EMERGENCY SITUATION MONITORING FOR INDUSTRY

CHALLENGE

A disturbance in the industrial process, i.e. when wastewater of abnormal quality or quantity is suddenly discharged to the municipal wastewater treatment plant (WWTP), cause specific challenges for the treatment process at the WWTP. In these situations, in addition to monitoring instruments, well-functioning and clear communication between the municipal WWTP and industry is crucial, and it is decisive to agree on the course of action.

SOLUTION: EXCEL BASED TOOL FOR EMERGENCY SITUATIONS

The purpose of the tool is to give clear situation-dependent instructions for the industrial operator, thus "translating" the accidental load to terminology that the WWTP industry operator understands.

In emergency situations, industry operators in control rooms determine the content and estimate the amount of the leak. When the operators feed the parameters into the tool, it can estimate the severity of the leak (no problem/intermediate/emergency) for the sewer, and is able to give instructions to the operator on how to proceed. If the tool gives an order to contact the wastewater treatment plant, the industry operator is able to give essential information to the duty officer of the WWTP, who can start actions to mitigate the leak.











INSTRUCTIONS AND GUIDELINES

- 1. Determine all essential raw materials, intermediate products and final products which can leak into the sewer
- 2. Determine corresponding key parameters of products important to the waste water treatment plant (e.g. COD, BOD and fats)
- 3. Write excel formulas which calculate the loads during a leak using the volume and concentration of the components during the leak
- 4. Announcement levels are agreed together with the WWTP and industry
- 5. Train the industry operators and WWTP duty officers together!

Estimates used e.g. in the dairy industry

For COD: 1kg COD per 1kg carbohydrate, 1.5kg COD per 1 kg protein and 3kg COD per 1kg fat

For BOD: for milks, multiply COD by 0.60-0.65, for creams by 0.5, and for whey by 0.7

31-Dec

1971.420

30-Nov

For Nitrogen: divide the protein content of the product by 6.38.

31 Products of department 3								
32 Product 7								
33 Product 8			CALL IMMEDIATELY TO THE WASTE WATER TREATMENT PLANT					
34 Internediate products			Mon- Fri daily from 7 am to 4 pm phone					
s Interemdiate product 1 10 000			The other hours the duty officer phone					
36 Intermediate product 2			Tell to the duty officer that there has been an accidental leak					
37 Intermediate product 3		and tell the lead figures mentioned below this text.						
38 Intermeduate product 4								
39 Wastes			Send this file to the duty officer as soon as possible to address					
40 Waste 1	Waste 1		@wastewater.com					
41 CIP liquids								
2 Add 1 %			CALL ALSO IMMEDIATELY TO OUR OWN ENVIRONMENTAL MANAG					
43 Caustic 1%				phone				
44 Strong caustic 50%				Sen this file also to herihim as soon as possible				
45 Strong acid 60%			env.manager@					
46								
47								
45								
50	Leak	COD	BOD,	Phosphorus	Nitrogen	Fat		
51	1	kg	kg	kg	kg	kg		
Information of the leak for water treatment	Waste 10 000	2 000	1 300	1	5	10		



HISTORY OF THE TOOL

The tool was originally developed for the dairy company Valio Haapavesi, Finland site, to standardise communication with the municipal WWTP in the case of a severe leak to the sewer. Earlier, all of the Valio dairy sites had written emergency instructions to call the WWTP once they noticed a leak. The instructions contained a list of products with limit values for the call but were too difficult to find and understand at Valio. The dairy operators sometimes failed to inform the WWTP as they underestimated the situation or the duty officers at the WWTP did not understand what the leak meant for the treatment process and failed to take the necessary precautions.





For more info: www.bestbalticproject.eu Project BEST- Better Efficiency for Industrial Sewage Treatment







