

**Terminals Pty Ltd**  
**Improvement Action Report**  
**Terminals content updated on 4 August 2005**

<b>Element</b>	<b>Target Objective</b>	<b>Target</b>	<b>Status</b>	<b>Regulatory Sign off</b>
Safety Improvements	Install additional gas detectors in Propylene Oxide system	4 <sup>th</sup> QTR 2002	Complete 12/02	Installed as documented in the Safety Case to WorkSafe's satisfaction
	Install gas detectors for Acrylonitrile system	4 <sup>th</sup> QTR 2002	Complete 12/02	
	Install vapour suppression in Acrylonitrile bund	3 <sup>rd</sup> QTR 2003	Complete 12/02	
	Critical alarms connected to radio system	4 <sup>th</sup> QTR 2002	Complete 12/02	
	Review vapour return for ship loading in relation to prevention of flammable atmosphere	3 <sup>rd</sup> QTR 2003	Complete 12/03	
	Assessing connecting Acrylonitrile gas detectors alarms to activate fire brigade alarm and shutdown automated operations	1 <sup>st</sup> QTR 2003	Acrylonitrile not stored onsite anymore	

The Improvement Action Report was reviewed at the CCCCC meeting on 14 October 2004 (see approved minutes on the CCCCC web site ([www.ciccc.org](http://www.ciccc.org)))

EPA and WorkSafe are satisfied that the update of the Improvement Action Report, and their comments in the "Regulatory Sign Off" column, provides an accurate assessment of the progress with the specified improvements. Concerning the overall progress with the Improvement Action Report items, EPA and WorkSafe are satisfied with the progress made by Terminals Pty Ltd.

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Combustion Heat Recovery Feasibility Study	Assess the feasibility of recovering the combustion heat from the combustor for tank heating.	3 <sup>rd</sup> QTR 2003 (4 <sup>th</sup> QTR 2003)	Report complete and copy sent to EPA. Actions to be done in next EIP	

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Scrubber Solutions	Assess the feasibility of recovering the spent phenol - caustic scrubbing solution.	2 <sup>nd</sup> QTR 2003 (4 <sup>th</sup> QTR 2003)	Not able to do as HCCA unable to treat at their site	

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Independent High Level Alarms	Install independent high level alarms on Acrylonitrile, Toluene Diisocyanate and Acrylate storage tanks	4 <sup>th</sup> QTR 2004	Complete 3/03	

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Backup Power Supply	Install backup power supply for VECS and critical equipment	4 <sup>th</sup> QTR 2004	Complete 12/04	

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Stormwater Management Report	Conduct a stormwater management study and report as per licence condition	July 2002	Complete 7/02	Report accepted by EPA but identified actions not complete at 8/03
	Implement environmental noticeboard	9/02 (12/04)	Waiting on office consolidation on West Side	
	Incorporate stormwater plan into EMP	8/02	Complete 8/02	
	Implement routine maintenance program on outfall valves	8/02	Complete 8/02	
	Install roofs over high risk operational areas	12/04	Roofs installed over non haz area Plant B, TDI truckfill and Plant C truckfill	5 roofs completed to satisfaction of EPA 10/04
	Document & record pH meter calibrations	8/02	Complete 8/02	No longer relevant 10/04
	Install sample log of stormwater samples	10/02	Complete 8/02	
	Purchase Total Organic Carbon meter to test stormwater	12/02	TOC testing done by WSL in lieu of meter	No longer relevant 10/04
	Report on progress as part of annual report	3/03	Complete 3/03 & 3/04	

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Shipping Emergency Shutdown	Design system to alert site	3 <sup>rd</sup> QTR 2002	Complete 12/02	
	Implement system	1 <sup>st</sup> QTR 2003	Complete 12/02	Awaiting chance to confirm

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Tank Under Floor Liners	Refurbish and fit High Density Polyethylene liners to 6 flammable tanks	4 <sup>th</sup> QTR 2004	Complete 3/05	Typical liner installation accepted by EPA 2/04
	Commence pipe systems, truck loading system for these tanks	4 <sup>th</sup> QTR 2004	Complete 3/05	

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Plant A Groundwater Monitoring	Conduct groundwater monitoring at Plant A site	Ongoing	Monitoring done in 8/03 & 8/04 and report sent to EPA for 8/04	2003 monitoring accepted by EPA

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Segregate Site Stormwater and Operational Areas	Driveways/truckfill/drum fill and pump slabs	3 <sup>rd</sup> QTR 2003 (4 <sup>th</sup> QTR 2004)	Building drains diverted to stormwater Plant B new area complete Plant C truckfill complete 2/05	
	First flush pits (re sewer availability)	4 <sup>th</sup> QTR 2004	Still waiting on sewer	

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Training Assessments	Update for revised procedures	4 <sup>th</sup> QTR 2003	Initial assessments completed	

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Tank Integrity	Carry out investigation as per licence condition	3 <sup>rd</sup> QTR 2002	Complete	Completed to the satisfaction of EPA
	Conduct external inspections on 48 flammable/hazardous tanks	3 <sup>rd</sup> QTR 2002	Complete	Completed to the satisfaction of EPA
	6 Tanks needed repairs	3 <sup>rd</sup> QTR 2002	All tanks repaired	General standard of tank refurbishment satisfactory to EPA 2/04
	Internally check 48 flammable/hazardous tanks with full radiograph of floors	2 <sup>nd</sup> QTR 2004 (4 <sup>th</sup> QTR 2004)	All tanks complete	
	6 Tanks needed repairs	2 <sup>nd</sup> QTR 2004	All tanks repaired	

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Install Tank Pipework to Minimise Waste	Install to 10 acrylate tanks and 6 flammable tanks so that product left in tank reduced from 1,000 litres to <75 litres.	4 <sup>th</sup> QTR 2004	All tanks complete 3/05	Typical piping installation inspected / accepted by EPA 8/03

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Groundwater Protection	Extend sparge curtain to prevent off site passage of contaminated groundwater	2 <sup>nd</sup> QTR 2003 (4 <sup>th</sup> QTR 2004)	Reviewing as unable to access Marstel site	
		2 <sup>nd</sup> QTR 2003	Plastic piping replaced with steel pipes	Sparge curtain piping acceptable to EPA 10/04

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Acrylate Tanks (10 tanks)	Refurbish and fit High Density Polyethylene or impermeable liners under tank floors	3 <sup>rd</sup> QTR 2003	Complete 12/03	Completed to the satisfaction of EPA
	Install new piping systems for Acrylate tanks	3 <sup>rd</sup> QTR 2003	Complete 12/03	Completed to the satisfaction of EPA 2/04
	Install new exchange area at Plant C for Acrylates	4 <sup>th</sup> QTR 2003	Complete 12/03	Completed to the satisfaction of EPA 10/04
	Install seal truck loading system	4 <sup>th</sup> QTR 2003	Complete 12/03	Completed to the satisfaction of EPA 10/04

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Bund Report	Review adequacy of existing bunds to EPA guidelines	4 <sup>th</sup> QTR 2002	Complete	Report accepted by EPA but identified actions not completed at 8/03
	Install bund wall around Toluene Diisocyanate (TDI) loading point	2 <sup>nd</sup> QTR 2004	Complete 6/04	Completed to the satisfaction of EPA 10/04
	Install bund wall around Plant C gantry	3 <sup>rd</sup> QTR 2004 (4 <sup>th</sup> QTR 2004)	Complete 2/05	
	Install bund wall around drum storage area		Not feasible due to forklift access	

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**Note:** Bracketed and italic dates are revised completion dates

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New Vapour Emission Control System (VECS)	Operational and receiving Benzene vapours	4 <sup>th</sup> QTR 2002	Complete 11/02	Completed to the satisfaction of EPA
	Receiving Acrylate vapours Plant B	4 <sup>th</sup> QTR 2002	Complete 12/02	Completed to the satisfaction of EPA
	Install pressure sensors/remote alarms to all flammable/hazardous tanks on new Vapour Emissions Control System (VECS) —30 tanks in total	2 <sup>nd</sup> QTR 2003	Progressing 26 tanks complete	
	Fit tell tale seals to Emergency Relief Valves on all flammable/hazardous tanks on new VECS (30 tanks). (Action replaced with log of tank high pressure exceedances)	2 <sup>nd</sup> QTR 2003	Progressing 26 tanks complete	Log of high pressure exceedances acceptable to EPA 8/03
	Vapour return of Acrylonitrile vapours to ship	2 <sup>nd</sup> QTR 2003 (4 <sup>th</sup> QTR 2003)	Was completed but Acrylonitrile no longer on site	Acrylonitrile no longer held on site.
	Extend to remainder of site (to be on the system)	2 <sup>nd</sup> QTR 2003	All tanks now done except for 4	