



Combe Mill Society - Risk Assessment

FORM:52_v2

Activity: Pre Steaming Inspection and Oiling of the Mill's Heritage Power Train

Risk Assessment undertaken by: PH, RJN

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Assessment date: 15/03/2023
Date of last review: Not applicable
Next review date: 1 March 2024
Assessment Ref: RA15_v1_Lineshaft Lub

Certification The contents of and conclusions drawn in this Assessment are the responsibility of the HTA and have been certified by the DRS as meeting the requirements of the Combe Mill Society for display on the web site.

Abbreviations used in this risk assessment

Where an action or reference applies to a specific person that person is referred to by his or her initials. These persons are:

- PH, Philip Hawtin; RJN, Richard Newman (HTA).

Where an action devolves on a post holder the following abbreviations are used:

Abbreviation or Name	Post
CMS	Combe Mill Society
DRS	The Director Responsible for Safety
HTA	The Head of the Heritage Power Transmission Lubrication Technical Area.
Oiler	The person in charge of the lubrication
PP	Proficient Persons: individuals who are deemed sufficiently qualified and experienced to allow them to take charge of work within the Technical Area in the absence of the HTA.
QNA	Quantified assessment Not Applicable

*Residual Risk (RR) =H x P



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Coverage: This Risk Assessment covers the risks arising from the pre-steaming lubrication of the equipment described in MS15 entitled "Oiling of Line Shafting and Associated Plant, Beam Engine and Waterwheel (Including Inspection of Line Shafting)"

Once operational any required continuing lubrication becomes the responsibility of the relevant specialist HTAs as follows:

- Beam Engine Beam Engine HTA (MS04 applies)
- Water wheel Water Wheel and Gear Room HTA (MS10 applies)
- Band Saw Wood Turning & Carpentry HTA (MS02 applies)

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Hazard (1)	Who might be harmed (2)	Consequence of Hazard (H) and associated uncontrolled Risk. (3)	Risk from matrix* (4)			Control Measures adopted or required to make the Residual Risk Rating acceptable (5)	Residual Risk
			H	P	Risk		RR*
1 Accident caused by moving Line Shaft --Gaining control of the line shaft	The Proficient Person carrying out the lubrication ("The Oiler")	Inadvertent starting of the Beam Engine or Line Shaft Motor could cause Extreme injuries including Fatalities due to entrapment in the moving parts of the line shaft. The Probability is Unlikely and the Risk is formally Moderate. Serious falls with Major consequences are Possible again producing a Moderate Risk Falls from the ladder are the bounding uncontrolled Risk	4	3	4 X 3 = 12	<p>The Oiler must have control of the line shaft before starting lubrication.</p> <p>To gain this control the Oiler must:</p> <p>a) collect and retain the key to the lock on the Line Shaft Motor electricity control box. Check the box is in the locked off position and the padlock is in place.</p> <p>b) Ensure that the main steam valve supplying steam from the boiler and the engine's steam inlet valve are both closed.</p> <p>c) Remove and retain the green disc from its hook. This exposes a ban on starting the engine or barring it over.</p> <p>The Oiler must retain the key and green disc until the lubricating team has completed its work.</p> <p>The above precautions reduce the Probability to Unlikely. The Residual Risk is confirmed as Moderate and in the absence of further practicable measures is acceptable.</p>	4 X 2 = 8

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			H	P	Risk		RR*
2 Lone working	The Oiler	For details see Hazards 6 and 7			QNA	1) The pre steaming inspection and oiling of CMS's Heritage Power Train must not be carried out on a Lone Working basis. A second person is required to foot the ladder whenever a ladder is in use. 2) The HTA has made an order banning carrying out this lubrication on a Lone Working basis. For further details see Hazards 6 and 7	QNA
3 Contact with a Ladder being transported	Members, Volunteers, Public	Minor injuries are Possible. The Risk is Tolerable	2	3	2 X 3 = 6	By carrying out the work before opening and when few Volunteers are present and using a second person to assist, reduces the Probability to Very Unlikely and the Residual Risk to Trivial.	2 X 1 = 2

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			H	P	Risk		RR*
4 Slips, Trips and Falls	Members & Volunteers	Moderate Harm is Possible. The Risk is Moderate	3	3	3 X 3 = 9	Wearing Stout Footwear and ensuring the route is free of obstruction reduces the Probability of Harm to Unlikely and in all probability the level of harm. No quantitative claim is made for this latter possibility. The Residual Risk is reduced but remains formally Moderate and is acceptable.	3 X 2 = 6
5 Health Hazard from Oil	Members & Volunteers	Minor injuries are Possible. The uncontrolled Risk is Moderate	2	3	2 X 3 = 6	The persons carrying out the oiling wear disposable gloves and are trained to dispose of oily rags responsibly. In particular they are instructed never to place contaminated rags in their pockets. This reduces the Probability of Occurrence to Unlikely and hence lowers the RR. The RR remains formally Tolerable and is acceptable.	2 X 2 = 4

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			H	P	Risk		RR*
6 Falling from an unstable ladder or steps	The Oiler	The Severity of Harm is assessed as Major and the Probability of Occurrence is Likely making the uncontrolled Risk Substantial.	4	4	4 X 4 = 16	To reduce the risk further 1) Oilers wear Stout Footwear and a second person must foot the ladder. 2) Persons carrying out the oiling are required to work to the Society's Working at Height Regulations (MS16) 3) The ladders and steps used are inspected by the users before use and formally on an annual basis in accordance with English Law. 4) The use of a 3 tread step ladder in the Forge area and beside the Small Engines further reduces the Probability of Occurrence which is assessed as Unlikely. The Residual Risk is controlled and reduced to the bottom end of the Moderate range. In the absence of other practicable means, it is acceptable.	4 X 2 = 8

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			H	P	Risk		RR*
7 Lubricating the Beam Engine	Members or Volunteers carrying out the oiling	<p>The Beam Engine is a Heritage engine and its location means that some oiling points are difficult to access.</p> <p>The Severity of Harm is assessed as Major and the Probability of its Occurrence as Likely, making the Associated uncontrolled Risk Substantial.</p>	4	4	4 X 4 = 16	1) The key additional safety measure is the required physical presence of a second person in the engine house throughout the entire oiling period. 2) Prior to the start of the oiling, the oiler must ensure the assistant knows what is required from him/ her. Especially: a) what help is needed to assist the oiler minimise the risk of an accident b) how to provide practical help if an accident does occur. 3) The assistant must not undertake non-safety related activities except under the specific instruction of the oiler. If these require the assistant to leave the engine house the oiling work must stop. 4) These measures reduce the Probability of the incident to Unlikely and the Residual Risk to Moderate. In all probability the measures will also reduce the level of Harm due to a faster response to any incident but no quantitative claim is made for this. The risk is acceptable	4 X 2 = 8

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			H	P	Risk		RR*
8 Contamination of Blacksmiths' Tools and Hearth/Bench by spilt oil	Members & Volunteers	The Severity of Harm is assessed as Moderate and the Probability of its Occurrence as Possible. The associated Risk is in the Moderate Range is not Controlled.	3	3	3 X 3 = 9	Tools are moved and the areas beneath the bearings covered thereby reducing the probability that the oil will come into contact with the tools etc. This reduces the Probability of Occurrence to 1 and the Residual Risk to 3 (trivial).	3 X 1 = 3
9 Risk of Fire if bearing over hearth is lubricated with fire alight	Members & Volunteers Also possible damage to building	The potential harm to the oiler (the person most at risk) is assessed as Extreme and the Probability of Occurrence as Likely. The resulting Risk is in the Very Serious Range and is consequently unacceptable	5	4	5 X 4 = 20	The lubrication of any line shaft bearing within the curtilage of the blacksmiths' shop is only permitted when there is no fire in either of the two hearths and, if necessary, the ashes have been given time to cool. This ban effectively removes the source of ignition. Given its significance in the safety argument it is retained in the Risk Assessment with an indicative Tolerable Residual Risk.. The risk is controlled and is acceptable This ban needs to be recorded in the Method Statement MS15 when next it is revised. Action HTA	Indicative Risk 4

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			H	P	Risk		RR*
10 Supervision of training	Person undergoing training The Supervising Proficient Person	The various hazards that can arise are set out above and the detailed assessment of each hazard is not repeated here			As above	<p>All trainers must be Proficient Persons (PP)</p> <p>The training provided is of the traditional kind where:</p> <p>a) the Trainee works alongside the Trainer who first explains and then demonstrates the task and/or responsibility</p> <p>b) Roles are then reversed as the trainee undertakes the task under supervision.</p> <p>c) This process continues until the HTA can be satisfied that the Trainee has acquired the necessary skills and knowledge to become a PP.</p> <p>The individual hazards assessed above have been reconsidered against the scenario that a supervised but inexperienced person is involved. This concluded that the risks to the PP were unchanged and that the risks to the trainee were similar to those faced by the PP.</p>	As above

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Appendix

<p>This Appendix is not formally a part of the associated Risk Assessment. It has been prepared by the DRS providing a reminder of the existing safety management responsibilities that impact on the application of the Assessment.</p>	
<p>1 Trainee development</p>	<p>As soon as the HTA is satisfied that the Trainee is sufficiently skilful and has had the necessary experience the HTA will reclassify the Trainee as a Proficient Person and enter the person's name on the list that the HTA is required to keep. (See Item 3 below)</p> <p>The HTA must then ask the appropriate person (at present Tony Simmons) to issue the new Proficient Person with a certificate of Proficiency.</p>
<p>2 Competent Person</p>	<p>Note: The Intermediate grade of Competent Person, permitted under the CMS Safety Policy, is not used in the Line Shaft Lubrication Technical Area.</p>
<p>3 Loss of control of risk due to persons carrying out duties for which they were not properly trained and/or experienced.</p>	<ol style="list-style-type: none"> 1) The HTA is required to maintain an up to date list of the names of Proficient Persons This list is the definitive list of Proficient Persons approved to lubricate the Line Shaft. 2) The certificates of Proficiency provide reassurance to the persons concerned that they are on the HTA's list. Their possession is not obligatory. 3) Any person may ask for his/her name to be removed from a list. 4) The HTA is formally responsible for ensuring that CMS's safety requirements are met during Line shaft lubrication. 5) The HTA seeks to resolve any matters arising by discussion. 6) If such discussion fails the HTA should consult the DRS.

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Risk Rating Matrix

		Probability of Occurrence (P)				
		Very Unlikely	Unlikely	Possible	Likely	Very likely
Consequence of Incident expressed as the resulting "Severity of Harm" (H)	Negligible	Trivial (1)	Trivial (2)	Trivial(3)	Tolerable(4)	Tolerable(5)
	Minor	Trivial(2)	Tolerable(4)	Tolerable(6)	Moderate(8)	Moderate(10)
	Moderate	Tolerable(3)	Tolerable(6)	Moderate(9)	Moderate(12)	Substantial(15)
	Major	Tolerable(4)	Moderate(8)	Moderate(12)	Substantial(16)	Very serious(20)
	Extreme	Moderate(5)	Moderate(10)	Substantial(15)	Very serious(20)	Very serious(25)

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Guidance on Interpretation

Parameter Level	HSE Descriptor	Meaning
Severity of Harm (H)		
1	Negligible	Postulated event not expected to lead to noticeable harm.
2	Minor	Level of harm that could lead to an injury that needs first aid treatment at the Mill
3	Moderate	Level of harm that could lead to an injury that requires professional help
4	Major	Serious medical injuries: for example broken limbs or a period of unconsciousness or the need to report the incident to a Regulatory Body
5	Extreme	Harm that could lead to death or life changing permanent injuries
Probability of Occurrence (P)		
1	Very Unlikely	Not more than once in 10 years
2	Unlikely	Not more than once a year
3	Possible	Over 1 but not more than twice a year
4	Likely	Over 2 but not more than 4 in a year
5	Very likely	Almost certain to appear: the occurrence often overlooked as being a 'normal everyday occurrence'.

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Further Typical Measures that may be required to make the Residual Risk Acceptable

Risk R	Trivial	Tolerable	Moderate	Substantial	Very serious
Comment	<p>Residual Risk (RR= 1 to 3)</p> <p>The risk is effectively non-existent and is acceptable as it stands.</p>	<p>RR = 4 to 6</p> <p>The risk is adequately controlled but consider any justifiable minor additional measures</p>	<p>RR = 5-12</p> <p>Additional controls should be considered where possible.</p> <p>The risk may or may not be adequately controlled.</p>	<p>RR=15-16</p> <p>The risk is not adequately controlled: set out steps that must be taken before execution of operation can be approved</p>	<p>RR=20-25</p> <p>The risk is not adequately controlled: the operation is unacceptable. Rigorous control methods are essential. Find an alternative if practicable.</p>

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