



ScaleWatcher- Truck Radiator Protection (TRP) System

Case Study Final Monitoring Report

Gulf City Cleaning LLC- Nass Group

November 16, 2016



Objective(s):

- To duplicate and make a confirmatory case study results on the successful installation demo of ScaleWatcher (SW)- Truck Radiator Protection System attained in Nass Garage in KSA.
- To identify the economic impact on company's operational expenses on vehicles affected by overheating and other related problems to high valued assets such as trucks and other construction heavy equipment.
- To demonstrate an alternative safe and effective solution that will minimize or prevent the overheating problems and consequently increase the mileage of any vehicle.
- To prove that SW is a potential solution that will lessen unnecessary repair and maintenance of any overheating related problems of any vehicles.



Truck Radiator Protection System- Back Hoe Unit in KSA

- Installation was completed last June 20th of 2016 in a Back Hoe Unit that is regularly deployed in Nass Corp. projects in Saudi Arabia.
- The truck unit usually causes high maintenance expenses due to overheating problems which is due to poor cooling system of the radiator affected by scaling and corrosion. (Muddy circulating water was noted by the mechanic- Mr. Gerald.)
- The said unit is observed to overheat every 2-3 weeks after repair and maintenance.
- After installing SW- Radiator Protection System to treat the circulating water, the mechanic gave feedback that no overheating problem has occurred up to this date since June 20, 2016. (exactly 150 days up to this day- November 16, 2016)
- Laborious repair and maintenance by the company has been significantly avoided.
- Video and pictures is to be forwarded by the mechanic upon replacement of the circulating water coolant of the radiator once the unit has been returned to the garage after the completion of the on-going project.
- Written report is requested to fully document this development.
- The system is conclusively to be a **success**- initial positive results has been achieved as feedback by the mechanic. This activity is being duplicated in Gulf City Cleaning- Bahrain.



Gulf City Cleaning Cost Comparison \$ Before & After

Installation of SW Truck Radiator Protection System



Overview

- Installation of SW truck radiator protection system for Garbage Collection Unit with Truck # 642 was on Sept. 11, 2016 in Gulf City Cleaning Garage Area under the supervision of Mr. Dante Lustares
- Initial status of the said vehicle was noted by supporting it with pictures.
- Progress on the said application was closely monitored with the respective supervisor.
- Maintenance expenses based on records of overheating related problems on the said vehicle were identified as basis of economic analysis.

Repair & Maintenance Record of Truck#642 Due to Overheating

Date of Overheating	Cost of Spare Parts (BHD)	Labor Cost (BHD)
January 12, 2016	2.50	
August 02, 2014	2.50	
July 24, 2014	16.20	2.50
July 08, 2014	16.20	2.50
February 06, 2014	2.50	
January 08, 2014	831.00	
September 11, 2013	400.80	2.50
July 04, 2013	79.96	2.50
January 27, 2013	2.50	2.50
Total	1,354.16	12.50
Grand Total in BHD	1,366.66	



Analysis of Repair & Maintenance of Truck#642 V/s SW Truck Radiator Protection System

	Total Cost of Maintenance for 5 Years of Vehicle Usage	With ScaleWatcher (SW) Truck Radiator Protection System
Cost Comparison	BHD 1,366.66(as based on records)	BHD 95/unit
Preventive Features	NONE! Dependent on the company concern by the truck driver.	YES! Guaranteed protection of efficient radiator cooling capacity without muddy circulating water and high corrosion of the system
Warranty Period	None! Dependent on the durability and severity of the affected engine parts.	With guaranteed 5 years warranty period.
Average Expenses Per Year	BHD 273.332	BHD 19.00



Gulf City Cleaning Visual Comparison



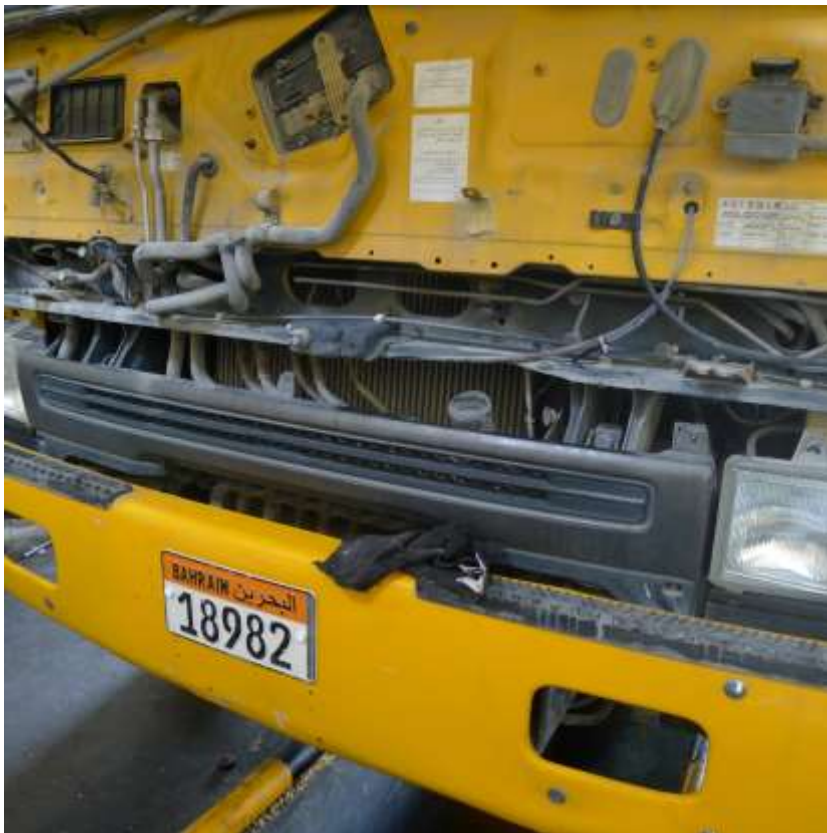
Before & After

Installation of SW Truck Radiator Protection System



Gulf City Cleaning
Garbage Collection Truck
Plate #18982 Body #642

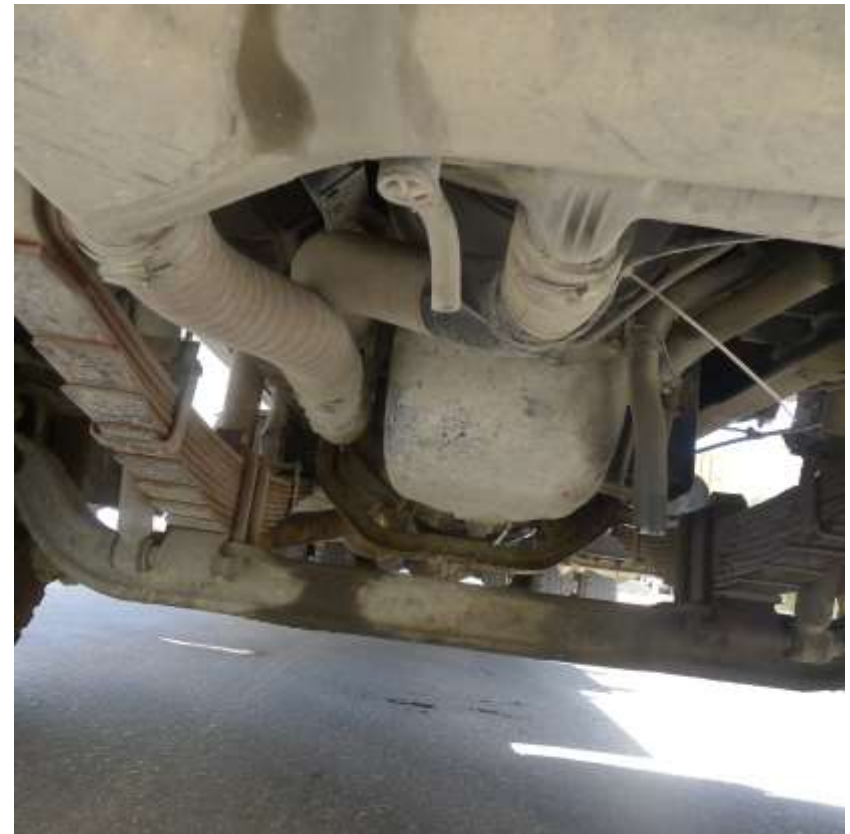
The SW TRP unit installed just under the pedals of the driver's seat area.



Side by Side Comparison

September 11, 2016- on the day of SW installation.

September 26, 2016- 15 days after installation.



Side by Side Comparison

September 11, 2016- Before SW installation. (**Rust** around neck)



September 26, 2016- 15 days after installation. (**No more rust**)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Jammed** system)

September 26, 2016- 15 days after installation. (**Clean** system)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Jammed** system)

October 23, 2016- 43 days after installation. (**Clean** system)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Jammed** system)

November 10, 2016- 60 days after installation. (**Clean** system)



Improvement of the Truck Radiator System from the day of Installation

0 day (**Bad**)

15th day (**Good**)

43rd day (**Better**)

60th day (**Best**)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Muddy**)

September 26, 2016- 15 days after installation. Actual status of the radiator cap directly after taking it off from the reservoir. (**Clean**)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Muddy**)

October 23, 2016- 43 days after installation.
Actual status of the radiator cap directly after taking it off from the reservoir.

(**Clean**)



Side by Side Comparison

September 11, 2016- Before SW installation. (**Muddy**)

November 10, 2016- 60 days after installation. Actual status of the radiator cap directly after taking it off from the reservoir. (**Cleaner**)



Improvement of the Truck Radiator System from the day of Installation

0 day (**Bad**)

15th day (**Good**)

43rd day (**Better**)

60th day (**Best**)



Side by Side Comparison: Trucks without and with SW-TRP System

Truck #661 **without SW** TRP system:
indicating a rusty radiator sludge

Truck #642 **with SW** TRP system for 60 days:
radiator cap and circulating water
indicating 80% reduction of rusty
radiator sludge.



Side by Side Comparison: Trucks without and with SW-TRP System

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radiator cap and circulating water
indicating 80% reduction of rusty
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Observations:

- Hard scaling that has developed through time in the truck radiator system has significantly softened.
- The muddy solution that was visible in the radiator system has been disappeared through time.
- The “usual” maintenance was no longer required for the radiator system even it has been more than 2 months of the time during which the system was at least required to maintain twice a month.
- There is no rely of any chemicals and no more expenses on the maintenance of the system or the other part of the engines that would get affected due to the less efficiency of the radiator earlier.
- The SW commercial has really worked on the radiator system of the truck and has made to appear as brand new without the usage of chemicals.



Recommendations:

- Monitor the status of the Truck Radiator System and check the inner surfaces of the system and compare to the records of expenses before the SW was installed.
- Check the status of the progress of conversion the red rust and the intensity of water leaking or the truck radiator heating up. This will heal through time by converting the red rust into its beneficial form- “Black Magnetite”.
- Regular check-up on the light indicators of the ScaleWatcher TRP system.
- ScaleWatcher TRP system is a perfect alternative that the **usage of coolant** is no longer required.
- Always secure that there is enough water in the radiator system as well as reservoir to provide an efficient cooling system.



To Repair or To Prevent?

Cost Comparison Analysis of Repair & Maintenance of Truck#642 Versus ScaleWatcher Truck Radiator Protection System

	Truck# 642 Maintenance Record for 5 Years of Vehicle Usage- without ScaleWatcher	With ScaleWatcher (SW) Truck Radiator Protection System
Cost Comparison	BHD 1,366.66 (as based on records)	BHD 95/unit
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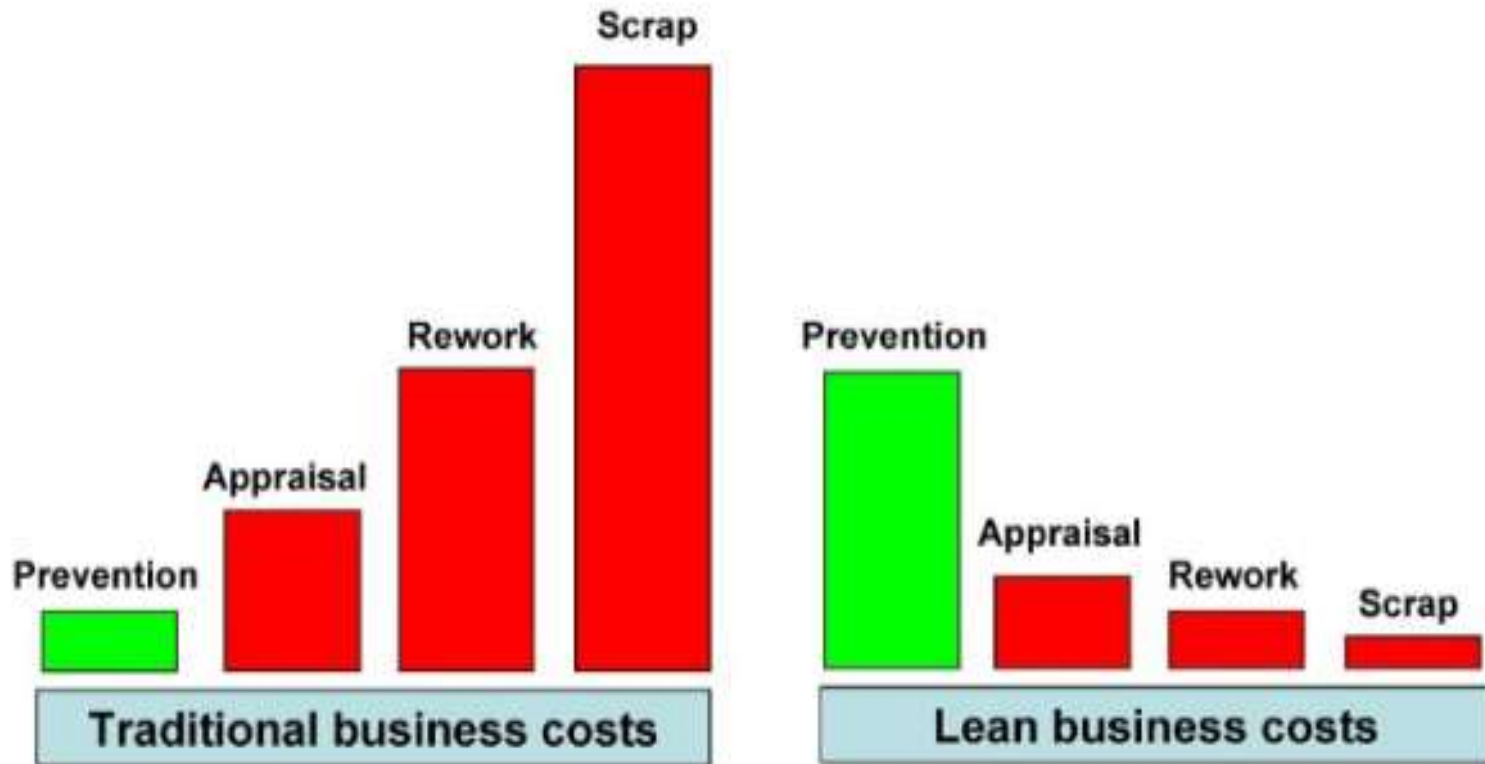
Conclusion

- A successful confirmatory case study on the installation demo of ScaleWatcher (SW)- Truck Radiator Protection System was done for GCC trucks for NASS.
- Economic impact on company's operational expenses on vehicles affected by overheating and other related problems to high valued assets such as trucks and other construction heavy equipment was identified and analyzed.
- Demonstration of an alternative safe and effective solution to minimize or prevent the overheating problems was studied.
- SW has proven to be a potential solution that will lessen unnecessary repair and maintenance of any overheating related problems of any vehicles.



Points to Ponder: Traditional Versus Lean Business Costs

Typical Business Expenditures



An Ounce of Prevention is
Worth a Pound of Cure
- Benjamin Franklin -



Benefits

ScaleWatcher will Save

- Money
- Energy
- Water
- Time
- Safe and Environmentally Friendly



The World Green Building Council specifies only NON-CHEMICAL water treatment such as the FMW/SW, currently registered with the US and UK Green Building Councils.





Your SERVICE
SPECIALIST in saving
water, money and
energy for the
Kingdom of Bahrain
and the rest of the
GCC Region



Team OperaKool #@yourservice

