Hot Work and Fire Risk Work

Summary

The purpose of this procedure is to identify and control the risks associated with Hot Work and Fire Risk Work conducted by TransGrid employees and contractors.

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<tr>
<td>Author:</td>
<td>Andrew Scott; Environment Officer</td>
<td></td>
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</tr>
<tr>
<td>Reviewers:</td>
<td>Luke Fania, Environment Team Leader</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>David Donehue, Manager/Corporate Environment</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Megan Calvert, HSE Systems Manager</td>
<td></td>
<td></td>
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<tr>
<td>Approver:</td>
<td>Jon Workman, Acting Manager/Health, Safety and Environment</td>
<td></td>
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1. Purpose

The purpose of this procedure is to identify and control the risks associated with Hot Work and Fire Risk Work conducted by TransGrid employees and contractors. This procedure also identifies TransGrid’s obligations during a Total Fire Ban declared by the NSW Rural Fire Service or the ACT Emergency Services Agency.

2. Scope

This procedure applies to all TransGrid staff and contractors undertaking Hot Work and Fire Risk Work.

3. Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Authorised Officer</td>
<td>A person who has been assessed as competent as an E2 under the Authorisation to Work procedure. Authorised Officers can compile and issue a Hot Work permit or Fire Risk Assessment and Control Measures (FRACM) form.</td>
</tr>
<tr>
<td>Combustible Material</td>
<td>Material that can maintain combustion with the addition of an external heat or ignition source, e.g. timber or linings present within wall and ceiling framing, flammable liquids/fibres, vapours, dry vegetation/grass or combustible liquids.</td>
</tr>
<tr>
<td>Confined Spaces</td>
<td>An enclosed or partially enclosed space that:</td>
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<tr>
<td></td>
<td>a) is not designed or intended primarily to be occupied by a person, and</td>
</tr>
<tr>
<td></td>
<td>b) is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space, and</td>
</tr>
<tr>
<td></td>
<td>c) is or is likely to be a risk to health and safety from:</td>
</tr>
<tr>
<td></td>
<td>i. an atmosphere that does not have a safe oxygen level, or</td>
</tr>
<tr>
<td></td>
<td>ii. Contaminants, airborne gases, vapours and dusts that may cause injury from fire or explosion, and/or harmful concentrations of any airborne contaminants, or engulfment.</td>
</tr>
<tr>
<td>Declared Bushfire Season</td>
<td>The time of high fire danger prescribed by the NSW Rural Fire Service or ACT Emergency Service Agency. The statutory Bush Fire Danger Period runs from 1st October to 31st March but it may vary due to local conditions.</td>
</tr>
<tr>
<td>Designated Hot Work Area (DHWA)</td>
<td>Area specifically configured to undertake Hot Work activities. DHWAs must be free of Combustible Materials and have appropriate control measures in place. They are generally a workshop or welding bay (but may be located outside a building) and need to comply with the following:</td>
</tr>
<tr>
<td></td>
<td>• No flammable materials within a room;</td>
</tr>
<tr>
<td></td>
<td>• Hot Work must be 15 metres away from any combustible material;</td>
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<tr>
<td></td>
<td>• Fire extinguisher is within 10 metres of the work area;</td>
</tr>
<tr>
<td></td>
<td>• Work area must be contained within four walls or screened with fit for purpose fire resistant material;</td>
</tr>
<tr>
<td></td>
<td>• Cavities in walls or eaves suitable to prevent escape of sparks; and</td>
</tr>
<tr>
<td></td>
<td>• Drains need to be covered</td>
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<tr>
<td></td>
<td><strong>Caution</strong> - Adequate ventilation must be supplied for the operator</td>
</tr>
<tr>
<td>Exemption (for Hot Work)</td>
<td>During a total fire ban the lighting or maintaining a fire ‘in the open’ is prohibited, however, certain activities may be exempted from total fire bans. The NSW RFS Commissioner is responsible for granting exemptions (which can be issued or are detailed in the NSW</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fire Risk Work</td>
<td>Work that has the potential to cause a fire and is being undertaken in a hazardous area.</td>
</tr>
<tr>
<td>Fire Watch</td>
<td>Mandatory surveillance undertaken at the completion of Hot Work to observe the workplace for any signs of smouldering, ignition or other factors that may start a fire.</td>
</tr>
<tr>
<td>Fire Watch Observer</td>
<td>A Fire Watch Observer is responsible for observing Hot Work and Fire Risk Work activities to be able to respond to any potential or actual fire outbreak. A person must not be engaged in any other activities whilst acting as a Fire Watch Observer.</td>
</tr>
<tr>
<td>Hazardous Area</td>
<td>Any work area where flammable/combustible materials may come into contact with flames, sparks, molten materials or hot surfaces. Hazardous Areas may include (but not exclusively):</td>
</tr>
<tr>
<td></td>
<td>&gt; Confined spaces;</td>
</tr>
<tr>
<td></td>
<td>&gt; Buildings where there are materials that are made of or contain combustible matter;</td>
</tr>
<tr>
<td></td>
<td>&gt; Dry/combustible vegetation;</td>
</tr>
<tr>
<td></td>
<td>&gt; Rubbish; and</td>
</tr>
<tr>
<td></td>
<td>&gt; Oil and Fuel storage areas.</td>
</tr>
<tr>
<td>Hot Work</td>
<td>High heat-producing or spark producing operations, such as grinding, welding, thermal or oxygen cutting or heating, and other related activities.</td>
</tr>
<tr>
<td>Hot Work Area</td>
<td>The area within a radius of 15m from the point where the Hot Work is to be undertaken (including the space above and below that area). The Hot work Area should be made safe by various techniques, preparation and testing to ensure that any risk of fire or explosion resulting from the Hot Work is eliminated.</td>
</tr>
<tr>
<td>Instructed Person</td>
<td>A person advised by or supervised by an Authorised Officer</td>
</tr>
<tr>
<td>In the open</td>
<td>Locations that are <em>in the open air</em>, including areas such as:</td>
</tr>
<tr>
<td></td>
<td>&gt; Easements and outdoor public spaces</td>
</tr>
<tr>
<td></td>
<td>&gt; Substations/switchyards;</td>
</tr>
<tr>
<td></td>
<td>&gt; Communications facilities;</td>
</tr>
<tr>
<td></td>
<td>&gt; Depots and perimeter lands;</td>
</tr>
<tr>
<td>Prescribed Fire Safety Equipment (PFSE)</td>
<td>The minimum fire safety equipment to be available for all Hot Work and Fire Risk Work (a full list is set out in Attachment 5).</td>
</tr>
<tr>
<td>Pre-work risk Assessment (PWRA)</td>
<td>The process conducted and documented before commencing a work activity. It includes assessing the risks associated with the tasks to be performed, the workplace and the environment.</td>
</tr>
<tr>
<td>RFS</td>
<td>NSW Rural Fire Service.</td>
</tr>
<tr>
<td>Security fence</td>
<td>Palisade/man-proof fence surrounding substations, depots, switching stations and communication facilities.</td>
</tr>
<tr>
<td>Total Fire Ban (TOBAN)</td>
<td>A TOBAN is declared by the RFS or ACT Emergency Services Agency due to extreme weather conditions or when widespread fires are seriously stretching firefighting resources. When declared, it prohibits the lighting of any fires in the open air and any other activities that may start a fire. A declaration of a TOBAN covers specific identified areas of the state.</td>
</tr>
<tr>
<td>Work</td>
<td>Any physical maintenance, survey or construction/augmentation activities with the potential to have an adverse environmental impact.</td>
</tr>
<tr>
<td>Unfavourable</td>
<td>Adverse conditions such as weather that increase the risk such that an action/activity should be postponed until the risks are diminished. For example: hot/dry windy conditions.</td>
</tr>
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4. **What are Hot Work and Fire Risk Work?**

**Hot Work** is any action that involves high temperatures and has a high risk of creating a fire. Examples of Hot Work are as follows, but are not limited to:

- Welding, Oxy-Acetylene or Plasma cutting;
- Grinding/cutting of metal including the use of flexible sanding disks;
- Production of heat, flammable fumes and gases during work activities; and
- Dry concrete metal grinding/cutting;

**Fire Risk Work** involves heat or potential spark producing activities that have the potential of creating a fire risk when undertaken in a hazardous area. Fire Risk Work includes:

- Slashing;
- Mulching;
- Operation of steel tracked machines or steel attachments on heavy plant (e.g. grading, boring, excavation and the like);
- Chainsaw operation;
- Chipping;
- Mowing;
- Brush cutting; and
- Operation of motor vehicles (outside premises).

Hot Work and Fire Risk Work have been separated out for this procedure, as there are different legislative, Australian Standard and internal process requirements for each.
5. Hot Work Process

Hot Work must be managed by TransGrid and its contractors. The following diagram sets out the process managing Hot Work activities in TransGrid. More detail is provided in the following sections.

START

Does the task involve Hot Work?

Yes → Are weather conditions unfavourable such that completing the Hot Work activity has the potential to start a fire at the site?

Yes → Postpone Hot Work activity until weather conditions are favourable.

No → Is the Hot Work being undertaken in a Designated Hot Work area?

Yes →

No →

Are weather conditions unfavourable such that completing the Hot Work activity has the potential to start a fire at the site?

Yes → Postpone Hot Work activity until weather conditions are favourable.

No →

Is the Hot Work being undertaken in a Hazardous Area OR is a TOBAN in force?

Yes →

No →

YES IN A HAZARDOUS AREA (no TOBAN)

Is the work ‘in the open’?

Yes →

No →

Is the work inside premises?

Yes →

No →

For Hot Work outside premises

Is the Hot Work for routine purposes?

Yes →

No →

Is the Hot Work Urgent Or Emergency Work?

Yes →

No →

ONLY ESSENTIAL OR EMERGENCY HOT WORK CAN BE UNDERTAKEN OUTSIDE PREMISES DURING A TOBAN

Approval must be authorised in writing by the Manager/ Maintenance Programs or Manager/Construction Programs

FOR ROUTINE HOT WORKS INSIDE PREMISES

Seek concurrence with the local RFS Manager and comply with any conditions

ESSENTIAL OR EMERGENCY HOT WORK WITHIN PREMISES

Advise local RFS Manager that the Hot Work is required for urgent works to maintain the network.

APPROVAL / CONCURRENCE RECEIVED

Note: Relevant Manager is Manager/Maintenance Programs or Manager/Construction Programs

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5.1 Specific locations

The specific location or area of the task can impact what Hot Work can be done during fire rated days. As the first step in the risk assessment process, consideration should be given to:

> Whether there is an alternative to the Hot Work activity that could achieve the same work outcome (i.e. an alternative way of doing the work that does not involve Hot Work) or
> Whether the Hot Work activity can be postponed or delayed on days when the conditions (e.g. fire rating) are unfavourable.

A total fire ban (TOBAN) day is a day declared by the RFS or ACT Emergency Services Agency due to extreme weather conditions or when widespread fires are seriously stretching firefighting resources. When declared, it prohibits the lighting of any fires in the open air and prohibits any other activities from being carried out that may start a fire, which includes Hot Work. A declaration of a TOBAN covers specific identified areas of the state.


The following sections address specific location areas and TOBAN requirements.

5.1.1 Designated Hot Work Area (DHWA)

A Designated Hot Work Area (DHWA) is an area specifically configured to undertake Hot Work activities. DHWAs must be free of combustible materials and have appropriate control measures in place. They are generally a workshop or welding bay (but may be located outside a building) and need to comply with the following:

• No flammable materials within a room;
• Hot Work must be 15 metres away from any combustible material;
• Fire extinguisher is within 15 metres of the work area;
• Work area must be contained within four walls or screened with fit for purpose fire resistant material;
• Cavities in walls or eaves suitable to prevent escape of sparks; and
• Drains need to be covered.

Caution - Adequate ventilation must be supplied for the operator.

Hot work undertaken in a DHWA does not require a Hot Work Permit to be completed.

5.1.2 Hot Work Indoors

Hot Work indoors covers areas inside a building including:

> Inside buildings within a substation;
> Inside a communication facility;
> Office areas;
> Workshops; and
> Stores buildings.

Hot Work can be undertaken on TOBAN days if the area is fully enclosed on all four sides and has a door and roof to prevent sparks from escaping. A Hot Work Permit is required to be completed if undertaken indoors in a Hazardous Area; however, it does not require approval in accordance with the exemptions and protocols in Sections 5.1.3. and 5.1.4.
5.1.3 Hot Work ‘in the open’ and TOBAN Exemptions

Hot Work ‘in the open’ includes areas such as:

- Easements and Outdoor public spaces
- Substations/switchyards;
- Communications facilities; and
- Depots and perimeter lands;

A Hot Work Permit must be completed if Hot Work is undertaken ‘in the open’ in a hazardous area or if a TOBAN is in force, regardless of whether the Hot Work is in a hazardous area or not.

It is prohibited to carry out any Hot Work activity ‘in the open’ that causes, or is likely to cause a fire during a Total Fire Ban (TOBAN) unless authorised under an exemption issued by the RFS.

A general exemption applies to Hot Work necessary for the repair of essential services by authorised entities/utilities including light, power, water, sewerage, transport or communications (refer to Attachment 1 for more details).

A specific exemption has been granted to TransGrid (TOBEX0001461) by the RFS to undertake routine Hot Work activities within the fenced boundaries of substations, switchyards and depots i.e. premises in NSW (refer to Attachment 2 for more information).

This specific exemption is valid until the 31st March 2018.

5.1.4 Protocol for Hot Work ‘in the open’ on TOBAN days.

It is prohibited to carry out any Hot Work ‘in the open’ that causes, or is likely to cause a fire during a Total Fire Ban (TOBAN) unless authorised under an exemption issued by the RFS.

A general exemption (refer to Attachment 1 for more details) applies to Hot Work necessary for the repair of essential services by authorised entities/utilities including light, power, water, sewerage, transport or communications and can be undertaken where an exemption exists.

Routine Hot Work inside premises:

- Is subject to the specific exemption (refer to Attachment 2);
- Must be carried out on asphalted, concreted or graveled areas that are free of combustible materials and is subject to adequate firefighting equipment being immediately available to prevent the escape of any fire, spark or incandescent material from the site.
- The authorized person undertaking the Hot Work must seek the concurrence from the local RFS Manager that the activity can proceed.

Emergency or Essential Hot Work:

- Is subject to the general exemption (refer to Attachment 1);
- Adequate firefighting equipment MUST be immediately available,
- A Hot Work Permit must be completed even if it is not in a Hazardous Area;
- The authorized person undertaking the Hot Work must advise the local RFS Manager that the activity is planned; and
- If the work is outside premises it must be authorised in writing by the Manager/Maintenance Programs or Manager/Construction Programs (under delegation from the EM/Works Delivery).

A contract can work under the exemptions, as long as they meet the requirements of this procedure.
5.2 Hot Work Permit Process

5.2.1 Identify risks

The first step for the Hot Work Permit process is to identify the risks, this includes:

> Assess the risks on site. Determine if conditions are unfavourable to undertake Hot Work. If yes postpone the Hot Work until conditions are suitable.
> Identify and control any fire hazard (including the presence of flammable or combustible liquids, gases, vapours, dusts, fibres or substances) within 15 metres from the Hot Work;
> Consider relevant hazards that may exist outside the 15m area;
> Consider the possibility of changing circumstances during the progress of the Hot Work and whether they may render the area unsafe for the work to continue;
> Properly ventilate the hot-work area;
> Suitably locate the equipment, including emergency firefighting equipment;
> Isolate the area where the Hot Work is to be performed; and
> Provide a safe entry to and exit from the Hot Work area.

5.2.2 Testing for the presence of a gas or vapour

Testing is only required for work where there is the potential for the presence of flammable gas and flammable vapour. This only applies to Hot Work in or adjacent to any pipe, drum, tank or vessel that has the potential to carry a flammable gas or vapour.

The majority of Hot Work undertaken by TransGrid will not require gas/vapour testing before Hot Work is undertaken.

If testing is required, prior to the commencement of Hot Work the following must be complied with:

> The detectors used for the testing must comply with AS 2275.1 and AS2275.2;
> Each detector used for the testing shall be used by a person skilled in its operation, limitations and maintenance;
> Testing must continue until every source and potential source of flammable gas and flammable vapour has been tested; and
> Testing must take place as late as practical before the Hot Work is commenced, subject to it being not more than two hours beforehand.

5.2.3 Hot Work Permit

A Hot Work Permit (refer to Attachment 3) must be completed by an authorised officer when Hot Work is being undertaken in a Hazardous Area or when a TOBAN is in force (unless undertaken indoors or in a designated Hot Work area (DHWA). The rules for a Hot Work Permit are as follows:

(i) All Control Measures must be implemented prior to any Hot Work being undertaken;
(ii) Hot work can only be carried out during the period stated on the Hot Work Permit;
(iii) A new Hot Work Permit is required if Hot Work is ceased for a period of more than 2 hours;
(iv) It must have a duration period of not more than 8 hours
(v) The work conditions must be monitored to ensure the documented control measures remain adequate. Control measures must be revalidated if any conditions change during the work, and at least once per day;
(vi) All persons required to sign on to the PWRA must comply with the requirements of the Hot Work Permit; and
(vii) Welders must not work alone.
5.2.4 Control Measures

Control measures for Hot Work can include:

- Remove flammable/combustible materials in the work area;
- Automatic sprinklers are in service;
- Reduce ignition risk by wetting down, covering with sand/soil and use screens or shields beneath or adjacent to work to contain flame or collect/divert sparks (welding, metal grinding/cutting, etc.);
- Do not place hot equipment on combustible surfaces/materials;
- All pits, drains, wall and floor openings should be checked and sealed;
- Use screens or shields beneath or adjacent to work to contain flame or collect/divert sparks (welding, metal grinding/cutting, etc.) Do not place hot equipment on combustible surfaces/materials;
- Determine contents before welding containers and purge enclosed areas of flammable vapours and dusts;
- Ensure staff are trained and competent with the use of plant and equipment;
- Check for flammable material stored on the other side of walls, panels and roofing;
- Equipment inspected, maintained in a serviceable condition; cutting and welding equipment is in good repair;
- Identify all available exit routes and ensure all staff are aware of their location; and
- When in the open, monitor weather conditions (see validation section of the Hot Work Permit form).

Specific firefighting control measures can include:

- Welding Pads, Shields (as required);
- Rake hoe and long handled shovel;
- A water knapsack spray pump of 16 litre minimum capacity filled with water;
- A fire extinguisher (liquid type) of 9 litre minimum capacity; and
- A dry powder type extinguisher of 0.9 kg minimum capacity.

Attachment 5 sets out the fire safety equipment requirements for Hot Work in specific locations.

5.2.5 Fire Watch

Fire watching is a continuous and thorough inspection/observation of the work site and its vicinity by an Authorised Officer.

The decision to appoint a Fire Watch observer is made based on the risks on the particular day and in accordance with Attachment 5 - Fire Safety Equipment Requirements for Hot Work and Fire Risk Work

The Authorised Fire Watch observer should:

- Be alert for any fire outbreak or hazards;
- Take immediate action to combat any outbreak of fire that may occur;
- Not allow Hot Work to proceed outside the area specified on the Hot Work Permit;
- Immediately stop the work and withdraw the Hot Work Permit if a hazardous condition is observed;
- Be aware of the need to use PPE where Hot Work involves arc welding, cutting or arc gouging;
- Obtain fire extinguishers or fire hose or both; and
- Not leave the job unless properly relieved by an authorised officer.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Requirement</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Watch</td>
<td>Mandatory one hour fire watch after cessation of</td>
<td>Hot work undertaken in a Designated Hot Work Area</td>
</tr>
<tr>
<td></td>
<td>Hot Work</td>
<td></td>
</tr>
</tbody>
</table>

Note: Research and fire investigation has found that the majority of Hot Work fires break out up to one hour after the completion of the work. Hot work ignition sources can get into areas not easily seen, providing the opportunity to smolder for lengthy periods before breaking out into fire.

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6. Fire Risk Work Process

Fire Risk Work involves heat or potential spark producing activities that have the potential of creating a fire risk when undertaken in a hazardous area. The following flow chart shows the process for managing Fire Risk Work.

[Flow chart diagram]

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6.1 Identify risks

As the first step in the risk assessment process, consideration should be given to:

- Whether there is an alternative to the Fire Risk Work activity that could achieve the same work outcome (i.e. an alternative way of doing the work that does not involve Fire Risk Work) or
- Whether the Fire Risk Work activity can be postponed or delayed on days when the conditions (e.g. fire rating) are unfavourable.

The next step for the assessment of Fire Risk Work is to identify specific risks, this includes:

- Assess the risks on site. Determine if conditions are unfavourable to undertake Fire Risk Work. If yes postpone the Fire Risk Work until conditions are suitable.
- Identifying if Fire Risk Work is proposed in a Hazardous Area;
- Identify and control any fire hazards;
- Consider relevant hazards that may exist outside the work areas;
- Consider the possibility of changing circumstances during the progress of the Fire Risk Work and whether they may render the area unsafe for the work to continue;
- Suitably locate the equipment, including emergency firefighting equipment; and
- Do not commence the Fire Risk Work, until complying with all of the above requirements.

6.1.1 Total Fire Ban Days (TOBAN)

Fire Risk Work is not specifically prohibited under legislation but the RFS recommends that these activities are not undertaken during a TOBAN, due to the increased risks.

For declared TOBAN days, no works involving heavy plant for excavation and/or slashers/mulchers can be undertaken unless authorised in writing by either Manager/Maintenance Programs or Manager/Construction Programs (under delegation from the EM/Works Delivery).

NOTE: Authorisation in writing for the operation of motor vehicles, chainsaws, mowing or brush-cutting is not required on TOBAN days.

If a TOBAN is declared staff and contractors should always consider the need for the work and reschedule if possible.

6.2 Fire Risk Assessment and Control Measures (FRACM) form

A Fire Risk Assessment and Control Measures (FRACM) form (Attachment 4) must be completed by an authorised officer for every day where Fire Risk Work is being undertaken in a Hazardous Area or when a TOBAN is in force. The rules for a FRACM are as follows:

(i) All Control Measures must be implemented prior to any Fire Risk Work being undertaken;
(ii) Fire Risk Work can only be carried out during the period stated on the FRACM;
(iii) It must have a duration period of not more than 8 hours
(iv) The work conditions must be monitored to ensure the documented control measures remain adequate. Control measures must be revalidated if any conditions change during the work, and at least once per day;
(v) All persons required to sign on to the PWRA must comply with the requirements of the FRACM; and
(vi) Fire Risk Work must not be undertaken alone when in a Hazardous Area or during a TOBAN.

Where a FRACM is compiled the assessment must be reviewed at least once per day or if conditions change.

Attachment 5 sets out the fire safety equipment requirements for Fire Risk Work.
6.3 Carry out work
Fire risk work must be carried out in accordance with the FRACM form.

6.4 Final Fire Check
A final fire check must be performed (in accordance with section 5.2.5 of this procedure) and signed off at the completion of any Fire Risk Work following a suitable monitoring period. This will be dependent on the activity, weather conditions and fire rating on the day.

7. Contractor’s Hot Work and Fire Risk Work

The fire risk associated with Hot Work and Fire Risk work must be assessed and considered for all work conducted by contractors on behalf of TransGrid. The following points set out the requirements for Hot Work and Fire Risk Work by Contractors:

> **TransGrid is in control of the site** - Contractors undertaking maintenance activities, activities managed through a site specific management plan for minor work, or where it is specified in the contract, are required to follow this procedure. If a contractor is only doing minor works and is only required to be onsite for a short period of time, they are not required to be trained to undertake Hot Work or Fire Risk Work as long as they are an Instructed Person that is supervised by an appropriately Authorised Officer.

> **Principal Contractors engaged by TransGrid** - For all projects or work initiated by, or on behalf of, TransGrid or by third parties on land controlled by TransGrid (such as network augmentation projects, large network replacement projects, unregulated projects, negotiated services projects, project works by other parties on TransGrid sites), the contractor is required to have their own system to assess Hot Work and Fire Risk work, which must meet all legislative and regulatory requirements, and be equivalent to TransGrid’s Hot Work and Fire Risk Work Procedure.

8. Information, Instruction and Training

Workers and their supervisors will be provided with the skills and knowledge they need to understand their responsibilities for undertaking Hot Work and Fire Risk Work, as well as completing a Hot Work Permit or Fire Risk Assessment and Control Measures (FRACM) form.

For staff to become an authorised officer under this procedure, workers are required to be trained to E2 under the Authorisation to Work procedure and also successfully complete TransGrid’s Hot Work and Fire Risk Work online training.

**Note:** Contractors not working under TransGrid’s Hot Work and Fire Risk Work Procedure are required to ensure all their employees and subcontractors have completed training covering the Contractors Hot Work and Fire Risk Work processes and system to be used.
### 9. Accountability

<table>
<thead>
<tr>
<th>Title</th>
<th>Responsibilities and Accountabilities</th>
</tr>
</thead>
</table>
| General Worker            | > Adhering to and following all procedures for Hot Work; and  
> Adequately trained in the use of Fire Safety Equipment.                                                                                                                               |
| Authorised Officer        | > Identifying and nominating the appropriate control measures required to perform the Hot Work;  
> Ensuring that the nominated control measures have been implemented prior to work commencing;  
> Documenting that all workers have been instructed in the appropriate control measures required to perform the Hot Work; and  
> Validation of the control measures during the work (at least once per day).                                                                                                        |
| Fire Watch Observer       | > Adhering to and following all procedures for Hot Work;  
> Adequately trained in the use of Fire Safety Equipment; and  
> Undertake no other duties while acting as Fire Watch Observer.                                                                                                                     |
| Fire Watch                | > Fire Watch must be undertaken by the person responsible for compiling, implementing and authorising the Hot Work Permit or FRACM form;  
> Fire Watch duties can be delegated to the Fire Watch Observer where appointed;  
> Adhering to and following all procedures for Hot Work;  
> Adequately trained in the use of Fire Safety Equipment; and  
> Able to use fire safety equipment to extinguish a fire (when safe to do so) and raise the alarm where necessary.                                                                |
| Contractors               | > Ensuring that they have systems in place for Hot Work that are equivalent to TransGrid’s Hot Work procedure;  
> Ensuring all their staff and sub-contractors have undertaken Hot Work training;  
> Adhering to and following procedures for Hot Work; and  
> Ensuring that there are staff appropriately trained to act as Authorised Officers for the purposes of Hot Work.                                                              |
| Instructed Person         | > A person advised by or supervised by an Authorised Officer to enable them to avoid unacceptable fire risks associated with Hot Work.                                                                                                       |
| Project or Contract Manager | > Assessing the contractor’s Hot Work procedures prior to the commencement of works to ensure that they meet legislative, Australian Standard and TransGrid’s requirements.                                                             |

### 10. Implementation

This procedure will be implemented through the following mechanisms:

> Notification on HSE News page;
> Included in HSE Systems Monthly Update;
> Training under the Environmental Assessment Framework; and
> Factsheet for exemptions prepared for EGMs, Manager/Maintenance and Manager/Construction Services.
11. Monitoring and review

This procedure will be reviewed every three years.

12. Change from previous version

<table>
<thead>
<tr>
<th>Revision no</th>
<th>Approved by</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>M Gatt, EGM/PS&amp;CS</td>
<td>Nil – New procedure</td>
</tr>
</tbody>
</table>
| 1           | Ken McCall, Manager/HSE                         | Reformat of procedure to revised template with the following minor amendments:  
• Updating of position titles |
| 2           | Ken McCall, Manager/HSE                         | Reformat of procedure to revised template  
Minor amendment of updating position titles and including Manager/Construction Services. |
| 3           | Michael Gatt, EGM/Field Services                | The procedure has been rewritten to address legal advice and fulfill the requirements of AS1674.1 |
| 4           | Ken McCall, Manager/HSE                         | > Definitions – updated to match AS1671.4 requirements  
> Section 5.1.3 and 5.1.4: Removal of reference to the RFS Exemption during a total fire ban as the exemption has expired.  
> Section 5: Reference to the fact that a HWP is only required to be completed if undertaking work in a “hazardous area” or during a TOBAN (with the only exception being that a HWP is not required if carrying out Hot Work in a DHWA). Change from last version in that a HWP was required regardless of whether you were working in a hazardous area.  
> Section 5: Reference to the first step on the risk assessment process and the need to consider if the Hot Work activity can be eliminated. New requirement.  
> Section 5: Change in the flow chart including a step to consider weather conditions and postpone activity if conditions unfavourable.  
> Section 6: Change in the flow chart including a step to consider weather conditions and postpone activity if conditions unfavourable. |
| 5           | Ken McCall, Manager/HSE                         | > TransGrid has received a specific exemption from the RFS for Hot Works during TOBAN days. This information has been addressed in Section 5.1.3, 5.1.4 and Attachment 2. |
| 6           | Ken McCall, Manager/HSE                         | > Minor edit to flowchart |
| 7           | Jon Workman, A/Manager/Health, Safety and Environment | > Clarification of Hot work definition  
> Minor edits to process flow charts  
> Typographical corrections  
> Addition of 16L knapsack to PFSE |

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13. References

> Environmental Assessment Framework
> Environmental Authorisation
> Fire Protection Manual Operations & Maintenance
> Confined Spaces
> Health and Safety Risk Assessment
> Work Health & Safety Act 2011
> Work Health & Safety Regulation 2017
> Rural Fires Act 1997
> Codes of Practice – Welding Practices
> Code of Practice - Demolition Work
> Code of Practice - Confined Space
> Code of Practice - Construction Work
> Australian Standard - 1674.1 – safety in Welding and Allied Processes – Fire precautions
> Australian Standard - 1674.2 - safety in Welding and Allied Processes – Electrical
> Australian Standard - 2865 – Safe Working in a Confined Space

14. Attachments

Attachment 1 – Exemption during a Total Fire Ban
Attachment 2 – RFS Exemption during a Total Fire Ban
Attachment 3 - Hot Work Permit
Attachment 4 – Fire Risk Assessment and Control Measures (FRACM) Form
Attachment 5 – Fire Safety Equipment Requirements for Hot Work and Fire Risk Work
Attachment 1 – Exemption during a Total Fire Ban

The following are Exemption Scenario under the Rural Fires Act 1997 No. 65.

**Exemption Scenario 1** (This exemption is normally listed under Rural Fires Act 1997 Notification under Section 99, Schedule 5 of the Total Fire Ban Notification in the NSW Government Gazette):

Hot Work may be carried out on a Total Fire Ban day if an exemption is declared under Section 99, Schedule 5 of the Rural Fires Act 1997:

*SCHEDULE 5 Services & Utilities – Essential Repairs/Maintenance*

*Fire lit, maintained or used by, or under the authority of, a provider of energy, telecommunications, water, transport or waste removal/disposal services, in connection with the urgent and essential:*

(a) repairs; or
(b) maintenance of facilities or equipment required for the continuation of the supply or provision of power, light, heat, cooling, refrigeration, communication, water, transport or sewerage provided that:

1. the fire is lit and maintained in a manner which will prevent the escape of fire, sparks or incandescent or burning material from the site of the works; and
2. adequate fire fighting equipment is provided at the site of the works to prevent the escape or spread of the fire.

The general exemption means that TransGrid may undertake Hot Work for Essential Repairs/Maintenance during a TOBAN.

Each of the above conditions must be met before relying on this exemption.

**Exemption Scenario 2** (This exemption is normally listed under Rural Fires Act 1997 No. 65 Schedule 99 Schedule 18 of the Total Fire Ban Notification in the NSW Government Gazette):

*SCHEDULE 18 Any Other Fire Approved by NSW RFS Commissioner*

Any fire, the lighting or maintenance of which is approved in writing by the Commissioner of the NSW Rural Fire Service, provided that the person who lights or maintains the fire complies with any conditions imposed by the Commissioner in relation to that fire.

Schedule 18 means that Hot Work may be carried out during a TOBAN if the Commissioner of the RFS expressly approves (in writing) that TransGrid can carry out Hot Work. In such circumstances, the Commissioner may impose conditions on TransGrid for that approval, which TransGrid must comply with.

For NSW, TransGrid has been issued and exemption (TOBEX0001682) under Schedule 99 / Schedule 18 from the 19 March 2016 – 31 March 2018, authorising TransGrid to undertake “Hot Work fire risk activities such as cutting, grinding, soldering and welding within the fenced boundaries of substations, switchyards, and depots (Premises) during any Total Fire Ban.

A copy of the exemption is attached (Attachment 2).

Any Hot Work done under the exemptions above must comply with this procedure.
Mr Michael Gatt  
Transgrid  
Executive Manager, Works Delivery  
200 Old Weirgove Road  
EASTERN CREEK NSW 2766

Dear Mr Gatt

Exemption During a Total Fire Ban

I refer to your correspondence of 05 April 2017 seeking an exemption from a Total Fire Ban that may be declared, to conduct installation and/or routine maintenance of electrical power networks, located at various locations throughout and within NSW.

Pursuant to Section 99 of the Rural Fires Act 1997, and in accordance with the gazetted exemptions under Schedule 18, I am authorised to exempt the lighting of certain classes of fires during a Total Fire Ban. Under this authority, Transgrid is authorised to conduct gas cutting, welding, grinding and soldering and associated hot work activities during any Total Fire Ban which may be in force for the period 01 October 2017 until 31 March 2018.

This exemption is subject to the condition that adequate fire fighting equipment is immediately available to prevent the escape of any fire, spark or incandescent material from the site of the exempted work/event.

Prior to proceeding, you are required to discuss this work/event with the local NSW Rural Fire Service Zone/District Manager or the Officer in Charge of the nearest Fire and Rescue NSW Fire Station, as additional conditions may be imposed, which may include a direction that the event be postponed.

In granting this exemption, the NSW Rural Fire Service and Fire & Rescue NSW notes Transgrid’s comprehensive Hot work procedures that describes the process for assessing and implementation of control measures for hot work, as well as the requirement for contractors to submit Safety Management Plans prior to possession of a site to ensure compliance with Transgrid Policy and Procedure. Additionally it is noted that whilst activities are carried out ‘in the open’, they are contained within asphalted, concreted or gravelled areas free of combustible material. Please note the requirement to notify the nearest NSW Rural Fire Service office and/or NSW Fire & Rescue NSW Communications Centre on 1800 422 281, prior to undertaking hot works on all days of Total Fire Ban.

As this exemption is granted until 31 March 2018, it will be necessary to make a further application for an exemption for the ensuing twelve months 1 April 2018 to 31 March 2019 if required.

Yours faithfully

Shane Fitzsimmons  
Commissioner

Cc: Fire and Rescue NSW, Duty Response Co-ordinator (Facsimile: 9318 4380)

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Attachment 3 Hot Work Permit

Section A: Details of activity

<table>
<thead>
<tr>
<th>Location/Line/Span</th>
<th>Date</th>
<th>Time to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section B: Risk Assessment (check appropriate answer)

<table>
<thead>
<tr>
<th>Declared Bushfire Danger Rating</th>
<th>Low</th>
<th>Mod</th>
<th>High</th>
<th>Very High</th>
<th>Severe</th>
<th>Extreme</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Has a Total Fire Ban been declared?
  - If YES Complete remainder of this section and seek concurrence / approvals required

- ☐ Hot Work Indoors - No additional concurrence or approvals required
- ☐ Hot Work Inside Premises - Confirm exemption applies and contact local RFS for concurrence that work under the exemption can proceed
- ☐ Hot Work Outside Premises - No Hot Work during TOBAN without an exemption & approval from the Manager/Maintenance Programs or Manager/Construction Programs and advise the local RFS Manager that the activity is planned

Section C: Control Measures (Confirm the control measures are implemented)

| HOT WORK CONTROLS AND PRECAUTIONS (Check ☒ to indicate the control has been implemented) |
|-----------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Nominated Controls                             | Y             | NA            | Nominated Controls | Y             | NA            |
| Automatic sprinklers are in service           |               |               | Available exit routes have been identified & all staff are aware of their location |               |               |
| All pits, drains, wall & floor openings should be checked & sealed |               |               | Do not place or park hot equipment on combustible surfaces / materials |               |               |
| Remove combustible materials in work area     |               |               | Monitor equipment that may cause sparks |               |               |
| Check for flammable material within or stored on the other side of walls, panels & roofing |               |               | Monitor weather conditions (Section E) |               |               |
| Fire Fighting Requirements                   | Y             | NA            |               |               |               |
| Reduce ignition risk by wetting down, covering with sand or soil, use of non-flammable screens or covers |               |               | |               |               |
| Tanks, containers & enclosed areas have been purged of flammable vapours & dusts |               |               | 0.9kg dry chemical extinguisher OR |               |               |
| Staff trained & competent in use of plant & equipment |               |               | 9kg water extinguisher OR |               |               |
| Equipment has been inspected, maintained in a serviceable condition; cutting & welding equipment is in good repair |               |               | Hand tools i.e. Rake-hoe & shovel |               |               |
| Screens or shields have been installed beneath or adjacent to Hot Work to contain flame or collect/ divert sparks (welding, metal grinding/cutting, etc.) |               |               | Fire Trailer |               |               |
| Fire Watch Observer Nominated                 |               |               | Firefighting equipment laid out ready for use (including hoses & pumps etc.) & sufficient water |               |               |
|                                                   |               |               | Staff trained & competent to use fire equipment |               |               |

- Fire Watch Observer Nominated
  - Must be alert for any fire outbreak & immediately stop work & notify E3/Supervisor if a hazardous conditions are observed
  - Ready to combat outbreak of fire if safe to do so
  - Don’t leave site unless the E3 approves a suitable replacement
  - Keep work inside designated area

- Fire Watch – Inspect site before, during, at end of work & again 60 minutes after shutdown

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### Section D: Gas Testing Required

<table>
<thead>
<tr>
<th>Date of Test</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of Test</td>
<td>Results of tests Percentage L.E.L.</td>
</tr>
<tr>
<td>Date of Last Equipment Check</td>
<td>Is Hot Work safe to proceed?</td>
</tr>
<tr>
<td>Equipment Make &amp; Model</td>
<td>Initials of tester</td>
</tr>
</tbody>
</table>

### Section E: Verify Risk Assessment & Control Measures Implemented (before work commences)

The proposed work has been assessed for Fire Risk. I confirm the work can proceed with these control measures implemented.

<table>
<thead>
<tr>
<th>Time</th>
<th>Name (print)</th>
<th>Signature</th>
</tr>
</thead>
</table>

### Section F: Validation of control measures during the work

Control Measures must be revalidated **AT LEAST ONCE per day** and must be re-assessed if conditions change significantly during the day or new work activity undertaken.

<table>
<thead>
<tr>
<th>Time</th>
<th>Name (print)</th>
<th>Signature</th>
</tr>
</thead>
</table>

### Section G: Final Fire Check at completion of work

A final fire check must be performed & signed off at the completion of any Hot Work following a suitable monitoring period.

Final fire check has been completed & there is no risk of ignition.

<table>
<thead>
<tr>
<th>Time</th>
<th>Name (print)</th>
<th>Signature</th>
</tr>
</thead>
</table>

Warning: A printed copy of this document may not be the current version. Please refer to the Wire to verify the current version.
## Section A: Details of activity (undertaken for Fire Risk Work in a Hazardous Area)

<table>
<thead>
<tr>
<th>Location/Line/Span</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Section B: Risk Assessment (check appropriate answer)

<table>
<thead>
<tr>
<th>Declared Bushfire Danger Rating</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low / Mod / High / Very High / Severe / Extreme / Catastrophic</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Has a Total Fire Ban been declared?  
If Yes, consider postponing works if possible  
Yes ☐  No ☐  
(Go to Section C)

Use of heavy plant with steel tracks/implements for excavation OR mulching/slashing in a hazardous area?  
Yes ☐  No ☐  
(Next)  
(Go to Section C)

Confirm approval by Manager/Maintenance Programs or Manager/Construction Programs  
Yes ☐  (Attach approval)  
(Next)

## Section C: Control Measures (Confirm the control measures are implemented)

### FIRE RISK WORK CONTROLS AND PRECAUTIONS (Check ☑ to indicate the control has been implemented)

<table>
<thead>
<tr>
<th>Nominated Controls</th>
<th>Y</th>
<th>NA</th>
<th>Fire Fighting Requirements</th>
<th>Y</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery free from combustible debris</td>
<td>☐</td>
<td>☐</td>
<td>0.9kg dry chemical extinguisher OR</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Plant &amp; equipment serviced and checked</td>
<td>☐</td>
<td>☐</td>
<td>9kg water extinguisher OR</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Combustible materials removed from work area</td>
<td>☐</td>
<td>☐</td>
<td>16L Knapsack</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Clear refuelling area set up area</td>
<td>☐</td>
<td>☐</td>
<td>Hand tools i.e. Rake-hoe &amp; shovel</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Equipment fitted with muffler &amp;/or spark arrestor</td>
<td>☐</td>
<td>☐</td>
<td>Fire Trailer</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>• Avoid driving vehicles off formed tracks</td>
<td>☐</td>
<td>☐</td>
<td>• Firefighting equipment laid out ready for use (including hoses &amp; pumps etc.) &amp; sufficient water</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>• Available exit routes have been identified &amp; all staff are aware of their location</td>
<td>☐</td>
<td>☐</td>
<td>• Staff trained &amp; competent to use fire equipment</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>• Do not place or park hot equipment on combustible surfaces / materials</td>
<td>☐</td>
<td>☐</td>
<td></td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>• Monitor equipment that may cause sparks</td>
<td>☐</td>
<td>☐</td>
<td></td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>• Monitor weather conditions (Section E)</td>
<td>☐</td>
<td>☐</td>
<td></td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Fire Watch Observer Nominated

| • Must be alert for any fire outbreak & immediately stop work & notify E3/Supervisor if a hazardous conditions are observed | ☐ | ☐ |
| • Ready to combat outbreak of fire if safe to do so | ☐ | ☐ |
| • Don’t leave site unless the E3 approves a suitable replacement | ☐ | ☐ |
| • Keep work inside designated area | ☐ | ☐ |

### Fire Watch – Inspect site before, during, at end of work & again 60 minutes after shutdown  
Yes ☐  No ☐  
(Next)

Other Controls:

## Section D: Verify Risk Assessment & Control Measures Implemented (before work commences)

| Proposed work has been assessed for Fire Risk. I confirm the work can proceed with control measures implemented. |
| Time | Name (print) | Signature |

## Section E: Validation of control measures during the work

Control Measures must be revalidated AT LEAST ONCE per day and must be re-assessed if conditions change significantly during the day or new work activity undertaken.

| Time | Name (print) | Signature |

## Section F: Final Fire Check at completion of work

A final fire check must be performed & signed off at the completion of any Hot Work following a suitable monitoring period.

| Time | Name (print) | Signature |

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### Attachment 5 - Fire Safety Equipment Requirements for Hot Work and Fire Risk Work

<table>
<thead>
<tr>
<th>Declared Bushfire Danger Rating</th>
<th>Low-Moderate</th>
<th>High</th>
<th>Very High</th>
<th>Severe</th>
<th>Extreme</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HOT WORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mandatory Equipment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for ALL Hot Work indoors/inside a building and inside premises</td>
<td>Welding Pads/Shields as required AND 16L water filled knapsack OR 0.9kg dry chemical extinguisher OR 9kg water extinguisher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mandatory Equipment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for ALL Hot Work ‘in the open’ outside premises</td>
<td>Welding Pads/Shields as required AND Prescribed Fire Safety Equipment (PFSE): Rake-hoe and shovel AND 16L water filled knapsack OR 0.9kg dry chemical extinguisher OR 9kg water extinguisher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for HOT WORK ‘in the open’ outside premises</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIRE RISK WORK</strong></td>
<td>PFSE</td>
<td>PFSE + 16L Knapsack</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIRE RISK WORK IN HAZARDOUS AREAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td>1) All vehicles and plant MUST carry a separate fit for purpose (for the vehicle / plant) fire extinguisher in addition to PFSE 2) On Severe &amp; Extreme fire rated days (with no TOBAN Declared) reconsider the urgency of the work 3) FIRE SAFETY and EQUIPMENT REQUIREMENTS MUST DEFAULT TO THE MAXIMUM LEVEL IF HOT WORK / FIRE RISK WORK IS UNDTAKEN DURING A TOBAN 4) A Fire Trailer and Fire Watch Observer are not required for the operation of motor vehicles for the purposes of driving only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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