Spalding and District Amateur Radio Society

Public Facing Special Event Station - Risk Assessment

Introduction

This Risk Assessment has been developed to aid the safe operation of a public facing special event station. It is not designed as a complete instruction manual and everyone involved must be urged to take responsibility for their actions and be aware of actual and possible risks as they may arise and ensure that team leaders and others are made aware.

All people involved in the building and operation of a special event station must be conversant with this risk assessment document. An overall team leader for the event should be agreed upon. The team leader will manage the planning of the event along with any issues arising during the build or operation of the event. The responsibility for any issues arising during the event is with all team members and the organising body. In this day and age, if someone was to be badly injured or died as a result of the team's activities people could be prosecuted and go to jail and the club may face a large fine, or be sued, which all club members could be made personally liable for even if they are not there!

Preparations

A site survey should be carried out well prior to the event date and a plan drawn up as to where the antenna(s)/mast(s) are to be located as well as the station and other support facilities, e.g. meet and greet area, kitchen, toilets, car parking, site access etc. An agreed method statement must be prepared to cover major activities such as the mast erection and dismantling. Uneven areas including steps, ditches etc. should be noted.
All equipment should be checked to ensure that there are no maintenance issues and that each item is compliant with the task intended. As the weather can change quickly in this country please ensure that team members are suitably equipped with appropriate bad/hot weather clothing etc.

Risk assessments

Risk scoring: (See Risk Assessment Matrices page below for descriptions.)
Column C .....Consequence rating
Column L .....Likelihood rating
Column R .....Risk rating. (C x L)
Column L2 .....Likelihood rating after control measures adhered to.
Column R2 .....Risk rating after control measures adhered to. (C x L2)

Hazard	At Risk	Risks	C	L	R	Control Measures	L2	R2
Vehicle collision	Station operators Members of the public.	Crushing Fracture Head Injury Cuts	4	2	8	The parking area is to be agreed in advance and clearly identifiable. Unless unloading, all vehicles are to be kept clear of the agreed exclusion zones unless specifically required for operations. Site speed limit to be set at 5mph. Parking marshals are to wear high visibility jackets.	1	**4**
Erecting and dismantling masts and antennas.	Station operators Members of the public.	Crushing Electrocution Fracture Head Injury Cuts	4	4	16	Check suitability of site, free from nearby power / telephone cables, level and stable. Check that the ground will hold pegs securely. Check wind speed is less than 22 mph (10 metres/s) and direction at the site along with forecast weather changes. One person will be designated in control of the mast party. All members to be briefed on process of erection/dismantling. (Detailed in Method Statement.) All equipment to be checked for signs of wear and in a safe condition to be used, especially the state of guy ropes and fittings. Check that all the tools necessary for the work are present and in good condition.	1	**4**

Hazard	At Risk	Risks	C	L	R	Control Measures	L2	R2
						Tower operators to wear high visibility jackets, hard hats and, where appropriate, rigging gloves and safety boots. Rope off area to prevent access and a marshal assigned to keep members of the public away from the site. Agreed number of operators required to erect the mast/antennas to be the only people involved in the work. Prepare the mast for lifting with all antennas and feeders in place ensuring that all fixings are tight and secure. Guy ropes are laid out and pegs placed in the ground in the agreed position. After checking that no members of the public are present in the exclusion zone the mast will be raised and checked to ensure that it is vertical. Ensure that the antenna feeds are clear of obstructions and, where appropriate, free to rotate. Guys are tensioned to the correct amount ensuring that the mast is not leaning, off centre, or "snaking". No vehicles are to be located within the exclusion zone unless specifically needed for the erection of the mast. If working at dusk or in the dark the working area must be well lit, where at all possible avoid having to work in the dark. Step ladders may be used but must have someone stabilising them while in use. The maximum height should be restricted to 2.4m and they should be in good condition.		
Falling antennas and masts during the operation of the Special Event Station.	Station operators Members of the public.	RF Burns Crushing Electrocution Fracture Head Injury Cuts	4	3	12	All antenna masts will be securely guyed using rope and fixtures whose specification exceeds the loading caused by winds of up to 22 mph (10 metres/sec). If winds exceed 22 mph (10 metres/sec), the mast(s) will be dismantled and the Special Event Station shut down. A flag may be placed on top of the highest mast so that wind speed can be gauged using the Beaufort method of wind speed estimation. (Note 10) An exclusion zone of a distance equal to the total height of the mast plus 10 metres will be marked out around the mast in to which the antennas and masts can fall without fear of striking members of the public. 'No Entry' signs will be placed along the perimeter of the exclusion zone at regular intervals to warn the public not to cross into the exclusion zone. Next to each 'No Entry' sign will be placed a 'Warning' sign to remind station operators and other authorized persons of the dangers of crossing in to the exclusion zone. (E.g. Trip hazards, high RF fields, power cables etc.) The exclusion zone is to be monitored at all times to ensure no unauthorised access.	1	**3**
Trip hazard on guy ropes, feeders and cables.	Station operators Members of the public.	Electrocution Fall injuries Cuts	3	3	9	'No Entry' signs will be placed along the perimeter of the exclusion zone at regular intervals to warn the public not to cross into the exclusion zone. Next to each 'No Entry' sign will be placed a 'Warning' sign to remind station operators and other authorized persons of the dangers of crossing in to the exclusion zone.	1	**3**
Electrical shock hazard when operating from a 230v AC power supply.	Station operators Members of the public.	Electrocution Fire	4	3	12	When using a generator, it will be earthed at the generator and the earth connection on the electrical supply will be checked to ensure that it is wired correctly. The generator will be placed within an exclusion zone to keep it away from members of the public. Any portable generator will be surrounded by a wind break and placed in the shade beneath a well ventilated cover to prevent the generator from becoming wet during a rain storm or too hot. When using a mains electricity supply, the earth of all 13A sockets will be tested to make sure that they are wired correctly. Correct earthing should be considered for certain types of mains electricity supplies. Mains leads should be subject to periodic PAT testing.	1	**4**

Hazard	At Risk	Risks	C	L	R	Control Measures	L2	R2
						A residual current device (RCD) will be fitted to the supply. All power cables and fittings are to be effectively protected from water ingress during the event.		
Electrical equipment Including Transceivers, PSUs, ATUs, Rotators, computers, etc.	Station operators	Electrocution Burns RF Burns	3	3	9	Ensure protection of electrical circuits by use of a suitable Residual Current Device (RCD). Examine all power leads and plugs for damage. Look for signs of overheating (burn or scorch marks). Ensure correctly rated fuses are fitted to plugs and equipment for the load applied. Ensure no bare wires are visible from connectors or sockets. Ensure ail terminal connections are tight.	1	**3**
Electrical shock hazard from touching the antennas.	Station operators Members of the public.	Electrocution RF Burns	3	3	9	The lowest extent of an antenna will be 2.4m. Extra precautions will be taken when using open wire feeders. (These should preferably not be used where there is the possibility of anyone accidentally coming close to them.) An exclusion zone will be marked out around the antenna mast with either stakes and warning tape, or crowd control barriers. This zone must include the area where wire antennas come close to the ground. 'No Entry' signs will be placed along the perimeter of the exclusion zone at regular intervals to warn the public not to cross into the exclusion zone. Next to each 'No Entry' sign will be placed a 'Warning' sign to remind station operators and other authorized persons of the dangers of crossing in to the exclusion zone.	1	**3**
Trip hazard from trailing cables. (Station)	Station operators Members of the public.	Fall injuries Cuts	3	3	9	All equipment used for the station will be mounted on a sturdy table and all cables routed to the rear of the table, preferably anchored to the table to stop equipment being pulled off the table. All cables within the Special Event Station operating area will be routed so as to ensure that nobody can trip over them. The cables must not cross access routes for pedestrians or vehicles. Where cables have to cross a floor area of the operating area, they will be routed through insulated rubber bridges, specifically designed for the task, or sunk in the ground. Antenna cables within the antenna exclusion zone will not be covered as the exclusion zone is designed to keep people out of the area. The 'Warning' signs will remind station operators and other authorized persons of the trip hazard within the exclusion zone.	1	**3**
Installing / operating radio equipment in motor vehicles	Station operators	Trips Falls Cuts Bruising	2	3	6	Batteries should be correctly vented to prevent gas build up. Batteries should be secured to prevent spillage. All connectors and cables should be adequately protected. The termination of flexible cables should be free from strain. Mobile radio equipment should be connected to a power supply by an appropriate fused link. Radio equipment should be secure.	1	**2**
Fire in the tent	Station operators Members of the public.	Burns Inhalation / breathing problems	3	3	9	All operators must have basic fire awareness knowledge and know how to use firefighting/suppression equipment. No smoking is permitted inside any tents or shelters used for the event. Cooking equipment is to be located on a level stable platform away from drafts. A fire extinguisher is kept inside the tent in an easily accessible place to deal with electrical fires. A fire blanket is kept inside the tent in an easily accessible place to deal with kitchen area fires. Two exits are maintained within the tent to ensure everyone can get out as quickly as possible. Fuel used for stoves or heating should be stored outside the tent in the shade unless fitted in an enclosure designed for the purpose.	1	**3**

Hazard	At Risk	Risks	C	L	R	Control Measures	L2	R2
Burns from cooking equipment.	Station operators Members of the public.	Burns Inhalation / breathing problems	3	3	9	Cooking equipment located on a stable platform, away from drafts, and away from a thoroughfare. Operators are to be familiar with all cooking and heating appliances. The kitchen area is constantly manned when in use to prevent people from walking in to a hot stove, kettles and pans. Once used, hot pans and kettles are placed under the stove where they cannot be knocked over, or touched by accident. The stove will not be kept burning whilst not in use. Fuel used for the stoves should be stored outside the tent in the shade unless fitted in an enclosure designed for the purpose.	1	**3**
Weather conditions	Station operators	Sun burn Heat exhaustion Hyperthermia Hypothermia	1	3	3	Suitable protection should be provided for the effects of sunburn. Drink plenty of water and take regular rest breaks. (Note 9) During cold/wet/windy conditions suitable protective clothing should be worn.	1	**1**

References / Notes:

1 Avoidance of danger from overhead power lines - HSE publication GS6
2 Working safely near overhead power lines. Agricultural information sheet 8 Available from HSE.
3 Electrical Safety of Independent Low Voltage AC. Portable and mobile generators and connected systems" - HSE document OC482/2
4 Maintaining portable and transportable electrical equipment - HSE document HSG107.
5 Maintaining portable electrical equipment in offices and other low risk environments - HSE publication INDG236
6 Guidance for safe handling and operating of mobile radio equipment - British Standards Institute BS IEC 1149:1995
7 Keep to designated walkways/routes. Maintain eye contact with drivers of vehicles where it is deemed appropriate. Be careful of vehicles that are reversing.
8 For additional protection wear safety shoes that have ankle support or are full length boots. Periodically check the grip pattern on the soles is in good condition and not worn. Replace if worn or damaged. Most accidents happen coming down stairs, slopes etc. Keep a good lookout for hazards.
9 Sun cream with a factor greater than 14 should be used for skin protection. Wear a hat and keep back of the neck covered in fierce sun conditions.
10 **Beaufort Method of estimating wind speed.**

The Beaufort Method uses a heavy flag, which are large flags found at military bases or weather stations. This method provides a subjective reading.

1 Observe how it reacts to the wind. If the flag is not moving at all, the wind speed is below 11mph.
2 Observe the flag. If it flaps lightly and sporadically the wind is blowing at around 12 to 18mph.
3 Estimate the flapping of the flag. If the flag is flapping over the whole length of the flag, it is blowing at around 19 to 24mph.
4 Measure how far the flag extends in the wind. If it is partially extended and flaps quickly, the wind speed is 25 to 31mph. A fully extended flag flapping hard in the wind will be around 32 to 37mph. It's not possible to use a flag to measure any higher as the flag will react in the same way, even with harsher winds.

Important: Fitting a large flag to a mast will increase the wind loading factor significantly.

Risk Assessment Matrices

Risk Matrix

		Likelihood				
		Rare - 1	Unlikely - 2	Possible - 3	Likely - 4	Almost Certain - 5
Consequences / Severity	Insignificant -1	1	2	3	4	5
	Minor - 2	2	4	6	8	10
	Moderate - 3	3	6	9	12	15
	Major - 4	4	8	12	16	20
	Catastrophic - 5	5	10	15	20	25

Key	
Low Risk	
Moderate Risk	
Significant Risk	
High Risk	

Rating of Likelihood

Rate	Likelihood	Description
1	Rare	The event may occur in exceptional circumstances.
2	Unlikely	The event could occur at some time.
3	Possible	The event might occur or recur at some time.
4	Likely	The event is likely to occur or re-occur in most circumstances.
5	Almost Certain	The event is expected to occur or recur in most circumstances.

Rating of Consequence/Severity

Rate	Consequence	Description
1	Insignificant	First aid treatment (e.g. cuts, bruises, abrasions). Moderate financial loss.
2	Minor	Short-term medical treatment required (sprains, strains, small burns, stitches etc.) Moderate environmental implications. High financial loss/compensation claim. Moderate loss of reputation. Moderate service interruption.
3	Moderate	Semi-permanent injury/damage (lasting up to 1 year), Over 3 days staff injuries under Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR), short term sickness < 4 weeks. Litigation possible but not certain.
4	Major	Excessive or permanent injuries (loss of body parts, misdiagnosis – poor progress etc.). Major injuries under RIDDOR. Short term negative impact on recruitment and retention. High environmental implications. Serious financial loss. Serious loss of reputation. Serious service interruption. Litigation/prosecution expected.
5	Catastrophic	Death, Toxic off site release with detrimental effect, National adverse publicity, affects large numbers of people. Litigation/Prosecution expected/certain. Medium to long term negative impact on recruitment and retention. Major financial loss. Major loss of reputation. Major service interruption.

Review History:

Date	Version	Reviewer	Notes	Committee Sign off
4/7/2016	0.1	A Hebden	Document first draft No risk scoring included yet	
6/7/16	0.2	A Hebden	Added introduction, made various minor changes, added no smoking in tents	
14/7/16	0.3	A Hebden	Added risk scoring columns Added additional references and notes Included risk matrix standard scoring tables and descriptions	

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