TECHNICAL NOTE 1

DATE:	12 December 2024	[redacted]	[redacted]
SUBJECT:	Aberthaw Ash Recovery Operation		
PROJECT:	UK-70112185	**AUTHOR:**	[redacted]
CHECKED:	[redacted]	**APPROVED:**	[redacted]

BACKGROUND

A hydrogeological risk assessment review was conducted in October 2024 on the Aberthaw Ash Disposal Site ('the Site'), which forms part of Aberthaw Power Station, The Leys, Aberthaw, Barry CF62 4ZW. The Site is located approximately 8km west of the town of Barry, at National Grid Reference ST032662. The Site operates under Environment Agency (EA) Permit (DP3432SW).

Aberthaw Power Station is located on the northern shore of the Bristol Channel at The Leys, Aberthaw, approximately 8km west of Barry, South Wales. The Power Station is bisected by the canalised River Thaw and comprises the former operational areas of Aberthaw B Power Station and the earlier (now demolished) 'A' station to the west of the River Thaw.

The Site is situated to the east of the River Thaw, approximately 300m from Aberthaw B power station and approximately 250m west from the town of East Aberthaw.

Once both Aberthaw A and B power stations became operational (between 1963 and 1971) coal ash or Pulverised Fuel Ash (PFA) was deposited by means of conveyor belts directly the Site. The total area of ash disposal is estimated to be 58ha (580,000m^2) and graded such that any precipitation would shed to both the east and west of the centre. The catchment which enters the River Thaw is estimated to be 31ha (310,000m^2) based on aerial imagery.

The Site is uncapped and has rewilded to an informal grassland surface. Based on field observations, soil cover on the ash is limited or absent and hence infiltration to the grassed surface is likely to be at the grassland rates with a limited element of topographic runoff.

Leachate is not required to be managed at the Site and the hydrogeological risk assessment takes account of this and has interpreted the monitoring data to validate the observations against the conceptual model.

ASH RECOVERY

The process of ash recovery will involve the removal of the vegetated surface and any residual soils present. Given that the Site has been informally restored and is not capped the removal of the vegetated surface is not expected to change the overall water balance of the ash mound and hence will not change the overall source-pathway-receptor linkages associated with the waste deposit or the overall hydrogeological risk.

There are however operational considerations that will need to be considered these are detailed in Table 1 with associated proposed mitigation.

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Table 1 – Hydrogeological Considerations During Ash Recovery

Consideration of Risk	Mitigation
Stockpiling of stripped vegetation and residual soils: Following preparation of areas of the mound for removal of the ash, there will be a stockpile of vegetation and soils. There is the risk that the vegetation and soils could increase the total organic carbon content of the stockpiled materials to a level above what would be acceptable in an inert waste which could make management of the material more difficult. If stockpiled on Site the biodegradation of the vegetation could create impacts from other source contaminants such as ammoniacal nitrogen or the generation of methane.	▪ Stockpile soils and vegetation separately where possible; ▪ Vegetation could be placed in windrows and composted subject to approvals; ▪ If off-site disposal is required it may be necessary to dispose of waste vegetation and waste soils separately to meet the requirements of waste acceptance.
Runoff over the existing restored surface: Where there is currently runoff over the existing soil surface there is the potential that this could enter excavations into the ash. Surface runoff entering the excavation has the potential to cause the excavations to become waterlogged or there being localised increases in leachate generation (although not increasing the overall site wide generation rate).	▪ Swales to be cut around the edge of excavations to divert runoff around the excavation.
Rainfall into excavations: During excavation of the ash it is anticipated that the work area will be managed so that ash is removed before it becomes wet or waterlogged by rainfall. In the event that this does occur there is also the risk that runoff from the ash with a high suspended solids or total dissolved solids could occur and impact on surface waters.	▪ Excavation areas to be managed so that the area of excavation is small enough that the ash is removed before it can become saturated by rainfall; ▪ The earthworks should be managed to ensure that runoff from the surface of the exposed ash cannot escape the excavation which would have the potential for surface waters to be impacted by suspended solids or total dissolved solids.

CLOSING

It has been shown that there is unlikely to be a change to the hydrogeological risk associated with the removal of ash at the Site. However, there remains risk associated with the management of soils and runoff from rainfall. Mitigation has been proposed so that these risks can be managed such that the works will not impact on the identified receptors.