

# Appendix

ZIMR

SPEN

OREGON

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WILSONVILLE

BENJAMIN

PORTLAND

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FACILITY NAME	RDS Distribution Box	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Concrete sidewalk surface weathered but OK otherwise.		
Architectural		N/A	N/A		
Structural		3	Rating based primarily on age. Fair condition overall. Rating of 2 based on condition alone. Some vertical cracks with efflorescence in the walls above grade. Several snap tie pockets appear to have lost grout filler. See Photo 2.		
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentation Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		2	Condition based on age, no issues observed in field.		
Pumping Syste	ms	N/A	All minor piping on/to the structure (i.e. air and soda ash) are not used.		
Piping and Valv	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	2.3	System asse	et criteria weigl	nted equally
-	0	Unknown	·	Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	terioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	rviceable	<5% OUL	Replace

## **Additional Comments**

Passive system that under normal operating conditions splits raw, degritted, sewage (RDS) from the Headwork to Oxidation Ditches 1 and 2. During high flow conditions, an overflow weir within the box sends flow to the Equalization basin.

No reported issues with operation. During high flow events, the water surface elevation in the box is very high. Equalization basin only used in extremely high flow events.





FACILITY NAME	Oxidation Ditch 1	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2012	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Rotor gear boxes replaced	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		1	New asphalt chip seal (2017)		
Architectural		N/A	N/A		
Structural		N/A	Not inspected at this time. Previous inspects are summarized in Oxidation Ditch No. 1 Structural Inspection Memo dated 10/28/2011 (HDR) and Oxidation Ditch No. 1 Structural Evaluation dated 11/7/2005 (Brown and Caldwell)		
Power Distribut	tion	N/A	N/A		
Electrical		3	Corrosion was enclosures.	observed on con	duit, conduit fittings, fasteners, and electrical
Instrumentatior Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		3	All rotor seals leak and are in need of repair. Rotor 1: slight ticking in motor. Rotor 2: very leaky seal, some motor vibration. Rotor 4: motor off balance causing vibration issues. Effluent weir: no issues observed, however operators report that it has not adjusted or exercised in many years.		
Pumping Syste	ms	N/A	N/A		
Piping and Val	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	Rotor seal leak pumps have be These require o	s clog the drain in en placed in eac operator attention	n each gearbox & motor area. Manually operated sump h rotor area to keep as clear and odor free as possible. a at least ever other day.
Overall Facilit Rating	у	2.3	System asse	t criteria weigł	nted equally
-	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

Rotor seals are in need of replacement.

Rotor seals are in stock and will be replaced as the corresponding rotor assemblies are replaced in the next 2 to 5 years.

Photo 1 – Oxidation Ditch 1





FACILITY NAME	Oxidation Ditch 2	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2012	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Rotor gear boxes replaced	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		1	New asphalt ch	nip seal	
Architectural N/A		N/A			
Structural		N/A	Not inspected at this time. Structural inspection documented in Oxidation Ditch No. 2 Inspection TM dated 11/17/2017 (HDR)		
Power Distribut	tion	N/A	N/A		
Electrical		3	Corrosion was enclosures.	observed on con	duit, conduit fittings, fasteners, and electrical
Instrumentation	n/	N/A	N/A		
Process or Mechanical Equipment		3	All rotor seals leak and are in need of repair. Rotor 7: slight motor vibration. Rotor 8: completely out of service. Effluent weir: no issues observed, however operators report that it has not adjusted or exercised in many years.		
Pumping Syste	ms	N/A	N/A		
Piping and Val	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	Rotor seal leak pumps have be These require	s clog the drain in een placed in eac operator attentior	n each gearbox & motor area. Manually operated sump h rotor area to keep as clear and odor free as possible. h at least ever other day.
Overall Facilit Rating	у	2.3	System asse	et criteria weigl	nted equally
	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

Rotor seals are in need of replacement.

Notes added in January 2018:

Rotor seals were replaced in October 2017 with no improvement with seal leaking. Rotor seals will again be replaced as the corresponding rotor assemblies are replaced in the next 2 to 5 years. A new Rotor #8 was installed in October 2017.

Photo 1 – Oxidation Ditch 2





FACILITY NAME	Clarifier Distribution Box	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Differential settlement and some high spots in sidewalk.		
Architectural 2		2	Handrail has localized corrosion due to lack of galvanizing at field welded joints.		
Structural		3	Rating primarily based on age. No major structural deficiencies identified		
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentation Analyzers	ר/	N/A	N/A		
Process or Mechanical Equipment		2	Per discussion with operations staff, the isolation gate into the last segment is not functional.		
Pumping Syste	ems	N/A	N/A		
Piping and Val	ves	1	Sodium hypochlorite piping for disinfection is new. Old air, soda ash, polymer piping on/to the structure are not used.		lisinfection is new. g on/to the structure are not used.
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	2.0	System asse	et criteria weigl	nted equally
g	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	terioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	rviceable	<5% OUL	Replace

# **Additional Comments**

None.

Photo 1 – Clarifier Distribution Box



FACILITY NAME	Secondary Clarifier 1	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2013	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	motor/drive assembly replaced	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Some weather	ing of sidewalk, n	o major settlement.
Architectural	Architectural 2		Handrail has localized corrosion due to lack of galvanizing at field welded joints.		
Structural		3	Rating based primarily on age. No major structural deficiencies identified. Some general degradation of paint coating near bottom flanges of support stringers on skimmer drive access walkway		
Power Distribut	tion	N/A	N/A		
Electrical		3	Corrosion was observed on conduit, conduit fittings, and conduit fasteners.		
Instrumentation Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		3	No oil in upper gear box and exhibited a clicking sound.		
Pumping Syste	ms	N/A	N/A		
Piping and Valv	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	2.6	System asse	et criteria weigl	nted equally
U	0	Unknown	4	Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

Note added in January 2018: Gear box seals were replaced in July 2017. The oil has remained in gear box since the replacement.

Photo 1 – Secondary Clarifier 1



FACILITY NAME	Secondary Clarifier 2	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2013	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	motor/drive assembly replaced	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2.5	General settlement of sidewalk around perimeter of clarifier (see sidewalk with respect to stairs on maintenance walkway).		
Architectural		2	Handrail has localized corrosion due to lack of galvanizing at field welded joints.		
Structural		3	Rating based primarily on age. No major structural deficiencies identified. Some general degradation of paint coating near bottom flanges of support stringers on skimmer drive access walkway		
Power Distribut	tion	N/A	N/A		
Electrical		3	Corrosion was observed on conduit, conduit fittings, and conduit fasteners.		
Instrumentatior Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		3	Lower gear box leaks. Operators mentioned that the gear box recently froze. No issues identified with motor.		
Pumping Syste	ms	N/A	N/A		
Piping and Valv	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facility Rating	у	2.7	System asse	et criteria weigl	nted equally
	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

Note added in January 2018:

Gear box seals were replaced in July 2017. No issues with oil leaking or freezing have been reported since the repairs.

Photo 1 – Secondary Clarifier 2



FACILITY NAME	Secondary Clarifier 3	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2013	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	motor/drive assembly replaced	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2.5	General settler to stairs on ma	ment of sidewalk a intenance walkwa	around perimeter of clarifier (see sidewalk with respect ay).
Architectural		2	Handrail has localized corrosion due to lack of galvanizing at field welded joints.		
Structural		3	Rating based primarily on age. No major structural deficiencies identified.		
Power Distribut	tion	N/A	N/A		
Electrical		3	Corrosion was observed on conduit, conduit fittings, and conduit fasteners.		
Instrumentation Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		2	Condition rating based on age, no issues observed in field. Recommend conducting metal analysis on oil.		
Pumping Syste	ms	N/A	N/A		
Piping and Val	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	2.5	System asse	et criteria weigl	nted equally
	0	Unknown		Original Usefu	ıl Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

# **Additional Comments**

None.

Photo 1 – Secondary Clarifier 3



FACILITY NAME	Secondary Clarifier 4	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	2013	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS	
Civil and Site		1	no comments			
Architectural		N/A	N/A			
Structural		1	no comments			
Power Distribut	tion	N/A	N/A			
Electrical		1	no comments			
Instrumentatior Analyzers	ר/	N/A	N/A			
Process or Mechanical Equipment		1	Recommend flushing of upper gear box and investigation on the motor rear bearing.			
Pumping Syste	ems	N/A	N/A			
Piping and Val	ves	N/A	N/A			
HVAC		N/A	N/A			
Odor Control		N/A	N/A			
Other		N/A	N/A			
Overall Facilit Rating	у	1.0	System asse	et criteria weigl	nted equally	
	0	Unknown		Original Usefu	ul Life (OUL)	
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance	
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant De	terioration	25% OUL	Rehabilitation, if possible	
	5	Virtually Unse	rviceable	<5% OUL	Replace	

# **Additional Comments**

None.

Photo 1 – Secondary Clarifier 4





#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Secondary Building Common Facilities	TYPE OF FACILITY	building
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2017	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Hypochlorite generation system added	RUNNING (YES/NO)	N/A

## **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS	
Civil and Site		1.5	Some sidewalk sidewalk sectio Some overgrov	is weathered but ns have been pu vn vegetation but	t overall good condition. A few areas where new t in. good condition overall	
Architectural		4	Rating based primarily on age of major components (roof and gutter system). Building scheduled for roof and gutter replacement in near future. Gutter downspouts with significant corrosion – not in serviceable condition in some areas where downspouts are completely corroded through. (see Photo 2) Some pipe / conduit penetrations into ceiling are unsealed and have a large gap. Soffit gypsum board has failing taped joints and general degradation Doors in generally good condition.			
Structural		3	See comments	under RAS/WAS	Pump Station Inspection Form.	
Power Distribution N/A N/A						
Electrical		2	See comments under RAS/WAS Pump Station Inspection Form.			
Instrumentatior Analyzers	ו/	N/A	N/A			
Process or Mechanical Equipment		N/A	N/A			
Pumping Syste	ms	N/A	N/A			
Piping and Valv	ves	N/A	N/A			
HVAC		2	Condition rating	g based on age, r	no issues observed in field.	
Odor Control		N/A	N/A			
Other		N/A	N/A			
Overall Facilit Rating	у	2.5	System asse	System asset criteria weighted equally		
	0	Unknown		Original Usefu	ul Life (OUL)	
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance	
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible	
	5	Virtually Unser	viceable	<5% OUL	Replace	

# **Additional Comments**

Note added in January 2018:

Roof, gutter, and soffit replacement scheduled for fiscal year 2020/2021.

Photo 1 – Secondary Building



#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	RAS/WAS Pump Station	TYPE OF FACILITY	pump station
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2015, 2016	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	RAS Pump 5 added, RAS Pump 3 replaced, WAS Pump 3 replaced	RUNNING (YES/NO)	YES

# **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		N/A	N/A		
Architectural		N/A	N/A		
Structural		3	Rating based primarily on age Some vertical cracking in CMU walls in above grade portion of structure. Lower level: general cracking of grout seal / concrete interface at most larger pipe penetrations. (see Photos 5 & 6)		
Power Distribut	tion	2	A moderate lev	el of dust found i	n some of the MCC cubicles.
Electrical		2	A significant amount of dirt and debris observed in electrical room (on floor and on top of electrical cabinets. Should be cleaned to help keep it from being transferred into the electrical equipment causing premature failure. A moderate level of dust found in some of the VFD cabinets. The air filter on RAS Pump 5 VFD was observed to be very, very dirty. There are 6 Robicon VFD's that are still functional but appear to be beyond their estimated OUL. Plans should be made to replace these.		
Instrumentatior Analyzers	ר/	2	Some of the RAS flow meters are still functional but they appear to be beyond their estimated OUL. Plans should be made to replace these. It is suspected that grease buildup in the lines are affecting WAS flow meter performance		
Process or Mechanical Equipment		N/A	WAS flow meter to SST 1 needs clearing of grease.		
Pumping Syste	ems	2	RAS Pump 3 – Some vibration present in the coupling alignment. Sounds of cavitation potential in pump. Recommend simplify the inlet piping to reduce losses on the suction. WAS Pump 2 – Recommend monitoring the slight sound in the motor starter. Recommend improvements to WAS Pump inlet alignment (see Photo 3). Recommend adding pipe support to all WAS pump inlet elbows.		
Piping and Valv	ves	3	Potential point of Recommend ro Recommend ad	of failure on WAS stating all plug va dding more braci	S discharge piping (see Photo 4). Ives to allow for flushing/clearing of plug valley. ng to the seal water piping to mitigate vibrations.
HVAC		2	Condition rating	g based on age, i	no issues observed in field.
Odor Control		N/A	N/A		
Other		2	PLC Control Pa devices on the probably no lon	anel wiring appea front of the contr nger used.	rs to be neat and organized. There are some old of panel that don't appear to be functional and is
Overall Facilit Rating	у	2.3	System asse	t criteria weigl	hted equally
	0	Unknown		Original Usef	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

# **Additional Comments**

None.

## Photos

<image>



Photo 3 – WAS Pump 3 inlet piping misalignment and poor pipe support









FACILITY NAME	RAS Distribution Box	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Concrete sidewalk surface weathered but OK otherwise.		
Architectural		N/A	N/A		
Structural		3	Rating based primarily on age. Fair condition overall. Rating of 2 based on condition alone. Some vertical cracks with efflorescence. (See Photo 2) Several snap tie pockets appear to have lost grout filler.		
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentation Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		2	Condition rating based on age, no issues observed in field.		
Pumping Syste	ms	N/A	N/A		
Piping and Valv	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	2.3	System asse	et criteria weigl	nted equally
	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	terioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	rviceable	<5% OUL	Replace

# Additional Comments

None.

Photo 1 – RAS Distribution Box



FACILITY NAME	Chlorine Contact Basins	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2015	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	New catwalk	RUNNING (YES/NO)	YES

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		1	Good condition	overall	
Architectural		2	Handrail has local corrosion at field welded joints		
Structural		3	Rating based primarily on age. Good condition overall, general buildup on concrete surface. New crossover walkway installed recently, good condition – improves access for maintenance. Spalling of concrete wall below new walkway on east end.		
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentatior Analyzers	n/	N/A	N/A		
Process or Mechanical Equipment		2	Condition rating based on age, no issues observed in field.		
Pumping Syste	ms	N/A	N/A		
Piping and Val	/es	N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	Operators com washdown due Mentioned a co	mented on exces to concrete poro pating on concrete	sive algae buildup on concrete surface, hard to sity. e surface that extends a few feet below water level.
Overall Facilit Rating	у	2.0	System asse	t criteria weigł	nted equally
	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

# **Additional Comments**

None.



#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Chlorination Building Common Facilities	TYPE OF FACILITY	building
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2017	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Removal of chlorine gas system and roofing improvements	RUNNING (YES/NO)	YES

## **Condition Rankings (RATING UPDATED JANUARY 2018)**

SYSTEM ASS	ETS	CR	COMMENTS		
Civil and Site		2	Good condition overall, a few cracked sidewalk panels		
Architectural		4 1	Rating based primarily on age of major components (roof and gutter system). Buildir scheduled for roof and gutter replacement in near future.   Gutter downspouts with significant corrosion.   Multiple areas of ceiling with evidence of roof leakage and water damage. (See Photo 2)   Soffit gypsum board has failing taped joints and general degradation   Roof, gutters, and soffit replaced in Spring 2017.		
Structural		3	Rating based p Good condition	primarily on age.	e localized cracks in CMU wall
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentatior Analyzers	n/	N/A	N/A		
Process or Mechanical N/A N/A Equipment					
Pumping Systems N/A		N/A			
Piping and Valves N/A		N/A	N/A		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facility Rating		3.0 2.0	System asset criteria weighted equally		nted equally
	0	Unknown	Original Useful Life (OUL)		ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible
	5	Virtually Unserviceable		<5% OUL	Replace

## **Additional Comments**

Notes added in January 2018: Roof, gutter, and soffit replaced in Spring 2017. No leaks roofs now existing. Several fans that were no longer necessary were removed ahead of the roof replacement. Water damaged sheetrock (Photo 2) has been replaced.





#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Sodium Bisulfite Dechlorination System	TYPE OF FACILITY	process equipment
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	<del>1998-<b>2017</b></del>	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Dechlorination system replaced	RUNNING (YES/NO)	YES

# **Condition Rankings (RATING UPDATED JANUARY 2018)**

SYSTEM ASS	ETS	CR			COMMENTS	
Civil and Site		N/A	N/A			
Architectural N/A		N/A				
Structural N/A		N/A				
Power Distribut	tion	N/A	N/A			
Electrical		2	no comments			
Instrumentatior	ר/	3	The Strantrol 880 ORP on the outside of the building has significant damage to its enclosure (appears to be UV damage).			
Analyzers		1	ORP analyzer An inline chlo	ORP analyzer has been removed. An inline chlorine analyzer was installed at the entrance of the CCB		
Process or Mechanical		4	Rating based o	on City plan to rep	lace and relocate the system this year. Equipment not	
Equipment		1	inspected. Sys	tem replaced in	Summer of 2017.	
Pumping Systems		4	Rating based on City plan to replace and relocate the system this year. Equipment not			
		1				
Piping and Valves		Rating based on City plan to replace and relocate the system this year. Equipment not inspected. Feed piping replaced in Summer of 2017.				
HVAC		N/A	N/A			
Odor Control		N/A	N/A			
Other		N/A	N/A			
Overall Facility Rating		3.4 1.2	System asset criteria weighted equally			
	0		Original Useful Life (OUL)		ul Life (OUL)	
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance	
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

## **Additional Comments**

Note added in January 2018: Sodium bisulfate system (including tank [Photo 1], pumps [Photo 2], feed piping) was replaced in Summer of 2017.





#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Reclaimed and Reuse Water Pumps	TYPE OF FACILITY	pumps
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2008	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Reuse Pumps added	RUNNING (YES/NO)	YES

## **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		N/A	N/A		
Architectural N/A		N/A			
Structural		N/A	N/A		
Power Distribut	tion	2	A moderate lev	el of dust found i	n some of the MCC cubicles.
Electrical		3	A significant amount of dirt and debris was observed in electrical room (on floor and on top of electrical cabinets. Should be cleaned to help keep it from being transferred into the electrical equipment causing premature failure.		
Instrumentatior Analyzers	n/	2	It was reported suspect that the	that the control of pressure switch	of the reclaim pumps can be erratic at times; they nes on the header may be causing the problem.
Process or Mechanical Equipment		5	Reclaimed water strainer not in working order (see Photo 2). Bypass continuous left open.		
Pumping Syste	ms	2	Reclaimed Water Pumps - condition rating based on age. Leaky packing gland observed. Corrosion on pump based. Reuse Water Pumps - condition rating based on age, not operational due to winter season.		
Piping and Valv	/es	2	Condition rating based on age, no issues observed in field.		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		3	The wiring in the PLC control cabinet is observed to be in disarray and should be cleaned up.		
Overall Facilit Rating	у	2.7	System asse	t criteria weigł	nted equally
	0	Unknown	Original Useful Life (OUL)		ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	rioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

Note added in January 2018: MCC cleaning is going to be added to a monthly operations task list.







#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Outfall	TYPE OF FACILITY	pipe line
CONSTRUCTION DATE	1986	DATE INSPECTED	2/15/2017 and 9/1/2016 (CCTV)
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

## **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS	
Civil and Site		2	No site specific	mpacts or areas of concern identified.		
Architectural		N/A	N/A			
Structural		3	Visual damage to manhole lid (see Photo 1). Staff has noted that high flows can cause the entire manhole lid to pop off.			
Power Distribut	tion	N/A	N/A			
Electrical		N/A	N/A			
Instrumentation Analyzers	า/	N/A	N/A			
Process or Mechanical Equipment		N/A	Small amounts of foam spotted in the Willamette River near the outfall location, uncertain if associated with the WWTP.			
Pumping Systems N/A		N/A				
Piping and Valves 2		Minor defects identified per CCTV inspection videos.				
HVAC N/A		N/A				
Odor Control	Odor Control N/A N/A					
Other		N/A	N/A			
Overall Facility 2.3 System asset criteria weighted equally		nted equally				
U	0 Unknown		Original Useful Life (OUL)			
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance	
CONDITION RATING LEGEND	2	Minor Defects	Minor Defects Only		Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Deterioration		50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

## **Additional Comments**

Adjacent paper mill outfall no longer in operation. Paper mill closed in 2016.
Photo 1 – Outfall final manhole









FACILITY NAME	Odor Control System	TYPE OF FACILITY	process equipment
CONSTRUCTION DATE	2004	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2017	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	water piping improvements	RUNNING (YES/NO)	YES

## **Condition Rankings (RATING UPDATED JANUARY 2018)**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Condition rating based on age, no issues observed in field.		
Architectural		N/A	N/A		
Structural		2	Condition rating based on age, no issues observed in field. Modular tanks and scrubber in good condition.		
Power Distribut	tion	N/A	N/A		
Electrical		2	Corrosion obse	erved on conduit,	conduit fittings, and conduit fasteners.
Instrumentatior Analyzers	ח /	4	The biofilter control system is essentially defunct. A significant amount of dirt, debris, and moisture was observed in the control panel and junction boxes. Corrosion observed on pressure transmitter housing.		
Process or Mechanical Equipment		5	Biofilter media in poor condition. Media is spent and is compacting - approximately 2ft below the top of the tank (see Photo 1). Recommend full replacement of media. No issued observed with scrubber.		
Pumping Syste	ems	N/A	N/A		
Piping and Valv	ves	3 2	Water pressure regulator broken. Piping insulation needs replacement. See Photo 3. Water piping and insulation replaced in Summer 2017.		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facilit Rating	у	3.0 2.8	System asse	et criteria weig	nted equally
	0	Unknown		Original Usef	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant De	terioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unse	rviceable	<5% OUL	Replace

### **Additional Comments**

Notes added in January 2018: Broken water line and insulation replaced in Summer 2017. Odor control media replacement planned for in 2018/2019 fiscal year budget proposal.







FACILITY NAME	Reuse Membrane System and Building	TYPE OF FACILITY	process equipment and building
CONSTRUCTION DATE	2008	DATE INSPECTED	2/14/2017 and 2/15/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

# **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		1	Good condition	overall	
Architectural		2	Evidence of wa system – recon	ter dripping from	edge of building indicates possible clog in gutter vestigation.
Structural		1	Good condition overall		
Power Distribut	tion	1	no comments		
Electrical		1	no comments		
Instrumentatior Analyzers	/	1	no comments		
Process or Mechanical Equipment		1.5	Air compressor – OK Hypo feed pump – OK Recommend use of chemical injection quills to improve safety. City planning to install air dryer to reduce water build up in air piping. Recommend low point drain. Effluent flow monitoring is not ideal – with valve just prior to meter. Recommend comparison of all flow monitoring to confirm correct reporting. Membranes on in operation during the winter.		
Pumping Syste	ems	1.5	1.5 Feed Pumps, Recirculation Pumps, and REU#1 in good condition. REU#2 has a bearing issue. Discussion with City confirms historical issues with r		nps, and REU#1 in good condition. cussion with City confirms historical issues with pump.
Piping and Valv	ves	3.5	Pipe support in pipes from mov Leaks in piping	nprovements nee vement. connection coup	ded. Visual inspection identified areas of rubbing on
HVAC		N/A	N/A	· · · · ·	
Odor Control		N/A	N/A		
Other		N/A	Relatively new construction, no major issues. Pipe support concerns should be addressed.		
Overall Facilit Rating	у	1.5	System asset criteria weighted equally		
-	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION RATING LEGEND	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

None.

Photo 1 – Reuse Building









FACILITY NAME	Sludge Storage Tanks and Building	TYPE OF FACILITY	water bearing structure
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

## **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		3	Settlement / he	eaving of concrete	e sidewalk sections around both tanks (See Photo 3)
Architectural		N/A	N/A		
Structural		3	Primarily based on age. Moderate to severe corrosion of steel anchor bolts at grating support beam seats. One area with spalled concrete in wall below beam seat – likely due to concrete delamination due to corrosion of anchor bolts. (See Photo 4)		
Power Distribut	tion	N/A	N/A		
Electrical		N/A	N/A		
Instrumentatior Analyzers	n /	N/A	N/A		
Process or Mechanical Equipment		2	Rating based on City descriptions. Equipment not inspected.		
Pumping Syste	ms	N/A	N/A		
Piping and Valv	/es	2	Rating based on City descriptions. Equipment not inspected.		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	Heavy buildup level. (See Pho	of sludge / moss oto 2)	limited visual inspection of concrete walls above water
Overall Facilit Rating	у	2.5	System asse	et criteria weigh	nted equally
U	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
CONDITION	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

### **Additional Comments**

Note added in January 2018: Sidewalk issues (Photo 3) will be addressed when a new catwalk along the South side of the tanks is added.









FACILITY NAME	Solids Building Common Facilities	TYPE OF FACILITY	building
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

# **Condition Rankings**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		2	Generally good slabs due to dif	condition with lo ferential settleme	calized areas of moss buildup and uneven sidewalk nt
Architectural		3	Based on age and general condition. Some areas of corrosion / rust staining on doors and door frames. Window seals beginning to degrade in some areas Floor coating in dewatering area (upper level) is chipped out in areas and has degradation around some of the equipment base grout pads		
Structural		3	<ul> <li>Rating based on age and condition. Floor slab of dewatering area leaks into maintenance shop below.</li> <li>Maintenance shop: roof slab has several cracks with signs of past water leakage (including efflorescence and rust staining due to rebar corrosion. Recommend rout and seal cracks after removal of floor coating in dewatering area. (See Photo 2)</li> </ul>		
Power Distribut	tion	2	A moderate lev	el of dust found in	n some of the MCC cubicles.
Electrical		2	A significant an of electrical cab electrical equip	nount of dirt and o vinets. Should be ment causing pre	debris observed in electrical room (on floor and on top cleaned to help keep it from being transferred into the mature failure.
Instrumentatior Analyzers	א/	2	no comments		
Process or Mechanical Equipment		2	Condition rating based on age, no issues observed in field. Unused equipment should be removed to increase access to equipment in operation. Screw press dewatering equipment and screw conveyors installed in 2015. This equipment was not reviewed in this inspection.		
Pumping Syste	ems	N/A	N/A		
Piping and Valv	ves	2 Condition rating based on age, no issues obse		no issues observed in field.	
HVAC		2	Condition rating	g based on age, r	no issues observed in field.
Odor Control		2	Condition rating	) based on age, r	no issues observed in field.
Other       3       DAFT area – visual assessment was limited du Roof area: evidence of cracking in roof slab an (See Photo 3)         Other       3       Cracking in DAFT concrete soffit on west side, full length.         PLC Control Panel wiring appears to be neat a devices on the front of the control panel that do		was limited due to access. in roof slab and bubbles in coating on top of roof slab. t on west side, pattern cracking in lower west wall along rs to be neat and organized. There are some old of panel that don't appear to be functional and is			
Overall Facilit	у	2.3	System asse	t criteria weigh	nted equally
- rearing	0	Unknown		Original Usefu	Il Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	rioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

## **Additional Comments**

There was noticeable improvement in upper level floor leaking from floor coating and screw press installation, but it has not completely solved the problem. Floor washing in the upper level will result in water leaking into the lower level maintenance shop.







FACILITY NAME	Sawdust Drying System	TYPE OF FACILITY	process equipment
CONSTRUCTION DATE	2009	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2017	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	air locks replaced	RUNNING (YES/NO)	YES

### **Condition Rankings (RATING UPDATED JANUARY 2018)**

SYSTEM ASS	ETS	CR			COMMENTS
Civil and Site		1	No major issue	S	
Architectural		2	Dryer MCC cor	ntainer / module v	vith corrosion of door (See Photo 3)
Structural		2	No major issues noted, some localized corrosion of steel elements. It was noted that the MCC module had no signs of seismic anchorage to the equipment pad. Recommend proper seismic anchorage.		
Power Distribut	ion	1	no comments		
Electrical		1	no comments		
Instrumentation Analyzers	n/	N/A	N/A		
Process or		<del>2.5</del>	Minor issues observed in field. Lower air lock upper motor bearing issues (See		
Mechanical Equipment		1.5	Air locks replaced in Summer 2017. Condition rating based on age of other equipment.		
Pumping Syste	ms	N/A	N/A		
Piping and Valv	/es	2	Condition rating based on age, no issues observed in field.		
HVAC		N/A	N/A		
Odor Control		N/A	N/A		
Other		N/A	N/A		
Overall Facility Rating	y	<del>1.7</del> 1.6	System asse	et criteria weigł	nted equally
	0	Unknown		Original Usefu	ul Life (OUL)
	1	New or Excelle	ent Condition	100% OUL	Normal Preventive Maintenance
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance
LEGEND	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance
	4	Significant Det	erioration	25% OUL	Rehabilitation, if possible
	5	Virtually Unser	viceable	<5% OUL	Replace

# Additional Comments

Note added in January 2018: Air locks (Photo 2) were replaced in Summer 2017.

<image>





FACILITY NAME	Compost Building and Reactors	TYPE OF FACILITY	process equipment and building
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017 and 2/15/2017
YEAR UPGRADED	2017	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	roof replaced	RUNNING (YES/NO)	YES

# Condition Rankings (RATING UPDATED JANUARY 2018)

SYSTEM ASSETS	CR	COMMENTS
Civil and Site	2	Good condition overall, some areas of localized asphalt cracking in loader traffic areas.
Architectural	4 2.5	Roof – evidence of widespread roof leakage based on active leaks in ceiling and several cracks with rust staining and efflorescence. Roof slated for replacement. (See Photo 4)Roof in room above control room: severe leakage around HVAC duct. Leaks into a trough with sump pump that discharges through window. (See Photos 5 & 6)Insulation / siding on east side of building has significant damage likely due to 
Structural	4	Rating based primarily on condition. Walls on both sides of compost compaction / loadout tunnel have signs of cracking and leakage of compost tainted liquid behind sound proofing panels. Significant cracking at upper walls and ceiling concrete adjacent to tunnel walls and between tunnel walls (possibly due to differential thermal expansion of tunnel walls with respect to ceiling – tunnel walls subject to 70 degrees C. while ceiling exposed to ambient air). (See Photos 8 & 9) Storage area in SW corner of building: Concrete roof above storage area used to store some heavier equipment (augers, an oven, misc. smaller equipment). Most equipment is stored near perimeter but some is located near middle of roof. Some signs of flexural cracking noted in underside of roof slab. Some equipment has been removed from the concrete roof above the storage area to reduce loading.
Power Distribution	2	no comments
Electrical	3	A significant amount of dirt and debris observed in electrical room (on floor and on top of electrical cabinets. Should be cleaned to help keep it from being transferred into the electrical equipment causing premature failure. There is an electrical panel board (Panel AP-1) located between the tunnels that was installed in 2004. It does not have an enclosure that is suitable for the environment that it was installed. The cabinet shows significant signs of corrosion, and plans should be made to replace this panel. (See Photo 10) There are 6 Robicon VFD's that are still functional but appear to be beyond their estimated OUL. One of the VFD's (Sludge Hopper Discharge South) has a failing operator interface display. Plans should be made to replace these Corrosion observed on conduit, conduit fittings, and conduit fasteners.
Instrumentation/ Analyzers	2	no comments
Process or Mechanical Equipment	2.5	Condition rating based on age, minor issues observed in field. Recycle Bin live bottom – flights wearing. Screw replacement schedule for 2017. Motors on 2 and 7 identified as potential future issues. Recommend monitoring. Mixer hopper gear boxes in poor condition. Replacement scheduled for 2017. Reactor Feed Conveyor (CON8-05) prone to leaks. City plans to improve in the next couple years. See Photo 3. Cover added to Reactor Feed Conveyor (CON8-05) to help keep water out of the conveyor. Grinding sound on output bearing on motor. Gear box OK. Rams and rollers for compost reactors replaced/rebuilt in 2016. Saw dust loader new in 2014. Chain on CON8-04 to be replaced.
Pumping Systems	N/A	N/A
Piping and Valves	2	Condition rating based on age, no issues observed in field.

HVAC		3	Condition rating based on age, minor issues observed in field. Corrosion on roof unit.			
Odor Control		2	Condition rating based on age, no issues observed in field.			
Other		2	PLC Control Panel wiring appears to be neat and organized.			
Overall Facility Rating		<del>2.6</del> 2.5	System asset criteria weighted equally			
	0	Unknown		Original Useful Life (OUL)		
CONDITION RATING LEGEND	1	New or Excellent Condition		100% OUL	Normal Preventive Maintenance	
	2	Minor Defects Only		75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Deterioration		50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

### **Additional Comments**

Notes added in January 2018:

Roof was replaced in Spring 2017.

Cover was added to Reactor Feed Conveyor (CON8-05) to help keep water out of the conveyor. Loading has been reduced from the concrete roof of the storage room. MCC cleaning to be added to monthly operations task list.

B tunnel (east tunnel) had a failure on the outer wall. According to City records, the wall was completely demolished and rebuilt in 1995.





Photo 3 – CON8-05 with temporary tarp cover to prevent rain leak (Cover added to conveyor in 2017 to help reduce water intrusion)





Photo 6 – Collection of water from roof leak (Roof replaced in Spring 2017)











FACILITY NAME	Compost Curing Bays and Blower Building	TYPE OF FACILITY	structure
CONSTRUCTION DATE	2004	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

# **Condition Rankings**

SYSTEM ASSETS		CR	COMMENTS			
Civil and Site 2		Ecology block wall retaining wall on south side of building has some areas where block is beginning to degrade / spall. (See Photo 3)				
Architectural		2	No major issues noted, rating based on age of architectural components.			
Structural		2	Building in good condition overall. Some of the cable strand bay bracing is not quite taught on the south side. Ecology block push walls on south side have some deterioration and spalling, possibly due to impact from loader bucket. (See Photo 3)			
Power Distribution		2	no comments			
Electrical		2	A significant amount of dirt and debris observed in the room (on floor and on top of electrical cabinets. Should be cleaned to help keep it from being transferred into the electrical equipment causing premature failure.			
Instrumentation/ Analyzers		N/A	N/A			
Process or Mechanical Equipment		2	Blower OK.			
Pumping Systems		N/A	N/A			
Piping and Valves		2	Condition rating based on age, no issues observed in field.			
HVAC		N/A	N/A			
Odor Control		N/A	No odor control provided. Blower provides air to compost through diffusers in Bays.			
Other		N/A	N/A			
Overall Facility Rating		2.0	System asset criteria weighted equally			
	0	Unknown	Jnknown		Original Useful Life (OUL)	
CONDITION RATING LEGEND	1	New or Excellent Condition		100% OUL	Normal Preventive Maintenance	
	2	Minor Defects Only		75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Deterioration		50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

### **Additional Comments**

Additional bays planned for future to increase covered capacity for sawdust storage and compost curing and/or storage. Planned for fiscal year 2019/2020.









FACILITY NAME	Plant Power Supply, Distribution, and Generator	TYPE OF FACILITY	plant power
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	2008	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	Plant switchgear and generator replaced.	RUNNING (YES/NO)	YES

### **Condition Rankings**

SYSTEM ASSETS		CR	COMMENTS			
Civil and Site		1	Generally good condition overall			
Architectural		N/A	N/A			
Structural		1	Equipment pads in good condition.			
Power Distribution		2	Minor corrosion observed on the SWGR enclosure. Dirt/debris observed on the inside of the SWGR enclosure; and the air filters appear to need changing. Peeling paint observed on the Genset sub-base fuel tank.			
Electrical		1	no comments			
Instrumentation/ Analyzers		N/A	N/A			
Process or Mechanical Equipment		N/A	N/A			
Pumping Systems		N/A	N/A			
Piping and Valves		N/A	N/A			
HVAC		N/A	N/A			
Odor Control		N/A	N/A			
Other		N/A	N/A			
Overall Facility Rating		1.3	System asset criteria weighted equally			
	0	Unknown	Jnknown		Original Useful Life (OUL)	
CONDITION RATING LEGEND	1	New or Excelle	lew or Excellent Condition		Normal Preventive Maintenance	
	2	Minor Defects Only		75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Deterioration		50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Deterioration		25% OUL	Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

# **Additional Comments**

None.




#### Facility Condition Assessment Inspection Form – Newberg WWTP

FACILITY NAME	Operations Building	TYPE OF FACILITY	building
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

## **Condition Rankings**

SYSTEM ASS	ETS	CR	COMMENTS			
Civil and Site		2	Generally good	Generally good condition overall		
Architectural		4	Based primarily on age of major components (roof and gutter system). Roof / gutter to be replaced in coming year. (See Photo 2) Doors and windows in generally good condition. Evidence of roof leakage in lab			
Structural		3	Rating based p cracking of CM	Rating based primarily on age. No major issues identified outside of some localized cracking of CMU walls.		
Power Distribut	tion	N/A	N/A			
Electrical		2	no comments	no comments		
Instrumentation Analyzers	n/	N/A	N/A			
Process or Mechanical Equipment		N/A	N/A			
Pumping Systems N/A N/A						
Piping and Valves N/A		N/A	N/A			
HVAC		2	Condition rating based on age, no issues observed in field. Recommend independent HVAC system for the lab.			
Odor Control		N/A	N/A			
Other		2	PLC Control P	anel wiring appea	rs to be neat and organized.	
Overall Facility 2.5		2.5	System asset criteria weighted equally			
	0	Unknown	•	Original Useful Life (OUL)		
CONDITION RATING LEGEND	1	New or Excell	New or Excellent Condition		Normal Preventive Maintenance	
	2	Minor Defects	Minor Defects Only		Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Det	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant De	Significant Deterioration		Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

## **Additional Comments**

Partial remodel of the operations building is scheduled for fiscal year 2019/2020.

Photo 1 – Ops Building



FACILITY NAME	PLC Control System	TYPE OF FACILITY	process equipment
CONSTRUCTION DATE	1986	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

## **Condition Rankings**

SYSTEM ASSETS CR COMMENTS			COMMENTS				
Civil and Site N/A N/A		N/A					
Architectural N/A		N/A					
Structural		N/A	N/A				
Power Distribut	tion	N/A	N/A	N/A			
Electrical		N/A	N/A	N/A			
Instrumentatior Analyzers	n/	N/A	N/A				
Process or Mechanical N/A		N/A	N/A				
Pumping Systems N/A N/A							
Piping and Valves N/A		N/A	N/A				
HVAC N/A		N/A	N/A				
Odor Control		N/A	N/A				
Other		3	The Siemens Simatic 505 PLC's are a "mature" product line; replacement parts will be increasingly difficult to obtain from the manufacturer. However another company (Control Technologies, Inc.) has the rights to and continues to manufacture components for this product line. It is recommended that a study be performed to evaluate if the system should be replaced				
Overall Facilit Rating	у	3.0	System asset criteria weighted equally				
	0	Unknown	1	Original Useful Life (OUL)			
	1	New or Excellent Condition		100% OUL	Normal Preventive Maintenance		
CONDITION RATING LEGEND	2	Minor Defects Only		75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance		
	3	Moderate Dete	Moderate Deterioration		Normal Preventive Maintenance, Major Corrective Maintenance		
	4	Significant Det	Significant Deterioration		Rehabilitation, if possible		
	5	Virtually Unserviceable		<5% OUL	Replace		

# Additional Comments

None.



FACILITY NAME	Electrical Building	TYPE OF FACILITY	building
CONSTRUCTION DATE	2008	DATE INSPECTED	2/14/2017
YEAR UPGRADED	N/A	TIME ARRIVED ON SITE	0800
ITEM UPGRADED	N/A	RUNNING (YES/NO)	YES

# **Condition Rankings**

SYSTEM ASS	ETS	CR	COMMENTS			
Civil and Site		2	Splash blocks at downspouts should be re-configured as they are not completely functional and allow for water to erode the surrounding area. (See Photo 2)			
Architectural	rchitectural 1 No major issues identified					
Structural	Ictural 1 No major issues identified					
Power Distribution 2 no comments						
ElectricalA significant amount of dirt and debris observed in the room (on floor and o electrical cabinets. Should be cleaned to help keep it from being transferred electrical equipment causing premature failure. There are 3 Robicon VFD's that are still functional but appear to be beyond estimated QUI			debris observed in the room (on floor and on top of eaned to help keep it from being transferred into the emature failure. are still functional but appear to be beyond their			
Instrumentatior Analyzers	n/	N/A	N/A			
Process or Mechanical Equipment		N/A	N/A			
Pumping Syste	Pumping Systems N/A N/A					
Piping and Valv	/es	N/A	N/A			
HVAC		1	Condition rating based on age, no issues observed in field.			
Odor Control		N/A	N/A			
Other		N/A	N/A			
Overall Facility Rating		1.7	System asset criteria weighted equally			
0		Unknown		Original Usefu	ginal Useful Life (OUL)	
CONDITION RATING LEGEND	1	New or Excelle	New or Excellent Condition		Normal Preventive Maintenance	
	2	Minor Defects	Only	75% OUL	Normal Preventive Maintenance, Minor Corrective Maintenance	
	3	Moderate Dete	erioration	50% OUL	Normal Preventive Maintenance, Major Corrective Maintenance	
	4	Significant Det	Significant Deterioration		Rehabilitation, if possible	
	5	Virtually Unserviceable		<5% OUL	Replace	

## Additional Comments

None.



Photo 2 – Gutter splashing causing erosion around electrical conduits



#### City of Newberg

Original Useful Life of Comment WWTP Equipment

Asset Class	Useful Life, Years	Useful Life Source	Recommended Rehabilitation Frequency
Chemical system	15	Engineers Judgment	
Instrumentation	15	Engineers Judgment	
Motor, greater than 5 HP	25	WEF Simple	
Motor, greater than 5 HP & low speed (500 rpm)	30	WEF Simple	
Motor Control Center	30	WEF Simple	
Odor Control unit	12	WEF Simple	
Piping, buried reinforced concrete	50	Engineers Judgment	
Power Distribution	30	Engineers Judgment	
Power Generation	30	Engineers Judgment	15
Pump, submersible	15-20	Engineers Judgment	10
Pump, chemical	15	Engineers Judgment	
Pump, vertical turbine	25	WEF Simple	
Pump, all others	25	WEF Simple	
Rotating Equipment	25	Engineers Judgment	
Structural/Architectural	50	IRS Pub946 Table B	25
Tank	60	Engineers Judgment	30
Tank, Collector Drive	25	WEF Simple	
Variable Frequency Drives	20	Manufactures Estimate	

