

SITE NAME: Beddington STW  
 DATE: November 2023

ODOUR RISK ASSESSMENT

Process Stage	Process Unit	Normal			Abnormal			Nearest Customer/ Receptor	Offensive- ness (0-5)	Likelihood of Impact (0-5)	Odour Risk (<5 Low, >15 High)	Odour Impact	Mitigation Measures (for more detail see OMP)	Residual Odour Impact (L/M/H)	Responsibility for Mitigation Measures	Notes
		Odour Description	Constant/ Intermittent/ Occasional/ Rare	Event Description	Likelihood of Event Frequent/ Rare/ Planned	Length of Time of Release										
ADD EXTRA ROWS BELOW THIS ROW IF REQUIRED																
Works Inlet	Incoming Sewer / Banana chamber	UWWT	Sewage and return liquors	C				Beddington Lane	2	1	2	Low				
Works Inlet	Incoming Sewer / Banana chamber	UWWT	Strong sewage		Storm tanks return	P	Days	Beddington Lane	3	1	3	Low	N/A	L	N/A	
Works Inlet	Main pumping station wet well	UWWT	Sewage and return liquors	C				Beddington Lane	2	1	2	Low	Covered			Covered
Works Inlet	Main pumping station wet well	UWWT	Sewage and return liquors		Failure of PS	R	Weeks	Beddington Lane	2	2	4	Low	Investigate and rectify	L	TM / M&E	No more than one week
Works Inlet	Main pumping station wet well	UWWT	Sewage and return liquors		Build-up of fat and debris	R	Weeks	Beddington Lane	3	1	3	Low	Clean the well up	L	TM	
Storm Separation	Storm Tanks	UWWT	Sewage	O				Beddington Lane	2	3	6	Medium	Empty as soon as practical. Potential to contract clean			Being filled in storm event. Risk logged
Storm Separation	Storm Tanks	UWWT	Strong sewage		Tanks draining down	P	Days	Beddington Lane	3	1	3	Low	None	L	N/A	
Storm Separation	Storm Tanks	UWWT	Raw sludge		Scraper failure	R	Weeks	Beddington Lane	4	4	16	High	Investigate cause and rectify	L	M&E	Consider customer communication if prolonged
Storm Separation	Storm Tanks	UWWT	Septic sewage		Unable to return storm contents	R	Weeks	Beddington Lane	4	4	16	High	Overpump sludge to inlet	M	Tech 1	
Storm Separation	Storm Tanks	UWWT	Raw sludge		Residual solids in storm tanks in hot weather	R	Days	Beddington Lane	4	5	20	High	Timely operation of scrapers and draining tanks down	L	Tech 1	Consider customer communication if severe enough
Preliminary Treatment	Screening	UWWT	Sewage	C				Beddington Lane	2	1	2	Low	Covered		Tech 1	Covered
Preliminary Treatment	Screening	UWWT	Sewage		Screen open for maintenance	P	Days	Beddington Lane	2	2	4	Low	Find cause and resolve	L	Tech 1 / M&E	
Preliminary Treatment	Screening	UWWT	Sewage		Blockages	F	Hours	Beddington Lane	2	2	4	Low	Clear blockage	L	TM / Tech 1	
Preliminary Treatment	skips - Washpactors	UWWT	Sewage / Rag	C				Beddington Lane	1	1	1	Low	Covered skips		Tech 1	Washpactors to be replaced - see OIP
Preliminary Treatment	Open skips - Washpactors	UWWT	Rancid		Excessive amount of rag / Hot weather	R	Days	Beddington Lane	3	2	6	Medium	Removal of skip	L	Tech 1	

Preliminary Treatment	Screening handling - skip compactors	UWWT	Sewage / Rag	C				Beddington Lane	3	0	0	Low	Covered		Tech 1	Covered
Preliminary Treatment	Screening handling - skip compactors	UWWT	Sewage / Rag		Changing skips	P	Hours	Beddington Lane	4	2	8	Medium	Only removed from site immediately when changed	L	Tech 1	
Preliminary Treatment	Screening handling - skip compactors	UWWT	Sewage / Rag		Spillages	F	Hours	Beddington Lane	4	2	8	Medium	Clear up	L	Tech 1	Occasional
Preliminary Treatment	Grit Removal Equipment - Detritor	UWWT	Sewage	C				Beddington Lane	2	2	4	Low	Daily checks as per effluent rounds		Tech1	
Preliminary Treatment	Grit Removal Equipment - Detritor	UWWT	Strong sewage / Grit / Rag		Drained down for maintenance / repair	P	Days	Beddington Lane	3	3	9	Medium		M	TM	
Preliminary Treatment	Grit skips	UWWT	Sewage / Grit	C				Beddington Lane	3	2	6	Medium	Regular removal of skips		Tech 1	
Preliminary Treatment	Grit skips	UWWT	Sewage / Grit		Skips not collected by contractors	R	Days	Beddington Lane	3	2	6	Medium	Chase contractor, contacted by phone and can arrive the next day	L	Tech 1	
Crude Sewage Transfer	Flow & Distribution to Primary Settlement Tanks	UWWT	Sewage	C				Beddington Lane	2	1	2	Low	Daily checks		Tech 1	
Primary Settlement	Primary Settlement Tanks	UWWT	Sewage	C				Beddington Lane	3	3	9	Medium	Keep sludge blanket level correct, monitored as part of the effluent rounds - manual measurement. Target level .25m as detailed in the SOM		Process controller / Tech 1	
Primary Settlement	Primary Settlement Tanks	UWWT	Sewage		Hot weather	R	Weeks	Beddington Lane	4	4	16	High	Consider increase of iron dosing	M	TM	Consider customer communication if severe enough
Primary Settlement	Primary Settlement Tanks	UWWT	Strong sewage and H2S		High blanket level	F	Weeks	Beddington Lane	4	4	16	High	Maximise sludge processing capacity and tanker as a last resort	M	TM	Consider customer communication if severe enough
Primary Settlement	Primary Settlement Tanks	UWWT	Raw sludge		Tank drained down	P	Weeks	Beddington Lane	4	4	16	High	Hose down	L	Tech 1	Consider customer communication if severe enough
Primary Settlement	Fats, Oil & Grease Scum Removal System	UWWT	Sewage	C				Beddington Lane	3	2	6	Medium	Daily checks on primary treatment round		Tech 1	Often requires manual intervention
Primary Settlement	Fats, Oil & Grease Scum Removal System	UWWT	Sewage		Blockage	F	Hours	Beddington Lane	3	2	6	Medium	Jet the trap	L	Tech 1	
Primary Settlement	Primary Raw & SAS Transfer Pumping	UWWT	Raw sludge	C				Beddington Lane	4	2	8	Medium	Daily checks on primary treatment round		Tech 1	
Primary Settlement	Primary Raw & SAS Transfer Pumping	UWWT	Raw sludge		Failure / Blockage: high blanket level in PSTs	R	Weeks	Beddington Lane	5	2	10	Medium	Investigate cause and rectify / Unblock/ Process controller to make adjustments on SCADA to desludge time	M	Tech 1 / M&E	Impact on the PSTs only - Refer to the abnormal event "High blanket level in the PSTs"
Settled Sewage Transfer	Flow & Distribution to Secondary Treatment	UWWT	Settled sewage	C				Beddington Lane	2	1	2	Low	Runs in covered channels			Covered

Secondary Treatment (Biological)	Activated Sludge Plant Lanes & Zones	UWWT	Activated sludge	C				Beddington Lane	2	2	4	Low	Iron dosing to reduce H2S level on settled sewage		Tech 1	
Secondary Treatment (Biological)	Activated Sludge Plant Lanes & Zones	UWWT	Strong activated sludge		Lane drained down	P	Weeks	Beddington Lane	3	3	9	Medium	Hose down the lane	L	Tech 1	
Secondary Treatment (Biological)	Flow & Distribution to Secondary Settlement	UWWT	Activated sludge	C				Beddington Lane	1	1	1	Low				
Secondary Settlement	Final Settlement Tanks	UWWT	Final Effluent	C				Beddington Lane	1	1	1	Low	Tanks checked on secondary treatment rounds		Tech 1	
Secondary Settlement	Final Settlement Tanks	UWWT	Strong activated sludge		Tank drained down	P	Days	Beddington Lane	3	3	9	Medium	Hose tank down	L	TM	
Secondary Settlement	Final Settlement Tanks	UWWT	Strong activated sludge		Bridge / Scraper failure	R	Days	Beddington Lane	3	3	9	Medium	Hose tank down / Find cause and resolve	L	TM	
Secondary Settlement	RAS Chambers & Pumping	UWWT	Activated sludge	C				Beddington Lane	2	1	2	Low	Covered			Covered
Tertiary Treatment	Filtration - Disc Filters	UWWT	Final Effluent	C				Beddington Lane	1	0	0	Low	Covered			Covered
Tertiary Treatment	Filtration - Disc Filters	UWWT	Activated sludge		Drained down for maintenance	P	Weeks	Beddington Lane	1	1	1	Low	Hose it down	L	Tech 1	
Tertiary Treatment	Back Wash Returns	UWWT	Final effluent	C				Beddington Lane	1	1	1	Low				
Final Effluent	Effluent channel	UWWT	Final effluent	C				Beddington Lane	1	1	1	Low				
Final Effluent	Final Effluent	UWWT	Weak sewage		Discharging from storm tanks	R	Hours	Beddington Lane	2	1	2	Low	None	L	N/A	
Sludge Import	Sludge import	EPR	Raw sludge	I				Beddington Lane	3	2	6	Medium	Ensure tankers coupled correctly		Tech 1	
Sludge Import	Sludge import	EPR	Raw sludge		Spillage	R	Hours	Beddington Lane	3	3	9	Medium	Clean up ASAP		Tech 1	
Caess Reception, wash down and drainage	Works inlet	UWWTD/EPR	Sewage					Beddington Lane	3	2	6	Medium	closed coupled connections and a covered chamber, ensure tankers coupled correctly.		Tech 1	
Caess Reception, wash down and drainage	Works inlet	UWWTD/EPR	Sewage		Spillage	R	Hours	Beddington Lane	3	3	9	Medium	Clean up ASAP		Tech 1	
Sludge Conditioning (Indigenous)	Primary & SAS raw sludge screening	EPR	Raw sludge	C				Beddington Lane	4	1	4	Low	Enclosed units and odour controlled			Enclosed units
Sludge Conditioning (Indigenous)	Primary & SAS raw sludge screening	EPR	Raw sludge		Unit open for maintenance	P	Hours	Beddington Lane	4	2	8	Medium	Clean down unit	L	Tech 1 / M&E	
Sludge Conditioning (Indigenous)	Primary & SAS raw sludge screening - Skips	EPR	Raw sludge	C				Beddington Lane	3	2	6	Medium	Regular removal of skips		Tech 1	
Sludge Conditioning (Indigenous)	Primary & SAS raw sludge screening - Skips	EPR	Raw sludge		Hot weather	R	Days	Beddington Lane	5	3	15	High	Change skips more frequently	M	Tech 1	
Sludge Conditioning (Indigenous)	Primary & SAS raw sludge screening - Skips	EPR	Raw sludge		Skips not collected by contractors / Overflowing	R	Days	Beddington Lane	3	3	9	Medium	Clean up and chase contractors	M	Tech 1	
Sludge Conditioning (Indigenous)	Primary & SAS Raw Sludge Thickening & Pumping	EPR	Raw sludge	C				Beddington Lane	4	1	4	Low	Enclosed and odour controlled			Enclosed and odour controlled
Sludge Conditioning (Indigenous)	Primary & SAS Raw Sludge Thickening & Pumping	EPR	Raw sludge		Open for maintenance	P	Hours	Beddington Lane	4	2	8	Medium	Clean down	L	Tech 1 / M&E	
Sludge Conditioning (Indigenous)	Primary & SAS Raw Sludge Thickening & Pumping	EPR	Raw sludge		Sludge spillages	F	Hours	Beddington Lane	4	3	12	Medium	Wash down	L	Tech 1	

Sludge Conditioning (Indigenous)	Primary & SAS Raw Sludge Thickening & Pumping	EPR	Raw sludge		Failure	R	Days	Beddington Lane	4	1	4	Low	By-Pass	L	Tech 1	No impact on odour
Sludge Conditioning (Indigenous)	Return Liquors	EPR	H2S	C				Beddington Lane	5	1	5	Medium	Covered and odour controlled, daily checks as part of the sludge rounds.		Tech 1	Covered and odour controlled
Sludge Conditioning (Indigenous)	Return Liquors	EPR	H2S		Covers / hatches left open	R	Hours	Beddington Lane	5	3	15	High	Close hatches	L	Tech 1	
Sludge Treatment	Primary Digestion	EPR	Digested sludge	C				Beddington Lane	3	1	3	Low	Daily checks. PRVs monitored by SCADA. Temp, feed per day, gas quality and lab samples monitored daily.		Process controller / Tech 1	
Sludge Treatment	Primary Digestion	EPR	Poorly digested sludge		Failure of digester mixing leading to poorly digested and odorous sludge on Cake barn	R	Days	Beddington Lane and Crispin Crescent	4	2	8	Medium	Process monitoring. Find cause and rectify	L	Tech 1 / M&E	Major odour impact will be on the product stored on the Cake barn
Sludge Treatment	Primary Digestion	EPR	Poorly digested sludge		Temperature out of range leading to poor treatment and odorous sludge on Cake barn	R	Days	Beddington Lane and Crispin Crescent	4	3	12	Medium	Process monitoring / Find cause and rectify. If necessary tanker sludge from site.	L	/ Process Manager /	Major odour impact will be on the product stored on the Cake barn
Sludge Treatment	Primary Digestion	EPR	Poorly digested sludge		Overfeeding of digester leading to poor treatment and odorous sludge on Cake barn	R	Days	Beddington Lane and Crispin Crescent	4	3	12	Medium	Process monitoring / reduce feeding rate. If necessary tanker sludge from site	L	PCEs / M&E	Major odour impact will be on the product stored on the Cake barn
Sludge Treatment	Primary Digestion	EPR	Biogas		Significant release of biogas	R	Hours	Beddington Lane	5	4	20	High	Engines, CHP units, gas storage and flare stack are available to prevent significant biogas release. Process monitoring / Find cause and rectify	L	PCEs / M&E	Consider customer communication if frequency and / or duration of significant biogas venting presents an unacceptable risk of environmental harm
Sludge Treatment	Primary Digestion	EPR	Digested sludge		Sludge spillages	R	Days	Beddington Lane	3	2	6	Medium	Clean up	L	Tech 1	Consider customer communication if severe enough
Sludge Treatment	Primary Digestion	EPR	Digested sludge	Primary Digestion	Decommissioning digester	P	Weeks	Beddington Lane	3	2	6	Medium	Carried out as a dedicated project - odour risk is considered as the planning process	M	Process Manager	Low impact because the digesters are covered
Sludge Treatment	Secondary Digestion	EPR	Digested sludge	C					1	1	1	Low	Covered		Tech 1	
Sludge Treatment	Secondary Digestion	EPR	Digested sludge		Decommissioning digester	P	Weeks	Beddington Lane	3	2	6	Medium	Carried out as a dedicated project - odour risk is considered as the planning process	M	Process Manager	Low impact because the digesters are covered
Sludge Dewatering	Sludge buffer tanks	EPR	Digested sludge	C				Beddington Lane	3	1	3	Low	Daily checks of digestion process		Tech 1	
Sludge Dewatering	Beltpresses	EPR	Digested sludge	C				Beddington Lane	3	1	3	Low	Covered, cake discharged to covered storage area, regular cleaning and maintenance			Covered
Sludge Dewatering	Beltpresses	EPR	Digested sludge		Failure	R	Days	Beddington Lane	3	1	3	Low	Use stand-by unit and/or emergency storage tank. Contact service from Brettex, arrival the next day	L	Tech 1 / M&E	
Sludge Dewatering	Beltpresses	EPR	Digested sludge		Maintenance	P	Days	Beddington Lane	3	1	3	Low	Contact service from Brettex, arrival the next day	L	-	
Sludge Dewatering	Beltpresses	EPR	Digested sludge		Spillages	R	Hours	Beddington Lane	3	2	6	Medium	Clean up	L	Tech 1	
Sludge Dewatering	Liquor buffer tank	EPR	Ammoniacal	C				Beddington Lane	2	1	2	Low	Daily checks sludge round 3 - dewatering round. Pumps monitored via SCADA		Process controller / Tech 1	
Sludge Storage & Movements	Emergency sludge storage tanks - digested sludge	EPR	None					Beddington Lane			0	N/A	Keep empty unless in use			Not in use during normal operation
Sludge Storage & Movements	Emergency sludge storage tank - digested sludge	EPR	Digested sludge		Used	R	Days	Beddington Lane	3	2	6	Medium	Drain tank back to process as soon as possible	L	Tech 1	
Cake imports	Cake Barn (imports)	EPR	Digested sludge cake	I				Beddington Lane	2	2	4	Low	Cake in storage forms a crust after a day or two reducing risk of odour. No additional turning or handling during cake storage. Subject to pre acceptance checks. Tipper truck drop height less than 2m. Roof and walls provides wind barrier.			

Sludge Storage & Movements	Cake barn	EPR	Digested sludge cake	C				Beddington Lane and Crispin Crescent	2	2	4	Low	Cake in storage forms a crust after a day or two reducing risk of odour. No additional turning or handling during cake storage. Roof and walls provides wind barrier.		Biorecycling	
Sludge Storage & Movements	Cake barn (including cake imports)	EPR	Digested sludge cake		Moving cake	F	Hours	Beddington Lane and Crispin Crescent	2	3	6	Medium	Minimise movements	L	Vindor	
Sludge Storage & Movements	Cake barn (including cake imports)	EPR	Digested sludge cake		Excess cake stored	R	Days	Beddington Lane and Crispin Crescent	2	3	6	Medium	Manage cake stock. Ensure no more than 1170 m3 sludge stored in the 10 day Cake barn (planning condition 9), Ensure no more than 2340 m3 sludge stored in the 20day Cake barn (planning condition 9). No sludge cake to be stored other than on the Cake barns (planning condition 8). If necessary, truck excess sludge from site.	L	Vindor	Consider customer communication if prolonged due to lack of cake outlets
Sludge Storage & Movements	Cake barn	EPR	Poorly digested sludge		Poorly digested sludge leading to odorous cake	R	Days	Beddington Lane and Crispin Crescent	4	4	16	High	Remove from site/ Use odour spray systems to control odour	L	Process Manager / Team Manager / Vindor	See actions above for operation of the anaerobic digesters
Sludge Storage & Movements	Vehicle Movements	EPR	Digested sludge cake	I				Beddington Lane	2	2	4	Low	Covered vehicles, movements kept to a minimum			Covered vehicles
Sludge Storage & Movements	Vehicle Movements	EPR	Digested sludge cake		Sludge on wheels / Failure of wheel wash	R	Days	Beddington Lane	2	2	4	Low	Find cause and rectify	L	Tech 1 / M&E	
Biogas Systems	CHP	EPR	Combusted biogas	C				Beddington Lane	1	1	1	Low				
Biogas Systems	Boilers	EPR	Combusted biogas	C				Beddington Lane	1	1	1	Low				
Biogas Systems	Waste Gas Burner	EPR	Combusted biogas	I				Beddington Lane	1	1	1	Low				
Biogas Systems	Waste Gas Burner - Flare stack gas	EPR	Biogas / H2S		Failure of both CHP plant and flare stack allowing gas to escape from digesters	R	Hours	Beddington Lane	5	4	20	High	Repair failure. Two flares on site. PCE to contact waste operation control center, CHP team then contacted. Critical spares are held on site.	L	TM / M&E	Consider customer communication (EHO) if prolonged / EA to be contacted under EPR
Odour Control Packages	Biofilter and carbon	EPR	Earthy	C				Beddington Lane	1	0	0	Low				
Odour Control Packages	Biofilter and carbon	EPR	H2S		Failure	R	Days	Beddington Lane	4	3	12	Medium	Two stage treatment and continuous monitoring of outlet concentration with alarm settings. Investigate and rectify Standby fan built into the unit.	L	Tech 1 / M&E / Contrator	Consider customer communication unless fault resolved within one working day
Odour Control Packages	Biofilter and carbon	EPR	H2S		Maintenance	P	Days	Beddington Lane	4	3	12	Medium	Parallel bio filters so that one unit can provide treatment during carbon media replacement	L	Tech 1 / M&E / Contrator	