

# SLICK DUCT SERVICES<sup>®</sup>

SDN BHD

## Case Study

RZ -ECOSEAL

# Introduction

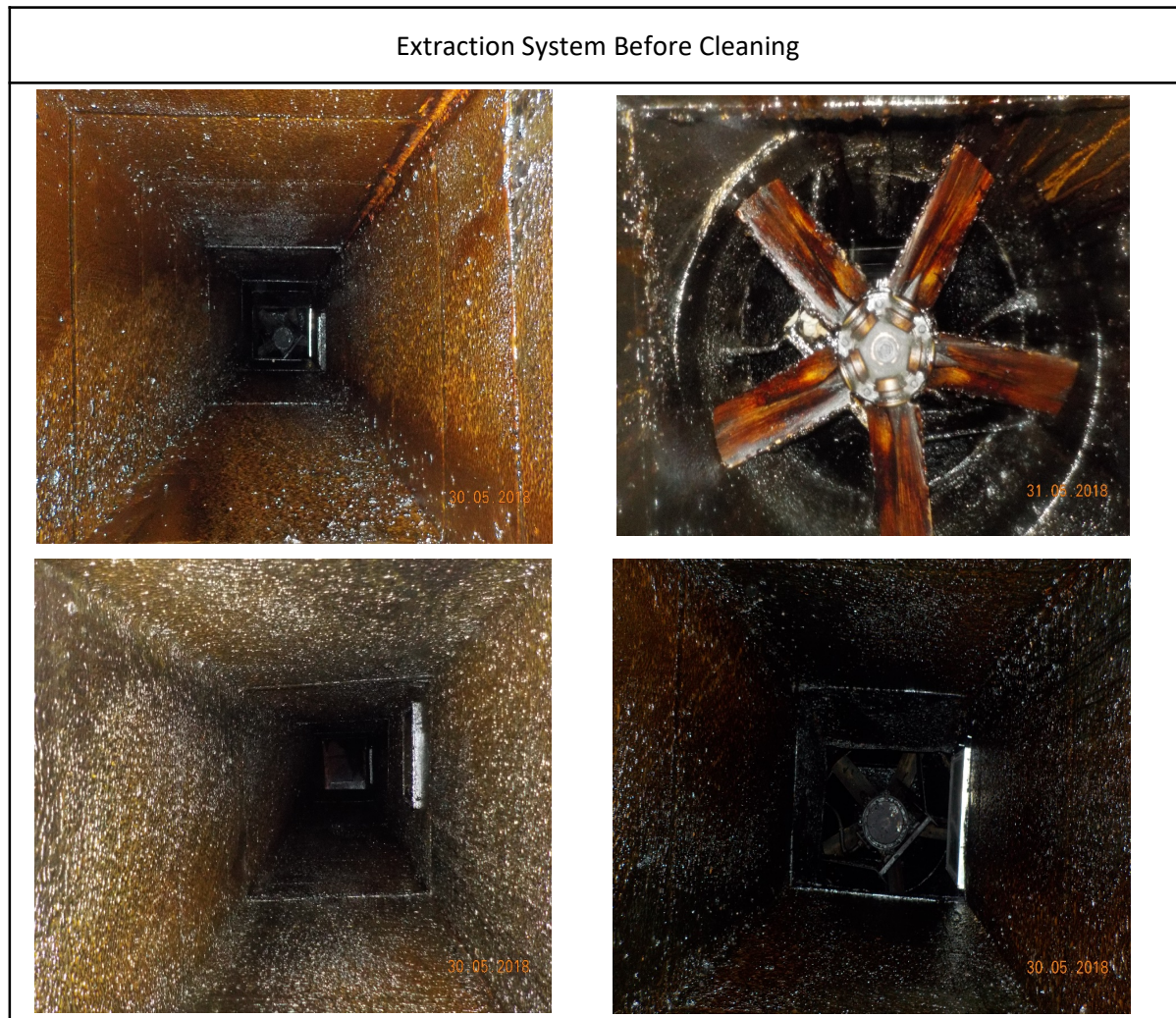
"A study into the problems Eureka Popcorn Factory faced with their Extraction System and why they opted for RZ-Ecoseal as their long term ducting solution"

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System maintenance handed over to Slick Duct Services in 2018

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**Analysis of 1st Maintenance done by Slick Duct Services on 30th May 2018**

System Grease Accumulation	Extremely High. Layers of oil above critical depth ( 3175 microns // 0.125mm ) hence system is in dire need of maintenance to avoid further system compromise.
System Condition	System is an immediate fire risk due to high amounts of grease throughout ducting. High amounts of puddles and carbonized oil found along ducting system.
Production Conditions	Production area is extremely hot and floors covered in grease ( hot air and grease not being removed efficiently due to condition of system) . Constant leaks from system onto ceiling boards and floors.





System Condition after Maintenance	Low. Layers of oil below 50 Microns (0.002mm) and is no longer a fire risk	
Findings after Maintenance	System maintenance took 2 days to complete with 4 manpower	
	Difficulty of maintenance work	High
	System will still leak if maintenance not done every 3-4 months	
Production Conditions	Quality of air in production area has improved and is not as hot and stuffy as before. Drip Pans installed to avoid leaking onto ceiling boards.	
Initial System Maintenance Recommendations	System is to be cleaned every 4 months or mayr risk being compromised due to high accumulations of grease and type of food production done.	

## Analysis of System Condition after every 6 Months of Production



System Grease Accumulation	Extremely High. Layers of oil above critical depth ( 3175 microns // 0.125mm ) hence system is in dire need of maintenance to avoid further system compromise even though system was fully cleaned during last maintenance
System Condition	System is an immediate fire risk due to high amounts of grease throughout ducting. Puddles and carbonized oil found along ducting system.
Production Conditions	Production area gets hotter as time goes by ( hot air and grease not being removed efficiently due to condition of system) . Leaks from system into drip pans and floors.

## **Overall Analysis of Eureka Andalus Extraction System**

### Systems Grease Accumulation

From data gathered we can see that even though system is maintained every 6months like initially recommended accumulation of grease within system still exceeds critical levels of 3175 Microns leaving system in dire need of maintenance before scheduled maintenance date. Grease pans also constantly full and need to be changed to avoid leakages.

### System Condition

System is an immediate fire risk after less than 26months of production due to high production rate and type of food production done .( Popcorn Factory ) Due to the production rate the system accumulates grease within it at an extremely fast rate leaving puddles along the duct which in kind will definitely cause leaks and compromise the system long term.

### Production Conditions

Production area also accumulates heat and grease at an alarming rate creating a stuffy and unpleasant work experience once Extraction System is not running efficiently. Leaks from vertical ducts onto the floors and heat escaping from the due to it not being fully encapsulated.

### Conclusion

Current plan of action does not work and will lead to system compromise in the future. Taking into account the rate of production and the type of cooking the regular maintenance of 6 months once proves to not be enough. Furthermore, extraction system also will suffer in the long run because it is not able to keep up with the demands of the production area. Lastly, the production area also takes a hit creating a workspace that is less than ideal affecting the business in the long run.

### Problem Statement

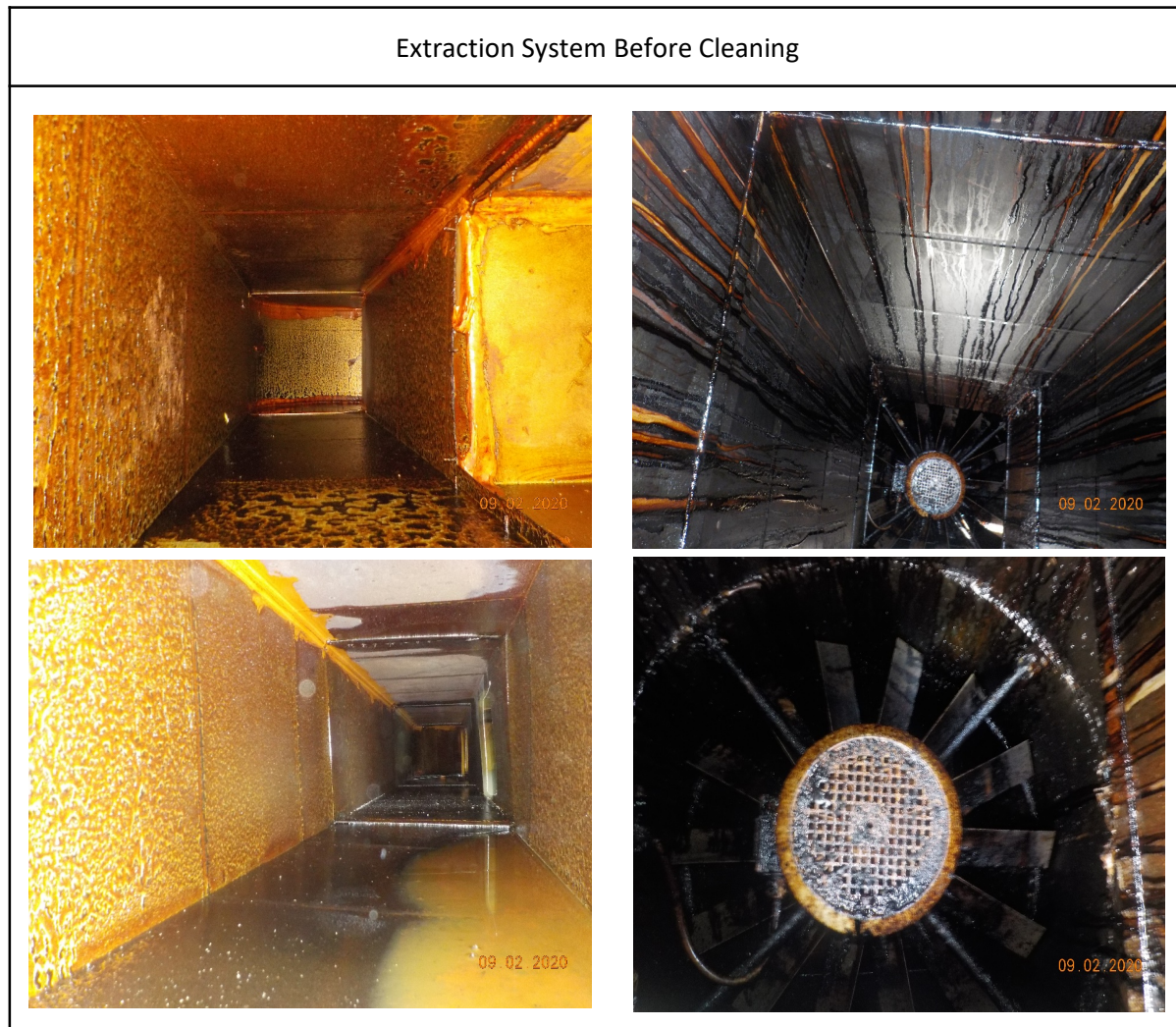
To overcome leaking and grease accumulation problems throughout system to protect it from being compromised and improve heat issue within the production area to create a more efficient workspace.

### Slick Duct Services Recommendation

Due to the type of cooking and production rates Slick Duct Services recommends changing cleaning frequency to every 4 months ( 3 X Per Yer)



## Analysis of System Condition after frequency change to every 4 Months of Production



System Grease Accumulation	High. Layers of oil above critical depth ( 3175 microns // 0.125mm ) hence system is in dire need of maintenance to avoid further system compromise even though system was fully cleaned during last maintenance .
System Condition	System is an immediate fire risk due to high amounts of grease throughout ducting. Puddles found along system however less carbonized oil within system .
Production Conditions	Production still hot( hot air and grease not being removed efficiently due to condition of system) . Leaks still persistant from system into drip pans and floors.

## **Overall Analysis of Eureka Andalas Extraction System After Frequency Change**

### Systems Grease Accumulation

From data gathered we can see that even though system is maintained every 4 months like recommended however accumulation of grease within system still exceeds critical levels of 3175 Microns leaving system in dire need of maintenance before scheduled maintenance date. Grease pans also constantly full and need to be changed to avoid leakages.

### System Condition

System is a fire risk after less than 4 months of production due to high production rate and type of food production done .( Popcorn Factory ) Due to the production rate the system accumulates grease within it at an extremely fast rate leaving puddles along the duct which in kind will cause leaks and compromise the system long term.

### Production Conditions

Production area still accumulating heat and grease high rates creating a stuffy and unpleasant work experience once Extraction System is not running efficiently. Leaks from vertical ducts onto the floors and heat escaping from ductings not solved with frequency change.

### Conclusion

Even after frequency change to every 4 months once accumulation proves to be at risky levels and may compromise the extraction system in the long run . With the current rate of production it is recommended to view other options to avoid extraction system becoming a massive problem in the future .

### Problem Statement

To overcome leaking and grease accumulation problems throughout system to protect it from being compromised and improve heat issue within the production area to create a more efficient workspace.

**Problem Statement not met still sustained .**

### Slick Duct Services Recommendation

Due to the type of cooking and production rates to avoid large cleaning cost at short intervals Slick Duct Services recommends the application of RZ Ecoseal throughout the entire Extraction System.



## Analysis of RZ-Ecoseal application done by Slick Duct Services.

Extraction System Before Cleaning



System Grease Accumulation	High. Layers of oil above critical depth ( 3175 microns // 0.125mm ) hence system is in dire need of maintenance to avoid further system compromise.
System Condition Before Rz-Ecoseal	System is an immediate fire risk due to amounts of grease throughout ducting. Puddles also found along ducting system.
Production Conditions	Production area gets hotter as time goes by( hot air and grease not being removed efficiently due to condition of system) . Leaks from system into drip pans and floors.





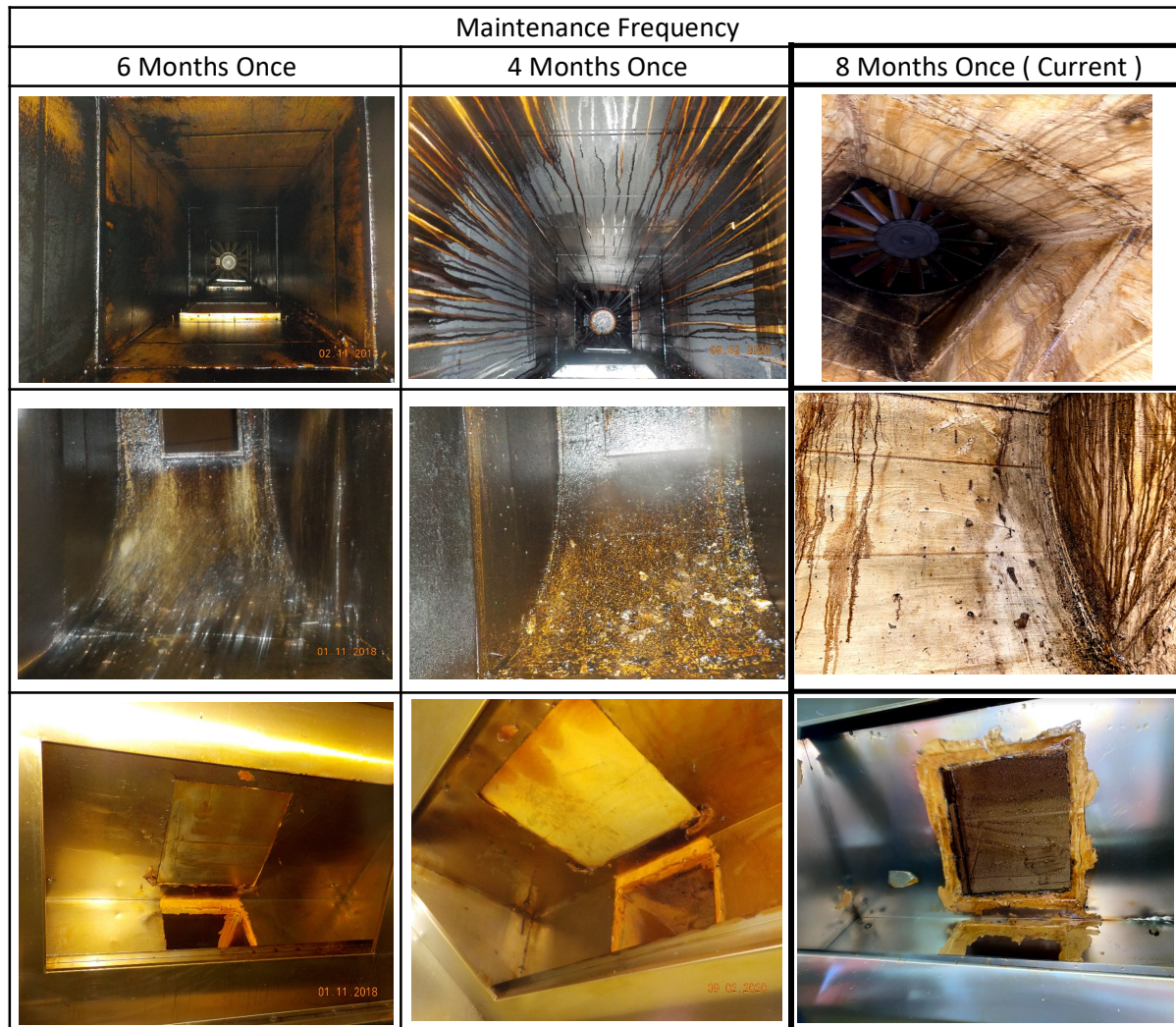
System Condition after Maintenance	Zero grease left . Layers of oil below 50 Microns (0.002mm) and is no longer a fire risk.	
Ducting Condition before Application of Rz-Ecoseal	System preparation took 2 days to complete with 4 manpower	
	Difficulty of maintenance work	HIGH
	System is ready for application of RZ-Ecoseal.	



System Condition after Maintenance	Zero grease left . Layers of oil below 50 Microns (0.002mm) and is no longer a fire risk. System is also fully encapsulated and protected.	
Ducting Condition after Application of Rz-Ecoseal	Rz-Ecoseal applied to entire ducting system excluding fan	
	Difficulty of maintence work after application	Low
	System is to be maintained by authorized personal to avoid any damage to Rz-Ecoseal	



## Comparitive Analysis of Extraction System



No RZ-Ecoseal	No RZ-Ecoseal	Rz-Ecoseal Applied
<b>System Grease Accumulation</b>		
Extremely High. Layers of oil above critical depth ( 3175 microns // 0.125mm )	High. Layers of oil above critical depth ( 3175 microns // 0.125mm )	Med. Layers of oil above at acceptable micron depth before maintainence ( 2000 microns // 0.075mm )
<b>System Condition</b>		
Immediate Fire Risk	Fire Risk	Not at Risk
<b>Production Conditions</b>		
Bad	Bad	Good

Current system maintenance recommendation is most optimal.



System Condition	Minimal grease found thourhgout system . Layers of oil at 2000 Microns (0.075mm) and is no longer a fire risk however, is due for servicing.	
Ducting Condition after Application of Rz-Ecoseal	No more leaks found	
	Difficulty of maintenance work ( 4 man 1 Day )	LOW
	System is fully encapsulated and Rz-Ecoseal has adhered well to ducting	



## **Overall Analysis of Eureka Andalas Extraction System after Application of Rz-Ecoseal**

### Systems Grease Accumulation

From data gathered we can see that even though system is maintained x monthly accumulation of grease within system is still within acceptable levels of 50 Microns. Grease pans have also been removed due to the lack of leakages. Hence, system is functioning well.

### System Condition

System is not a fire risk after 6 months of production even with the high production rate and type of food production done .( Popcorn Factory ) No puddles or carbonized oil found within the system. System is also free of leaks and is fully encapsulated // protected. Suction improved dramatically and is still good even after 4 months of production.

### Production Conditions

Production area also does not accumulate heat and grease creating an ideal and comfortable work space. Leaks from vertical ducts onto the floors and heat have been solved with the introduction of RZ-Ecoseal.

### Problem Statement

To overcome leaking and grease accumulation problems throughout system to protect it from being compromised and improve heat issue within the production area to create a more efficient workspace.

Problem Statement is fulfilled hence recommendation is authenticated.

### Conclusion

With the introduction of Rz-Ecoseal the Extraction System has improved tremendously . System no longer leaks and is functioning at an amazing rate with improved suction since it is a fully encapsulated system. Rz-Ecoseal has proved to be the right solution for this Extraction System and has provided it with the ability to run efficiently and well. Cleaning cost have also been reduced as frequency has been increased to every 8 months.