

EXECUTIVE SUMMARY

Department of Ecology’s Technical Resources for Engineering Efficiency (TREE) team worked with Encompass Materials Group, Ltd. (Encompass) to find ways to reduce their chemical use (particularly hydrofluoric acid), water use, and hazardous waste generation. Encompass focuses on reclaim services for 150- and 200-mm silicon wafers at the Vancouver, Washington facility. The TREE team made several site visits to the Encompass facility to observe the current process activities, gather data and identify potential opportunities. This report presents the TREE team's evaluation of Encompass’ best opportunities for reducing the use of process chemicals, use of water, reducing generation of wastes and reducing the associated costs.

Identified reduction opportunities are listed as quantified and non-quantified opportunities. The quantified opportunities are summarized in Table 1 below.

Encompass currently uses approximately 19,000,000 gallons of deionized water per year and generates 38,700 pounds of hazardous waste per year. By implementing all the identified opportunities Encompass can save 35 % of their deionized water usage and save 100 % of their hazardous waste generation. The reduction in hydrofluoric acid waste generation will result in Encompass moving from large quantity to small quantity generator status. Note that the opportunities identified in this report are not additive (i.e., implementing certain ones may exclude the benefits of others).

Table 1 – Quantified Opportunities for Encompass Materials Group, LTD					
Opportunity		Water Savings (gals/year)	Hazardous Waste Savings (lbs/year)	Cost Savings (\$/year)	Pay Back (months)
Strip and Etch Line					
1.	Covert to HF baths to HF/H2O2 mixture	-	38,700	\$31,100/year	0 months
2.	Reuse 3 rd rinse of each QDR	2,160,000	-	\$16,800/year	0 months
3.	Recycle all QDR rinses	6,480,000	-	\$50,500/year	15 months
Lapping Line					
4.	Reduce the number of QDR rinse cycles	216,000	-	\$1,700/year	0 months