TREATMENT OF WASTEWATER FROM SERVICE STATIONS

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All vehicles have to be serviced in order to maintain the vehicle in good condition. In servicing a vehicle there are three separate activities, viz. removal of spent engine oil, lubrication and body wash & cleaning under carriage. The types of detergents, used for each of the cleaning processes, are different. Also the contaminants added from the vehicles to the wastewater are also different. The main wastes generated are lubricants and oils that are washed away from the vehicles and detergents that are used at the time of servicing for cleaning purposes.

In Sri Lanka often the effluent from vehicle service stations are discharged to the environment without any treatment. This project was initiated with the objective of finding a solution to this problem by identifying the common constituents of the service station discharge wastewater and proposing a method of treatment based on improving the available treatment methods. This report is on the progress of the initial year of this project.

To prevent hazards to downstream users of these waste streams, it is important to treat the wastewater before discharging. To identify the characteristics of wastewater, the wastewater from three service stations, at The Faculty of Engineering, Mawanella and Eriyagama were studied. These were selected due to the proximity to the Faculty of Engineering, Peradeniya; and also due to the willingness of the managers to give their Wastewater samples for analysis. COD, Suspended Solids, Total Solids, Turbidity and pH of the samples were studied. In the absence of any specific discharge standard, the Sri Lanka Standard for Discharge of effluents to inland surface waters is used to quantify the results.

After a thorough literature review, data on available treatment methods were obtained. The methods identified are screening, sedimentation, oil-water separation, secondary sedimentation and reuse of water in the service station. The oil water separation step identified is flotation. Other available de-oiling methods are hydro-cyclone, centrifugation, dehydration, crystallization and distillation. The oil recovered in the oil-water separation step can be sold as it is, recycled, reprocessed, reclaimed or regenerated.

With the methodology identified, lab scale tests are being carried out in the Environmental Engineering Laboratory, of the Faculty of Engineering, Peradeniya, to get a practical and cost-effective wastewater treatment solution suitable for Sri Lanka.

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70