

AYRSHIRE SHARED SERVICE JOINT COMMITTEE

14 JUNE 2019

AYRSHIRE ROADS ALLIANCE COAL TAR PRESENCE WITHIN THE CARRIAGEWAY AND FOOTWAY NETWORK

Report by the Head of Roads - Ayrshire Roads Alliance

PURPOSE OF REPORT

1. The purpose of this report is to advise the Joint Committee of the presence of coal tar within some of the carriageway and footway network and the implications of this material.

BACKGROUND

2. There are two main uses of coal tar:

Medical - Used as an ointment since the early 1800s to treat dandruff and psoriasis

Construction/Industrial - Waterproofing pitch • Asphalt/road tar • Creosote wood treatments. Road tar (derived from coal tar) is classed as a carcinogen which is dangerous to both humans and the environment if not handled properly. Coal tar is an alternative binder to bitumen which is currently used.

3. Polycyclic Aromatic Carbons (PAHs) are known carcinogens and they can be found naturally in some hydrocarbon mixtures deriving from minerals such as coal or petroleum.
4. Exposure to PAHs can be caused by certain processes such as the removal of existing road surfaces and road dressing. The use of tar and pitch has been used historically up until the middle 1980s. Industry protocol has indicated that since then, petroleum distillate alternatives which have a vastly reduced PAH content, have been used resulting in significantly reducing the risk of PAH contamination.

DETAIL

5. Any works involving the removal of large areas of older existing road surfaces have the potential to expose road workers to Coal Tar Pitch Volatiles (CTPV). Coal Tar and its many derivatives, are classed as carcinogenic and contain a variety of hazardous Polycyclic Aromatic Hydrocarbons (PAHs). PAHs are a group of hydrocarbons which occur naturally in some hydrocarbon mixtures and they can also be generated during the combustion processes of organic matter. The compounds released during the combustion processes can be represented by about ten PAHs including naphthalene, fluorine and pyrene. Research has suggested that benzo(a)pyrene was a suitable representative marker of exposure to the full set of ten measured PAHs of concern for CTPV industry use.

6. Current guidance states that any road constructed or surface dressed before 1990 must be assumed to contain coal tar unless proven otherwise. Therefore, the Designer will be required, in relation to the work activity, to establish whether PAHs and in particular, benzo(a)pyrene are present.
7. If the surfacing can be left undisturbed by either in-situ stabilisation or overlay no further action is required other than to record its presence for future works and notification on the Scottish Road Works Register.
8. If the asphalt cannot be left undisturbed, the Ayrshire Roads Alliance must create a plan of action outlining the procedure to be charted (sampling plan). This sampling plan will include the taking of 150mm coring samples at between 25 and 50 metre centres, and the use of PAK Marker to screen for the presence of Coal Tar. Where the dried spray has turned yellow/brown the sample is likely to contain Coal Tar and this will require further procedure and analysis to establish the types and levels of PAHs present. If the dried spray has not turned yellow or brown the asphalt can be classed as non-hazardous waste.
9. To establish the presence of PAHs, a competent UKAS accredited contractor has been appointed to carry out coring and sampling of the affected area. The UKAS accredited contractor will provide the Ayrshire Roads Alliance with a report detailing the presence of benzo(a)pyrene with the concentration levels of benzo(a)pyrene expressed as milligrams per kilogram (mg/kg).
10. In the absence of any published Maximum Exposure Limits (MEL) from the Health and Safety Executive, the industry accepted safe limit is detailed in the 2016 report from the Association of Directors of Environment, Economy, Planning and Transport (ADEPT). The industry accepted limit for classification as non-hazardous is a concentration of benzo(a)pyrene as 50mg/kg or less.
11. Where the concentration has been assessed as 50ppm (mg/kg) or less, the Ayrshire Roads Alliance must:-
 - Inform the relevant internal team or external contractor in writing, of the actual mg/kg concentration of benzo(a)pyrene.
 - Where the concentration has been assessed as less than 50ppm (mg/kg), no additional personal protective measures will be required other than the minimum standards set out in Chapter 8 of the Traffic Signs Manual. For the in-house contractor, this equates to the minimum required personal protective equipment detailed in TE OA 0031 (Personal Protective Equipment and Clothing).
12. Where the concentration levels of benzo(a)pyrene have been assessed and recorded as greater than 50ppm (mg/kg) and they cannot be engineered out, the Designer of the works or their nominated representative must:
 - Inform the relevant internal team or external contractor by means of the Health and Safety information pack, of the existence of a hazardous waste material to include the actual mg/kg concentration of benzo(a)pyrene;

- request in writing, method statements/safe systems of work to indicate how the contractor will protect the road workers and members of the public;
- request in writing, how the waste material will be transported to a SEPA registered tip supported by evidence that the company transporting the waste is registered with SEPA as a waste carrier, broker or dealer:
- request in writing, notifications of any adaptations to the plant/machinery to be used such as positive dust extraction systems or dust suppression systems that will eliminate or reduce exposure to PAHs.
- request in writing, the removal process to be applied e.g. cold milling procedures produce dust particles equating to high risk, whereas percussive removal procedures produce lumps which is low risk:
- monitor and compare actual on-site working practices against the submitted, recorded method statements/safe systems of work.

13. The Ayrshire Roads Alliance resurfacing contracts will be carried out either by the internal service teams - Roads Maintenance Unit (RMU) or by an externally appointed contractor.

The RMU team shall still carry out repairs to much smaller carriageway patches. These patches are considerably smaller and involve different working practices with a significantly reduced risk of contamination from PAHs. It would not be deemed reasonably practicable to apply the same stringent safe systems of work to patching works as will be applied to resurfacing works.

14. For the RMU team the following hierarchy of safe system work must be followed

- where reasonably practicable, no road worker should be in close proximity to any work activity that has the potential to expose and release hazardous PAHs (e.g. during planning operations).
- where it is not reasonably practicable for a road worker to be absent from any work activity that has the potential to expose and release hazardous PAH, or there is a specific requirement for a road worker to be present during the work activity additional personal protective equipment that must be worn includes:
 - Full body protection, such as “one use” disposable hooded coveralls;
 - Eye protection to EN 166;
 - Hand protection to EN 471;
 - Respiratory Protection to FFP3*;

*Only road workers who have had sufficient information, instruction and training and are certificated after passing a “Face Fit Test” can wear the RPE.

15. For bituminous road material under WM3, Guidance on the Classification and Assessment of Waste is classified in the list of wastes as follows;

- 17 03 bituminous mixture, coal tar and tarred products,
- 17 03 01* bituminous mixtures containing coal tar (hazardous),
- 17 03 02 bituminous mixtures other than those mentioned in 17 03 01 (non-hazardous),
- 17 03 03* coal tar and tarred products (hazardous).

The legal hazardous waste threshold for **HP7 carcinogenic** is 0.1% of a Carc 1A H350 substance. Therefore, if the total concentration of all chemicals that form part of the coal tar is equal to or greater than 0.1% then the waste possesses the hazardous property of **HP7 carcinogenic**.

The Environment Agency/SEPA considers that if benzo(a)pyrene is present at a concentration of 50mg/kg or more in the asphalt, the waste should be denoted by the European Waste Catalogue (EWC) code 17 03 01.

Phenol concentration can be assessed in borderline situations

16. **METHODS OF TREATMENT**

In situ stabilisation (Hazardous or Non-hazardous material)

- Road construction milled in situ, mixed with hydraulic binder & re-compacted.
- Consider site emissions and hazards
- Little or no waste generated

Non hazardous material

- Turn into product (with value)
- Process in line with Environment Agency Quality Protocol Aggregates from Inert Waste
- Can be used as a feedstock in hot mix asphalt

Hazardous material

- End product can be encapsulated in cold bound material and installed in Roads
- Ensure binder added to produce dense, non-permeable material
- Cannot be recycled, only re-used

Disposal

- Last resort

- If sent to landfill, need Waste Acceptance Criteria (WAC) testing (leaching potential).

POLICY/COMMUNITY PLANNING ISSUES

17. A well maintained road network will contribute to achieving the Community Plan objectives in relation to Economy & Skills and Safer Communities to maintain good access to our communities within East Ayrshire.
18. The matters referred to in this report contribute to the South Ayrshire Council strategic objective of 'Enhanced Environment through Social, Cultural and Economic Activities' and within that to the outcome of 'Work with partners to improve roads and other infrastructure, to encourage house building and business investment that sustains local communities'.

LEGAL IMPLICATIONS

19. By virtue of the relevant statutory provisions, principally detailed within the Roads (Scotland) Act 1984, the Council as local roads authority is required to manage and maintain all publicly adopted roads within its area other than those which are maintained and managed by the Scottish Ministers.
20. East Ayrshire Council, South Ayrshire Council, Ayrshire Roads Alliance and their contractors and subcontractors all have a legal duty to ensure that waste produced is handled correctly, carried by authorised carriers and disposed of correctly

HUMAN RESOURCES IMPLICATIONS

21. The work programmes have direct impact on human resources and the Alliance will ensure all works are suitably resourced to maintain satisfactory progress and carried out in accordance with recommended guidance.

EQUALITY IMPACT IMPLICATIONS

22. An equality impact assessment is not needed because the proposal does not have a differential impact on any of the protected characteristics.

FINANCIAL IMPLICATIONS

23. The Ayrshire Roads Alliance will deliver the strategic and local services as stated in the Service Plan. The budget is provided by East Ayrshire Council, South Ayrshire Council, and other external organisations. Appropriate scrutiny arrangements are in place to manage these budgets.

RISK IMPLICATIONS

24. The Ayrshire Roads Alliance Risk Register is reviewed and presented to every Joint Committee.

25. The Works Programmes, Service Plan and the Risk Register do not expose either Council to an increased risk as they have been developed from existing budgets and existing service commitment.
26. Additional cost of programmed works associated with the removal and tipping of abnormal material.

TRANSFORMATION STRATEGY

27. This report aligns with the following design principle stated in the “Transformation Strategy 2017-2022” by maximising value for our communities by ensuring the road network is well managed.

RECOMMENDATIONS

28. It is recommended that the Joint Committee:
 - (i) notes, the contents of this Report.

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20 May 2019

LIST OF APPENDICES

There are no appendices

BACKGROUND PAPERS

There are no background papers

For further information on this report, please contact Stewart Turner
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