



NEPEAN
Transport

TM

DESIGN RISK ASSESSMENT

Plant Risk Assessment: Nepean NightOwl Lighting Tower

Date: 20 August 2012

Equipment Location:

Risk Assessment Team: Reginald Varley
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Fritz Wurm

DESIGN RISK ASSESSMENT

DESIGN RISK ASSESSMENT FORM

Hazard Identification No.: 0001	Date: 20 / 08 / 2012
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Plant Description	Nepean Night – Owl Lighting Tower
Manufacturer	Nepean Transport Equipment Pty Ltd
Model	LT-4000W / LT-4000W (HPS) / LT-6000W / LT-8000W
Serial Number	-
Last Assessment	-
Assessed at Location	-
User Location	-

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1. HAZARD IDENTIFICATION

	Hazard	Yes/No	Associated Risk
A	Entanglement	Yes	1. Loose garments, etc. getting tangled in the alternator belt.
B	Crushing	Yes	2. Light Tower falling over due to wind. 3. Light Tower falling over due to un-even ground or incorrect deployment of outrigger stabilizers. 4. Light tower falling over during lifting / lowering mast. 5. Pinch point when mast is being raised.
C	Cutting, Stabbing, and Puncturing	No	
D	Shearing	No	
E	Friction	No	
F	Striking	Yes	6. Getting run over whilst uncoupling/coupling trailer from/to vehicle. 7. Struck by hydraulic outrigger leg as it gets deployed. (May lead to crushing).
G	High Pressure Fluid	No	8. Burst hydraulic oil hose (operating pressure 2500 Psi).
H	Electrical	Yes	9. Potential for electrical hazards during lightning storms. 10. High Voltage areas such as generator and inside control panel.
I	Explosion	No	
J	Slipping, Tripping and Falling	Yes	11. Tripping over extended drawbar / outrigger.

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	Hazard	Yes/No	Associated Risk
K	Ergonomic	No	
L	Suffocation	No	
M	High Temperature or Fire	Yes	12. Exhaust Pipe / Muffler can cause burns.
N	Temperature (Thermal Comfort)	No	
O	Structural	No	
O	Other Hazards	Yes	13. Working on light tower without disabling the auto start function. (OPTIONAL)

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2. HAZARD EVALUATION

IDENTIFIED HAZARDS	PERSONS AT RISK					PROBABILITY					CONSEQUENCE					RANK	LEVEL
	E	YP	CO	PU	VI	A	B	C	D	E	1	2	3	4	5		
1	X		X						X			X				12	MEDIUM
2	X		X	X	X				X		X					7	MEDIUM
3	X		X	X	X			X			X					4	HIGH
4	X		X	X					X		X					7	MEDIUM
5	X		X					x					X			13	MEDIUM
6	X		X					X						X		18	LOW
7	X		X					X							X	22	LOW
8	X		X							X					X	25	LOW
9	X		X							X	X					11	MEDIUM
10	X		X					X			X					4	HIGH
11	X		X	X	X			X							X	22	LOW
12	X		X	X	X			X						X		18	LOW
13	X		X					X						X		18	LOW

*** refer to the next page for interpreting tables

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LEGEND

RISK LEVEL MATRIX						
CONSEQUENCES OF EVENT OCCURRING		PROBABILITY				
		Almost Certain	Likely	Possible	Unlikely	Rare
		A	B	C	D	E
Fatality or Permanent Disability	1	1	2	4	7	11
Major Injury	2	3	5	8	12	16
Average Lost Time Injury	3	6	9	13	17	20
Minor Injury	4	10	14	18	21	23
Medical Treatment	5	15	19	22	24	25

E	Employees
YP	Young People
CO	Contractors
PU	Public
VI	Visitors

HIGH	1 - 6
MEDIUM	7 - 15
LOW	16 - 25

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3. HAZARD RISK CONTROL

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
1	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X		X		X	

Comments:

1. Installed alternator belt guard.
2. Operators to wear appropriate, site safety specific, clothing.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
2	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X		X			X

Comments:

1. Hydraulic outriggers designed to prevent the light towers from falling. Maximum design wind speed is 100 km/h.
2. Hazard and correct operation identified in manual
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
3	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X		X	X		X			X

Comments:

1. Warning label.
2. Hazard and correct operation identified in manual
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

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Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
4	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X			X		X

Comments:

1. Mast cannot be lowered / raised until it is completely retracted. Controlled by use of limit switches.
2. Hazard and correct operation identified in manual
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
5	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X		X	X		X			X

Comments:

1. Hazard and correct operation identified in the Night-Owl Operational Manual.
2. Warning labels identifying pinch points.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
6	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X		X	X		X		X	

Comments:

1. Hazard and correct operation identified in the Night-Owl Operational Manual.
2. Steel cap boots with rubber soles must be worn at all times.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

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Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
7	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X		X	X		X		X	

Comments:

1. Hazard and correct operation identified in the Night-Owl Operational Manual.
2. Steel cap boots with rubbers soles must be worn at all times.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Please note: A pinch point/hazard occurs when retracting the hydraulic outriggers. Please ensure no person or object is in path of retracting hydraulic outriggers.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
8	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X			X		X

Comments:

1. Installed relief valves in key areas to prevent system pressure from exceeding 2500 Psi.
2. All hoses secured chassis; spiral wrapped and guarded where possible.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
9	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X			X	X	

Comments:

1. Mast engine and generator grounded to the chassis.

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Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
10	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X			X		X

Comments:

1. Warning label.
2. 'Procedures and Resuscitation for Electrical Shock' decal stuck on unit.
3. Battery isolation switch provided.
4. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
11	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X		X	X		X		X	

Comments:

1. Black/Yellow chevron decals stuck on hydraulic outriggers to improve visibility.
2. Steel Cap Boots must be worn at all times.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
12	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X			X		X

Comments:

1. Warning label on rear panel at exhaust pipe outlet.
2. Operator shield located inside unit to prevent access to muffler/exhaust.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

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Identified Hazard	Elimination		Substitution		Engineering		Isolation		Admin. Controls		PPE	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
13	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Practicable		X		X	X		X		X			X

Comments: (If Auto Stop / Start Controller Installed)

1. Warning label notifying that the machine can be programmed to start at any time.
2. Warning buzzer and beacon light installed give 10 second warning before unit starts.
3. Staff/operators to receive supervision, training, education and awareness training on light tower operations.

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4. SUMMARY

The risk assessment team has evaluated the possible risks involved in the actual operation of the unit and has identified them. Although the risks are not major, the following steps have been undertaken as detailed below to minimise them.

Risk Management and Control

Hazard / Risk Identified		How Hazard / Risk is Controlled & Minimised
1.	Loose garments, etc. getting tangled in the alternator belt.	<ol style="list-style-type: none"> 1. Installation of alternator belt guard. 2. Safety awareness training. 3. Protective site specific clothing.
2.	Light Tower falling over due to wind.	<ol style="list-style-type: none"> 1. Hydraulic outriggers designed to support the light tower up till maximum wind speeds of 100 km/h. 2. Identified in manual. 3. Safety awareness training.
3.	Light Tower falling over due to uneven ground or incorrect deployment of outrigger stabilizers.	<ol style="list-style-type: none"> 1. Warning label. 2. Identified in manual. 3. Safety awareness training.
4.	Light tower falling over during lifting / lowering mast.	<ol style="list-style-type: none"> 1. In-built safety, where mast cannot be lowered / raised until mast is fully retracted, by use of limit switches. 2. Identified in manual. 3. Safety awareness training.
5.	Pinch point when mast is being raised.	<ol style="list-style-type: none"> 1. Warning labels. 2. Identified in manual. 3. Safety awareness training.
6.	Getting run over whilst uncoupling/coupling trailer from/to vehicle.	<ol style="list-style-type: none"> 1. Mandatory requirement to wear steel cap boots. 2. Correct procedure identified in manual. 3. Safety awareness training.
7.	Struck by hydraulic outrigger leg as it gets deployed. (May lead to crushing).	<ol style="list-style-type: none"> 1. Mandatory requirement to wear steel cap boots. 2. Correct procedure identified in manual. 3. Safety awareness training. <p>Please Note: Pinch point hazard may occurs when retracting the hydraulic outriggers. Please ensure no person or object is in path of retracting hydraulic outriggers.</p>

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8.	Burst hydraulic oil hose (operating pressure 2500 Psi).	<ol style="list-style-type: none"> 1. Installed relief valves in key areas to maintain system pressure. 2. All hoses secured chassis; spiral wrapped and guarded where possible.
9.	Potential for electrical hazards during lightning storms.	<ol style="list-style-type: none"> 1. Mast, engine and generator grounded to the chassis. 2. Safety awareness training.
10.	High Voltage areas such as generator and inside control panel.	<ol style="list-style-type: none"> 1. Warning labels. 2. 'Procedures and Resuscitation for Electrical Shock' stuck on unit. 3. Battery isolation switch provided. 4. Safety awareness training.
11.	Tripping over extended drawbar / outrigger.	<ol style="list-style-type: none"> 1. Black / Yellow chevron decal stuck on hydraulic outriggers to improve visibility. 2. Mandatory requirement to wear steel cap boots. 3. Safety awareness training.
12.	Exhaust Pipe / Muffler can cause burns.	<ol style="list-style-type: none"> 1. Warning label on rear panel at exhaust pipe outlet. 2. Operator shield located inside to prevent access to muffler / exhaust. 3. Safety awareness training.
13.	Working on light tower without disabling the auto start function.	<ol style="list-style-type: none"> 1. Warning label. 2. Warning buzzer and beacon light installed to give 10 second warning before start up. 3. Safety awareness training.

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NOTES: