Summary

Classification and environment management plan assessment report – Maddingley Brown Coal

Introduction

EPA has received from Maddingley Brown Coal Pty Limited (MBC) an environment management plan (EMP) proposing to receive and manage soil and rock (spoil) from the West Gate Tunnel Project. EPA received a sample analysis quality plan (SAQP) from CPB/John Holland Joint Venture (CPBJH JV) documenting how the soil would be transported to and sampled at a potential receiving site.

Construction of the tunnel will produce an estimated 1.5 million cubic metres (2.8 million tonnes) of spoil. MBC proposes to receive the spoil at their premises at Kerrs Road, Maddingley (the Site).

MBC’s proposal is to:

- temporarily stockpile and store spoil generated from the tunnel project within holding bays to collect and analyse soil samples for categorisation and potential classification
- permanently deposit categorised spoil into a containment cell at the Site where suitable to do so, or transport spoil for reuse elsewhere, or for treatment or disposal at an appropriate facility.

Groundwater investigations along the tunnel alignment have indicated the presence of per- and polyfluoroalkyl substances (PFAS). However, the soil and rock from the tunnel alignment has not been sampled for PFAS. Based on the groundwater results the maximum leachable PFOS+PFHxS (perfluorooctanesulfonic acid and perfluorohexane sulfonic acid) concentration in spoil is likely to be approximately 0.7 micrograms per litre (µg/L). Therefore, EPA requires that the spoil is to be sampled and analysed prior to reuse, containment, or disposal.

To support its application, MBC submitted a document titled ‘Tunnel Boring Machine Spoil Containment Environmental Management Plan’. This submission comprised environmental control and monitoring measures including containment design, human health and ecological risk assessment and a hydrogeological risk assessment associated with the proposed temporary storage and containment area, including water treatment system design.

EPA assessment

EPA assessed MBC’s submission in accordance with the principles of the Environment Protection Act 1970 (the EP Act 1970), as well as in accordance with the Management of Tunnel Boring Machine Spoil Regulations (2020) and other relevant subordinate legislation and guidelines.
EPA’s assessment focused on the following areas:

- spoil storage and categorisation procedures, including sampling and analysis plans
- potential environmental and human health impacts of temporary storage of the spoil within holding bays and permanent deposition to a containment cell
- risk assessment of spoil management, noise and leachate to on-site operators and future Site users, groundwater, surface water, stormwater and air quality.

EPA has prepared an assessment report that includes its observations, conclusions and recommendations. The report also contains information about the West Gate Tunnel Project, the Site, and material from the MBC proposal. The report includes information about the potential contaminants – both in the soil to be removed, and in the groundwater.

EPA is satisfied that the proposed spoil environment management plan complies with the relevant subordinate legislation and the guidelines.

Risk assessment

MBC’s human health and ecological risk assessment has identified relevant exposure scenarios for on-site and off-site sensitive receptors to PFAS-contaminated soil, dust and water.

Site specific triggers levels were developed for PFOS + PFHxS and PFOA compounds that were deemed to be protective of human health, groundwater and surface waters.

EPA noted that some conservative assumptions had been included in deriving the proposed acceptance criteria for the spoil. However, it was also noted some additional uncertainties in the risk assessment and the proposed containment design. EPA therefore applied additional conservatism to the proposed acceptance criteria (specification) based on the principles in EPA Publication 631 for concentrations of contaminants in landfills.

Spoil and water management

The spoil containment cell will comprise a combination of a liner overlaid with additional protection and drainage layers and a leachate collection system to avoid the potential for PFAS leaching into groundwater.

EPA concludes that the proposed containment system will control and contain any contaminants leaching from the soil. Therefore, leached contaminants are unlikely to migrate into groundwater below the containment cell.

MBC must monitor the effectiveness of the liner performance in the containment area, and have contingency plans for any potential groundwater impacts.

MBC must provide EPA with auditor assessed final specific designs of the containment cell, holding bays and the leachate management system. Further information detailing technical specifications and construction quality assurance plans must be prepared, auditor-assessed and provided to EPA for review, including for the cap, liner, leachate management system and stormwater infrastructure.

There is a requirement for regular sampling of soils prior to them being placed in the containment cell to ensure they meet the cell acceptance criteria. EPA is also required to review auditor assessed final specific designs prior to and following the construction of the containment system at the Site.
Environmental monitoring

MBC will undertake regular monitoring of groundwater, surface water and leachate composition to check that the controls associated with the containment cell protect the surrounding environment.

A regular monitoring program has been proposed to ensure potential sensitive receptors such as Parwan creek are protected. The monitoring program includes monitoring of groundwater, surface water, leachate, air quality and noise to check that the controls associated with the management of the spoil adequately protect human health and the surrounding environment.

Movement of soil will result in more heavy vehicle traffic on roads surrounding the Site, particularly at night. EPA recommends a noise assessment based on the number, frequency and magnitude of loud events. EPA recognises that road traffic noise would increase resulting from more heavy vehicle movements. Although EPA does not regulate noise from vehicles movements, it does recommend an assessment of low frequency noise potentially generated from the activities and develop management controls where required.

EPA will require a detailed site rehabilitation and after-care management plan be prepared, describing actions to be taken and contingencies in the event of detected contamination.

Next steps:

Further development of final specific design drawings and specifications based on the designs provided. These are required to be reviewed by an independent auditor prior to being reviewed by EPA.

An independent third-party environmental Auditor is required to undertake the following:

- **Final specific design audit** - Review and assess the final specific design of the containment cell and leachate management system, including the holding bay design, leachate ponds and leachate treatment system

- **Post construction audit** - Review the construction of the holding bays, leachate management systems and containment cell to ensure they are constructed to a suitable standard.

- **Operation audit** – assessment of the soil and leachate management processes and the monitoring program to ensure that they are being undertaken as per the EMP and are effective.

- **Post completion audit** – assess the completion of the removal of the holding bays, other temporary soil management infrastructure, capping of the containment cell and post completion monitoring program.

More information

Read EPA’s full assessment report, cover letter and MBC’s EMP on EPA’s website.

If you would like further information, please contact us by emailing contact@epa.vic.gov.au or calling 1300 372 842 (1300 EPA VIC).