



# Idea Submission

*Good Practice name: Modernization of deaerator  
Zone: Europe*

*BU, Brewery: Ivanovo*

*Category:*

*Date: 03/06/2019*

# Summary

Для снижения кислорода в питательной воде для парогенератора в котельных установлен деаэраатор. в него поступает конденсат и свежая вода и паром происходит деаэрация. Пар в деаэраатор подается постоянно, потому что он соединён с атмосферой и условие подачи пара это поддержание уставки по давлению в деаэрааторе таким образом деаэраатор это постоянная составляющая в потреблении тепла

To reduce oxygen in the feed water for the steam generator, a deaerator is installed in the boiler rooms. condensate and fresh water enter it and deaeration occurs with steam. Steam to the deaerator is supplied continuously, because it is connected to the atmosphere and the condition for steam supply is to maintain the set point in the deaerator, so the deaerator is a constant component in the heat consumption

BEFORE

Идея состоит в том, чтобы модернизировать деаэраатор, использовать восстановленное тепло для нагрева свежей питательной воды и конденсата, а также открывать клапан подачи пара в деаэраатор только в тот момент, когда в него подается свежая вода и не деаэрировать конденсат, в котором нет кислорода

The idea is to upgrade the deaerator, use the recovered heat to heat fresh feed water and condensate, and also open the steam supply valve to the deaerator only when fresh water is supplied to it and not deaerate condensate that is not oxygenated

IDEA

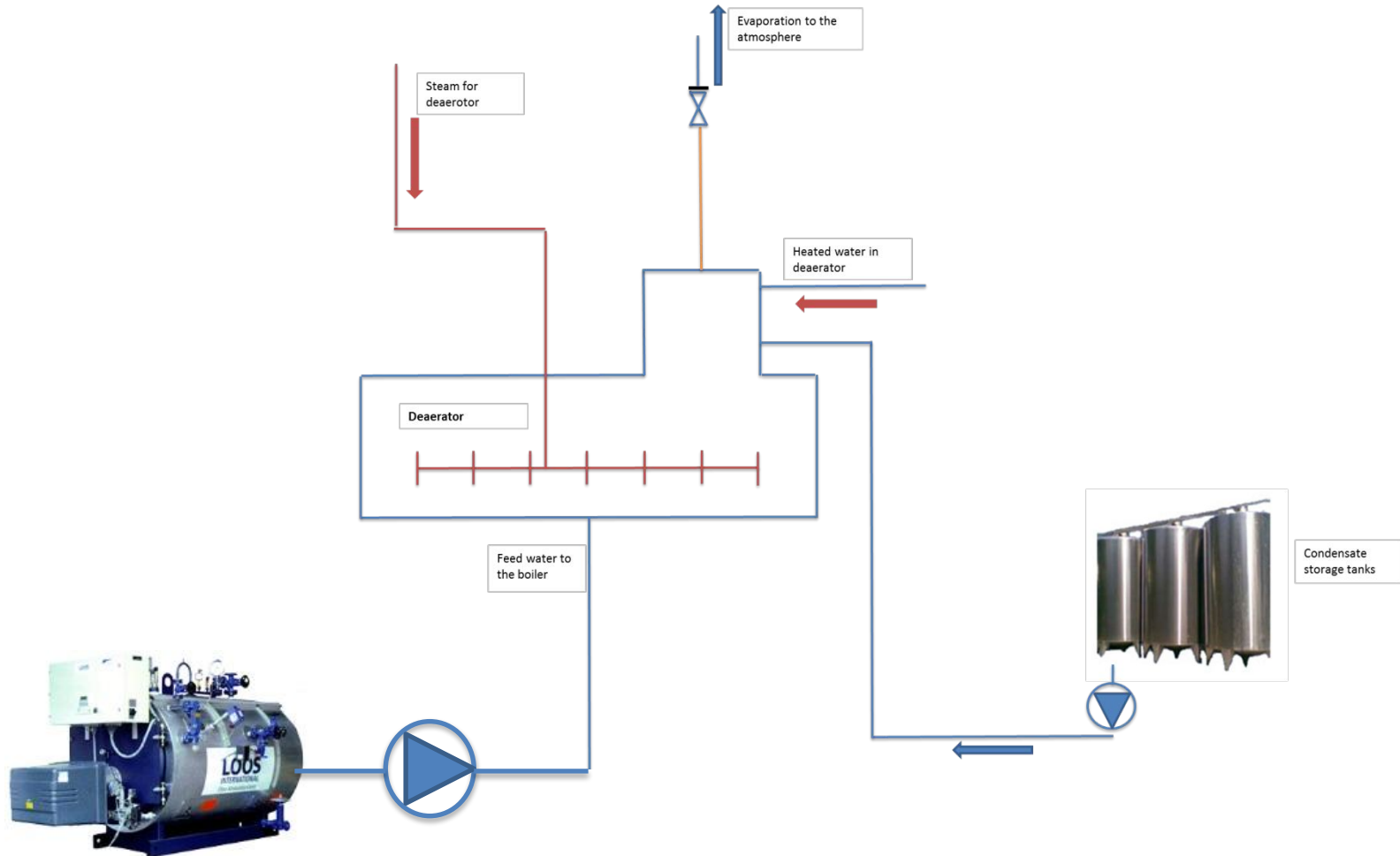
Результатом внедрения данной инициативы было большое снижение потребления тепла на деаэраатор

The result of the implementation of this initiative was a large reduction in heat consumption at the deaerator

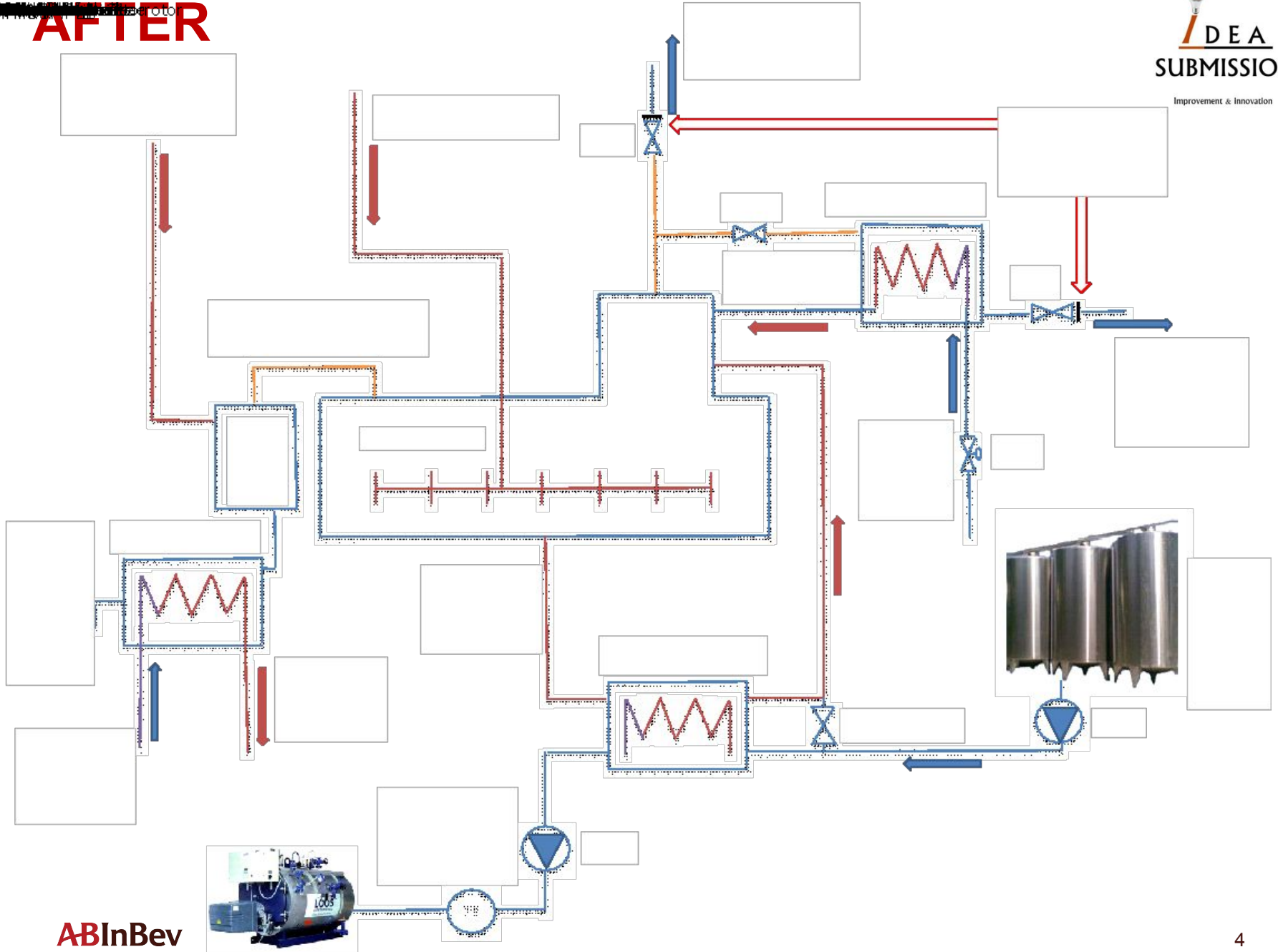
RESULT

# BEFORE

Deaerator scheme.



**AFTER**



# IDEA

Please describe the idea.

- Washers of smaller diameter were installed on the steam from the deaerator
- First recovery circuit:

*Fresh water passes through the heat exchanger 2 where the vapor from the deaerator is heated from 15 ° C to 95 ° C*

- Second recovery circuit:

*The steam-condensate after continuous blowing of the boiler passes through the separator and then in the heat exchanger 3 heats the water in the hot water supply of the plant.*

- Thee recovery circuit:

*Feed water with a temperature of about 104 ° C enters the heat exchanger 1 and heats the condensate, which comes from the condensate storage tanks and goes to feed the deaerator. The feed water after the heat exchanger 1 is heated by an economizer before entering the steam generator.*

*IMPORTANT - The feed water temperature should not be below 85 ° C , therefore a temperature sensor is installed at the outlet of the heat exchanger 1 and in the case of a temperature drop below 85 ° C , condensate enters the deaerator through valve K5 bypass*

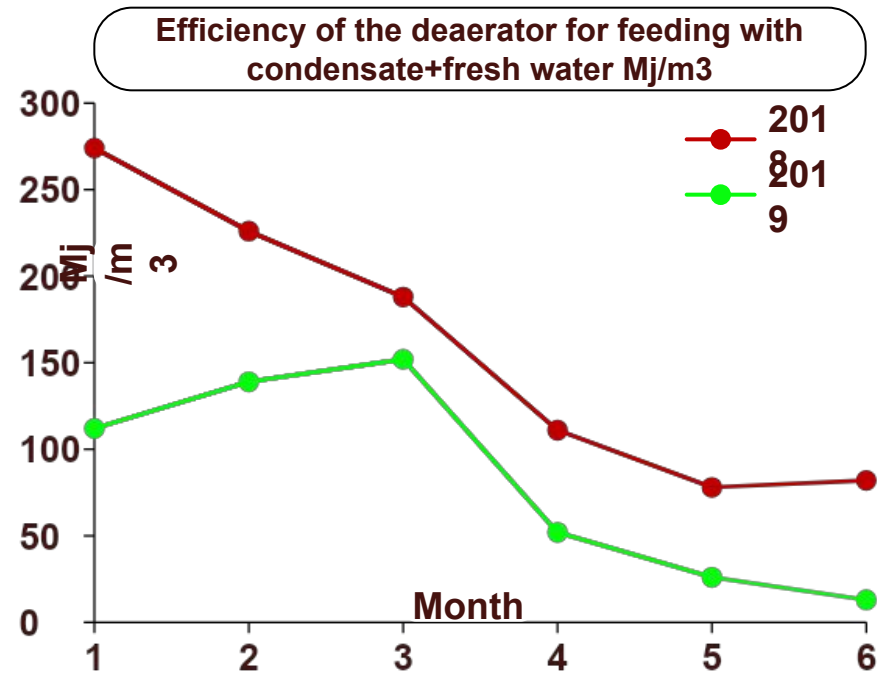
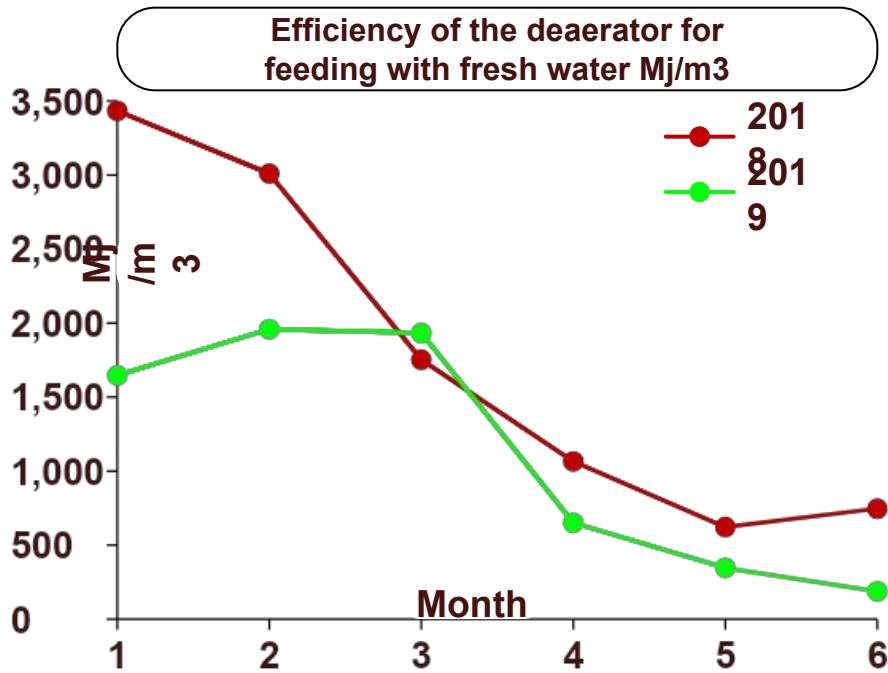
# IDEA

## Savings

Total savings amounted to about 3.8 MJ / Hl in year

Given the low cost of gas for Russia (\$ 0.08 / m<sup>3</sup>), the idea saved about 6 k\$

Bellow you can see a reduction in heat consumption per 1 m<sup>3</sup> of make-up water in the deaerator



Please select the achieved improvement(s) or innovation(s).

[x]	Type of improvement	Explanation
	Improved Communication	
	Improved Customer relations	
[x]	Savings of energy, materials or resources	The result of the implementation of this initiative was a large reduction in heat consumption at the deaerator
	Improved workplace organization	
	Increased Market share	
	Improved POC execution	
	Improved processes	
	Improved productivity	
	Improved quality	
	Improved environment, health or safety	
	Improved supplier relations	

# Idea Owner

Idea Ownership	
Name of idea owner	Alexey Moskalenko, Vlasov Viktor, Kalenov Sergey, Gavrilov Alexey
Function	Supply
Department, Brewery	Technical Service
Recognition	
Contact person in case of selection	Alexey Moskalenko