hose reels functionality, including items discussed for the potable water system	1	WM	B	9/30/2017			Weekly
10	Non-potable water system	Potable water is not properly isolated from non-potable system or labeled	App. A, 3.2-2	Provide a detailed review of the piping system, develop appropriate backflow protection, and properly label piping	1	WM	B	9/30/2017			NA

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Priority Levels

Level A - Issue to be addressed within **3 months** of issuing the Corrective Action Tracking Form

Level B - Issue to be addressed within **6 months** of issuing the Corrective Action Tracking Form

Level C - Issue to be addressed within **12 months** of issuing the Corrective Action Tracking Form

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SPECIAL WASTE/ RECYCLING AREA		The Special Waste/Recycling Area is generally in good condition. The structure foundations and superstructure appear sound and are as would be expected considering the design and construction of the building and its age and use.									
11	Lighting	Lights have been replaced with LED, though the number of lights has decreased from 5 to 3. There also appears that a fixture could be missing in the SW corner.	App. A, 3.2-2	Review PSE installation and confirm correct number of lights installed.	5	County	A	6/30/2017			NA
12	Interior light fixture mounting	Carabineer style clips have been used to hang pendant lights	App. A, 3.2-3	Confirm mounting method is acceptable to manufacturer	5	County	A	6/30/2017			NA
13	Roadway pavement	Ecology block area, fencing, and Transfer Building exit pavement has debris build up	App. A, 3.2-3	Clean area of debris	1	WM	A	6/30/2017			Weekly

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<p>TRANSFER STATION OFFICE BUILDING</p> <p>The Transfer Station Office Building is generally in good condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use.</p>											
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1	Wall bases and roof between the office building and Transfer Building	Rust is evident indicating coatings failure	App. A, 3.3-1	Surfaces should be properly prepared and recoated.	4	County	C	3/31/2018			Annually
2	West louver housing	Louver is not properly sealed	App. A, 3.3-1	Provide perimeter closure gasket/sealing	1	WM	A	6/30/2017			NA
3	Exterior window tracks	Tracks have build up and vegetative growth	App. A, 3.3-1	Clean tracks	1	WM	A	6/30/2017			Weekly
4	Ceilings	Some tiles are damaged, soiled, or stained	App. A, 3.3-1	Replace tiles as needed	1	WM	B	9/30/2017			Weekly
5	Ceilings	Animal feces within ceiling space	App. A, 3.3-3	Clean ceiling space	1	WM	A	6/30/2017			Annually
6	Interior walls	Worn and marked up	App. A, 3.3-1	Patch and paint	1	WM	B	9/30/2017			Weekly
7	Floors	Worn and scuffed	App. A, 3.3-1	Clean and wax	1	WM	B	9/30/2017			Weekly
8	Potable water insulation	Pipes are uninsulated	App. A, 3.3-2	Insulate pipes	1	WM	B	9/30/2017			Weekly
9	Potable water identification	A valve tag list was not found	App. A, 3.3-2	Provide valve tag list to identify valve use	1	WM	A	6/30/2017			Annually
10	Water heater	Water temperature set at 100F which does present a health hazard from Legionella because of the tank temperature	App. A, 3.3-2	Temperature should be elevated to 140F to kill bacteria and then be tempered to 120F for distribution	1	WM	A	6/30/2017			Annually
11	Lunch room	Sink faucet leaks at base	App. A, 3.3-2	Repair faucet	1	WM	A	6/30/2017			Weekly
12	Exhaust system	Controls do not facility proper usage, including master control in the exterior restroom	App. A, 3.3-2	The fan control should be switched to operate during the occupied cycle through the heat pump thermostat.	5	WM/County	C	3/31/2018			NA
13	Women's locker room	Thermostat knob missing	App. A, 3.3-3	Replace knob	1	WM	A	6/30/2017			Weekly
14	Men's locker room	Clothes rack allow clothes in close proximity to heater creates fire hazard	App. A, 3.3-3	Adjust rack to avoid heater	1	WM	A	6/30/2017			Weekly
15	Corridor wall	Receptacle missing cover plate	App. A, 3.3-3	Provide cover plate	1	WM	A	6/30/2017			Weekly
16	County restroom	Broken switch plate cover	App. A, 3.3-3	Replace cover	1	WM	A	6/30/2017			Weekly
17	County office exterior	In-use receptacle cover allows water enter	App. A, 3.3-3	Repair or replace cover	1	WM	A	6/30/2017			Weekly

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<p>TRANSFER STATION OFFICE BUILDING</p> <p>The Transfer Station Office Building is generally in good condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use.</p>											
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18	Multipule interior locations	Dead bugs and dirt in diffusers	App. A, 3.3-3	Clean diffusers	1	WM	A	6/30/2017			Weekly
19	Men's restroom	Diffuser is missing	App. A, 3.3-3	Replace diffuser	1	WM	A	6/30/2017			Weekly
20	Fire alarm control cabinet	Cabinet is blocked by a piece of communications equipment mounted to the adjoining wall. This prevents the door from closing and allowing proper access. This is in violation of the NEC	App. A, 3.3-4	The equipment blocking the cabinet should be relocated to provide proper working clearances	1	WM	A	6/30/2017			NA
21	Electrical Room	UPS in electrical room is currently sitting on a folding metal chair. This is not a secure location with risk of equipment damage.	App. A, 3.3-4	The UPS should be elevated above the floor, but on an appropriate shelf or bracket	1	WM	A	6/30/2017			NA
22	County office space	Server cabinet is left of the kitchen. Power for the cabinet is from a general use GFCI receptacle at the kitchen counter. There is a UPS inside the cabinet to protect against a brief power loss, but there is risk of the GFCI tripping and personnel not resetting. This would result in power loss to the server.	App. A, 3.3-4	It is recommended that a dedicated receptacle be installed to serve the cabinet	5	WM/County	A	6/30/2017			NA
23	Unisex restroom	Missing ADA grab bars	App. A, 3.3-4	Install ADA grab bars	1	WM	A	6/30/2017			NA
24	Southeast entry Sidewalk	Curb is fractured	App. A, 3.3-4	Repair curb	1	WM	C	3/31/2018			Weekly

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SCALE FACILITY		The Scale Facility is generally in fair condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use; however, some significant issues prevent an assessment of good condition.									
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1	Outbound attendant window gutter	Downspout installation is incomplete	App. A, 3.4-1	Roof downspout needs an additional elbow to direct flow downward	4	County	A	6/30/2017			NA
2	Interior walls	Worn and marked up	App. A, 3.4-1	Patch and paint	4	County	B	9/30/2017			Weekly
3	Interior walls	Toilet paper holder has been pulled out of wall	App. A, 3.4-1	Reinstall holder	4	County	A	6/30/2017			NA
4	Floors	Worn and scuffed. Some damaged tiles.	App. A, 3.4-1	Replace damaged tiles. Clean and wax floor.	4	County	B	9/30/2017			Weekly
5	Water service valves and heater under kitchen sink	Limited access	App. A, 3.4-2	Review access with Kitsap County to determine level of concern. Modify configuration as needed.	4	County	C	3/31/2018			NA
6	Exterior drain lines	One of the flashed drains is likely from the old cooling unit and is no longer being used for condensate	App. A, 3.4-2	Remove drain and repair	4	County	C	3/31/2018			NA
7	Ventilation	None provided other than through the transaction windows	App. A, 3.4-2	Facility should be reviewed for ventilation options	4	County	B	9/30/2017			NA
8	Bathroom	Exhaust fan is controlled by on/off switch	App. A, 3.4-2	Recommend that a motion sensor with delay timer be installed to control both the lights and the exhaust fan	4	County	B	9/30/2017			NA
9	Ductless split system	Wall separates the indoor unit from the transaction area needing conditioning which makes the new cooling system ineffective	App. A, 3.4-3	Condition should be reviewed for possible solutions	4	County	B	9/30/2017			NA
10	Baseboard heaters	Existing baseboard electric heaters are located in areas with material (boxes, furniture, etc.) in front of the heaters which is a fire hazard	App. A, 3.4-3	It is recommended that the electric heaters be moved to a location under the transaction windows where they would be much more effective during the winter	4	County	A	6/30/2017			NA
11	Electric heater controls	Controls for the electric heaters have had dials removed, requiring operation by pliers	App. A, 3.4-3	Replace dials. Remove dials and controls no longer in service.	4	County	A	6/30/2017			NA

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SCALE FACILITY		The Scale Facility is generally in fair condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use; however, some significant issues prevent an assessment of good condition.									
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12	SE corner of building exterior	Conduit separated from LB fitting	App. A, 3.4-3	Repair conduit	4	County	A	6/30/2017			Weekly
13	Interior cable and wiring	Miscellaneous equipment cables and wiring under countertops is disorganized	App. A, 3.4-3	Organize cabling and relocate is adjacent to heaters	4	County	A	6/30/2017			Weekly
14	Kitchen	Power strip and splitting extension cords used to feed coffee maker, water cooler, microwave, toaster oven, and refrigerator. This can lead to overloading the circuit.	App. A, 3.4-4	Permanent receptacles should be added, potentially with additional circuits to prevent overloading	4	County	B	9/30/2017			Weekly
15	Interior GenTran panel	Panel has exposed receptacle contacts	App. A, 3.4-4	Investigate panel configuration and resolve safety concern	4	County	A	6/30/2017			NA
16	Base of scales	There is build up of dirt and vegetation.	App. A, 3.4-4	Surfaces should be cleaned.	1	WM	B	9/30/2017			Weekly
17	Scale foundations	Load cell slabs are depressed and pond water.	App. A, 3.4-4	Concrete surface topping could be installed to raise the localized areas, though a correction will likely need to be part of a more global approach to scale facility drainage.	4	County	C	3/31/2018			NA
18	Scale frames	Coatings have failed.	App. A, 3.4-4	Prepare and recoat.	4	County	C	3/31/2018			Weekly
19	Commercial inbound scale deck	Deck concrete is heavily fractured and spalled.	App. A, 3.4-4	Remove fractured concrete and repour deck.	4	County	C	3/31/2018			Weekly
20	Traffic control pole risers	Liquid-tight flexible metal conduit are strapped with metal banding and, in one case, with zip tie	App. A, 3.4-5	Strap conduits more securely with approved mounting per the NEC	4	County	A	6/30/2017			Weekly
21	Scale exterior	Seal-tight flexible conduit pulled out of connectors at incoming scale and outgoing signal light	App. A, 3.4-5	Repair conduit	4	County	A	6/30/2017			Weekly
22	Scale exterior	Sun damaged seal-tight flexible conduit	App. A, 3.4-5	Repair conduit	4	County	A	6/30/2017			Weekly

OVTS Biennial Facility Inspection and Records Review

Corrective Action Tracking Form

2016

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SCALE FACILITY		The Scale Facility is generally in fair condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use; however, some significant issues prevent an assessment of good condition.									
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23	Scale exterior	Seal-tight flexible conduit is secured to signal light columns with steel hose clamps and plastic zip ties	App. A, 3.4-5	Appropriate conduit support should be installed per the NEC	4	County	A	6/30/2017			Weekly
24	Scale exterior	Broken PVC conduit at north end of outgoing scale	App. A, 3.4-5	Repair conduit	4	County	A	6/30/2017			Weekly
25	Scale exterior	Some existing conduit repairs do not meet code	App. A, 3.4-5	Repairs to broken and separated conduit should be redone per NEC and manufacturer's instructions	4	County	A	6/30/2017			Weekly
26	Scale exterior	Improper use of electrical connectors	App. A, 3.4-5	Repair conduit using proper fittings	4	County	A	6/30/2017			Weekly
27	Scale exterior	Electrical support beam clamps are sheet metal construction and have rusted	App. A, 3.4-5	Hardware should be replaced with different material with improved corrosion protection before failure	4	County	C	3/31/2018			Weekly
28	Pavement edges	Vegetation and soil have built out over the pavement and along the fence base.	App. A, 3.4-5	Clear surfaces	1	WM	B	9/30/2017			Weekly
29	Asphalt pavement	Cracks and joints are developing. Rutting is starting to occur at the scale entrance queues.	App. A, 3.4-5	Seal joints and cracks and repair rutting asphalt. If significant drainage modifications will occur, repaving efforts should be coordinated with that work.	3	WM/County	C	3/31/2018			Weekly
30	Gravel shoulder south of outbound scale	Shoulder has been filled with dirt and gravel which is expected to erode	App. A, 3.4-5	Restore area with significant aggregate or pavement	1	WM	A	6/30/2017			Weekly

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SCALE FACILITY		The Scale Facility is generally in fair condition. The general condition of the building interior and exterior reflects what would typically be expected at this type of facility considering the design and construction of the building and its age and use; however, some significant issues prevent an assessment of good condition.									
31	Scale facility area	Slopes within the vicinity of the scales and scale house do not drain and result in significant ponding.	App. A, 3.4-5	In order to create effective drainage in the area and eliminate the ponding, new area drains and piping will need to be added. This work will likely require temporary deactivation and removal of the scales to allow access for trenching and installation of piping. This piping would run to existing catch basins in the scale facility area.	5	County	C	3/31/2018			NA
32	Scale facility area	Pavement striping is worn out in some locations.	App. A, 3.4-5	Restripe area.	1	WM	B	9/30/2017			Weekly

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INTERMODAL/RAIL YARD		The Intermodal/Rail Yard is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. The area remains in good condition while being subject to continual wear and loading from heavy equipment and containers; though wear has become more evident.									
1	Rail spur area	Vegetation is growing within the crushed rock surfacing.	App. A, 3.5-1	Remove vegetation and restore area	1	WM	B	9/30/2017			Weekly
2	Pond A	Pond is overgrown and has a build up of debris and invasive vegetation.	App. A, 3.5-1	Clear pond of debris and invasive vegetation, including the rip rap berm	1	WM	B	9/30/2017			Weekly
3	Catch basin north of contact water tank	Improperly sized grate.	App. A, 3.5-1	Replace with a properly sized grate	1	WM	A	6/30/2017			NA
4	Catch basin at the south end of the west most trench drain	Rim is at higher elevation than the surrounding surface which results in ponding.	App. A, 3.5-1	Lower rim elevation or provide slots through rim to facilitate drainage	3	WM/County	C	3/31/2018			NA
5	Rail spur trench drain	A wear and settlement depression has developed along the rail spur trench drain that allows for water to accumulate	App. A, 3.5-1	Restore drainage with new asphalt or concrete	3	WM/County	C	3/31/2018			NA
6	Fence line and landscape areas	Areas are overgrown with invasive vegetation.	App. A, 3.5-2	Remove vegetation and restore areas	1	WM	B	9/30/2017			Weekly
7	Asphalt pavement	Asphalt cracks and joints are developing and are starting to grow vegetation. Some asphalt areas are growing moss.	App. A, 3.5-2	Vegetation and moss should be removed. Cracks and joints should be sealed.	1	WM	C	3/31/2018			Weekly
8	Asphalt pavement	There is pavement wear, surface erosion and deformation from container loading on the pavement	App. A, 3.5-2	Consider resurfacing	3	WM/County	C	3/31/2018			Weekly
9	Concrete curbs	Some locations have fractured	App. A, 3.5-2	Repair curbs	1	WM	C	3/31/2018			Weekly
10	Compactor unload area	Settlement and wear is occurring	App. A, 3.5-2	Restore area with new asphalt or concrete	3	WM/County	C	3/31/2018			Weekly
11	Bull railes along compactor and top load tunnel	Coatings have failed.	App. A, 3.5-2	Prepare and recoat	1	WM	A	6/30/2017			Weekly

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INTERMODAL/RAIL YARD		The Intermodal/Rail Yard is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. The area remains in good condition while being subject to continual wear and loading from heavy equipment and containers; though wear has become more evident.									
12	South end yard lights	Lights don't appear to have been switched to LED	App. A, 3.5-2	Review PSE documentation	5	County	A	6/30/2017			NA
13	Retaining walls	Walls are growing vegetation.	App. A, 3.5-2	Remove vegetation	1	WM	A	6/30/2017			Weekly
14	Retaining wall at north end of rail spur	Wall has been demolished.	App. A, 3.5-2	Repair wall	1	WM	C	3/31/2018			NA
15	French drains/trench drains	Drains have silt build up.	App. A, 3.5-3	Clean drains	1	WM	A	6/30/2017			Weekly
16	Utility area north of Transfer Building	Vegetation is growing in the gravel area.	App. A, 3.5-3	Remove vegetation and restore area	1	WM	B	9/30/2017			Weekly

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<p>PUBLIC RECYCLING AREA</p> <p>The Public Recycling Area is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use.</p>											
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1	Concrete slab below canopy	Surface deterioration and potential to pond water	App. A, 3.6-1	The area should be prepared and a new surface topping applied to repair the area and provide drainage	3	WM/County	C	3/31/2018			Daily
2	Concrete slab below canopy and asphalt interface	The interface joint needs to be sealed	App. A, 3.6-1	Seal joint	1	WM	C	3/31/2018			Daily
3	Canopy columns	Coatings have failed	App. A, 3.6-1	Prepare and recoat	4	County	C	3/31/2018			Daily
4	Canopy lights	Lighting was on during full daylight	App. A, 3.6-1	Lighting photocell control should be added, limiting use from dusk to dawn	5	County	B	9/30/2017			NA
5	Canopy lights	Conduit support beam clamps are sheet metal construction and have rusted	App. A, 3.6-1	Hardware should be replaced with different material for improved corrosion protection before failure	3	WM/County	B	9/30/2017			Daily
6	Southeast corner access to adjacent storage yard	Access is dirt and gravel and will be subject to rutting and sediment into the Public Recycling Area	App. A, 3.6-1	Restore area with significant aggregate or pavement	1	WM	A	6/30/2017			Daily
7	Pavement edges	Vegetation and soil have built out over the pavement	App. A, 3.6-2	Clear surfaces	1	WM	B	9/30/2017			Daily
8	Fence line and landscape areas	Areas are overgrown with invasive vegetation	App. A, 3.6-2	Remove vegetation and restore areas	1	WM	B	9/30/2017			Daily
9	Asphalt pavement	Asphalt cracks and joints are developing	App. A, 3.6-2	Cracks and joints should be sealed	1	WM	B	9/30/2017			Daily
10	Ecology blocks along the east edge	Blocks have been knocked out of alignment and off the asphalt	App. A, 3.6-2	Reposition blocks	1	WM	A	6/30/2017			Daily
11	Cutoff embedded post in asphalt north of the canopy	Cutoff post protrudes above surrounding asphalt	App. A, 3.6-2	Remove post and restore area	2	WM	A	6/30/2017			NA
12	Entrance/exit area	Pavement striping is worn out	App. A, 3.6-2	Restripe area	1	WM	B	9/30/2017			Daily
13	Signage	Some signage is worn out and damaged. Stand coatings have failed	App. A, 3.6-2	Continue County program to replace signage and prepare and recoat stands.	4	County	A	6/30/2017			Daily

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PUBLIC RECYCLING AREA	The Public Recycling Area is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use.
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14	Fence at southeast gate.	Top rail and barbed wire has damage	App. A, 3.6-2	Repair fence	2	WM	A	6/30/2017			Daily
15	Asphalt embedded fence	Pole bases have gaps and are growing vegetation	App. A, 3.6-2	Remove vegetation and seal gaps	1	WM	B	9/30/2017			Daily
16	Yard ramps	All but one original and worn out ramp has been replaced	App. A, 3.6-2	Replace final ramp	1	WM	A	6/30/2017			NA
17	Yard ramps	New yard ramps are missing splice brakets that have been replaced with zip ties. One hand rail had been damaged.	App. A, 3.6-2	Replace splice brakets and repair damaged rail	2	WM	A	6/30/2017			Daily
18	Yard area	Area around containers and ramps have excessive litter	App. A, 3.6-2	Clean area	1	WM	A	6/30/2017			Daily
19	Oil disposal area	Some oil disposal containers are either missing the spill containment mat or the mats have been damaged and are ineffective	App. A, 3.6-2	Repair or replace mats	2	WM	A	6/30/2017			Daily

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SITE											
The site is generally in good condition. The pavement and site features are as would be expected considering the design and construction of the area and its age and use. The general condition of the site reflects what would typically be expected at this type of facility.											

1	Catch basins	Outfall to offsite drainage contains litter	App. A, 3.7-1	Clean outfall	1	WM	A	6/30/2017			Weekly
2	Ponds	Ponds have debris and sediment build up including at inlets and outlets. Riprap filter berms also have debris, sediment and vegetation build up. Invasive vegetation is growing within the ponds.	App. A, 3.7-1	Clean out inlets and riprap, and remove invasive vegetation	1	WM	B	9/30/2017			Weekly
3	Stormwater pump panel, east of the Transfer Building	Rust on electrical control enclosure	App. A, 3.7-1	Clean the interior surface and apply some paint to the areas that are showing corrosion	3	WM	B	9/30/2017			Weekly
4	Sanitary lift station pump panel	Rust on electrical control enclosure	App. A, 3.7-1	Clean the interior surface and apply some paint to the areas that are showing corrosion	3	WM	B	9/30/2017			Weekly
5	Pavement edges	Vegetation and soil have built out over the pavement	App. A, 3.7-1	Clear surfaces	1	WM	B	9/30/2017			Weekly
6	Fence line and landscape areas	Areas are overgrown with invasive vegetation	App. A, 3.7-1	Remove vegetation and restore areas	1	WM	B	9/30/2017			Weekly
7	Asphalt pavement	Asphalt cracks, spider cracking, and joints are developing	App. A, 3.7-2	Cracks and joints should be sealed	1	WM	B	9/30/2017			Weekly
8	Asphalt pavement	Commercial vehicles are cleaning out their back ends outside of the commercial exit which is creating a litter and vector issue	App. A, 3.7-2	Area needs to be cleaned and drivers need to be educated on acceptable practices	1	WM/County	A	6/30/2017			Daily
9	Asphalt pavement	Some pavement striping is worn out	App. A, 3.7-2	Restripe area	1	WM	B	9/30/2017			Weekly
10	Stairs south of Transfer Building	Stairs have vegetation growth and would benefit from a handrail.	App. A, 3.7-2	Clean stairs and add a handrail.	5	WM/County	B	9/30/2017			Weekly

OVTS Biennial Facility Inspection and Records Review

Corrective Action Tracking Form

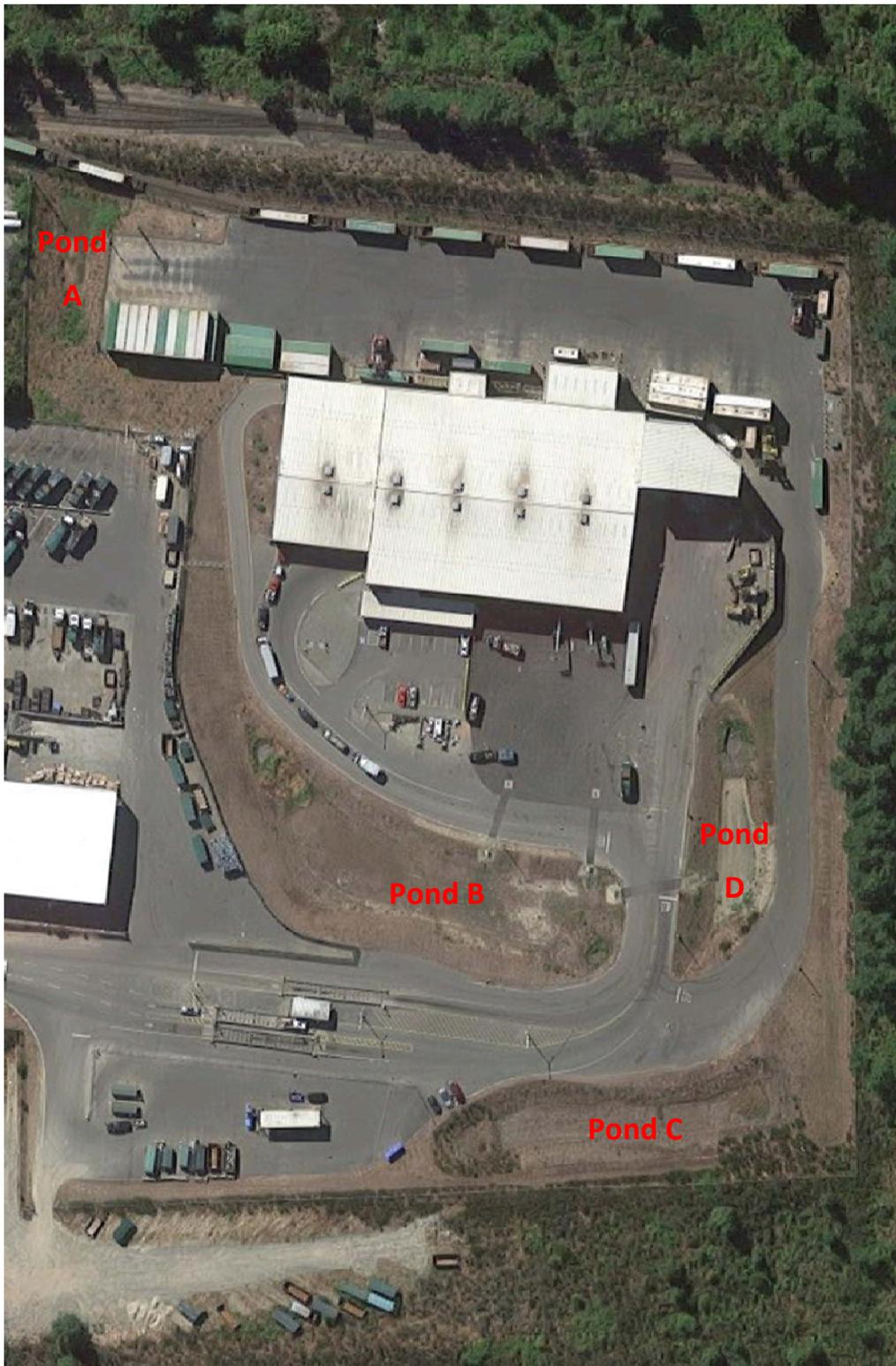
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	EQUIPMENT	In general, onsite equipment is in good condition while being subject to a corrosive, industrial environment. The general condition of the equipment reflects what would typically be expected at this type of facility, handling this type of heterogeneous material. Based on records review, we believe that WM is doing a reasonable level of preventive maintenance on all of the equipment in use at the site.									

Appendix D

Site Plan with Pond Designations



TECHNICAL MEMORANDUM

DATE: March 31, 2017
TO: Keli McKay-Means
FROM: Ian Sutton
SUBJECT: OVTS Findings of Records Review
CC: Karl Hufnagel
PROJECT NUMBER: 553-1578-145
PROJECT NAME: OVTS 2016 Biennial Facility Inspection

This memorandum documents the Parametrix (PMX) records review for the Olympic View Transfer Station (OVTS) as required under Task 3 of our agreement with the Kitsap County Solid Waste Division (County) for the OVTS 2016 biennial facility inspection. The objective of this review was to verify whether the facility operator, Waste Management, Inc. (WM), is fulfilling its obligation under its operating agreement to maintain certain records and reports regarding the operation and maintenance of the OVTS facility. Attachment A, from the 2014 biennial facility inspection, summarizes the operating agreement requirements for record keeping and reporting. Note that the County and WM are currently in the process of updating the OVTS Plan of Operations, and as a result of the recent resurfacing and stormwater maintenance project, the Stormwater Pollution Prevention Plan (SWPPP) is also being revised.

Our records review occurred on August 18, 2016. The review involved Ian Sutton and Karl Hufnagel of PMX and Larry Storset of LNS Engineers, Marshon Coppinger of the County, and Aaron Rebmann, site manager for WM. We also met separately with Haani Beck of Brem-Air Disposal, a subsidiary of WM, to examine certain records related to the Fire Marshal, automatic fire sprinkler system annual inspections, and backflow prevention annual inspections. Brem-Air Disposal also maintains the records and practices related to the OVTS equipment maintenance, which Brem-Air Disposal under-takes for WM.

We reviewed current record-keeping practices and recent records with Mr. Rebmann, beginning with daily records and then progressing through weekly, monthly, quarterly, and annual records. Mr. Rebmann is relatively new to the OVTS site, serving as site manager since March 28, 2016. Mr. Rebmann demonstrated a thorough understanding of the record-keeping process and was able to provide copies of the full range of required records and reports, most of which are maintained in his office in the Transfer Station Office Building. Many of the key records and reports are completed by Mr. Rebmann. The following is a summary of the records and reports that we reviewed in detail during our site inspection:

- Daily records and reports:
 - Random Load Inspection Checklist (completed by the floor spotter, typically one per day)
 - Emergency Eyewash/Shower Stations Inspection form (condition and water temperature report, completed by the floor spotter)
 - Magnet Sweeping Schedule Form (3 to 5 days per week)
 - Public Recycle Area condition report (completed by the floor spotter and litter patrol)

- Compactor Preventive Maintenance Record (completed by the operator). Compactor is typically cleaned out 3 times per week.
 - Daily Pull Log for TVs, Monitors, and White Goods (completed by the floor spotter)
 - End of Day Capacity Report (recycling area and yard/wood waste)
 - Daily Equipment Inspection Reports (for each piece of mobile equipment used, completed by operators for each shift)
 - Preventive maintenance and service records for mobile equipment (completed by the equipment service department of Brem-Air Disposal)
- Weekly records and reports:
 - Facility Weekly Inspection Form (completed by the site manager)
 - Preventive maintenance and service records for compactor (completed by the equipment service department of Brem-Air Disposal)
- Monthly records and reports:
 - Industrial Stormwater Month Inspection Report
 - Stormwater Management Devices Log (catch basins and ponds)
 - Spill Prevention Control Monthly Report (tanks)
- Quarterly records and reports:
 - Truck Scale Commercial Scale Test Report (recertification report completed by Unitec, the scale manufacturer)
 - Health District Quarterly Inspection Report (completed by the Health District)
 - OVTS Quarter Facility Report (completed by the site manager)
- Annual records and reports:
 - Annual Report to Department of Ecology and Health District
 - Annual Surface Water Pollution Prevention Plan and Spill Prevention Control Plan Awareness Training Report
 - Annual Report of Inspection for the Dry Pipe Sprinkler System (contracted to sprinkler contractor)
 - Annual Backflow Prevention Inspection Reports
- 5 Year records and reports (a record does not currently exist for this item):
 - 5 Year Report of Testing for the Dry Pipe Sprinkler System Harsh Environment Sprinkler Heads (this report should be added to the sprinkler contractor inspection requirements).

The previously recorded Monthly Safety and Housekeeping Inspection Checklist and Quarterly Visual Monitoring Inspection Form were discontinued due to redundancy with the Facility Weekly Inspection Form.

Many of the blank inspection forms are included in Attachment B for reference. Note that the County does not typically receive all of the above-listed forms from WM. Many of the inspections and maintenance record keeping is reported to the County in summary within the OVTS Quarterly Reports.

In the course of our records review we examined recent editions of each of the aforementioned reports and records. We noted that these documents are complete and entirely legible. Mr. Rebmann indicated that records and reports are retained for a minimum of 3 years.

Mr. Rebmann indicated that he does a complete site inspection walk on a daily basis and that he completes the Facility Weekly Inspection Report on Friday following his site inspection that day. We recommend that Ms. Coppinger accompany Mr. Rebmann on at least one of these full site inspections each month.

Based on our review of the mobile equipment condition tracking, maintenance, and repair records, it is clear that WM/Brem-Air Disposal employ a very disciplined, computer-based maintenance and repair documentation system that accurately triggers and tracks the preventive maintenance and repairs performed on the equipment used at OVTS.

We were impressed with Mr. Rebmann's dedication to maintaining accurate, timely records and to providing all reports and records required under the operating agreement.

The only concern we have is in regards to the dry pipe sprinkler system of the Transfer Building. All sprinkler heads in the Transfer Building were replaced as a requirement of the Fire Marshal following the tipping floor fire from the evening of July 31 through mid-morning August 1, 2015; however, it is not clear if the sprinkler heads outside of the tipping floor were also replaced (i.e. exterior, lower compactor area, and Special Waste/Recycle Area). It should be confirmed if these were replaced. If not, they should be replaced to bring the entire facility up to standards. With regard to fire sprinkler system review records, the annual inspections are contracted to a sprinkler contractor and the annual reports are being retained in the Brem-Air Disposal files. Additionally, the "Monthly Safety and Housekeeping Inspection Checklist" includes inspection of the main fire suppression system. A record could not be found to indicate that the 5 year (harsh environments), or 10 year (standard dry sprinkler systems), testing of sprinkler heads has been conducted. The requirement is to replace all dry sprinkler heads at these intervals, or to remove a sample of 1% of all sprinkler heads (4 heads minimum) to be functionally tested. This activity will be required on the recently replaced sprinkler heads in Transfer Building dry sprinkler system in 5 years, and should be added as a separate inspection task (noted above). Also, at the fire sprinkler riser, a note on the July 2015 inspection card indicated "System Has Deficiencies"; however, it was not confirmed what these deficiencies are, and if they have been addressed. Action is required to follow up on this item.

In summary, with the exception of the periodic testing/replacement of sprinkler heads in the Transfer Building, it appears to us that WM is currently in full compliance with its record-keeping and reporting responsibilities.

Attachment A: Record-Keeping and Reporting Requirements

Attachment B: Record-Keeping and Reporting Forms



Memorandum

701 Pike Street, Suite 1200
Seattle, WA 98101

T: 206.624.0100
F: 206.749.2200

Subject: OVTS Records Review Information Request

Date: December 2, 2014

To: Keli McKay-Means (Kitsap)

From: Ian Sutton

Copy to: Marshon Coppinger (Kitsap)

Below is an information request pertaining to the biennial Records Review at the Olympic View Transfer Station (OVTS). The list corresponds to the Plan of Operations and Operating Agreement for OVTS. The numbering relates to the relevant section of the Plan of Operations.

1.1.14 Preventive maintenance is to be performed according to manufacturer's specifications and company standards for each type of equipment. Scheduled maintenance is to be tracked by computer, and maintenance records and invoices are to be maintained at the facility. Maintenance and service records as well as information on the age and run time is needed for the following equipment.

- Scales
- Compactor
- Volvo Loader #839385
- Cat 938 Floor Loader #836258
- John Deere 644H Floor Loader #839157
- Taylor TXLC 975 #861645
- Taylor TXLC 975 #861646
- Cat 308 Excavator #830569
- Caterpillar M312 Excavator #830454
- Ottawa Yard Goat

3.3 Records which specifically address Chapter 173-300 Special Wastes are to be maintained a minimum of five years.

4.6 The sanitary drainage system is to be inspected and maintained on a regular basis. The above ground tank (storage) is to be inspected by checking the mechanical level indicator at least weekly, and the interstitial space is to be checked for the presence of fluid on a monthly basis. Ponds, oil-water separators, and the Pond A pump are to be inspected at least monthly and maintained as needed. The Pond A pump is monitored using a control panel, and it is equipped with a warning beacon and auto dialer in case of malfunction.

5.0 Records required by Kitsap Public Health District, which include inspection documentation, records of waste screening, and tonnage reports are to be maintained for a minimum of three years.

5.0 A solid waste annual report is submitted by March 1 of each year to the Department of Ecology and to the Health District.

5.0 Quarterly reports are to be provided to the Kitsap County Department of Public Works by the 15th day after the end of a quarter. Reports shall include the following:

- Condition of the transfer station
- Remaining capacity at the disposal site
- Changes in status and readiness of alternate facilities
- Any complaints submitted to the Contractor and Contractor's response if any
- Any extraordinary occurrences the Contractor deems to have affected its performance
- Documentation related to Unacceptable Waste
- Identification of commodities other than Acceptable Waste transported from the intermodal facilities

5.1 A log is to be maintained of complaints received, findings, and responses.

5.2 Self-inspection of transfer station operations not corrected within 24 hours, or that affect regulatory compliance, are to be documented and monitored through an internal tracking system.

5.2 At least twice per month, documented inspections are to be conducted using an Inspection Log (Appendix E), and the date, time, inspector's name, observations, and date/time of corrective actions are to be included in the log. The log book should be kept in a binder at the facility for at least 3 years.

5.2 Agency personnel may inspect the facility. An internal tracking system is to be used to monitor and document the progress of any necessary corrective actions.

INDUSTRIAL STORMWATER MONTHLY INSPECTION REPORT

Inspections must be conducted by a person with the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and evaluate the effectiveness of best management practices required by this permit. Retain a copy of the completed and signed form in accordance with Permit Condition S9.C.

Facility Name:	Inspection Time:	Date:		
<p>Weather Information:</p> <ul style="list-style-type: none"> • Description of Weather Conditions (e.g., sunny, cloudy, raining, snowing, etc.): _____ • Was stormwater (e.g., runoff from rain or snowmelt) flowing at outfalls and/or discharge areas shown on the Site Map during the inspection: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Comments: _____ 				
I. Potential Pollutant Source Area Inspection and Best Management Practices Evaluation				
<p>SWPPP and Site Map: Have a copy of the SWPPP and site map with you during the inspection so that you can ensure they are current and accurate. Use it as an aide in recording the location of any issues you identify during the inspection.</p> <ul style="list-style-type: none"> • Is the Site Map current and accurate? • Is the SWPPP inventory of activities, materials and products current? <p>Any new potential pollutant sources must be added to the map and reflected in the <i>SWPPP Facility Assessment & Tables 2, 2A, 3 and 5.</i></p>	Yes	No	NA	<p>Findings and Remedial Action Documentation: Describe any findings below and the schedule for remedial action completion including the date initiated and date completed or expected to be completed.</p>
<p>Vehicle/Equipment Areas:</p> <p>Equipment cleaning: Check NA if not performed on-site. Skip section.</p> <p>Is equipment washed and/or cleaned only in designated areas?</p> <ul style="list-style-type: none"> • Observe washing: Is all wash water captured and properly disposed of? <p>Equipment fueling: Check NA if not performed on-site. Skip section.</p> <ul style="list-style-type: none"> • Are all fueling areas free of contaminant buildup and evidence of chronic leaks/spills? • Are all chemical liquids, fluids, and petroleum products, on an impervious surface that is surrounded with a containment berm or dike that is capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater? • Are structures in place to prevent precipitation from accumulating in containment areas? <ul style="list-style-type: none"> ○ If not, is there any water or other fluids accumulated within the containment area? ○ Note: If containment areas are not covered to prevent water from accumulating, the SWPPP must include a plan describing how accumulated water will be managed and disposed of. 	Yes	No	NA	<p>Findings and Remedial Action Documentation:</p>

I. Potential Pollutant Source Area Inspection and Best Management Practices Evaluation				
<p>Equipment maintenance:</p> <ul style="list-style-type: none"> • Are maintenance tools, equipment and materials stored under shelter, elevated and covered? • Are all drums and containers of fluids stored with proper cover and containment? • Are exteriors of containers kept outside free of deposits? • Are any vehicles and/or equipment leaking fluids? Identify leaking equipment. • Is there evidence of leaks or spills since last inspection? Identify and address. • Are materials, equipment, and activities located so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas)? <p>Add any additional site-specific BMPs:</p> <hr/> <hr/> <hr/> <hr/>	<p>Yes</p>	<p>No</p>	<p>NA</p>	<p>Findings and Remedial Action Documentation:</p>
<p>Good Housekeeping BMPs:</p> <p>1. Are paved surfaces free of accumulated dust/sediment and debris?</p> <ul style="list-style-type: none"> • Date of last quarterly vacuum/sweep • Are there areas of erosion or sediment/dust sources that discharge to storm drains? <p>2. Are all waste receptacles located outdoors:</p> <ul style="list-style-type: none"> • In good condition? • Not leaking contaminants? • Closed when is not being accessed? [Excluding any scrap metal bins at Public Recycling Area and Roll-Off Staging Area] • External surfaces and area free of excessive contaminant buildup? <p>3. Are the following areas free of accumulated dust/sediment, debris, contaminants, and/or spills/leaks of fluids?</p> <ul style="list-style-type: none"> • External dock areas • Pallet, bin, and drum storage areas • Maintenance shop(s) • Equipment staging areas (loaders, tractors, trailers, forklifts, etc) • Around bag-house(s) • Around bone yards • Other areas of industrial activity: <hr/> <hr/> <hr/> <hr/>	<p>Yes</p>	<p>No</p>	<p>NA</p>	<p>Findings and Remedial Action Documentation:</p>

I. Potential Pollutant Source Area Inspection and Best Management Practices Evaluation				
<p>Spill Response and Equipment: Are spill kits available, in the following locations?</p> <ul style="list-style-type: none"> • Fueling stations • Transfer and mobile fueling units • Vehicle and equipment maintenance areas <p>Do the spill kits contain all the permit required items?</p> <ul style="list-style-type: none"> • Oil absorbents capable of absorbing 15 gallons of fuel. • A storm drain plug or cover kit. • A non-water containment boom, a minimum of 10 feet in length with a 12 gallon absorbent capacity. • A non-metallic shovel. • Two five-gallon buckets with lids. <p>Are contaminated absorbent materials properly disposed of?</p>	Yes	No	NA	Findings and Remedial Action Documentation:
<p>General Material Storage Areas:</p> <ul style="list-style-type: none"> • Are damaged materials stored inside a building or another type of storm resistance shelter? • Are all uncontained material piles stored in a manner that does not allow discharge of impacted stormwater? • Are scrap metal bins covered? <p>[Excluding any scrap metal bins at Public Recycling Area and Roll-Off Staging Area]</p> <ul style="list-style-type: none"> • Are outdoor containers containing waste covered? 	Yes	No	NA	Findings and Remedial Action Documentation:
<p>Stormwater BMPs and Treatment Structures: Visually inspect all stormwater BMPs and treatment structures devices, discharge areas infiltration and outfalls shown on the Site Map.</p> <ul style="list-style-type: none"> • Are BMPs and treatment structures in good repair and operational? • Are BMPs and treatment structures free from debris buildup that may impair function? • The permit requires Permittees to clean catch basins when the depth of debris reaches 60% of the sump depth. In addition, the Permittee must keep the debris surface at least 6 inches below the outlet pipe. Based on this, do catch basins need to be cleaned? • Are berms, curbing or other methods used to divert and direct discharges adequate and in good condition? 	Yes	No	NA	Findings and Remedial Action Documentation:

Inspector - Certification: This section must be completed by the person who conducted the site inspection prior to submitting this form to the person with signature authority (see Permit Condition G2) or a duly authorized representative of that person.

- The facility is in compliance with the terms and conditions of the SWPPP and the Industrial Stormwater General Permit.
- The facility is out of compliance with the terms and conditions of the SWPPP and the Industrial Stormwater General Permit. This report includes the remedial actions that must be taken to meet the requirements of the SWPPP and permit, including a schedule of implementation of the remedial actions.

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief."

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Inspector's Name – Printed **Inspector's Signature** **Inspector's Title** **Date**

Permittee – Certification:

- The facility is in compliance with the terms and conditions of the SWPPP and the Industrial Stormwater General Permit.
- The facility is out of compliance with the terms and conditions of the SWPPP and the Industrial Stormwater General Permit. This report includes the remedial actions that must be taken to meet the requirements of the SWPPP and permit, including a schedule of implementation of the remedial actions.

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

--	--	--

PRINTED NAME of person with Signature Authority (permit condition G2.A) or a Duly Authorized Representative ¹	SIGNATURE of person with Signature Authority (permit condition G2.A) or a Duly Authorized Representative ¹	DATE
--	---	------

¹A person is duly authorized representative only if 1) the authorization is made in writing by a person described in Permit Condition G2.A and submitted to Ecology, and 2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated *facility*, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

ATTACHMENT 3 – Inspections, Dike Drainage and Personnel Training Logs

ATTACHMENT 3.1 – Inspection Log and Schedule

Table G-16 Inspection Log and Schedule
 This log is intended to document compliance with §§ 112.6(a)(3)(iii), 112.8(c)(6), 112.8(d)(4), 112.9(b)(2), 112.9(c)(3), 112.9(d)(1), 112.9(d)(4), 112.12.(c)(6), and 112.12(d)(4), as applicable.

Date of Inspection	Container / Piping / Equipment	Describe Scope (or cite Industry Standard)	Observations	Name/ Signature of Inspector	Records maintained separately ^a
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>

^a Indicate in the table above if records of facility inspections are maintained separately at this facility.

VISUAL MONITORING INSPECTION FORM

Date:		Completed by:	
Weather Conditions		Title	
Area Inspected	Inspection Procedure	Specify Required Maintenance	Date Completed
Outfall Location(s).	Visually monitor the quality of water discharging from the Outfall(s). Note the presence of an oily sheen, discolored water, odor, suspended solids, or floating litter. Inspect each Outfall identified on the site drawing in Figure 1.		
Fuel and Maintenance Areas	Inspect all fueling tanks, valves, piping, and joints. Is there visible contamination? If berms and drainage grades are used to prevent discharge to stormwater, make sure they are intact.		
Vehicles and Equipment (parking and storage)	Check for leaks of oil or fuel. Are leaks from parked vehicles and containers being cleaned up regularly? Does buildup on the lot need to be cleaned?		
Liquid Container Storage	Inspect containers for leaks and/or damage. Are fluids stored in a manner to prevent spills or contact with stormwater or precipitation? Is secondary containment provided for outside storage areas? Are containers properly labeled? Is there visible contamination?		
Container Storage Area	Inspect containers for leaks and/or damage. Are all containers emptied of any refuse? Is there visible contamination? Are lids on lidded containers kept closed? Is there evidence of tracking from containers?		
Vehicle and Container Wash Area	Are waste washwater and sediment contained within internal sump area? Is sewer discharge functional and free of constricting sediment/debris?		
Equipment Maintenance Area	Check for oil and grease residue. Are there any signs of visible contamination?		
Sediment Traps and Catchbasins	Check for accumulation of sediment and oil and grease residue, sheen on water, litter or dirt buildup. Clean when sediment buildup reaches 1/3 capacity or within 6" of lowest pipe elevation (or per manufacturer's instructions). Replace filters if necessary.		
Oil-Water Separators	Check for accumulation of sediment and oil and grease residue. Clean any coalescing plates. Remove sediment when it reaches approximately 1/3 of the sump's capacity or within 6" of the lowest pipe elevation, (or per manufacturer's instructions), and dispose of properly.		
Erosion	Check for rills or erosion gullies that may be forming on vegetated or bare slopes, and re-seed if necessary.		
Litter and Garbage	Check that stormwater is not impacted by litter or garbage.		
Pipes and Culverts	Check that pipes and culverts are free of sediment and debris.		
Spill Kits	Check that spill kits are in their proper locations and completely stocked.		





MONTHLY SAFETY AND HOUSEKEEPING INSPECTION CHECKLIST



Location and Inspector Information

Date of Inspection	Inspector Name
Facility Name	Manager Signature

Mark and answer for each question using the following legend:

Pass – Acceptable at the time of inspection NI – Needs Improvement N/A – Not Applicable

Enter and fully explain all Corrective Actions performed or required on the Table at the end of the checklist.

Mechanic and Shop Facilities		Description of Inspection Item	Pass	N.I.	N/A	Remarks
A General Facility Conditions and Requirements						
1	Regulatory posters are current and posted	Posters include "9 in 1" OSHA poster, SDS Poster (3E), etc.				
2	Health and Safety documentation posted	SC Pictures, 3 months of minutes, SSP (HPP), Safety Alerts and Advisories, JHA and recent Audits				
3	General lighting is working and adequate	Appropriate lighting for work being performed				
4	Aisles are marked for pedestrian traffic	Must be easy to see and avoid high danger area (welding, etc.)				
5	Workplaces, tables, and benches are clean and orderly	Free of garbage, parts, tools not actively being used, and chemicals; organized				
6	PPE; readily accessible and being work by all	Ensure all employees are wearing prescribed PPE for the facility and work area. PPE supply available				
7	All storage racks must be labeled with load limits	All storage racks and shelving must have a label with recommended load limits; stored items should not exceed limits posted				
8	Clearances heights are clearly marked on overheads	All doors and overhead must be marked with height where ever vehicles pass under; no doors observed partially up				
B Fire Prevention, Emergencies and Exits						
1	All exits and aisles are visible, marked, and have egress	Any exit or aisle way leading to exit must have pathway of 28", and be clearly marked and visible				
2	Exit signs are illuminated; backup battery functions	Exit signs must be visible from 75', and back up battery tested (monthly)				
3	Emergency lighting equipment functioning	Test all emergency lighting (some built in backup lighting require power to be cut off before back up lighting functions)				
4	Fire and Security protection devices inspected	Main Fire Suppression systems, alarms, etc.				
5	Fire Extinguishers are accessible, marked and inspected	FE must be located every 75', stored above ground, and signage must be visible. Must be inspected monthly (card)				
6	Fire Systems must not be blocked or obstructed	Main Fire System, valves, and sprinkler heads must not be blocked or obstructed; Min. 18" below sprinkler				
7	Emergency eye wash and showers function properly	Eye Wash Stations and showers must be clean and accessible, and identified on EAP. Must have proper pressure (test)				
8	First Aid Cabinet is accessible, clean and stocked	First Aid cabinet must be easy to access, clean, contain require products (see appendix), and not contain any expired products				
9	Emergency Reponse Plan is posted	Emergency Evacuation / Response plan is posted; contains evacuation routes, Chain of Command and phone numbers				
10	Blood borne Pathogen Kit is available	A sealed BBP kit is available (usually kept in office or first aid area)				
C Electrical Safety						
1	All permanent wiring is in safe condition	No exposed wiring in outlets or conduit (including knockouts), wires protected from abrasion, and all 50V+ parts are protected				
2	Extension cords are used properly	No extension cords found powering permanent applications, overloaded or used in an unsafe manner (around water, etc.)				
3	Extension cords area safe and in good repair	No repairs found to cords (tape), all have grounding pins, and no daisy chained cords (2+ extension cords or power strips)				
4	Circuit breaker panels have proper clear working space	A working space of 36" deep and 30" wide must be kept free and clear in front of all electrical panels				
5	Circuit breaker panels are labeled; no missing breakers	All breakers must be labeled and match panel diagram. There can be no missing breakers. Panel door closes and latches				
D Chemical Storage and Handling						
1	All hazardous material and chemicals properly labeled	All Chemicals must be clearly labeled with proper name of chemical (manufacturer's sticker preferred);				
2	Combustible / Flammable liquids stored properly	All Flammable products are to be stored in proper containers in Flammable Cabinet; need to remain closed when not in use				
3	Respirators must be clean; filters and apparatus					
4	Compressed gas cylinders are clearly labeled	All Compressed gas cylinders must be labeled so the contents can clearly be identified				
5	CG cylinders are properly stored	CGC must be stored away from any flame or heat source, 25' from electrical equipment, and 20' from flammable materials				
6	Oxy/Ace tanks stored properly, and secured	Oxy and Acetylene taken must be stored 20' apart from each other (or have 5' high fire wall), and must be secured from falling				
7	All cylinder valves closed and covered when not in use	All cylinder valves must be turned off and covered with a valve protector when not in use. Welding rods also removed				
8	All welding regs. must be backed out when not ins use	Regulators must have the pressure removed (backed out), when not being actively used				
E Tools and Equipment						
1	Ladders must be in good repair; stored properly	All ladders must be free from defects, and have slip-proof feet. Ladders stored vertically must be chained to wall or structure				
2	All cranes, hoists, and slings must have load ratings	Load ratings must be clearly marked on all hoisting equipment and cranes				
3	Fall protection equipment must be in good repair	All harnesses, fall limiters, and other FP equipment must be in good repair and inspected				
4	Welding equipment is in good repair	Inspect cables, clamps, guard and shields, hoses, and regulators; All function properly. Valves must be anti-flashback				
5	All power tools are properly guarded and mounted	All grinders, presses, shears, etc. must have appropriate guards installed, and be properly anchored to work surface				
6	Fixed grinder guards adjusted properly	Side guard must cover 75% of the wheel, Tool rest gap is 1/8 or under, and tongue guard adjusted 1/4 or under				
7	All machine guarding is in place to protect employees	Guarding from rotating parts, nip points, chips, sparks, chains, gears, pulleys, and belts				
8	All hand tools are in good condition; no home made	All tools being utilized are in good conditions. No home made tools are being used without Corp. approval				



MONTHLY SAFETY AND HOUSEKEEPING INSPECTION CHECKLIST



Location and Inspector Information

Date of Inspection		Inspector Name	
Facility Name		Manager Signature	

Mark and answer for each question using the following legend:

Pass – Acceptable at the time of inspection **NI** – Needs Improvement **N/A** – Not Applicable

Enter and fully explain all Corrective Actions performed or required on the Table at the end of the checklist.

Operation Facilities	Description of Inspection Item	Pass	N.I.	N / A	Remarks
A General Facility Conditions and Requirements					
1 Regulatory posters are current and posted	Posters include "9 in 1" OSHA poster, SDS Poster (3E), etc.				
2 Health and Safety documentation posted	SC Pictures, 3 months of minutes, SSP (HIPP), Safety Alerts and Advisories, JHA and recent Audits				
3 General lighting is working and adequate	Appropriate lighting for work being performed				
4 Aisles are marked for pedestrian traffic	Must be easy to see and avoid high danger area (welding, etc.)				
5 Stairs are uniform in construction; free from obstruction	All steps must be uniform in height. Stairs must always be kept free of obstructions (even temporarily)				
6 All elevated ladders / platforms have working gates	Gates can be self closing gate or chain; closed anytime platform is occupied				
7 Employee break areas are clean and orderly	Break areas are kept clean and neat. Smoking areas follow state /local ordinances; smoking areas are protected (bollards)				
8 PPE; readily accessible and being work by all	Ensure all employees are wearing prescribed PPE for the facility and work area. PPE supply available				
9 Clearances heights are clearly marked on overheads	All doors and overhead must be marked with height where ever equipment pass under; no doors observed partially up				
B Fire Prevention, Emergencies and Exits					
1 All exits and aisles are visible, marked, and have egress	Any exit or aisle way leading to exit must have pathway of 28", and be clearly marked and visible				
2 Exit signs are illuminated; backup battery functions	Exit signs must be visible from 75'; and back up battery tested (monthly)				
3 Emergency lighting equipment functioning	Test all emergency lighting (some built in backup lighting require power to be cut off before back up lighting functions)				
4 Fire and Security protection devices inspected	Main Fire Suppression systems, alarms, etc.				
5 Fire Extinguishers are accessible, marked and inspected	FE must be located every 75', stored above ground, and signage must be visible. Must be inspected monthly (card)				
6 Fire Systems must not be blocked or obstructed	Main Fire System, valves, and sprinkler heads must not be blocked or obstructed; Min. 18" below sprinkler				
7 Emergency eye wash and showers function properly	Eye Wash Stations and showers must be clean and accessible, and identified on EAP. Must have proper pressure (test)				
8 First Aid Cabinet is accessible, clean and stocked	First Aid cabinet must be easy to access, clean, contain require products (see appendix), and not contain any expired products				
9 Emergency Reponse Plan is posted	Emergency Evacuation / Response plan is posted; contains evacuation routes, Chain of Command and phone numbers				
10 Blood borne Pathogen Kit is available	A sealed BBP kit is available (usually kept in office or first aid area)				
C Electrical Safety					
1 All permanent wiring is in safe condition	No exposed wiring in outlets or conduit (including knockouts), wires protected from abrasion, and all 50V+ parts are protected				
2 Extension cords are used properly	No extension cords found powering permanent applications, overloaded or used in an unsafe manner (around water, etc.)				
3 Extension cords area safe and in good repair Fan / heater guards must have gaps of 1/2" or less	No repairs found to cords (tape), all have grounding pins, and no daisy chained cords (2+ extension cords or power strips) Any fan or heater accesible				
4 Circuit breaker panels have proper clear working space	A working space of 36" deep and 30" wide must be kept free and clear in front of all electrical panels				
5 Circuit breaker panels are labeled; no missing breakers	All breakers must be labeled and match panel diagram. There can be no missing breakers. Panel door closes and latches				
D Chemical Storage and Handling					
1 All hazardous material and chemicals properly labeled	All Chemicals must be clearly labeled with proper name of chemical (manufacturer's sticker preferred);				
E Tools and Equipment					
1 Ladders must be in good repair; stored properly	All ladders must be free from defects, and have slip-proof feet. Ladders stored vertically must be chained to wall or structure				
2 All cranes, hoists, and slings must have load ratings	Load ratings must be clearly marked on all hoisting equipment and cranes				
3 Fall protection equipment must be in good repair	All harnesses, fall limiters, and other FP equipment must be in good repair and inspected				
4 All power tools are properly guarded and mounted	All grinders, presses, shears, etc. must have appropriate guards installed, and be properly anchored to work surface				
5 All hand tools are in good condition; no home made	All tools being utilized are in good conditions. No home made tools are being used without Corp. approval				



MONTHLY SAFETY AND HOUSEKEEPING INSPECTION CHECKLIST



Location and Inspector Information

Date of Inspection		Inspector Name	
Facility Name		Manager Signature	

Mark and answer for each question using the following legend:

Pass – Acceptable at the time of inspection NI – Needs Improvement N/A – Not Applicable

Enter and fully explain all Corrective Actions performed or required on the Table at the end of the checklist.

Office, Breakrooms and Parking Lots		Description of Inspection Item	Pass	N.I.	N/A	Remarks
A General Facility Conditions and Requirements						
1	Regulatory posters are current and posted	Posters include *9 in 1" OSHA poster, SDS Poster (3E), etc.				
2	Health and Safety documentation posted	SC Pictures, 3 months of minutes, SSP (HPP), Safety Alerts and Advisories, JHA and recent Audits				
3	General lighting is working and adequate	Appropriate lighting for work being performed				
4	Employee break areas are clean and orderly	Break areas are kept clean and neat. Smoking areas follow state /local ordinances; smoking areas are protected (bollards)				
5	PPE; readily accessible and being worn by all	Ensure all employees are wearing prescribed PPE for the facility and work area. PPE supply available				
B Fire Prevention, Emergencies and Exits						
1	All exits and aisles are visible, marked, and have egress	Any exit or aisle way leading to exit must have pathway of 28", and be clearly marked and visible				
2	All stairs are uniform, and free from obstruction	All steps must be uniform in height. Stairs must always be kept free of obstructions (even temporarily)				
3	Exit signs are illuminated; backup battery functions	Exit signs must be visible from 75', and back up battery tested (monthly)				
4	Emergency lighting equipment functioning	Test all emergency lighting (some built in backup lighting require power to be cut off before back up lighting functions)				
5	Fire and Security protection devices inspected	Main Fire Suppression systems, alarms, etc.				
6	Fire Extinguishers are accessible, marked and inspected	FE must be located every 75', stored above ground, and signage must be visible. Must be inspected monthly (card)				
7	Fire Systems must not be blocked or obstructed	Main Fire System, valves, and sprinkler heads must not be blocked or obstructed; Min. 18" below sprinkler				
8	First Aid Cabinet is accessible, clean and stocked	First Aid cabinet must be easy to access, clean, contain require products (see appendix), and not contain any expired products				
9	Emergency Reponse Plan is posted	Emergency Evacuation / Response plan is posted; contains evacuation routes, Chain of Command and phone numbers				
C Electrical Safety						
1	All permanent wiring is in safe condition	No exposed wiring in outlets or conduit (including knockouts), wires protected from abrasion, and all 50V+ parts are protected				
2	Multi-plug power cords are used properly	Cords must be in good repair, and not suspended (mount). Cannot daisy chain (2 or more extensions/multi plug)				
3	Only approved fans and heaters are being used	Fans and heaters should be hard wired or approved for commercial use. Small under desk fans and heaters are not allowed				
4	Circuit breaker panels have proper clear working space	A working space of 36" deep and 30" wide must be kept free and clear in front of all electrical panels				
5	Circuit breaker panels are labeled; no missing breakers	All breakers must be labeled and match panel diagram. There can be no missing breakers. Panel door closes and latches				
D Chemical Storage and Handling						
1	All chemicals properly labeled (cleaning supplies)	All Chemicals must be clearly labeled with proper name of chemical (manufacturer's sticker preferred);				
E Tools and Equipment						
1	Step stools available for any overhead storage	Ensure proper device is being utilized for overhead reaching (not standing on a chair)				



**MONTHLY SAFETY AND HOUSEKEEPING
INSPECTION CHECKLIST**



Location and Inspector Information

Date of Inspection	Inspector Name
Facility Name	Manager Signature

Mark and answer for each question using the following legend:

Pass – Acceptable at the time of inspection NI – Needs Improvement N/A – Not Applicable

Enter and fully explain all Corrective Actions performed or required on the Table at the end of the checklist.

Yards and Parking Lots		Description of Inspection Item	Pass	N.I.	N/A	Remarks
A General Facility Conditions and Requirements						
1	General lighting is working and adequate	Appropriate lighting; meets WM standards for yard lighting.				
2	Sidewalks and walkways are in good condition	The walking surface in the yard and parking lots are acceptable (free of holes, roots, and other obstacles)				
3	Aisles are marked for pedestrian traffic	Must be easy to see; areas of high risk should contain extra warnings (cones, signs, etc.)				
4	Traffic pattern is established and communicated	Established yard traffic rules are communicated (painted on pavement, signage, etc.)				
5	Yard is kept clean, free of debris and tripping hazards	Look for discarded equipment and tools, garbage, construction materials, etc.; All should be stored in proper place				
6	All fences & gates function properly and in good repair	All gates open and close properly; lock when appropriate. Fences are in good repair and free from accumulation of debris				
7	PPE; readily accessible and being work by all	Ensure all employees are wearing prescribed PPE for that specific yard. PPE supply available				
B Fire Prevention, Emergencies and Exits						
1	CNG and Fueling stations have appropriate signage	All fueling areas (gas and cng) should contain appropriate warning signs, emergency response plan, and numbers				
2	Emergency Fuel shut off is clearly marked	Emergency Fuel Shut off is clearly marked. ERP is posted near by				
3	Fueling equipment (hoses, nozzles, etc.) in good repair	Inspect all fuel stations- hoses, connectors, nozzles, etc. all appear to be function				
4	Spill kits	Complete spill kits are available and in good condition				
C Electrical Safety						
1	All permanent wiring is in safe condition	No exposed wiring in outlets or conduit (including knockouts), wires protected from abrasion, and all 50V+ parts are protected				
2	Extension cords are used properly	No extension cords found powering permanent applications, overloaded or used in an unsafe manner (around water, etc.)				
3	Extension cords area safe and in good repair	No repairs found to cords (tape), all have grounding pins, and no daisy chained cords (2+ extension cords or power strips)				
4	Circuit breaker panels have proper clear working space	A working space of 36" deep and 30" wide must be kept free and clear in front of all electrical panels				
5	Circuit breaker panels are labeled; no missing breakers	All breakers must be labeled and match panel diagram. There can be no missing breakers. Panel door closes and latches				
D Chemical Storage and Handling						
1	All hazardous material and chemicals properly labeled	All Chemicals must be clearly labeled with proper name of chemical (manufacturer's sticker preferred);				
2	Combustible / Flammable liquids stored properly	All Flammable products are to be stored in proper containers in Flammable Cabinet; need to remain closed when not in use				
3	Compressed gas cylinders are clearly labeled	All Compressed gas cylinders must be labeled so the contents can clearly be identified				
4	CG cylinders are properly stored	CGC must be stored away from any flame or heat source, 25' from electrical equipment, and 20' from flammable materials				
5	Oxy/Ace tanks stored properly, and secured	Oxy and Acetylene tanks must be stored 20' apart from each other (or have 5' high fire wall), and must be secured from falling				
6	All cylinder valves closed and covered when not in use	All cylinder valves must be turned off and covered with a valve protector when not in use. Welding rods also removed				
7	All welding regs. must be backed out when not ins use	Regulators must have the pressure removed (backed out), when not being actively used				
E Tools and Equipment						
1	Ladders must be in good repair; stored properly	All ladders must be free from defects, and have slip-proof feet. Ladders stored vertically must be chained to wall or structure				
2	All cranes, hoists, and slings must have load ratings	Load ratings must be clearly marked on all hoisting equipment and cranes				
3	Fall protection equipment must be in good repair	All harnesses, fall limiters, and other FP equipment must be in good repair and inspected				
4	Welding equipment is in good repair	Inspect cables, clamps, guard and shields, hoses, and regulators; All function properly. Valves must be anti-flashback				
5	All power tools are properly guarded and mounted	All grinders, presses, shears, etc. must have appropriate guards installed, and be properly anchored to work surface				
6	Fixed grinder guards adjusted properly	Side guard must cover 75% of the wheel, Tool rest gap is 1/8 or under, and tongue guard adjusted 1/4 or under				
7	All machine guarding is in place to protect employees	Guarding from rotating parts, nip points, chips, sparks, chains, gears, pulleys, and belts				
8	All hand tools are in good condition; no home made	All tools being utilized are in good conditions. No home made tools are being used without Corp. approval				

Description: Perform the following site inspection weekly. Put a copy in the Inspections file and maintain for three years. This inspection is designed to comply with the inspection requirements of the site's Operating Plan, Spill Prevention Control and Countermeasure (SPCC) Plan, and the Stormwater Pollution Prevention Plan (SWPPP).

Olympic View Transfer Station

Date:	Time of Day
-------	-------------

Inspector's Name and Title:	Weather Conditions:
-----------------------------	---------------------

Inspector's Signature:

	Yes	No	Date/Time Corrected
1. Entrance and Roadways			
Signs posted with adequate information (Entrance, traffic control, safety, covered load, unacceptable wastes, recycling, etc?)			
Road graded, properly drained and free of obstructions?			
Access secured by lockable gate?			
CCTV Camera in place and operational?			
2. Personnel			
Safety equipment provided and used?			
First aid supplies and communications provided?			
3. Operations			
Unloading watched by spotter/operator? People and moving equipment adequately separated?			
Sumps and catchbasins maintained with regular filter changeout and sediment pumping?			
Pond A Stormwater Pump operational? Contact water pump operational?			
Equipment and vehicles free of leaks and spills?			
Area clean and free of spills?			
Asbestos container closed and locked when not in use? Placard in place?			
Sharps container closed and locked when not in use?			
Loaded trailers hauled as soon as feasible?			
5. Environmental			
Effective litter control measures in place?			
Effective dust control measures in place?			
Effective pest control measures in place?			
Effective odor control measures in place?			

Stormwater discharge and sanitary discharge separated?			
6. Tanks, Piping and Containment			
Adequate supply of floor dry and spill cleanup materials?			
Containment structures of adequate capacity and in good condition?			
Tanks, valves, piping and pumps in good condition and working? Pump alarm for underground tank functioning?			
Site free from evidence of leaks or spills?			
Tanks and piping free of corrosion and deterioration? The interstitial space of aboveground storage tanks is liquid-free?			
Tank foundation free of deterioration?			
SWPPP reviewed in the past six months by Operations Supervisor and inspections documented as required?			
SPCC Plan reviewed in the past year by Operations Supervisor and inspections documented as required?			
7. Other			
Fire, police, and medical emergency response readily available?			
Fire extinguishers accessible, fully charged, inspected within last 12 months?			
Adequate lighting provided?			
Daily records maintained and monthly reports submitted as required?			
8. Comments:			

* The inspection form is subject to change as conditions warrant. Whatever form is used, it will be designed to address similar inspection points.

**OLYMPIC VIEW TRANSFER STATION
RANDOM LOAD INSPECTION CHECKLIST**

Attachment B

Date: _____ Time: _____ Inspected By: _____
 Customer Name: _____ Phone Number: _____
 Address: _____
 City: _____ State: _____ Zip Code: _____
 Truck Number: _____ License Plate No. _____ Driver Name: _____

GENERAL LOAD DESCRIPTION (check all that apply)

_____ Municipal Solid Waste	_____ Roofing Material	_____ Recyclable Items
_____ Industrial Solid Waste	_____ Dry Wall	_____ Mattress/Box Springs
_____ Problem/Special Waste	_____ Construction/Demo	_____
_____ Yard Waste	_____ Concrete/Asphalt/Rubble	_____

PROHIBITED WASTE SCREENING

<u>ITEMS</u>	<u>YES</u>	<u>NO</u>	<u>ITEMS</u>	<u>YES</u>	<u>NO</u>
Unapproved gas cylinders (pressurized bottles or tanks)	_____	_____	Antifreeze	_____	_____
Unauthorized Asbestos Waste	_____	_____	Med Waste/ Sharps	_____	_____
Unknown Problem/Spcl Waste	_____	_____	Paint Cans	_____	_____
Hazardous Waste			Sealed or closed containers	_____	_____
a. Ignitable/explosive	_____	_____	Containers with liquids	_____	_____
b. Corrosive	_____	_____	Materials with free liquids	_____	_____
c. Explosive	_____	_____	Electrical Transformers and/or electric ballast devices	_____	_____
d. Radioactive	_____	_____	Florescent Light bulbs	_____	_____
e. Oxidizers	_____	_____			
f. Pesticides-Poisons	_____	_____			
g. Discarded Chemicals and/or their containers	_____	_____			
h. PCB containing Waste	_____	_____			

WASTE LOAD REJECTION (Complete this Section for all rejected waste loads and/or materials)

Describe Rejected Load/Material(s): _____

Reason for Rejection: _____

Describe Actions taken by Waste Load Inspector: _____

Inspector Signature: _____

Customer Signature: _____

**2010
Olympic View Transfer Station
Emergency Eyewash/ Shower Stations Inspection Form**

Inspection Date: _____

Inspected by: _____

		North Station	South Station	
Inspection Type:	<input type="checkbox"/> Daily			Station must be cleaned. Nozzles must have properly operating covers that protect from airborne contaminants <u>North side Water Temper</u> Unit gauge Temp= _____ degrees <u>South side Water Temper</u> Unit gauge Temp= _____ degrees
	<input type="checkbox"/> Weekly			Plumbed stations shall be activated and cleaned to flush the lines and verify operation
	<input type="checkbox"/> Monthly			Each station must be inspected for flow, cleanliness and valve operation

Comments:

MAGNET SWEEPING SCHEDULE

DAY / DATE	PERFORMED BY:	OBJECTS COLLECTED
MON		
TUE		
WED		
THU		
FRI		
SAT		

OLYMPIC VIEW TRANSFER STATION
DAILY PULL LOG For TVs, Monitors, and White Goods

Pull Date: _____

	Customer Name	Truck/Veh#	Item(s) Pulled (T)V (M)onitor (W)hitegood	TV Size/Quantity/ Type of WG
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Spotter or Floor Operator should immediately notify the Scale Attendant if a TV or CRT has been discovered from **an identified customer load** so customer can be charged for the item(s). Also list the quantity of pulled TVs(with size), Computer Monitors and White Goods(type) on the daily Pull Log. At a minimum, to identify a customer load we need to have the Customer's name and the truck or vehicle ID# (for Commercial Customers only) or a Customer name and/or vehicle description (for Public Self-haul Customers only). Spotter should put Daily Pull Log in the forms basket at end of day.

	PREVENTATIVE MAINTENANCE RECORD	SECTION	PAGE
		4.8	1

*This page should be copied and reserved as the master.

Daily Preventive Maintenance Check list

Date: _____ Hour meter Reading: _____

Performed by: _____

With the machine turned off, electrically locked out and tagged Refer to Section 4.1, Locking out the Pre-Load Compactor.



Unexpected machine startup can result in death or severe personal injury.

PERFORM DAILY

	Initial
1. Inspect and clean Power unit	
2. Remove trash from motors, valves and oil cooler	
3. Check compactor for leaks, loose fittings and bolts, frayed wires, worn hoses and malfunctioning components	
4. Check oil level with cylinders fully retracted. Add oil if needed	
5. Remove trash from behind platen and carriage	
6. Check for trash on laser reflector, remove and clean with soft damp cloth	
7. Inspect hose track for damage, replace damaged sections	
8. Observe the operation of the compactor for unusual noises or vibrations	
9. Check load cell cables and make sure they are not getting stretched	
10. Check load cell motion retention bolts for 1/8" gap. Adjust if necessary.	
11. Check AC filter(S) on VFD Drives. Clean if necessary, use compressed air to clean.	

Comments:

OVTS/BREM-AIR STORMWATER MANAGEMENT DEVICES LOG

1) STORMCEPTORS

Unit #	Site Plan Detail #	Unit Type	Unit Location
1	6	2400	Commercial OB lane; NEC transfer building
2	16	2400	S. end of the intermodal yard.
3	21	2400	Near NEC of Pond B; in OB lane.
4	25	2400	S. end of BAD west side parking lot.
5	31	2400	N. end of BAD west side parking lot.
6	36	900	Near Peninsula Recycling, before Pond B.

2) TYPE 1 – CATCH BASINS

LOCATION	Unit #	Plan Detail #
OVTS	1	1
	2	2
	3	3
	4	4
	5	5
	6	7
	7	8
	8	9
	9	19
	10	20
BREM AIR	11	24
	12	29
	13	30
	14	35
	15	18

INSPECTION DATE: _____ SERVICE DATE: _____

Date _____

Operator _____

Unit # _____

START	Time		Hour Meter	
	AM/PM	Hours	Hours	Miles

FINISH	Time		Hour Meter	
	AM/PM	Hours	Hours	Miles

Fluids	Amount	Fluids	Amount
Fuel (gal/liters)		Trans. (gal/liters)	
Eng. Oil (qts/liters)		Finals (gal/liters)	
Hyd. Oil (gal/liters)		Other	
Coolant (gal/liters)			

CHECK OK
 NEEDS SERVICE X
 CIRCLE DEFECTS
 Not Applicable N/A

RECORD DEFECTS BELOW

Check OK if item is in Satisfactory Condition. Check NS (Needs Service) if the item require maintenance service or maintenance attention: Circle Defects
DURING INSPECTION CHECK FOR: LEAKS, CRACKS, DAMAGE, LOOSE OR MISSING BOLTS-NUTS, DEBRIS BUILD UP, INOPERABLE COMPONENTS, BROKEN GLASS AND SAFETY RELATED ITEMS. **CHECK FLUIDS AS REQUIRED******

PRE - CHECK

START PRE-TRIP/POST-TRIP INSPECTION WHERE YOU MOUNT AND DISMOUNT MACHINE

POST - CHECK

OK	NS		OK	NS
		LEFT SIDE REAR / REAR OF MACHINE		
		TIRES, WHEELS, LUGS/NUTS, LOCKS		
		HAND RAILS, STEPS, SHEET METAL, DOOR, LATCHES, FENDERS, FRAME		
		RADIATOR GRILL, GUARD, FAN MOTOR, HOSES, LIGHTS		
OK	NS	UNDERNEATH MACHINE, BELLY PANS, DIFFERENTIAL	OK	NS
		ENGINE COMPARTMENT		
		DOORS, HINGES, AND LATCHES		
		BELTS, PULLEYS, HOSES, RADIATOR FINS		
		ALTERNATOR, STARTER, WIRING HARNESS		
		AIR FILTER RESTRICTION GAUGE, FILTER BODY AND INDUCTION SYSTEM		
		OVERALL ENGINE, FUEL SYSTEM, TURBO AND EXHAUST		
		CRANKCASE BREATHER AND VALVE COVER		
		CHECK FLUIDS - OIL, COOLANT AND TRANSMISSION		
OK	NS	RIGHT REAR /SIDE	OK	NS
		TIRES, WHEELS, LUGS/NUTS, LOCKS		
		HAND RAILS, STEPS, SHEET METAL, DOOR, LATCHES, FENDERS, FRAME		
		RIGHT SIDE OF CAB, WINDOWS, DOORS, LIGHTS, MIRRORS		
		ARTICULATION AREA, JOINTS, PINS, HOSES, STEERING CYLINDERS/RODS		
		DRIVELINE, GUARDS, UNDER CAB, GREASE LINES/FITTINGS, HYDRAULIC TANK		
		CHECK HYDRAULIC FLUID		
OK	NS	RIGHT SIDE FRONT	OK	NS
		TIRES, WHEELS, LUGS/NUTS, LOCKS		
		HAND RAILS, STEPS, SHEET METAL, DOOR, LATCHES, FENDERS, FRAME		
		BUCKET LIFT AND TILT CYLINDERS, HOSES		
		LOADER FRAME, ARMS, PINS		
		LIGHTS, WIRING, GUARDS		
OK	NS	FRONT / LEFT FRONT	OK	NS
		BUCKET ATTACHMENT, CUTTING EDGE, TEETH, GUARDS/RACK		
		TIRES, WHEELS, LUGS/NUTS, LOCKS		
		BUCKET LIFT AND TILT CYLINDERS, HOSES (CLEAN DEBRIS)		
		LOADER FRAME, FENDERS, ARMS, PINS		
		LIGHTS, WIRING, GUARDS		
		LEFT SIDE OF CAB, WINDOWS, DOORS, LIGHTS, MIRROR		
		ARTICULATION AREA, JOINTS, PINS, HOSES, STEERING CYLINDERS/RODS		
		DRIVELINE, GUARDS, UNDER CAB, GREASE LINES/ZERKS, HYDRAULIC TANK		
		LADDER, GRAB RAILS, PLATFORM		
OK	NS	CAB / PLATFORM	OK	NS
		ROPS, STROBE LIGHT, MIRRORS, DOORS, GLASS		
		SEAT BELT, HORN, WIPERS		
		GAUGES, CONTROLS, TWO WAY RADIO		
		BACK UP ALARM, CAMERA, LIGHTS		
		FIRE EXTINGUISHER AND FIRE SUPPRESSION SYSTEM-(GAUGE/LED LIGHT)		
		PRE TRIP - START ENGINE - WARM UP FOR 10 MINUTES		
		TEST BRAKES AND SYSTEM OPERATIONS		
		POST TRIP - IDLE ENGINE FOR 5 MINUTES AND SHUT DOWN		
		EQUIPMENT GREASED		
		RADIATOR AND ENGINE COMPARTMENT CLEANED		
		WHEELS CLEANED (FREE OF DEBRIS AND WIRE WRAP)		

I HAVE PERFORMED THE ABOVE CLEANING AND PRE-TRIP/POST-TRIP INSPECTION AND EACH ITEM IS IN SAFE AND PROPER WORKING ORDER OR I HAVE NOTED THE DEFECTS BELOW.

OPERATOR'S SIGNATURE: _____ DATE ____/____/____

COMMENTS _____

CORRECTIVE ACTION: I CERTIFY THAT:

- REPAIR OF THE NOTED DEFECTS HAVE BEEN CORRECTED.
- ITEMS NOTED DO NOT EFFECT THE SAFE OPERATION OF THE EQUIPMENT AND HAVE BEEN PLACED IN COMPASS BACKLOG FOR LATER REPAIR

MAINTENANCE SIGN-OFF: _____ DATE: ____/____/____

I ACKNOWLEDGE I HAVE REVIEWED THE PREVIOUS DAY'S DEI, REVIEWED ANY NOTES MAINTENANCE HAS COMMUNICATED AND THE EQUIPMENT IS SAFE TO OPERATE.

MEMORANDUM

DATE: March 31, 2017
TO: Keli McKay-Means (Kitsap)
FROM: Ian Sutton (PMX)
SUBJECT: OVTS Operational Practices and Functionality Memorandum
CC: Marshon Coppinger (Kitsap)Karl Hufnagel (PMX)
PROJECT NUMBER: 553-1578-145
PROJECT NAME: 2016 OVTS Facility Inspection

As part of the Parametrix 2016 facility inspection, we have prepared the following non-corrective action conditions observations and recommendations that could be of use to Kitsap County. The following discussion is independent of that required for the facility inspection which will be presented in the Findings for Conditions Inspection Report.

Metal Building Corrosion:

Based on recommendations from the 2014 Operational Practices and Functionality Memorandum, Corrosion Probe, Inc. performed an assessment of the Transfer Building which was documented in a May 25, 2015 report. The findings noted that the building was in good condition with some superficial corrosion. Locations identified as particularly susceptible to corrosion included:

- Concealed surfaces, such as where the horizontal wall girts are in contact with siding, that did not receive paint or coating
- Under-film corrosion at siding edges

Concealed surfaces can be mitigated through sealing contact and corrugation gaps along the girt with petrolatum impregnated tape strips and wads, respectively, and edge corrosion can be mitigated by smearing a light film of inhibited petrolatum paste on rusted edges, or preventively on all the bottom edges. Neither remedy is critical to the integrity of the building and may not warrant the expense; however, corrosion should be monitored annually for any indications of acceleration. Annual photo documentation should be performed to assist in the identification of acceleration areas. Noticeable change in corrosion conditions was not detected during the 2016 inspection.

Inadequate Storage Capacity in North Infiltration Pond:

The County implemented a construction project in summer of 2016 that included some revisions to the surface water management system at the site to better utilize holding capacity of the north infiltration pond and reduce or eliminate the need for facility operator transfer of stormwater from the north infiltration pond to other site ponds to avoid off-site discharge.

The construction has improved the site surface water management system; however, based on County observations, heavy or prolonged rain events continue to overwhelm the north infiltration pond, requiring the facility operator to use a portable pump to transfer excess inflow to other locations.

In order to avoid the cost and inconvenience of having to manually transfer excess volume between points, it seems advisable to explore additional options to divert stormwater from the north infiltration pond, including design and construction of a permanent vault with an electrically powered pumping system that would require less operator attention.

A preliminary estimated cost for a permanent pumping system is in the \$75,000 to \$100,000 range for construction and \$25,000 to \$35,000 for design.

Long-term Scale Functionality:

The scales at the scale facility are showing wear. This is particularly evident at the inbound commercial scale. This is not necessarily an indication for the need to replace the existing scales. Preventive maintenance, such as recoating the weighbridge steel and re-pouring a scale deck, would extend the life of the scale equipment. We recommend a meeting be scheduled with a knowledgeable mechanic from the scale manufacturer (Unitec) to review the condition of the scales and identify preventive maintenance needed for scales.

Intermodal Yard Pavement Wear:

The original design for the intermodal yard included asphalt in most locations; however, it can be beneficial to provide concrete approach aprons at locations that receive heavy loading and usage, such as adjacent to the compactor and the rail spur. These are point locations where yard equipment activity is concentrated, increasing wear and reducing the life of those surfaces. Additionally, these locations are consistently subject to start and stop forces that accelerate wear and cause compaction. This wear is clearly evident at these locations. There have been cold patch asphalt repairs adjacent to the compactor, and there is a localized depression along the length of the rail spur.

In restoring these locations, we recommend installing a 10' wide concrete approach apron in lieu of replacement with new asphalt. The concrete approach aprons are more robust and will be less susceptible to the current wear observed in the asphalt. Additionally, as these are critical locations for the operation of the facility, the concrete will reduce maintenance, repair and overall downtime for these areas.

A preliminary estimated cost for a 30'x10'x1' concrete approach slab at the compactor and a 500'x10'x1' concrete approach slab at the rail spur is in the \$100,000 to \$150,000 range for construction and \$15,000 to \$20,000 for design.

Additionally in the intermodal yard, the facility operator accepts, handles, and temporarily stores its own pre-loaded containers that are from outside of the Kitsap County solid waste management system. The County is provided a fee for the facility operator's own use of the facility; however, the independent operation does accelerate wear on the pavement and handling equipment. It should be assessed whether this wear has been accounted for in the agreement with the facility operator, or if additional compensation consideration is warranted.

Exit Lane Improvements along the South Infiltration Pond:

It may benefit the outbound queue of traffic to widen the exit lane where it routes around the north end of Pond B. This would better allow commercial vehicle, not requiring an exit weight, to exit the site and reduce the overall queue of vehicles. The widening could also be an entire additional lane that could be preparatory to adding a commercial outbound scale. This consideration could be included in upcoming facility planning, and also needs to consider impacts to the storage capacity of Pond B.

Improper Area Drainage at the Scale Facility:

As discussed in the 2014 Operational Practices and Functionality Memorandum, precipitation runoff ponds across large areas in the immediate vicinity of the scale facility. While this ponding has no direct impact on scale facility operations, it is likely to contribute to more rapid deterioration of the scale equipment and during freezing periods would create a slip hazard for anyone needing to work outside around the scale facility. Beyond that, the ponding is indicative of poor design and/or construction, and reflects poorly on the County in terms of having first class County-owned facilities.

The original structural design drawing (S10) for the scale facility concrete work clearly calls for positive cross slope under the scales and away from the scale house foundation. It appears that this provision to flow water away from the scale house was not properly implemented in the construction. The site grading and erosion control plan (C1.03) lacks sufficient grading control information to construct from and insure that water does not pond in the vicinity of the scale facility, but generally does indicate the design intent to direct water away from the scale house foundation which appears to be the intended high point from a drainage perspective. In order to create effective drainage in the area and eliminate the ponding, several new area drains and piping will need to be added. This work will likely require temporary deactivation and removal of the scales to allow access for trenching and installation of piping. This piping will run to existing catch basins in the scale facility area.

Parametrix recommends that the County consider this problem a latent design and/or construction deficiency which we believe is the obligation of the service provider to correct.

A preliminary estimated cost for the corrective action is in the \$75,000 to \$100,000 range for construction and \$15,000 to \$20,000 for design.

Standby Lighting in the Transfer Building:

As discussed in the 2014 Operational Practices and Functionality Memorandum, when primary power is lost to the facility the lighting in the transfer building is lost and the facility can no longer operate either to continue to receive waste or to load out via the top load bay. The electrical distribution system could be modified to allow the tipping floor lighting to operate on a standby generator.

If power outages at the facility occur with enough frequency and have a fairly long duration (i.e. loss of lighting is an operational problem), Parametrix recommends that the County undertake design and construction of the necessary modifications of the electrical distribution system to allow the tipping floor lighting to operate from a standby generator. The complexity and cost for standby power will vary with the level of service desired for standby power and the ease of operation desired. The simplest implementation could include provisions for a small portable generator plus manual load transfer capability for a few selected lighting circuits in the transfer building similar to the existing arrangement at the scale facility. A more comprehensive implementation could include a manual transfer switch and portable generator plug in capability at the main switchboard that would allow limited standby power availability across a larger area of the facility.

Depending on the level of implementation selected, a preliminary estimated cost for this project could range from as little as \$20,000 to \$80,000 range (not including a suitably sized portable generator) for construction and \$20,000 to \$40,000 for design.

Electrical Arc Flash Safety Study:

As discussed in the 2014 Operational Practices and Functionality Memorandum, the existing electrical distribution equipment has generic arc flash labels but does not include labeling that is based on a hazard evaluation study. Any electrical distribution system that might require work while energized should have an arc flash evaluation study done that quantifies and labels the actual electrical hazard rating. This hazard rating determines the appropriate level of personnel protective equipment (PPE) necessary to access the panels within industry standard levels and is also an OSHA requirement.

Arc flash studies involve the development of an electrical software based system model and the subsequent evaluation of the estimated energy release at power panels should an electrical fault occur while the panel is being accessed or worked on.

For the OVTS, we assume that the system study would include the main power panels, the compactor panel, and possibly some smaller downstream panels. A preliminary estimated cost for the system modeling and labeling of the panels is approximately \$5,000.

Trackout of Debris and Muck from the Tipping Floor to the Exterior Pavement:

As discussed in the 2014 Operational Practices and Functionality Memorandum, the original design of the transfer building did not contemplate a trackout problem from the commercial tipping floor, but in fact trackout is a serious problem and should be addressed to reduce the environmental impact of untreated contact water that is generated in the departure area outside the building. In some jurisdictions the local Health District would find serious fault with the trackout that occurs at this facility and threaten fines and/or possible shutdown until the situation is remedied. Within the past five years a number of new transfer buildings have been developed in the Northwest which employ various types of wheel wash facilities to address trackout from flat floor tipping floors.

Parametrix recommends that the County consider a project to retrofit some form of wheel wash at the exit of the commercial tipping floor.

A preliminary estimated cost for this project is in the \$75,000 to \$150,000 depending on the technology employed and \$50,000 to \$75,000 for design.

Coating of Metal Siding and Roofing:

As discussed in the 2014 Operational Practices and Functionality Memorandum, the factory applied coating on the metal roof and side panels appears to be a standard baked on industrial enamel which typically has a useful life of 20 to 25 years depending on the environmental exposure. The inside environment of the transfer building can be harsher than the exterior, but the exterior has the added adverse effect of sunlight deterioration of the roof and south facing wall surface coatings. The exterior crimped longitudinal seams of the roof panels already have lost their coating. The coating on the outside wall and roof panel surfaces appear to be in decent condition, as you would expect for a 14 year old building in the Northwest. The interior wall surfaces also appear to be in reasonable condition.

Parametrix recommends that the County continue to monitor the condition of the panel coating, inside and out, and that the County anticipate the need to plan for CIP budgeting for recoating of the building exterior during the period 2022 to 2027. A preliminary estimated cost for this project today would likely be in the \$250,000 to \$350,000 range. Surface preparation will be a significant part of the labor effort for this work. Regarding the interior, cleaning and recoating the interior surfaces of the building would obviously have a significant operational impact and might require vacating the building for a month or more, unless a phased approach can be devised. Recoating the building exterior should be feasible without significant interference with station operations except in some areas of the intermodal yard and above vehicle doorways in the upper yard.

Emergency Response Procedures:

The OVTS fire which occurred on July 31, 2015 provided an opportunity for lessons learned from an emergency response situation. The items below are a reiteration of the Post Fire Assessment developed by Bluearc Associates on August 6, 2015. We understand that the County and operating contractor are implementing a number of suggested actions.

Emergency Preparedness

- The County, the local fire department and the facility operator should conduct periodic fire response drills that train all personnel in how to respond to fire emergencies at the OVTS. These drills should be jointly planned and executed by the three parties and should include practice in fire response to various types of fires such in mixed waste, hazardous materials and reactive metals such as magnesium. Response practice should include fires on the tipping floor, in the compactor and in containers. Practice drills should occur at least twice a year and should include all aspects of fire episodes including detection, alarm, notification, suppression and cleanup.
- The County, working in conjunction with the OVTS operator should develop and implement an emergency notification system to employ during emergencies such as occurred during the recent fire. The system should be robust and have redundant communications pathways and alternative call parties. The County should practice employing the system at least twice a year or more frequently to ensure all parties are proficient in system execution.
- The County should plan for and establish detailed waste management alternatives for future instances when the OVTS is not available as the central point for managing the County's waste. The alternatives should range from measures when the station is out-of-service for a few days up through long duration periods.
- The County should develop a current list of technical advisors who can be called upon on short notice to help the County respond to a wide range of emergencies, such as determining the suitability of facilities such as the OVTS for re-occupancy.

Facility Improvements

- A qualified fire protection engineer should be consulted to assess the benefits of retrofitting the building with operable smoke/heat vents. As was experienced during the fire, large amounts of smoke and heat buildup made firefighting response difficult.
- A qualified fire protection engineer should be consulted to assess the benefit of retrofitting the building with heat and smoke detectors that would provide earlier detection and alarm than the fire sprinkler system water flow alarm.

Operational Practices

- To reduce the threat of fire from waste left on the floor overnight, we recommend that the self-haul floor have all waste removed to containers at the end of each day. Self-haul waste is more likely to contain a fire ignition threat than commercially collected residential or commercial waste.
- Consideration should be given to using hand-held thermal detectors to screen waste piles left on the floor overnight. These devices may not work well for large, deep piles.
- The size and location of waste piles left on the floor overnight should be managed to minimize the volume of combustible material and the potential damage that would occur from an uncontrolled fire.
- Most waste pile fires are controlled by spreading the waste out with loader equipment so that hot spots can be quenched. We recommend that floor loader equipment should be parked at night in areas that are away from possible fire zones and accessible to fire response personnel.
- There should be a clear and specific written understanding as to whether operating staff are authorized to respond to fires at the facility, and if so authorized, they should receive appropriate training including knowledge of under what conditions they should defer to firefighting professionals.

- In order to ensure that the limited wastewater holding capacity at the site is available for holding fire suppression runoff, the procedure for pumping out the wastewater holding tank should be reviewed and updated if necessary. In addition, consideration should be given to how fire suppression runoff in excess of available wastewater tank capacity will be safely contained, presumably within the site stormwater management system. Plans and procedures should be established for safely disposing of fire suppression runoff that is diverted to the stormwater management system.

Other Considerations

- If not performed through the last review, the County should establish written clarification in the contract with the facility operator regarding which party is responsible for carrying property insurance including fire coverage. This clarification should make clear responsibility for any insurance coverage deductible as well as costs associated for alternative waste management when and if the OVTS is out-of-service for reasons such as fire damage.