Odour nuisance reduction at a food industry wastewater treatment plant

Problem

The aim was to abate odours released from several points of the wastewater treatment plant serving a food industry facility. The challenge was to design the treatment system in a way that would ensure compliance with regulatory limits while keeping operating and capital costs as low as possible.

Solution

After identifying the various odour sources within the wastewater treatment plant, we carried out targeted interventions on each section. Selected tanks were covered, and photocatalytic filters were installed on top of them, eliminating the need for forced air extraction and the associated energy consumption.

Results

The treatment systems installed at the various points with significant odour emissions enabled odour abatement in full compliance with the limits set by current regulations.
A continuous odour monitoring system was installed, allowing 24/7 tracking of fallout at off-site sensitive receptors.
The analytical findings, carried out in the presence of the Regulatory Authorities (ARPAT – Tuscany Regional Environmental Protection Agency), returned highly positive results, confirming full compliance with regulatory limits.

Value for the client

- Interventions implemented at each emission point, gradually and in agreement with the regulatory authorities
- Ability to distribute interventions over time, starting with those most urgently required;
- Certainty of achieving the intended outcome of reducing odour impact;
- Optimisation of intervention timelines and related costs;
- Establishment of a broadly collaborative relationship with the regulatory authorities;

Pre-intervention situation

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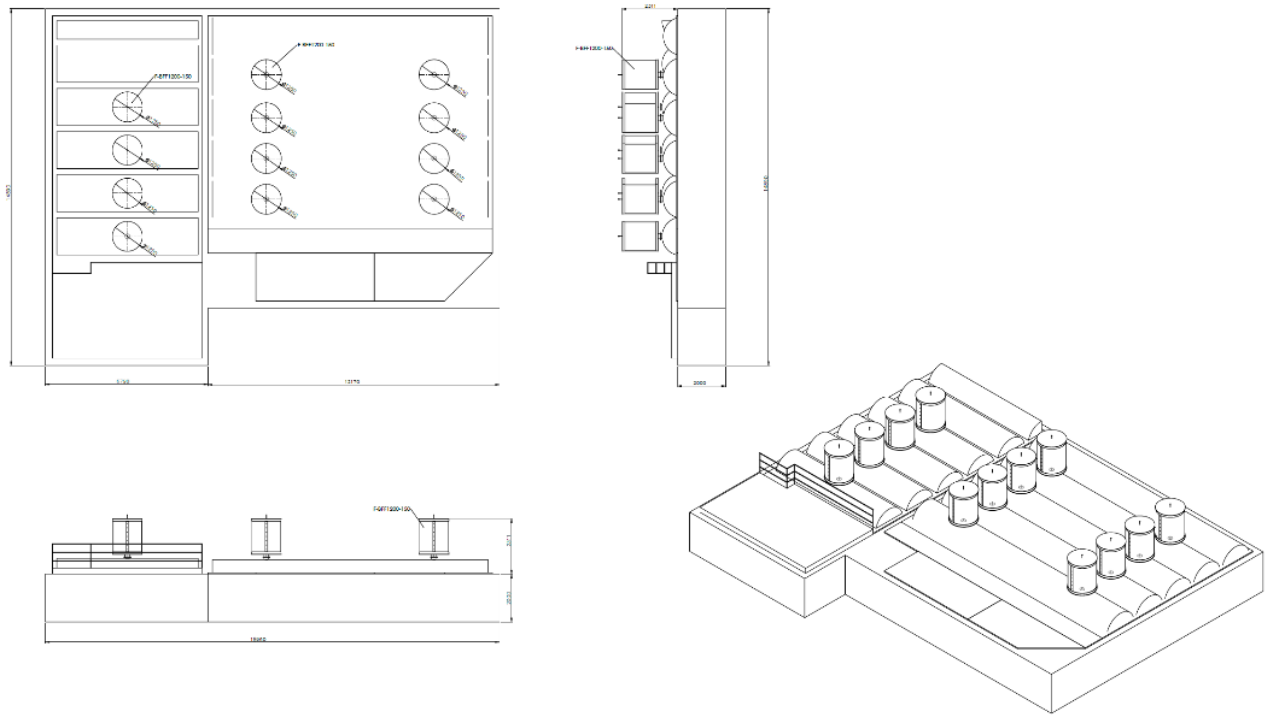
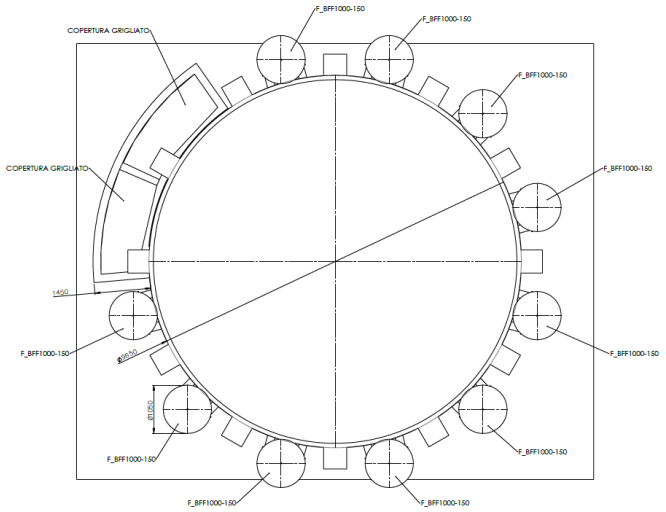
The Project

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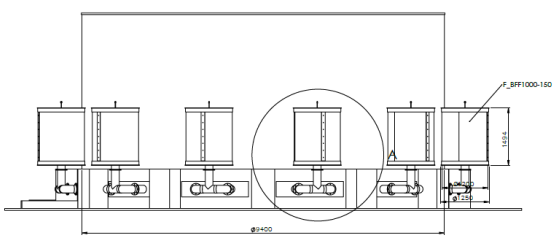
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Implementation

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The Outcome

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TESTING ACCREDIA 00923
Membro degli Accordi di Mutuo Riconoscimento EA e ILAC

Segue Rapporto di prova n°: **2601689-002** Pagina 2\5

Controllo:	1	2	3
Diametro ugello (mm):			
Flusso di aspirazione (lt/min):			
Volume aspirato normalizzato (lt):			
Data campionamento:	27/02/26-27/02/26	27/02/26-27/02/26	27/02/26-27/02/26
Ora inizio - ora fine:	11:10 - 12:10	12:10 - 13:10	13:10 - 14:10
Durata effettiva prelievo (min):	60	60	60

Prova	U.M.				Media	Dev. Std.	Limite	Metodo
COV (Composti Organici Volatili espressi come COT carbonio organico totale)	mg/Nm³	2,87	2,79	2,84	2,83	0,04		UNI EN 12619:2013/EC1:2013
	Incertezza di misura:	± 0,32	± 0,31	± 0,31	± 0,31			

Controllo:	1	2	3
Diametro ugello (mm):			
Flusso di aspirazione (lt/min):	1,5	1,5	1,5
Volume aspirato normalizzato (lt):	84,18	84,74	84,46
Data campionamento:	27/02/26-27/02/26	27/02/26-27/02/26	27/02/26-27/02/26
Ora inizio - ora fine:	11:05 - 12:05	12:08 - 13:08	13:10 - 14:10
Durata effettiva prelievo (min):	60	60	60

Prova	U.M.				Media	Dev. Std.	Limite	Metodo
ammoniaca (NH3)	mg/Nm³	< 0,083	< 0,083	< 0,083	< 0,083			UNI EN ISO 21877:2020
	Incertezza di misura:							

Controllo:	1	2	3
Diametro ugello (mm):			
Flusso di aspirazione (lt/min):	1	1	1
Volume aspirato normalizzato (lt):	56,65	56,65	56,37
Data campionamento:	27/02/26-27/02/26	27/02/26-27/02/26	27/02/26-27/02/26
Ora inizio - ora fine:	11:05 - 12:05	12:08 - 13:08	13:10 - 14:10
Durata effettiva prelievo (min):	60	60	60

Prova	U.M.				Media	Dev. Std.	Limite	Metodo
idrogeno solforato (H2S) *	mg/Nm³	< 0,02	< 0,02	< 0,02	< 0,02			UNI 11574:2015
	Incertezza di misura:							

Controllo:	1	2	3
Diametro ugello (mm):			
Flusso di aspirazione (lt/min):	0,5	0,5	0,5
Volume aspirato normalizzato (lt):	28,28	28,18	28,28
Data campionamento:	27/02/26-27/02/26	27/02/26-27/02/26	27/02/26-27/02/26
Ora inizio - ora fine:	11:09 - 12:09	12:10 - 13:10	13:11 - 14:11
Durata effettiva prelievo (min):	60	60	60

Prova	U.M.				Media	Dev. Std.	Limite	Metodo
SOV (Sostanze Organiche Volatili)	mg/Nm³	< 0,35	< 0,35	< 0,35	< 0,35			UNI CEN/TS 13649:2015
	Incertezza di misura:							

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Segue Rapporto di prova n°: **2601689-002**

Controllo:		**1**	**2**	**3**				
Diametro ugello (mm):								
Flusso di aspirazione (lt/min):								
Volume aspirato normalizzato (lt):								
Data campionamento:		27/02/26-27/02/26	27/02/26-27/02/26	27/02/26-27/02/26				
Ora inizio - ora fine:		11:50 - 11:52	12:30 - 12:32	13:42 - 13:44				
Durata effettiva prelievo (min):		2	2	2				
Prova	**U.M.**				**Media**	**Dev. Std.**	**Limite**	**Metodo**
Concentrazione di odore	u.o./m³	152	117	181	150	32		UNI EN 13725:2022- escluso 9.1.4.3
	Incertezza di misura:	[84 - 261]	[65 - 201]	[101 - 311]	[83 - 258]			