

2009 Global Green Challenge Risk Management Assessment incorporating the World Solar Challenge

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Vehicle: Solar Shop Kelly – a two seater solar car

Vin # SASCC62

For this assessment please read:

- Competition Area as:
 - any location between Darwin and Adelaide as defined as the competition route between these two cities
 - Hidden Valley Raceway where scrutineering takes place
- Paddock as:
 - Any location between Darwin and Adelaide along the competition route where the team will stay over night during the competition
 - Any location between Darwin and Adelaide along the competition route where the team enters a check point or encounters a change over of drivers or support vehicles refuel etc.
- Spectator Area as:
 - Any location in Darwin or Adelaide or between these two cities where the general public or other competitors can view or discuss the entrant.

The following three CAMS Targeted Risk Assessments were used

Likelihood		Consequence
A – Almost certain	Action will probably occur numerous times or in many circumstances	4 – Major Consequence
B - Likely	Action may occur occasionally or in some circumstances	3 – Moderate Consequence
C – Possible	Action may occur in exceptional circumstances and has been known to occur elsewhere	2 – Minor Consequence
D - Unlikely	Whilst theoretically possible is not known to have occurred	1 – Insignificant Consequence

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Risk Type	Possible Hazard	Initial Assessment			Area of Risk			Possible Controls
		Likelihood	Consequence	Risk Score	Competition Area	Paddock Areas	Spectator Areas	
1. Fire Explosion								
	Vehicle Fire	C	1	Low	✓			<ul style="list-style-type: none"> • Car checked daily prior to competition for potential fire hazards • Officials/Competitors informed of location of fire extinguishers • Adequate fire extinguishers available within easy reach • Immediate stop and evacuation • Call emergency services if required
	Fuel Fire	C	2	Medium	✓	✓		<ul style="list-style-type: none"> • No smoking or naked flames in any areas where fuel may be stored • Limit how much additional fuel is needed and where stored • Create a designated refueling area supervised by Safety Officer(s) • Free standing fire extinguishers to be held within reach during refueling ensuring the correct type is at hand for the hazard • All team members briefed on refueling rules at original debrief and all updates
	Grass/Bush Fire	C	2	Medium	✓	✓	✓	<ul style="list-style-type: none"> • Establish an emergency evacuation point • Discuss evacuation plan at original debriefing and update regularly based on terrain • Liase with Global Green Challenge Safety Officer for all updates • Be aware of State Emergency Services and local Fire Brigade locations for the area team is travelling through
	BBQ Fire	D	3	Medium		✓	✓	<ul style="list-style-type: none"> • BBQ to be located in an area away from fuel • BBQ to be set up on firm level ground • Be aware of any fire restrictions (Total Fire Bans)
2. Equipment								
	Trailers blocking traffic	B	2	High		✓	✓	<ul style="list-style-type: none"> • Designate a trailer park - firm and flat ground • Safety Officer prior to event to designate area(s) suitable
	High pressure propellant cylinders	D	4	High	✓	✓		<ul style="list-style-type: none"> • Cylinders to remain upright and secure at all times-they must be secured at a point approximately 2/3 of its height using appropriate material -chain, wire cable or commercially available cylinder straps • All operators of cylinders to be trained in its use. • When receiving gas cylinders: <ul style="list-style-type: none"> ○ Check for leaks ○ Visually inspect the cylinder for damage ○ Ensure the valve cover and shipping cap is on. ○ Check for labelling of cylinders - for gas identity and use tags on cylinders to inform of status. ○ When moving cylinders don't drag roll, or slide-use a trolley • Cylinders should be segregated by hazard class, and must be separated from flammable gasses by 20 feet
	Vehicle falling off stand or jack	C	4	Extreme	✓	✓		<ul style="list-style-type: none"> • All mechanical work to be carried out on flat firm surfaces • Unlifted wheels to be chocked
3. Dangerous Goods								
	Fuel Spillage	C	3	High	✓	✓		<ul style="list-style-type: none"> • Support vehicles to be refueled in public service stations • Small generator sets to be refueled in designated areas as defined by Safety Officer with appropriate fire extinguisher presence • All equipment must be turned off before being refueled and fire extinguishing present if applicable. • If spill occurs, Safety Officer to be notified of location and may need to be cordoned off

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4. Mechanical							
	Vehicle breakdown	C	2	Low	✓		<ul style="list-style-type: none"> • Recovery vehicle to be on standby • Recovery vehicle to have towing / cartage capabilities • Adequate tools be available for minor roadside repairs in designated areas approved by Safety Officer(s) or Event Organisers
5. Cuts/Burns/Trips							
	Burns from BBQ's	D	3	Medium	✓	✓	<ul style="list-style-type: none"> • People cooking to wear long sleeves, long pants – use tongs and gloves.
	Trip hazards	C	1	Low	✓	✓	<ul style="list-style-type: none"> • Ensure vehicle is stationary before attempting to enter or egress vehicle • When loading/unloading vehicle on trailer ensure clear radius around ramp is maintained
	Slips	C	2	Medium	✓	✓	<ul style="list-style-type: none"> • Pit crew to be suitably attired with footwear • Ensure pit area is correctly maintained – use signage where appropriate
	Cuts/Splinters	D	1	Low	✓		<ul style="list-style-type: none"> • Awareness of environmental surroundings
6. Sprains							
	Setting up/down array stand	C	2	Medium		✓	<ul style="list-style-type: none"> • Ensure stand is on firm level ground before attempting to install array • When loading/unloading vehicle on trailer ensure clear radius around stand is maintained
7. Falls from Height							
8. Vehicle Collision							
	Cars colliding with cars	C	3	High	✓	✓	<ul style="list-style-type: none"> • Observance of all relevant state and commonwealth road rules and a general awareness when stabling for over night stops.
	Cars colliding with stationary objects	C	2	Low	✓	✓	<ul style="list-style-type: none"> • Observance of all relevant state and commonwealth road rules and a general awareness when stabling for over night stops.
	Cars colliding with native fauna	C	2	Low	✓		<ul style="list-style-type: none"> • Observance of all relevant state and commonwealth road rules
9. Debris Strike							
10. Crush							
	Collapse of trailer doors	C	3	Medium		✓	<ul style="list-style-type: none"> • Ensure all open doors are locked/secured in position
11. Public Safety							
	Static Displays (Paddock Area)	D	1	Low		✓	<ul style="list-style-type: none"> • Isolation switch turned off • Monitor public activity
	Children	C	3	High	✓	✓	<ul style="list-style-type: none"> • Children to be kept in tight groups of less than ten and under the care of an adult
12. Medical							
	Bites and Stings	C	3	Medium	✓	✓	<ul style="list-style-type: none"> • Be aware of seasonal biting insects and fauna activities • Wear enclosed foot wear • Wear long pants from dusk to dawn or suitable insect repellent
	Reporting of Injuries	C	2	Medium	✓	✓	<ul style="list-style-type: none"> • All injuries to be reported to First Aid and or Safety Officer
	Patient Care	C	2	Medium	✓	✓	<ul style="list-style-type: none"> • Have medical plans in place as per SS Kelly Emergency and Evacuation Guide
13. Electrical							
	SS Kelly	B	4	High	✓	✓	<ul style="list-style-type: none"> • Comply with written start up and shut down procedures • Comply with battery charging procedure • Comply with solar array charging procedure • Display CAUTION signage when recharging batteries
	Portable Gen Sets	C	3	Medium		✓	<ul style="list-style-type: none"> • Compliance with Federal, State, Territory and Local Authority regulations

RISK CATEGORIES

Number	Abbreviation	Type of Risk	MOTOR SPORT DESCRIPTION
1	FIRE	Fire/Explosions/Falling objects	Situations and substances that could cause a fire or explosion, including gas bottle explosions, sudden release of pressure, failed pressure vessels (gas bottles or manifolds) or components under pressure (e.g. air hoses, regulators and gauges). Also objects including cars, trees, signs, equipment etc that could fall unexpectedly on persons
2	EQUIP	Plant/Equipment	This includes all tools and mechanical equipment, such as car jacks, spanners, car stands, quick jacks, air tools, rattle guns, trolleys, portable workshops, trailers, pantechs etc. This includes the training, use, and maintenance of all tools and equipment used at the venue.
3	DANGEROUS GOODS	Dangerous Goods and Hazardous Substances, Radiation, Spills and Leaks	The storage and handling of Dangerous Goods/Hazardous Substances. These include fuel and oils used in race cars, solvents, cleaning products, gases (LPG, nitrogen, Oxy-acetylene etc and any chemicals used in any area of the venue including the paddock areas and pit garages ("on site"). Radiation hazards from chemicals/compounds. Spilt fluids (water, fuel, oil etc) and leaks from liquid storage containers, which may be large (fuel storage for a race meeting) or small (split radiator in a competition car).
4	MECHANICAL	Mechanical	Mechanical failure of equipment including competition and official cars
5	CUTS / BURNS / TRIPS	Slips, Trips, Falls, Lacerations and Burns	Anything hazardous that can lead to personnel injuring themselves from slipping, tripping or falling over in any area of the venue. Injuries to any personnel on the site which result in cuts (lacerations) or burns from other than explosions, or fires.
6	SPRAINS	Manual Handling, Sprains and Strains	The manual lifting and any consequent injury to persons involved in the moving and use of equipment and material, which includes use of tools, wheels, spare parts, use of jacks, welding equipment, grinders etc.
7	FALLS	Working at heights Falls from Heights and Confined spaces	Personnel working at heights and resultant injuries if they fall or are required to conduct their activities from confined spaces. May include areas where officials are required to operate from. Includes all areas of the venue
8	VEHICLE COLLISIONS	Vehicle Collisions	Cars colliding with each other, trees, barriers, gravel traps, buffers, banks or something else. Also includes competition cars colliding with people in the restricted competition area/paddock area, such as unauthorised cars or persons on closed roads, officials being struck by cars at a race track or other competition.
9	DEBRIS STRIKE	Debris Strike	Injury received to any personal from flying debris as a result of an on-track/stage vehicle incident.
10	CRUSH	Entanglement/Crush	Situations where persons could become entangled and or crushed by tools, plant and equipment or competition or other vehicles
11	PUBLIC SAFETY	Public Safety, Vehicles and Pedestrians	Safety of the public (spectators), in all areas of the venue including paddock and competition areas as well as spectator areas. Also includes the hazards which exist in areas where competition and/or any vehicles move about in an environment where people are walking, e.g. the paddock area.
12	MEDICAL	Emergency / Medical Intervention	Risk posed through response times & locations of those required to respond, response times determined by location of emergency services, on or off track or off venue e.g. nearest ambulance station, the location through a stage or around a circuit of medical staff or rescue officials etc.
13	ELECTRICAL	Electrical	The possible electrocution of personnel from use, siting and connections for electrical equipment and cords. This also includes hazards arising from the training in the use of electrical equipment and maintenance of that equipment.
14	FOOD	Food Poisoning	Sickness or injury caused by bacterial contamination of food, food poisoning gaining of local permits, correct sullage, protection of food and non-mechanical refrigeration
15	NOISE	Noise	Noise that is produced by any means at the venue.
16	PERSONAL ENVIRONMENT	Personal Comfort, Personal Environment (heatstroke, hypothermia, hyperthermia, etc)	Concerns personal comfort and hygiene and the effect that the environmental conditions could have on personnel.
17	ANIMALS	Animals	Hazards arising from the presence of animals, including wildlife (birds, kangaroos, rabbits) and domestic animals (trained and untrained, including assistance animals) which may impact on any part of a venue or event.
18	VENUE LAYOUT	Environment, Layout and Weather Conditions	Injuries which may be effected by changes to the layout of a competition or the general environment (geographical, demographic etc) and variables relating to weather conditions, including daylight/nighttime light conditions. Also competitions affected by weather (e.g. sun, rain, snow, high winds) conditions.
19	ADMIN	Administration, OH&S Compliance, Policy, Practices	Risk posed by incomplete or incorrect application of documentation and procedures, e.g. CAMS licence not issued correctly; staff shortage, issue of policies, no policy or procedures present, may include safe working method statements and site inductions