Technical Safety Authority of Saskatchewan

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Action Items from the Public Consultations on Steam Traction Engine Operations in Saskatchewan

TSASK participated in three public forums with the Steam Traction Engine Industry to discuss their concerns and opportunities for improvement. TSASK has summarized those comments and developed a strategic approach to address the items raised in the consultations. TSASK would like to thank all those who participated in the consultation process for their time and input.

The following are action items that TSASK will undertake to address the concerns and opportunities raised in the public consultation process. TSASK will be calling on industry experts to provide input into the TSASK decision making process. Although every effort will be made to comprehensively address the concerns that arose in the public consultations, TSASK will continue to work with the Steam Traction Engine Industry to fine tune the new policies/bulletins and address any concerns that may arise once the policy/bulletins are in place. This will continue to be a cooperative effort between TSASK and the Steam Traction Engine Industry to provide the best opportunities for the continued safe operation of steam traction engines in Saskatchewan.

1. **Steam Traction Engine Page on TSASK Website (tsask.ca)**
   TSASK will create a link from the TSASK main home page to a special page just for the Steam Traction Engine Industry. This webpage will contain all the relevant information from TSASK plus provide a "feedback" button so industry can immediately contact TSASK with opinions, concerns or comments. TSASK is also offering to post opportunities for the public to view these historic units in operation by providing a calendar section where the fairs, parades, demonstrations, or meetings can be posted. TSASK will utilize this page for feedback on the proposed policies/bulletins arising from the public consultations.

2. **Operator Requirements**
   Over the next months, TSASK will conduct a comprehensive review of Canadian wide requirements for operators in all the provinces who have an active steam traction engine industry. The findings will be condensed into a summary that will be posted on TSASK's steam traction engine webpage. TSASK will then consider making changes to the current Limited Power Engineer Traction Engine Operator Licence based on current Canadian practices, public consultation comments and provincial legislative requirements. An initial draft of the recommended policy will be shared with industry through the webpage and a specified amount of time for providing comment to TSASK will be set. Once these comments are reviewed and any necessary changes made, the policy will be reviewed and approved by TSASK.

3. **Standard Repair/Code Review**
   TSASK will conduct a review of the *2011 National Board Inspection Code (NBIC) Part 3 – Repairs and Alterations*, *Section 6, Supplement 2 – Historical Boilers* to determine if this supplement could be adopted in its entirety for use in Saskatchewan. Furthermore, TSASK, as part of the review, will establish if the code requirements of the NBIC would be sufficient to provide the "standard" approach to repairs that the Saskatchewan Steam Traction Engine Industry is very much interested in developing.

   TSASK will also review the hydro test requirements that are currently mandated for the units. A decision to continue, modify or scrap that policy will be made and the findings will be included in the review. The basis for the decision will be included.

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Once the review is complete, TSASK will share their findings with industry by posting a draft bulletin on the TSASK website. There will be a set time for comment and review by the industry and a final bulletin will be posted prior to the start of the Steam Traction Engine season in 2015.

4. TSASK Inspector Qualification Requirements

TSASK will review the request to have experienced TSASK Inspectors inspect the steam traction engines. Keeping in mind that TSASK has other obligations to fulfill within Saskatchewan, TSASK will look at different options and scenarios that might meet the needs of the Steam Traction Engine Industry for experienced inspectors while not impacting the ability of TSASK to meet its other obligations.

TSASK will also compile a thorough list of the items to be inspected on the units. This will include any changes that may be made to current policy. TSASK will also look at the possibility of creating a set of scenarios for different inspection deficiencies. However, this may not be necessary if the *NBIC Part 3 Section 6 Supplement 2* is adopted. Not meeting the requirements of that code would deem the engine not eligible for operation.

TSASK is committed to completing this work in time for the upcoming steam traction engine season. Effort will be made to have the website link before **January 15, 2015** and the remaining three areas addressed for **May 1, 2015**.

Anyone who attended the meetings and provided an email contact will be sent a notification when the Steam Traction Engine Link is up and running on tsask.ca. You will also receive the draft policies/bulletins as they become available for your comment. If you wish to be included in the emails but did not supply an email at the public consultations or were unable to attend the public consultation meetings, you may have your email added to the list by providing your information through the TSASK website at tsask.ca. If you scroll to the bottom of the home page, you will see an opportunity to provide feedback to TSASK. Please use that link to provide your email information until the Steam Traction Engine link is up and running.

Again, TSASK would like to thank everyone who participated in the consultation for their time and opinions. Together, we will build a strong Steam Traction Engine Industry for Saskatchewan.

Chris Selinger, VP Operations and Chief Inspector
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Appendix A: Summary of Public Consultation Meetings on Steam Traction Engines

Three meetings were held in the province for public consultation on Steam Traction Engines in the spring of 2014. The following is a summary of the comments that were made in the meetings. Appendix B contains the actual notes taken by Chris Selinger, VP Operations and Chief Inspector during those meetings.

Operator Qualifications:

Although there was a difference in opinion on how standard qualifications should be reached, there was agreement that an operator had to demonstrate competency in three areas – theory, pracitcal and experience – before being considered a fully qualified operator.

There was discussion around the need for a "learner's" licence so that inexperienced operators could get the necessary time on the steam traction engines. The models discussed were that of a pilot who has to get a learner's permit first and automobile driver's licences which again require the driver to work through a graduated program to become an independent operator.

Discussed the possibility of two classes of licences for steam traction engine operators:

- Learner's/Fireman
- Engineer

An engineer would be a fully qualified operator who would be able to mentor and sign for experience time of the Learner/Fireman. The Learner/Fireman would be allowed to operate a steam traction engine as long as the Engineer was overseeing. This arrangement would allow the Learner/Fireman the opportunity to operate in a public environment such as a parade. By obtaining the Learner/Fireman permit, the operator had already demonstrated competency in theory and practical. Now, they would be getting the necessary experience time. Many felt that operating in a public setting was very different from private operating time. They felt it was necessary to get the Learner/Fireman some of that experience before they can graduate to an Engineer. Plus, they also liked the idea of two operators on the engine at all times and this arrangement would allow for that to continue.

The general consensus was for TSASK to take the lead in laying out the required theory, practical time and experience requirements for operator accreditation. They also requested that a standard course be developed for the theory with an explanation of the practical requirements. Some felt the course could be done over a two day weekend while others felt that simply was not enough. Manitoba has a model that TSASK can audit to see if their system would be acceptable for Saskatchewan.

Power Engineering Ticket qualifications were discussed for the operating of steam traction engines. A defined amount of time for each level of Power Engineering Ticket would be advantageous. Just because some one holds a steam ticket does not mean they are qualified to operate a steam traction engine. Others felt that only a qualified Steam Traction Operating certificate should be allowed. No exceptions. Clarity on TSASK requirements would be appreciated.

Having an identification(ID) badge for the Operators would be beneficial. Not only would the operators be clearly identified, it would provide a level of confidence that the operators are licensed to operate the steam traction engine. These ID badges could be part of TSASK licensing.

Finally, a list of qualified operators (engineers) who are approved to mentor new operators (learners) should be compiled by TSASK.

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TSASK Inspector Experience

A general theme at all three meetings was that having an experienced TSASK Inspector was invaluable. Given the power of the Inspector, someone who has the knowledge and experience of steam traction engines would be in a better position to assess true risk. The TSASK Inspector's judgment is so crutial to the continued operation of the units that all felt that someone with a strong background in steam traction engines must do the inspections. An appeals process might help lessen the fear of an inexperienced inspector.

Another discussion point was the development of a comprehensive TSASK information package that would outline the types of inspections that will be done annually on the units. Included in this package would be the code references and/or policy references for each inspection point. That way, owners/operators would have a clearer understanding of the requirements and exactly what the inspections are requiring and why. Further, one group even suggested that TSASK put together a possible outcome package which would explain the various inspections and what the outcomes might be if the inspection is not passed. The example of a leaking oiler was used. If the oiler is leaking, under these various scenarios, these various outcomes may be applied. All felt that this would limit the surprises and help promote standard inspections across the province.

Another point was the need for the TSASK inspector to be involved in all aspects of a repair. The group felt that the Inspector's input is needed to ensure that no mistakes are made that could scrap the entire unit.

Finally, some felt there was an advantage to expand the TSASK Inspection beyond just the boiler as there are other critical pieces of equipment. However, this would only be acceptable provided there were clear guidelines on what would be expected if the inspection found issues. All worried that this expanded inspection authority could be abused by TSASK so they wanted it tightly controlled. They felt recommendations rather than directives might help with that.

Repair versus Maintenance

Many felt that a standard guide for repairs would be very helpful. All agreed that a standard set of quality controlled repair procedures would be beneficial with a list of companies qualified to do the work. There was some discussion on whether or not the Saskatchewan Western Development Museum (SWDM) would be allowed to develop the quality control procedures and qualify companies to do the procedural work. Evidently Manitoba has a manual they lend out to companies to do repairs. This has to be confirmed.

There were questions on what constitutes a repair and what is considered maintenance and who is allowed to do what. All wanted a better understanding of what is required and how TSASK defined each. Qualifications of companies allowed to do repairs would be helpful.

Others would like to see the NBIC adopted as a recognized repair code. They also would like to see the requirement for a 200 psi hydro test removed as many feel there is no basis for this requirement. In adopting a standard code, some felt that decisions would be based on code and not on inspector judgment. Others liked the idea of being able to qualify for a higher operating pressure than 100 psi. In order to plow, an operating pressure of 140 – 150 psi is required. Some felt that this could be allowed the NBIC was followed.

Welding on steam traction engines has always been a big issue. Many put the case forward that this has been done in the past and should be allowed in the future provided satisfactory documentation can be produced. These welded repairs would be part of the standard quality control manual. Again, some felt the NBIC would help make welding on the units more acceptable.

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Maintenance and repair logs should be maintained for each of the units. This would bring all the history into one book and would provide not only a log of who did what maintenance and repairs but provide factual evidence of work that has or has not been done.

General Comments

A definition of what is public presence would be useful. Clarity would ensure that operators understood when the rules of a public presence need to be applied and when they are not required. Training sessions is a good example where one member of the public may be observing the session. Do the rules apply for public presence then?

Operator manuals for the traction engines would be very useful. Developing general start-up, operating and shutdown procedures would ensure the basics for every unit is covered. Then the manuals could be updated or tailored to the particular unit. Also, these manuals could cover annual (first of the year) start-up and final shutdown (layup). These manuals could also include explanations on the hows and whys things need to be done. Having a one page laminated information sheets would also be useful especially for new operators who may need refreshers until they gain the necessary experience.

When bringing an new steam traction engine into Saskatchewan, an understanding of TSASK requirements for owners would be beneficial. Clearly defining what will be acceptable to TSASK before purchasing a unit will protect potential owners and make for an easier transition to this province.

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Appendix B – Public Consultation Comments

April 12th, 2014 - Rocanville and Distric Museum, Rocanville

Number of attendees: 24

Comments:

- Like the pre-package for repairs – a company with standard documentation, etc to do the work
- Like the NBIC option for repairs
- Want dedicated TSASK person to follow through and examine along the way (guiding) – be a shame to have made a mistake and scrap the item
- Need a dedicated repair company that is willing to do the work
- Bringing in a new engine to the province:
    - Items with a history in the province
    - Similar/identical engines operating already in the province
    - No unauthorized/undocumented repairs
- See some value in inspection beyond the boiler:
    - Flywheel, flame arrestor, etc
    - Like as recommendation
    - Concern is this authority could be abused
- Operator qualifications:
    - Need 100 hours
    - Steam class – need 20 hours
    - Maybe stationary counts for some hours
    - Sign off by engineer (Commissioner of oaths too)
    - Opportunity to examine without paper test
    - Maybe some recognition that some learn better than others – sponsorship maybe better than hours
    - Generally like drivers test – even proves in the mentorship
- How do we get an apprentice learning in the environment of a parade as it is different than in the back 40
    - Apprenticeship
    - Like the idea of 2 classes 1.) Driver/learner/fireman
      2.) Engineer
    - Like 2 people on the engine
    - Fireman needs to have been tested to basics though and can be in parade
    - Totally greenhorn is not allowed
    - Needs to have seen a parade setting – driver's education concept
    - Engineer is in CHARGE
- Badges or IDs when on engine
- Who can repair – ie retube?
    - Yes, but need to notify TSASK to approve
- Repair vs Maintenance

May 7th, 2014 - Saskatchewan Western Development Museum, Moose Jaw

Number of attendees: 9

Comments:

- Hydro test
    - Codes are lowering hydro
    - Many boilers in past that have been condemned have been by hydro
        - It tests whole geometry

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        - Rivets designed for pressure
    - Maybe warm and temper water for hydro
- Some of TSASK inspectors are not fully knowledgeable at hydro
    - After 30 minutes, see some moisture
        - Not a worry
        - More risk if repair
- Staybolts – seal well on threaded is a large issue
- Need to define maintenance from repair
    - Bucking a stay versus peening
    - Rolling a tube
- Need to set expectations of owner, repair person and TSASK
- Keeping of maintenance/repair logs
- Welded repairs – might stop owners from hiding weak spots on boiler for fear of being shut down
- Tensile and elasticity of boiler plate for welded repairs should be considered – use temper bead methods
- Follow up with NDE around welded repairs
- Licensing:
    - Like fusible plug idea
    - Still need paper license
        - Historical record
        - Can provide to fairs
        - Can use plug elsewhere
- What lead time is needed to give to inspector to do the inspection?
- Operator Qualifications:
    - Only traction engineer licences can operate a traction engine
        - Manually fired
        - Operates not on a level
    - Passing test show qualification but not skill
    - Owners need to know practical experience and skill of the operator
    - WDM wants qualification (provincial) that evaluates skill
        - Driver's test
        - Already done in Manitoba – maybe in Alberta
    - Record and sign off by other operator of 64 hours experience time was a past requirement
    - Another way is you must get 3 current licensed operators to sign off your application to write exam
        - They agree to person having experience and skill
        - Puts own licence on the line
        - 5 years experience already for current operators signing off application
    - Like a course as pre-requisite for exam
        - Need more options than just Saskatoon at WDM
        - Manitoba used as an example:
            - Austin Museum, Steam Association, and Government
            - 1 weekend intensive course
            - 80 hours experience signed off by mentor from above partnership
    - How do you get experience if you cannot operate during a show?
    - Want listing of approved licensed mentors
    - Okay with idea that you can write exam before or after experience but need both to be licensed
    - Pilot system allows a learner licence first before pilot licence
    - Always 2 people on the engine

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        - One qualified and the other approved by the operator to know second person has some knowledge
        - Allow some judgment and decision making by operator in consideration of all surroundings and settings
    - Some applicable experience in moving large machinery
- Inspection should include ash pan and draft doors – you control the fire with these items and not by adding/removing logs
- Some thoughts on the merits of the engine and fitness for service to allow higher pressure
    - Need 140 – 150 psi to plow
    - National Board rules investment needed and on-going

May 9th, 2014 – Saskatchewan Western Development Museum, Saskatoon

Number of attendees: 15

Comments:

- Hydro test – no rationale behind 200 psi
- Want all policies to be able to be backed up by a code reference – see hydro test comment
- Question over the value of the hydro test anyway
- Knowledgeable inspector important
    - Inspector and owners are not used to looking at engines
    - Engines need to be kept clean for this purpose
    - Concern is inspector may not have proper judgment to know when to shut down over mechanical inspection
    - {Chris' note to self – consider an appeal process}
    - Concern is scope creep – might we start looking at fairgrounds
    - Want TSASK to document what TSASK will inspect and possible outcomes on each item inspected
        - Ie. If an oiler is leaking in these kinds of scenarios, here are the possible outcomes and repercussions
    - When inspecting, educate owner/operator on all items you are looking at
    - Document these as guidelines and not policy – examples (clear) versus exact rules
- Welding
    - Two qualities of steels used in past
        - Flanged quality – could be worked hot/cold
        - Firebox quality – more control than on carbon
    - Welding is not an issue
    - Laminations are apparent when cutting into boiler and you can then adjust repair and cut it all out
    - Indicates experience in seeing welding on these boiler and his family history
- Big question on quality and ability of companies/person who would do this work – don't want to be dumbed down to lowest common denominator
- Standardized QC traction engine repair manual and program – Manitoba may have one they lend out to repair shops
- Can the WDM and the Steam Association build a QC system and procedures and listing of manufacturers to do repair work?
- Operator Qualifications
    - Must have the experience to get the licence
    - After course and time on engine, good to go but after the winter, needed a refresher course – maybe need to have a few seasons under the belt
    - Incorporate a course with driving time but standardized course requirements – not a 10 hour weekend course
    - There is theory, practical time and experience
    - Don't need to have mutually exclusive ways to qualify

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    - One course does theory, practical and driver test – just write the exam
    - One course does only theory – TSASK does driver test to verify practical along with exam
- Maybe create some one page laminated check list of key operating procedures as a reference and beyond relying on memory
- Want engine operator manuals
    - Start-up, shutdown, etc maintenance
    - Seasonal start-up and layup
    - Create an operators log book with some pages as reminders of operator procedures – nice piece to have for personal memories
- Need to define public presence – what if a public person sees a private use situation and walks up to see
- What are the rules for model?
- Is there a need for re-testing operators?
    - Continuity logs
    - But things change too
    - Age question raised – think it should be on either end