

Welsh Government

M4 Corridor around Newport

Environmental Statement
Supplement
Appendix SS11.1

Summary Risk Matrix

M4CaN-DJV-EGT-ZG_GEN-AX-EN-0003

At Issue | December 2016

M4 Corridor Around Newport

Summary of Risks for Each Potential Area of Contamination

| | Potential contamination source area | CL1 | CL2 | CL3 | CL4 | CL5 | CL6 | CL8 | CL9 | CL10 | CL13 | CL14 | |
|--|--|-----|-----|-----|-----|-----------|--------|-----|--------|------|--------|--------|--------|
| | Risk during construction | | | | | | | | | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by C.workers | NR | V L | L | NR | L | V L | L | V L | V L | M | M to L | |
| | Inhalation of ground gas / vapours by C. workers from MG material | NR | V L | L | NR | NR | V L | V L | V L | NR | H | M | |
| | Inhalation of asbestos fibres by C. workers | NR | NR | NR | NR | NR | NR | NR | NR | NR | H | NR | |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site public/users | NR | V L | V L | NR | V L | VL | NR | NR | V L | NR | V L | |
| | Inhalation of ground gas / vapours by off site public/users from MG material | NR | NR | V L | NR | NR | V L | NR | NR | NR | NR | V L | |
| | Inhalation of ground gas / explosion for C. workers from PEAT | NR | NR | NR | NR | NR | NR | H | NR | M | NR | M to L | M to L |
| CONTROLLED WATERS | Inhalation of ground gas / explosion for off site public from PEAT | NR | NR | NR | NR | NR | M to L | NR | NR | NR | NR | M to L | |
| | Contaminated surface runoff to surface water | NR | NR | NR | NR | V L | L | V L | L | VL | M | L | |
| | Contaminants leaching from MG into surface water | NR | NR | NR | NR | V L and L | L | V L | L | VL | L | VL | |
| | Perched water or aquifer groundwater entering surface water | NR | NR | NR | NR | NR | L | V L | L | V L | L | V L | |
| | Contaminants leaching from MG into deep aquifer | NR | L | V L | NR | NR | L | V L | L | V L | L | L | |
| | Contaminant migration from MG via band drains or piling | NR | NR | NR | NR | NR | L | V L | L | V L | L | L | |
| | Mobilisation of sediments | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Dewatering pathway causing GW to contaminate surface water | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | |
| | Risk during operation | | | | | | | | | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by MW | L | V L | NR | NR | V L | V L | V L | V L | V L | L | V L | |
| | Inhalation of ground gas / vapours by MW by MG material | L | V L | NR | NR | NR | V L | V L | V L | NR | L | V L | |
| | Inhalation of asbestos fibres by maintenance workers | NR | NR | NR | NR | NR | NR | NR | NR | NR | M to L | NR | |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by motorway users | V L | V L | NR | NR | V L | V L | V L | V L | V L | V L | V L | |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site general public/users | V L | V L | NR | NR | V L | NR | NR | NR | V L | V L | V L | |
| | Inhalation of ground gas / vapours by off site workers / public / motorway users by MG material | V L | V L | NR | NR | NR | V L | V L | V L | NR | V L | V L | |
| | Inhalation of ground gas / explosion for M. workers from PEAT | NR | NR | NR | NR | NR | NR | M | NR | M | NR | M to L | M to L |
| | Inhalation of ground gas / explosion for motorway users from PEAT | NR | NR | NR | NR | NR | M to L | NR | M to L | NR | M to L | M to L | |
| | Inhalation of ground gas / explosion for off site public from PEAT | NR | NR | NR | NR | NR | M to L | NR | NR | NR | NR | M to L | |
| CONTROLLED WATERS | Contaminated run-off to surface water | L | NR | NR | NR | NR | NR | NR | NR | NR | L | NR | |
| | Contaminants leaching from MG into surface water | NR | NR | NR | NR | NR | L | VL | L | VL | L | VL | |
| | Perched water or aquifer groundwater entering surface water | NR | NR | NR | NR | NR | L | V L | L | V L | L | V L | |
| | Contaminants leaching from MG into deep aquifer | V L | L | NR | NR | NR | L | VL | L | V L | V L | L | |
| | Contaminant migration from MG via band drains or piling | NR | NR | NR | NR | NR | L | V L | L | V L | V L | L | |

Notes

* Risk level to be updated/verified following additional ground investigation.

^ refers to depot workers

Risk in **bold** indicates potential mitigation required.

Bracketed risks relate to a specific part of the CL site/feature as identified within the potential contamination source area heading.

Key

C. worker = Construction worker

CW = Controlled water

MG = Made Ground

MW = Maintenance worker

H = High Risk

M = Moderate Risk

L = Low Risk

VL = Very Low Risk

NR = Risk not considered relevant or negligible due to lack of contaminant source, receptor or pathway.

M4 Corridor Around Newport

Summary of Risks for Each Potential Area of Contamination

| | Potential contamination source area | CL15 | CL17 (PCB cell) | CL18 | CL22 (benzene pipeline) | CL26 Lagoons | CL26 Reedbeds & MRA (Glan Llyn depot) | CL27 | CL29 | CL30 | CL32 | CL33 |
|--|--|--------|-----------------|----------|-------------------------|--------------|---------------------------------------|---------------|------|------|------|--------|
| | Risk during construction | | | | | | | | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by C.workers | M to L | H | M and L | L (M) * | M | M | M | L | V L | M | L |
| | Inhalation of ground gas / vapours by C. workers from MG material | M to L | M (H) | M and L | L (H) * | H | L | L | V L | L | M | L |
| | Inhalation of asbestos fibres by C. workers | NR | H | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site public/users | V L | H | V L | V L (M to L) * | V L | V L | L | V L | V L | L | L |
| | Inhalation of ground gas / vapours by off site public/users from MG material | V L | L | NR | V L (H) * | M | V L | L | V L | V L | L | L |
| | Inhalation of ground gas / explosion for C. workers from PEAT | M | M to L | M | M * | M | M | M | NR | NR | NR | NR |
| Inhalation of ground gas / explosion for off site public from PEAT | M to L | M to L | NR | M to L * | M to L | M to L | M to L | NR | NR | NR | NR | |
| CONTROLLED WATERS | Contaminated surface runoff to surface water | L | M | NR | M (M) * | H | H | M | NR | NR | NR | NR |
| | Contaminants leaching from MG into surface water | VL | L | VL | M (M) * | H | L | L | NR | NR | NR | NR |
| | Perched water or aquifer groundwater entering surface water | V L | L | V L | M (M) * | H | L | L | NR | NR | NR | NR |
| | Contaminants leaching from MG into deep aquifer | L | L (M) | L | M (M to L) * | L | L | L | V L | L | M | M to L |
| | Contaminant migration from MG via band drains or piling | L | L (M) | L | M (M to L) * | L | L | L | NR | NR | NR | NR |
| | Mobilisation of sediments | NR | NR | L | NR | NR | NR | NR | NR | NR | NR | NR |
| | Dewatering pathway causing GW to contaminate surface water | NR | NR | M | NR | NR | NR | NR | NR | NR | NR | NR |
| | | | | | | | | | | | | |
| | Risk during operation | | | | | | | | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by MW | V L | M | NR | V L * | V L | V L | V L | NR | V L | V L | V L |
| | Inhalation of ground gas / vapours by MW by MG material | V L | L (M to L) | NR | V L * | V L | V L | V L | NR | V L | V L | L |
| | Inhalation of asbestos fibres by maintenance workers | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by motorway users | V L | L | NR | V L * | V L | V L | V L | NR | V L | NR | V L |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site general public/users | V L | L | NR | V L * | V L | V L | V L | NR | V L | NR | V L |
| | Inhalation of ground gas / vapours by off site workers / public / motorway users by MG material | V L | V L | NR | V L * | V L | M to L (M^) | V L | NR | V L | V L | L |
| | Inhalation of ground gas / explosion for M. workers from PEAT | M to L | V L | NR | M to L * | M to L | M to L (M) | M to L | NR | NR | NR | NR |
| | Inhalation of ground gas / explosion for motorway users from PEAT | M to L | V L | NR | M to L * | M to L | M to L | M to L | NR | NR | NR | NR |
| | Inhalation of ground gas / explosion for off site public from PEAT | M to L | V L | NR | M to L * | M to L | M to L | M to L | NR | NR | NR | NR |
| CONTROLLED WATERS | Contaminated run-off to surface water | NR | NR | NR | L * | NR | NR | NR | NR | NR | NR | NR |
| | Contaminants leaching from MG into surface water | V L | L | VL | M to L * | L | L | L | NR | NR | NR | NR |
| | Perched water or aquifer groundwater entering surface water | VL | L | VL | M to L * | L | L | L | NR | NR | NR | NR |
| | Contaminants leaching from MG into deep aquifer | L | L (M to L) | L | M to L * | L | L | L | V L | L | M | M to L |
| | Contaminant migration from MG via band drains or piling | L | L (M to L) | L | M to L * | L | L | L | NR | NR | NR | NR |

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Risk in **bold** indicates potential mitigation required.

Bracketed risks relate to a specific part of the CL site/feature as identified within the potential contamination source area heading.

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M4 Corridor Around Newport

Summary of Risks for Each Potential Area of Contamination

| | Potential contamination source area | CL35 | CL38 | CL39 | CL41 |
|-------------------|--|-----------------|------|------------|-----------------|
| | Risk during construction | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by C.workers | M to L * | V L | M * | L * |
| | Inhalation of ground gas / vapours by C. workers from MG material | M to L * | V L | M * | NR |
| | Inhalation of asbestos fibres by C. workers | NR | NR | NR | NR |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site public/users | M to L * | V L | L * | L * |
| | Inhalation of ground gas / vapours by off site public/users from MG material | M to L * | V L | L * | NR |
| | Inhalation of ground gas / explosion for C. workers from PEAT | NR | NR | NR | NR |
| | Inhalation of ground gas / explosion for off site public from PEAT | NR | NR | NR | NR |
| CONTROLLED WATERS | Contaminated surface runoff to surface water | M to L * | NR | NR | V L * |
| | Contaminants leaching from MG into surface water | M to L * | NR | NR | M to L * |
| | Perched water or aquifer groundwater entering surface water | M to L * | NR | NR | M to L * |
| | Contaminants leaching from MG into deep aquifer | M to L * | V L | M * | L * |
| | Contaminant migration from MG via band drains or piling | NR | NR | NR | NR |
| | Mobilisation of sediments | NR | NR | NR | NR |
| | Dewatering pathway causing GW to contaminate surface water | NR | NR | NR | NR |
| | Risk during operation | | | | |
| HUMAN HEALTH | Ingestion / dermal contact / inhalation of contaminated dusts and soils by MW | L * | V L | NR | V L * |
| | Inhalation of ground gas / vapours by MW by MG material | L * | V L | L * | NR |
| | Inhalation of asbestos fibres by maintenance workers | NR | NR | NR | NR |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by motorway users | L * | V L | NR | V L * |
| | Ingestion / dermal contact / inhalation of contaminated dusts and soils by off site general public/users | L * | V L | NR | V L * |
| | Inhalation of ground gas / vapours by off site workers / public / motorway users by MG material | NR | V L | L * | NR |
| | Inhalation of ground gas / explosion for M. workers from PEAT | NR | NR | NR | NR |
| | Inhalation of ground gas / explosion for motorway users from PEAT | NR | NR | NR | NR |
| | Inhalation of ground gas / explosion for off site public from PEAT | NR | NR | NR | NR |
| CONTROLLED WATERS | Contaminated run-off to surface water | NR | NR | NR | NR |
| | Contaminants leaching from MG into surface water | M to L * | NR | NR | L * |
| | Perched water or aquifer groundwater entering surface water | M to L * | NR | NR | L * |
| | Contaminants leaching from MG into deep aquifer | M to L * | V L | M * | M to L * |
| | Contaminant migration from MG via band drains or piling | NR | NR | NR | NR |

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