



# **Basic Impact Analysis (BIA)**

Highway 430 (kms 39.9 to 88.5) Recapitalization

Gros Morne National Park

March 2016

GMNP-2016-005



<b>1. PROJECT TITLE</b>	Highway 430 (kms 39.9 to 88.5) Recapitalization	
<b>2. PROJECT LOCATION</b> (Park, Site, Canal, NMCA)	Gros Morne National Park	
<b>3. PROJECT SITE(S)</b>	Highway 430 North (Lobster Cove to North Entrance)	
<b>4. PROPONENT</b>	Parks Canada	
<b>5. PROPONENT CONTACT INFORMATION</b>	Darren Nicolle (Western Newfoundland and Labrador Field Unit Projects Manager) Gros Morne National Park Rocky Harbour, NL. Tel. 709-458-3568 cell 709-458-7110. Email <a href="mailto:Darren.Nicolle@pc.gc.ca">Darren.Nicolle@pc.gc.ca</a>	
<b>6. PROJECT DATES</b>	Planned Commencement May 15, 2016	Planned Completion September 30, 2017
<b>7. INTERNAL PROJECT FILE #</b>	GMNP-2016-005	
<b>8. PROJECT DESCRIPTION</b>	Complete highway restoration is planned for route 430 from the Lobster Cove Head exit past Rocky Harbour, northward to the park's north entrance. First stages of the project in 2016 will include roadside ditching, brush clearing and replacement of 86 culverts, plus roadbed subgrade geotechnical test drilling investigations; surface cold plane milling and repaving is scheduled for 2017.	
<b>9. VALUED COMPONENTS LIKELY TO BE AFFECTED</b>	Environmental <ul style="list-style-type: none"><li>• roadside vegetation and wildlife habitat</li><li>• freshwater flora and fauna (e.g. fish)</li></ul> Visitor Experience <ul style="list-style-type: none"><li>• highway traffic</li></ul> Cultural <ul style="list-style-type: none"><li>• Affects to cultural resources are not anticipated from this project.</li></ul>	
<b>10. EFFECTS ANALYSIS</b>	<u>Potential Environmental Effects</u>  Geotechnical Test Drilling <ul style="list-style-type: none"><li>• Contamination of water from spills and/or leaks from equipment.</li><li>• Reduced water quality due to discharge of waters, leaks and accidental spills, inputs of contaminants from machinery and from surface runoff.</li><li>• Increased potential for release of sediments, including contaminated sediments into ditches and adjacent watercourses.</li><li>• Fish mortality from releases of deleterious runoff substances such as concrete when refilling bore holes.</li><li>• Disruption to wildlife (breeding, nesting, feeding, resting) due to noise activity.</li></ul>	





### Roadside Ditching

- Water quality and fish habitat are major concerns associated with soil movement. Siltation runoff could adversely impact aquatic flora and fauna and their habitats where ditches connect with streams and waterbodies.
- Clearing existing vegetation may reduce the surface roughness, thereby increasing surface water runoff velocities and volumes.

### Road Corridor Brush-Clearing

- Removing roadside shrub and tree vegetation during the migratory songbird breeding period can destroy nests and affect nestling survival.
- Brush cutting stimulates plant resprouting which attracts foraging moose to the highway corridor.
- Cumulative petroleum based residue from chainsaw bar lubricants has potential for adverse effects to the natural environment and surface water runoff in particular.

### Sign-Island Installation

- Silt run-off from backfill material in ditches could adversely impact aquatic flora and fauna habitats in nearby streams and waterbodies.

### Cold Planing Asphalt Pavement

- Milled asphalt includes various petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs) and heavy metals that are hazardous to human health and can leach into the natural environment causing significant adverse impacts. Storage and recycled use of this material is a concern.

### Roadbed Upgrading

- Sediment run-off from loose gravel along road shoulders could adversely affect water quality and aquatic flora and fauna habitats when work occurs nearby streams and waterbodies.

### Road Surface Paving

- Greenhouse gas emissions and hazardous air pollutants are released from hot-mix paving.

### Culvert Installations

- Water quality and habitat for fish and macro-invertebrates are concerns associated with soil movement. Silt run-off from roadbed excavations could adversely impact aquatic flora and fauna.

### Visitor Experience Effects Analysis

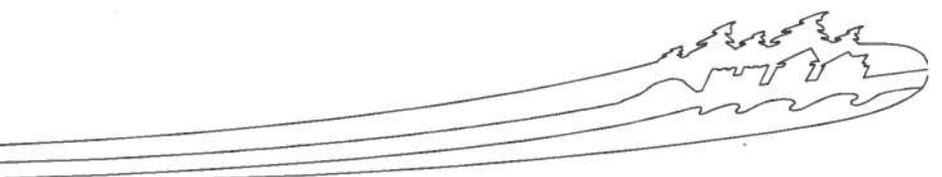
- Work may cause temporary delays to visitor traffic.
- Work may cause temporary effects to visitor experience from changes in viewsapes, restricted access to some areas, noise from work activities, and the presence of machinery and workers on site.

## 11. MITIGATION MEASURES

### Environmental Mitigation Measures

#### Geotechnical Test Drilling

1. If drilling fluids are required, only fresh water shall be used for fluid preparation. Drilling fluids shall comply with industry standards and practices and shall be used as recommended by the manufacturer. No toxic or hazardous substances are to be added to the drilling fluid at any time. Drilling fluid should be biodegradable, contained and recycled.
2. All lubricants used on drill pipe, bits, casings or other down-hole applications shall be free of any toxic or harmful contaminants.





3. Secure the perimeter around all vertical borehole drilling sites to contain concrete materials, waste water and/or slurry/drilling fluids from entering directly or indirectly into any watercourse.
4. Ensure that no concrete and patching used to refill roadbed test bores can flow outside the paved surface. Concrete and concrete leachate is alkaline and highly toxic to fish and other aquatic life, therefore ensure that all work involving the use of concrete, grout, cement, mortars or lime-containing construction materials does not enter into any watercourse.
5. Dumping of excess (left-over) concrete will not be permitted in the park.

#### Roadside Ditching

6. To prevent sediment runoff from entering streams, ditching must not occur within 10 metres of streams and water bodies, unless silt fence or temporary rock check dams at culverts are established until runoff sediments can be permanently prevented from entering streams and waterbodies.
7. Construct measures to interrupt slopes to reduce runoff velocities and siltation problems associated from exposed soil.
8. Reduce runoff velocities at hills by installing silt trapping barriers to filter-out suspended sediments.
9. Install permanent measures to filter runoff at steep slopes and where ditches are culverted directly into streams and waterbodies.
10. Fueling of all equipment must not occur within 100 metres of streams and water bodies.

#### Sign-Island Installation

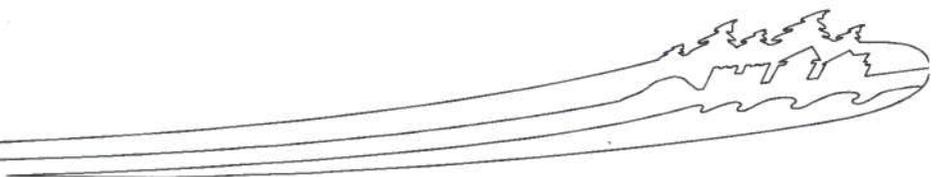
11. Install silt fence or temporary rock check dams at culverts until runoff sediments can be permanently prevented from entering streams and waterbodies.

#### Road Corridor Brush Clearing

12. To avoid disturbing songbird nesting habitat, vegetation cutting must not occur during the nesting period (June and July).
13. To avoid attracting wildlife, workers must insure that no food items are discarded or left at the work site or anywhere in the national park. Failure to comply with this direction may result in prosecution under section 24(2) of the *Canada National Parks Act*.
14. To provide thermal shade protection of aquatic habitat, canopy vegetation must not be cut within 10 metres of freshwater streams and water bodies.
15. All vegetation cutting must be done manually. Use of excavator mulch-head equipment will not be permitted.
16. To protect the environment from cumulative effects of regular petroleum based chainsaw bar lubricating oil, a nontoxic bio-based alternative (e.g. vegetable oil) should be used instead.
17. To prevent sites from petroleum contamination, all maintenance and re-fueling of chainsaws and bush-cutters must occur at least 30 metres away from any waterbody, and not where spills could flow into the ground.
18. Spill containment kits must be readily available at all work sites with personnel trained in their use.
19. Cut trees and shrubs must be removed from the site. Shrubs may either be dragged from sight into forest edges or be mechanically chipped and evenly dispersed on site.
20. Open fires will not be permitted in the park.
21. Ensure the work site is properly signed and traffic controlled for visitor safety.
22. Limit cutting to a standard distance to minimize effects to viewsapes along road corridors.
23. To reduce the visual effects of cutting along the road corridor remove brush while the work proceed. Brush can be either mechanically chipped on site or distributed evenly into the adjacent forest edge.
24. Inform the public of scheduled work through local media.
25. All flagging tape used to mark the road corridor cutting limits must be removed once the cutting is completed.

#### Culvert Removal and Installation

26. All replaced culverts that cannot be recycled for use in other park projects must be disposed of at an approved site outside the park's boundaries.





- 27. Install permanent measures to filter runoff at steep slopes and where ditches are culverted directly into streams and waterbodies.
- 28. All new and replaced culverts must be installed to maintain or restore fish passage.
- 29. Where necessary, structures must be installed in culverts to reduce stream velocities to accommodate fish passage.

**Cold Planed Asphalt**

- 30. Stockpiling or disposal of milled asphalt will not be permitted in the national park. Any access milled material may be recycled for use elsewhere in the park, or mixed with aggregate to construct road shoulders.
- 31. Ensure trucks are properly loaded and tarped to minimize expulsion of milled asphalt during transport.

**Asphalt Paving**

- 32. Disposal of any unused asphalt materials will not be permitted anywhere in the park.
- 33. Spill containment kits must be readily available at all work sites with personnel trained in their use.
- 34. To avoid attracting wildlife, workers must insure that no food items are discarded or left at the work site or anywhere in the national park. Failure to comply with this direction may result in prosecution under section 24(2) of the *Canada National Parks Act*. Culvert removal and installation

**Visitor Experience Measures**

- 35. In the interest of visitor safety, elements of this project will require temporary highway traffic delays. Safely maintain one highway lane open with traffic control personnel in place during all aspects of this project.
- 36. Protect the public from safety hazards at all work sites and equipment storage areas.

**12. CONSIDERATION OF THE NEED FOR PUBLIC PARTICIPATION & ABORIGINAL CONSULTATION**

- 12 a) Need for public participation? NO  X  YES
- 12 b) Aboriginal consultations required? NO  X  YES

**13. EFFECT SIGNIFICANCE**

If unabated, residual effects by surface runoff from ditching, culvert replacements, highway resurfacing, etc. could cause significant adverse effects to aquatic flora and fauna where connected to streams and waterbodies.

**14. SITE INSPECTION**

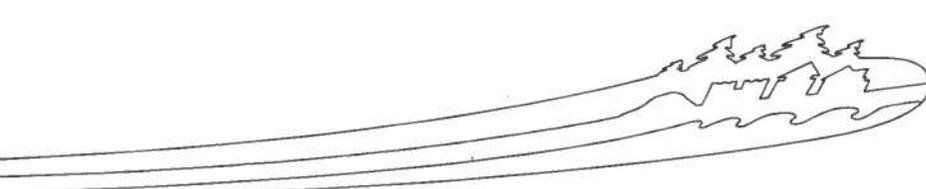
Site inspection required

Site inspection not required

Staff from Parks Canada Resource Conservation, Asset Management and Highway Engineering Services will conduct inspections during all phases of this project to insure that measures to mitigate potential adverse environmental effects are being met and functioning.

**15. SPECIES AT RISK MONITORING**

There are no Species at Risk or Critical Habitats as defined under SCHEDULE 1 of SARA involved in this project.





16. SARA NOTIFICATION		N/A
17. EXPERTS CONSULTED <i>Include Parks Canada experts. Add as many entities as necessary for the project.</i>		
Department/Agency/Institution	Date of Request: YYYY-MM-DD	
Expert's Name	Title	
Contact Information		
Expertise Requested: Indicate the discipline or subject area in which expertise was sought.		
Response: Summarize the expert's response to the request (append correspondence as required and add to attachment list in Section 21)		
18. DECISION		
NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means that the project CANNOT go ahead.		
Taking into account implementation of mitigation measures outlined in the analysis, the project is:		
<input checked="" type="checkbox"/>	Not likely to cause significant adverse environmental effects.	
<input type="checkbox"/>	Likely to cause significant adverse environmental effects.	
19. SIGNATURES AND APPROVAL		
EA Author		
Name: Randy G. Thompson	Title: Resource Management Officer II / Environmental Assessment Specialist	
Signature: <i>Randy G. Thompson</i>	Date: <i>March 3/2016</i>	
DECISION APPROVAL		
Name: Geoffrey Hancock	Title: Western Newfoundland and Labrador Field Unit Superintendent	
Signature: <i>Geoffrey Hancock</i>	Date: <i>March 3/16</i>	
20. REFERENCE LIST		
<ul style="list-style-type: none"> <li>SPECIFICATIONS FOR HIGHWAY 430 (KMS 39.9 TO 88.5) RECAPITALIZATION. PCA Project No.: 1350; Prepared for Parks Canada by Crandall Engineering Ltd., February 23, 2016.</li> <li>Parks Canada Best Management Practice, Geotechnical Investigations (Bore-hole Drilling)</li> <li>Best Management Practice Minor Repairs to Transportation Infrastructure in Atlantic Canada National Parks</li> </ul>		



**21. ATTACHMENT LIST**

- SPECIFICATIONS FOR HIGHWAY 430 (KMS 39.9 TO 88.5) RECAPITALIZATION. PCA Project No.: 1350; Prepared for Parks Canada by Crandall Engineering Ltd., February 23, 2016.

**22. ADDITIONAL CONSIDERATIONS / COMMENTS**

- Gros Morne National Park is a designated UNESCO World Heritage Site, recognized for its outstanding universal values and exceptional natural beauty. Maintaining these values is a priority required in all project developments in and around the park area.
- Parks Canada Resource Conservation staff, the Highway Engineering Services Engineer or Gros Morne Asset Manager must be contacted immediately should any unforeseen environmental hazards or adverse environmental affects occur.
- If any archeological artifacts or significant geological finds are discovered during this project, the contractor must stop work immediately and contact Parks Canada Resource Conservation staff, the Highway Engineering Services Engineer or the Gros Morne Asset Manager before proceeding.
- Contractors must adhere also to the Environmental Procedures outlined in SPECIFICATIONS FOR HIGHWAY 430 (KMS 39.9 TO 88.5) RECAPITALIZATION. PCA Project No.: 1350; Prepared for Parks Canada by Crandall Engineering Ltd., February 23, 2016.
- If this project continues into the park's moose-reduction season, no-hunting restrictions will be required for the safety of workers.

**23. TRACKING SYSTEM**

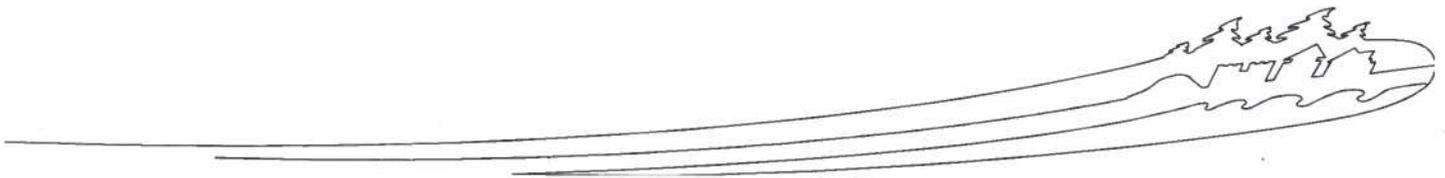
The project must be registered in the [Parks Canada Interim Tracking System](#) within the fiscal year the project took place.





**Appendix 1 Environmental Impact Analysis Tools: Effects Identification Matrix**

<b>A. Direct Effects (during preparation/construction phases)</b>														
		<b>Components potentially directly affected by the proposed project</b>												
		<b>Natural Resources</b>						<b>Cultural Resources</b>		<b>Visitor Experience</b>				
		<b>Air</b>	<b>Soil &amp; landforms</b>	<b>Water (wetlands, ground, stream) and marine</b>	<b>Flora (wetlands, aquatic, forest trees, shrubs)</b>	<b>Fauna (nesting birds, fishes, aquatic invertebrates)</b>	<b>None known</b>	<b>None known</b>	<b>Visitor access &amp;</b>	<b>Recreational/Accomm. opportunities</b>	<b>Viewscapes and soundscapes</b>	<b>Visitor Safety</b>	<b>Essence of place</b>	
<b>Phase</b>	<b>Associated Activities</b>													
<b>Project Components</b>	<b>Preparation / construction</b>	Storage of materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Brush clearing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Culvert installation and replacement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Ditching	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Grubbing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Backfilling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of machinery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Transport of materials/ equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Set up of temporary facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Paving	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Drilling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Cold Planning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Sign-Island Installation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>





A. Direct effects continued (during operation/implementation/decommissioning phases)													
		Components potentially affected by the proposed project											
		Natural Resources					Cultural Resources		Visitor Experience				
		Air	Soil & landforms	Water (wetlands, ground, stream) and marine	Flora (wetlands, aquatic, forest trees, shrubs)	Fauna (aquatic and terrestrial)	None known	None known	Visitor access & services	Recreational & Accommod. opportunities	Viewscapes and soundscapes	Visitor Safety	Essence of place
Phase	Associated Activities												
Operation/Implementation/Decommissioning	Maintenance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Vehicle Traffic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Use of machinery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

