



Angus Place Coal Project (MP 06_0021)
and
Springvale Water Treatment Project (SSD 7592)
Modification 6

Submissions Report

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1. Background

The Springvale Water Treatment Facility (Springvale WTF) has been specifically designed to treat incoming mine water from the Springvale and Angus Place mines. If incoming mine water falls outside of certain water quality specifications, the Springvale WTF may be required to operate with a reduced flow condition. The reduced flow condition will restrict the capacity to transfer water from the mines underground storages, potentially leading to the flooding of the mine and sterilisation of coal reserves. There have been regular instances where the Springvale WTF has operated in a reduced flow condition.

A significant contributor to the Springvale WTF operating in a reduced flow condition is the elevated hardness from the Angus Place mine water which is primarily caused by the unique geological conditions encountered in the area.

An alternative water management strategy is proposed to address incoming mine water quality requirements from Angus Place that includes the following components:

- A new Angus Place water transfer system to allow mine water to be transferred from Angus Place Mine directly to the Mt Piper Power Station (MPPS) independent from the Springvale WTF Raw Water transfer pipeline.
- Establishment of a water softening plant at Angus Place pit top to treat mine water for elevated hardness.
- Treatment and reuse of water within the existing MPPS cooling water management system.

A modification to both the Angus Place and Springvale WTF development consents is required to procure consent for the implementation of the alternative water management strategy. A Modification Report was prepared to support the modification application and was placed on public exhibition from 2 December 2020 until 15 December 2020 inclusive.

2. Submissions Summary

A total of ten (10) submissions were received during the public exhibition period of the Modification Report. A summary of the submissions received are provided below

2.1. Government Agency Submissions

Eight (8) submissions were received from government agencies being submissions from:

- Resources Regulator;
- Biodiversity, Conservation and Science Directorate;
- WaterNSW;
- Department of Planning, Industry and Environment Hazards Unit;
- Lithgow City Council;
- Environment Protection Authority;
- Transport for NSW; and
- Department of Planning, Industry and Environment - Crown Lands.

None of the submissions received from government agencies were in objection to the proposed modification. All submissions provided comments on, or recommendations in regard to the proposed modification, for consideration.

In addition to the ten submissions received during the public exhibition period, a request to provide clarification on two matters relating to the heritage assessment were received from the Department of Planning, Industry and Environment - Planning & Assessment Group.

A response to the matters raised in the submissions is provided in Section 3 below.

2.2. Community Submissions

Two community submissions were received during the public exhibition period of the Modification Report. One of the community submissions was from Veolia who are the designer, builder and operator of the Springvale WTF and the other community submission was from a local community individual. Both community submissions were in objection to the proposed modification.

3. Response to Submissions

This Submissions Report has been prepared to respond to the comments, recommendations or issues raised in the submissions received on the proposed modification during the public exhibition period of the Modification Report.

3.1. Response to Government Agency Submissions

3.1.1. Resources Regulator

The Resources Regulator advised that it had not identified any specific concerns or issues regarding mine safety or mine rehabilitation matters in relation to the proposal modification. Two comments on the proposed modification were provided by the Resources Regulator. A summary of the comments received from the Resources Regulator along with a response is provided below.

- The proposed activities will need to be covered by a Mining Operations Plan approved by the Resources Regulator under the *Mining Act 1992* prior to the commencement of works.

It is acknowledged that an amendment to the Angus Place Mining Operations Plan will be required to be approved by the Resources Regulator prior to the works associated with Angus Place commencing.

- The Resources Regulator will undertake assessments of the mine operators' proposed mining activities under clause 33 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* as well as other workplace health and safety regulatory obligations.

It is acknowledged that the Resources Regulator can undertake assessments of the mining activities under clause 33 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* as well as enforce compliance with other workplace health and safety regulatory obligations.

3.1.2. Biodiversity, Conservation and Science Directorate

The Biodiversity, Conservation and Science Directorate (BCSD) provided recommendations in regard to the proposed modification. A summary of the recommendations received from BCSD and a response to the recommendations is provided below.

- The proponent should advise whether there will be any additional clearing of native vegetation associated with the water softening plant. If so, a Biodiversity Development Assessment Report

(BDAR) will be required for both the additional area to be cleared for the water softening plant and for the 0.0005 hectares of PCT 804 to be cleared for the water pipeline.

No additional clearing of native vegetation is required to facilitate the construction and operation of the water softening plant at the Angus Place pit top. This is reinforced in Section 6.5 of the Modification Report.

- Further information be provided to justify the modification and quantify how the proposed water softening plant will change water quality.

Hunter H20 were engaged to undertake jar testing and detailed water quality sampling on a water softening concept as part of external advice to the project. The process of the treatment through traditional water softening is described by Hunter H20 as the precipitation of calcium and magnesium (the primary components of "Hardness") through pH manipulation. Hunter H20 indicate that pH needs to increase to around 11 pH units for both the key elements to be precipitated from the water and extracted. The use of caustic soda or lime serve the same purpose however caustic soda is much more efficient than lime in the effective dosing volume.

As part of Hunter H20s jar testing, it was identified that generally the use of lime resulted in a reduction of total hardness, total alkalinity, total sodium, total fluoride, dissolved arsenic, dissolved barium, dissolved magnesium, and dissolved strontium. The use of caustic soda in the jar testing also showed that a range of water quality parameters reduced in volume with the exception of total sodium, calcium, alkalinity, total fluoride, and electrical conductivity, where there was either no change or an increase in concentration. Also, it was clear that lime had a more pronounced reduction on water quality parameter concentrations over caustic soda.

The proposed lime softening treatment system has been conceptualised to be a zero waste discharge system. The manipulated pH would either be mixed back into the feed to the Springvale WTF, with only a minor influence on the pH of the majority of flow, or specifically dosed with acid to lower the pH to an agreed specified operating level.

From the external testing undertaken it is indicated that the use of lime may have a positive effect on not only hardness but a number of other parameters. The use of lime over caustic soda therefore would be an advantageous decision for the project.

- The consent authority should use the Neutral or Beneficial Effect on Water Quality Assessment Guideline as a framework for assessing the proposal.

The Springvale WTF Project is considered to have a significant benefit on water quality in the upper reaches of the Sydney's drinking water catchment by removing up to 42/ML of water that would otherwise need to be discharged into the environment from the Springvale and Angus Place mines. The Springvale WTF Project is a nil discharge project with all treated water re-used in the cooling water system of the MPPS.

The proposed modification will enable water from Angus Place to be continued to be treated for beneficial reuse within the MPPS. The impacts of the proposed modification are considered to be negligible and, as such, the project is considered to have 'neutral or beneficial effect' on water quality.

- Information be provided quantifying the amount of salt that would be produced compared with the current operation.

Table 6-2 of the Modification Report presents a nominal salt balance for the Springvale WTF and considers the original project as approved, the current project as approved and the project as proposed to be modified.

The volume of brine disposed of in the MPPS ash emplacement areas is predicted to increase from 3,496 tonnes per year to 3,504 tonnes per year. This increase represents a slight increase of 0.2% in the mass of salt emplaced in the existing approved ash emplacements at the MPPS.

Brine is emplaced in the MPPS ash emplacement areas in accordance with existing practices and the Brine and Residual Waste Disposal Plan approved under the conditions of the Springvale WTF consent (SSD 7592). The increase in salt mass required to be emplaced in the ash emplacement areas as a result of the modification is directly related to the decrease in the salt disposed of in the residuals stream. As noted in the Modification Report, this nominal change is unlikely to be detectable.

- Detail be provided regarding whether the salt remains in the ash emplacement, or whether it moves into groundwater.

The emplacement of brine conditioned ash into the MPPS ash emplacement areas will continue both in accordance with the Springvale WTF Project approval and the approved brine disposal practices. Leachate from the ash emplacement areas into the groundwater system has been the subject of recent investigations by EnergyAustralia in consultation with the Environment Protection Authority. These investigations have focussed on the possible cause, pathways, extent and management of leachate from the MPPS ash emplacement areas. These investigations are ongoing however it is considered that a pathway for leachate to enter the groundwater system from the MPPS ash emplacement areas exist.

3.1.3. WaterNSW

WaterNSW reviewed the Modification Report and considered it does not adversely impact water quality as long as the proposed controls were implemented and it would have a Neutral or Beneficial Effect (NorBE) on water quality if the Springvale WTF operates in a stable condition.

- WaterNSW requested the following documents be prepared or updated in consultation with WaterNSW:
 - o Angus Place Mine's Water Management Plan including Water Softening Plant's operational management, particularly, sulphuric acid storage and handling;
 - o Springvale WTF's Water Management Plan including Pond D; and
 - o Construction stage soil and water management plan for the new pipeline construction.

A review of all construction and operational management plans will be undertaken following determination of the project and updated, in consultation with WaterNSW, where necessary in accordance with the current conditions of consent for Angus Place and the Springvale WTF.

3.1.4. Department of Planning, Industry and Environment Hazards Unit

The submission from the Department of Planning Industry and Environment Hazards Unit confirmed that the Preliminary Hazard Analysis conducted in support of the modification application sufficiently demonstrates that the Springvale Water Treatment Facility Project, as modified, can comply with the relevant Australian Standards and the Department's *Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning'*. The Department of Planning Industry and Environment Hazards Unit recommended the following conditions be included in the consent if the proposed modification is approved.

- Emergency Plan - A comprehensive Emergency Plan and detailed emergency procedures for SSD 7592 as modified. The plan must be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.

The relevant consent for which the Emergency Plan would be applicable would be the Angus Place development consent (MP 06_0021) and not the Springvale WTF Project development consent as Angus Place would be the site of the water softening plant.

Angus Place Colliery operates in accordance with an existing Emergency Control Plan. The Emergency Control Plan forms part of the Angus Place Safety Management System as described in more detail below. The purpose of the Emergency Control Plan is to define the standards, procedures and responsibilities required to maintain a system for effectively managing health risks, in accordance with appropriate legislation, standards, codes of practice and guidelines, with particular regard to *Work Health & Safety (Mines) Regulation 2014*. A number of controls are also contained in associated Management Plans, Control Plans, procedures, standards, policies, processes and systems which form part of the sites Health and Safety Management System. Should the proposed modification application be approved, a review of the existing Health and Safety Management System including the Emergency Control Plan will be undertaken and updated where relevant to take into consideration the additional activities proposed to be undertaken at the Angus Place pit top. The plans will be reviewed and updated prior to the commencement of operations associated with the water softening plant.

- Safety Management System - A comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The Safety Management System must be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

Angus Place Colliery is required to have a Health and Safety Management System under the Work Health and Safety Act and Regulations. The content of the Health and Safety Management System is detailed in *Work Health & Safety (Mines) Regulation 2014* Part 2 Managing risks.

The Health and Safety Management System is an integration of documented plans, policies and procedures which enables Angus Place Colliery to follow a systematic approach to establishing and maintaining an effective system to manage health and safety.

The purpose of the Safety Management System is:

- To protect workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant.
- To provide for fair and effective workplace representation, consultation and cooperation in relation to work health and safety.
- To provide information, education and training in relation to work health and safety.
- To secure compliance with legislation through effective and appropriate compliance and enforcement measures.
- To provide a framework for continuous improvement and progressively higher standards of work health and safety.

The Health and Safety Management System includes a Hazardous Substances Management System which details:

- Identification of risks,
- Roles and responsibilities,
- Appropriate controls including:

- o System Principles,
- o Procedures,
- o System Standards,
- o Responses,
- o Inspections, and
- o Maintenance.
- Document Control measures,
- Audit and Review methods, and
- Training requirements.

Should the proposed modification application be approved, a review of the existing Health and Safety Management System and in particular the Hazardous Substances Management System will be undertaken and updated where relevant to take into consideration the additional activities proposed to be undertaken at the Angus Place pit top. The plans will be reviewed and updated prior to the commencement of operations associated with the water softening plant.

- The Applicant must store all chemicals, fuels and oils used on-site in accordance with:
 - a) the requirements of all relevant Australian Standards; and
 - b) the NSW Environment Protection Authority's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids.

All chemicals, fuels and oils used on-site at Angus Place will be stored in accordance with the requirements of all relevant Australian Standards and the NSW Environment Protection Authority's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids. The procedures for the storage and handling of chemicals, fuels and oils will be detailed within the Health and Safety Management System and associated management plans which will be reviewed and updated where necessary prior to the commencement of operations associated with the water softening plant.

3.1.5. Lithgow City Council

Lithgow City Council did not object to the proposed modification however recommended the inclusion of an additional condition be included on the consent if the proposed modification is approved.

- Any new pipeline or works along Councils road systems (including but not limited to; Wolgan Road, Skelly Road and Brays Lane) will be required to submit a Temporary Road/Footpath Closure Application Form along with a Traffic Management Plan. This will need to be submitted to Council at least 4 weeks prior to works commencing.

The additional pipeline works will attach to the Springvale Mine overland conveyor system that traverses beneath Wolgan Road, the Castlereagh Highway and over Brays Lane.

In accordance with clause 138 of the *Roads Act 1993*, a Section 138 approval will be required to carry out the works over a public road being Brays Lane. The 138 application will be supported by a Temporary Road Closure Application Form and a Traffic Management Plan. These documents will be provided at least 4 weeks prior to the commencement of works over Brays Lane.

3.1.6. Environment Protection Authority

The Environment Protection Authority requested further information in relation to three matters. A summary of the further information requested by the Environment Protection Authority and a response is provided below.

- The Environment Protection Authority recommends that justification about the use of a background noise assessment from 2012 is provided. The Environment Protection Authority further recommends that the proponent demonstrate why this 2012 assessment is representative of the current background noise situation in the affected area.

Historic background noise data from Blackmans Flat was used to develop the construction noise criteria or noise management levels (NMLs) in accordance with the Interim Construction Noise Guideline (DECC 2009). Development of the noise criteria was consistent with the approach adopted as part of the construction noise assessment for installation of the raw water transfer pipeline as part of the initial Springvale Water Treatment Project development application.

The location was originally selected to reflect the background noise levels within an area which was not considered to be significantly influenced by conveyor noise. This was adopted to ensure that the noise affected criteria for construction (based upon Rating Background Level (RBL) + 10 dBA) was not elevated as a result of the existing industrial noise sources. This results in setting a lower (more stringent) criteria for management of construction noise during pipeline installation and any increase in RBL over subsequent years would be reflected by an increased noise management level for the project.

The construction noise assessment does not attempt to quantify the existing operational noise at receivers at Blackmans Flat and the monitoring data was simply used for development of the criteria for receivers in proximity to the proposed pipeline alignment. The monitoring data does not influence the results of the noise modelling developed for consideration of impacts associated with the pipeline installation.

The pipeline will be installed above ground and will likely result in less noise disturbance than the installation of the existing raw water transfer pipeline which involved excavation and pipe laying along a similar alignment. However, as a result of the conservative NMLs adopted for the project and the proximity of the pipeline alignment to residential properties in Lidsdale, exceedances were predicted at up to 26 receivers in Lidsdale located within 400 metres of the pipeline alignment. The affected receivers would be subject to short-term elevated noise levels as the pipeline is progressively installed and noise impacts are predicted to last up to eight days for sensitive receivers.

Feasible and reasonable construction noise mitigation measures have been recommended to manage noise during construction of the water transfer system.

- it is unclear how this process will occur, whether conditions will need to be included on the environment protection licence for regulation of the process and how and which waste products will be generated and managed.

The modification considered the evaluation of a water softening treatment process. This treatment process was considered to be a flexible and modular system that enables the water being extracted from the 800 area to be corrected such that it is compatible with the treatment process at Springvale WTF. Conceptually, the treatment would involve pH adjustment through chemical additives, holding time, water clarification, and a treated water transferred to Springvale WTF. The waste management from this system is proposed to be in the form of storage in above ground tanks and transfer off-site via trucks. This approach was proposed due to be the lowest risk in terms of impacts to matters such as the Environment Protection Licence, and its speed of implementation. In terms of the reference to an

unknown polymer, the Softening Plant considered the use of PolyDADMAC as a polymer to assist in the treatment process (refer to Table 2, Appendix B of the Modification Report). The criticality of this polymer in the treatment system would still require additional testing and evaluation.

- The Environment Protection Authority recommends that further information be provided on the characteristics of the waste materials that will be generated through the water treatment process. This includes waste classification of the waste sludge and identification of suitable facilities which can lawfully accept this waste

Jar testing was undertaken to confirm the effectiveness of the water softening using both lime and caustic soda additives. Whilst chemical testing of the waste sludge generated was not undertaken in these jar tests, the comparison of the treated water quality against the raw water quality (through mass-balance assumptions), indicates that the waste product would chemically comprise of concentrations in calcium, magnesium, arsenic, barium, manganese and strontium. Further testing would be required of the waste product (including acid leachable concentrations) in the event that a system would be further designed and implemented. Waste products from the water softening system are proposed to be transferred to a licensed waste management facility, which will only accept wastes in accordance with their specific license requirements. This will involve waste classification through independent consultants, in accordance with the relevant Environment Protection Authority guidelines and standards. This process is currently underway at other sites where water treatment, by-product waste management is required.

3.1.7. Transport for NSW

Transport for NSW did not object to the proposed modification however provided the following for consideration and inclusion within the conditions of the Notice of Determination if issued for the modification

- The proposed works for the pipeline within the existing conveyor easement over the Castlereagh Highway and will require concurrence per s138(2) of the *Roads Act 1993* from Transport for NSW prior to the commencement of the work referred to as Section B.

Section 138 of the *Roads act 1993* states a person must not:

- (a) erect a structure or carry out a work in, on or over a public road, or
 - (b) dig up or disturb the surface of a public road, or
 - (c) remove or interfere with a structure, work or tree on a public road, or
 - (d) pump water into a public road from any land adjoining the road, or
 - (e) connect a road (whether public or private) to a classified road,
- otherwise than with the consent of the appropriate roads authority.

The proposed Angus Place transfer pipeline will connect to the existing overland conveyor system that traverses underneath the Castlereagh Highway. No works will be required in, on or over the Castlereagh Highway. As such, consent from the roads authority under Section 138 of the *Roads Act 1993* is not required for the works that extend below the Castlereagh Highway.

- Plans confirming the location (in the form of coordinates) and specifications for the pipeline will need to be provided to Transport for NSW as a part of the s138(2) application.

As noted above, consent under the Roads Act 1993 is not required for the works that extend below the Castlereagh Highway.

- A Road Occupancy Licence is required prior to any works commencing within three (3) metres of the travel lanes of a State classified road, or work that has potential to impact traffic flow such as the use of traffic control devices or signage to protect workers.

The proposed Angus Place transfer pipeline will connect to the existing overland conveyor system that traverses underneath Wolgan Road and the Castlereagh Highway. Utilising this existing easement that traverses beneath Wolgan Road and the Castlereagh Highway ensures no works are required within 3 metres of the travel lanes of these roads and any impacts to traffic flow along these roads. As such, a Road Occupancy Licence for the works beneath Wolgan Road and the Castlereagh Highway is not considered necessary.

- The raw water to be conveyed via the pipeline is likely to contain hazardous substances. The modification has not identified any emergency management plan in the event that there is an accident that impacts on the portion of the pipeline that will be conveyed across the Castlereagh Highway. An emergency management plan needs to be prepared and submitted to Transport for NSW prior to the operation of the pipeline.

Water transferred along the proposed Angus Place transfer pipeline does not contain any substances that would be classified as hazardous and, as noted above, the pipeline does not traverse over the Castlereagh Highway. As such, it is not considered warranted that an emergency management plan be prepared and submitted to Transport for NSW prior to the operation of the pipeline.

- The proposed works for the pipeline should be incorporated into an amended Traffic Management Plan and Driver Code of Conduct for the Angus Colliery Mine Extension Project to be prepared to the satisfaction of Transport for NSW and Lithgow City Council prior to the commencement of any works.

A Traffic Management Plan will be prepared and submitted to Lithgow City Council for approval prior to the commencement of works over Brays Lane. No other elements of the project necessitate the preparation of a traffic management plan to be prepared to the satisfaction of Transport for NSW.

3.1.8. Department of Planning, Industry and Environment - Crown Lands

Department of Planning, Industry and Environment Crown Lands did not object to the proposed modification however noted the following requirements apply to mining operations involving Crown land or Crown Roads.

- All Crown land (including Western Land Leases) and Crown roads within a Mining Lease (with surface rights), subject to mining or mining related activity, must be subject to a Compensation Agreement issued under Section 265 of the *Mining Act 1992*, to be agreed and executed prior to any mining activity taking place. The Compensation Agreement may include conditions requiring the Mining Lease Holder to purchase Crown land impacted on by mining activity.
- All Crown land (including Western Land Leases) and Crown roads located within an Exploration Licence, subject to exploration activity, must be subject to an Access Arrangement issued under Section 141 of the *Mining Act 1992*, to be agreed and executed prior to any exploration activity taking place.

- All Crown land (including Western Land Leases) and Crown roads within a Mining Lease (with subsurface rights only) must be subject to a Section 81 Consent under the *Mining Act 1992* where surface activities are proposed, to be agreed and executed prior to any surface activity taking place.

No Crown Land will be impacted as a result of the proposed modification. Should any impacts to crown land be required, the relevant compensation agreements, access arrangements or consents under the *Mining Act 1992* will be sought.

3.1.9. Department of Planning, Industry and Environment - Planning & Assessment Group

Clarification regarding potential inconsistencies in the heritage assessment was requested to be addressed in the Submissions Report by the Department of Planning, Industry and Environment - Planning & Assessment Group in an email dated 13 January 2021. A summary of the inconsistencies identified, and a response, is provided below.

- Section 6.6.1 of the Modification Report advises that “A site inspection and field surveys with representatives from RPS and Registered Aboriginal Parties (RAPs), was undertaken on 23 September 2020. Section 2.2 of Appendix F (Aboriginal Heritage Due Diligence Assessment) advises that “Aboriginal community consultation was not undertaken to inform this due diligence assessment.” Please clarify what consultation with RAPs was undertaken and what their advice was.

Correspondence was provided to the Western Region RAPs on 10 September 2020 which included:

- Bathurst Local Aboriginal Land Council
- Bathurst Wiradyuri and Aboriginal Community Elders Group
- Gundungurra Tribal Council Aboriginal Corporation
- Gundungurra Aboriginal Heritage Association Incorporated
- Mingaan Aboriginal Corporation
- Mooka Traditional Owners
- North-East Wiradjuri Corporation
- Warrabinga/Wiradjuri People Native Title Claimants
- Wiradyuri Council of Elders
- Wiray-dyuraa Ngambaay-dyil
- Wiray-dyuraa Maying-gu
- Wellington Valley Wiradjuri Corporation

The correspondence provided a background to the proposed modification and invited the RAPs to provide a representative to attend a field survey of the disturbance area on Friday 23 September 2020. The Aboriginal survey was attended by Aboriginal representatives Bradley Bliss (Wellington Valley Wiradjuri Aboriginal Corporation) and Patsy Wolfenden (Mingaan Aboriginal Corporation). The RAPs participating in the archaeological survey identified a small area where there will be some sub surface trenching as the only area which may contain some sub-surface potential. An opportunity to monitor these trenching works was requested to ensure any potential artefacts may identified and therefore avoid impact. This was included as a commitment in the Modification Report. The formal Aboriginal

Cultural Heritage Consultation Requirements for Proponents (DECCW 2010) was not implemented given the nature of the assessment.

3.2. Response to Community Submissions

3.2.1. Veolia

Veolia objected to the proposed modification to the Springvale Water Treatment Facility and Angus Place Colliery. A response to the reasons for the objection by Veolia is provided below.

- The proposed modification is unnecessary as the existing Springvale WTF has the ability and capacity to treat Angus Place mine water.

Veolia has not demonstrated prolonged treatment of elevated hardness levels within the mine water at the operational capacity of the Springvale WTF. During the period between 2 February 2020 and 18 March 2020, Veolia issued notices requiring significant reductions in flow due to feed water not within the operational specifications for the Springvale WTF. The reduction in flows during this period were significantly more than the 2.5% noted by Veolia. It is unclear how Veolia have calculated the total reduction in flow required to achieve the required level of treatment from the Springvale WTF. Centennial is required to ensure that the hardness level of feed water into the Springvale WTF is limited to less than 25 mg/l to ensure operational flows are not restricted. Centennial has been required to self-impose reduced flows from Angus Place since March 2020 to ensure adequate dilution of water with Springvale in order to limit hardness levels to less than <25 mg/l.

- The pre-treatment of water from Angus Place risks water contamination that could damage the Springvale WTF and lead to a significant reduction in water treatment capacity.

The construction and operation of a water softening plant will be dependent on the results of further testing and feasibility studies. These results will consider the compatibility of any pre-treated water with the design specifications for the Springvale WTF including a process of consultation with the operator. The implementation of a water softening plant will not proceed if any changes to water quality are identified that would lead to a detrimental impact on the operations of the Springvale WTF. It is not in Centennial's interest to send water to Veolia that could damage the WTF given that that may lead to the plant being unable to operate which would impact on the ability of the mines to operate.

- The additional pipeline infrastructure proposed would expose the environment to increased potential for leaks.

Centennial operates an extensive pipeline network across its Springvale and Angus Place mines to facilitate the extraction and transfer of water. Centennial has successfully constructed, operated and maintained these pipeline networks to remove and reduce the risk of leaks to the environment. The additional pipeline required to connect the water from the Angus Place pit top to Pond D at the MPPS is both buried and above ground. Centennial considers the potential for any leaks from the pipeline to be remote and an ongoing inspection, monitoring and maintenance program would ensure any leaks are detected and repaired in a timely manner ensuring any impacts would be minimised. The use of metering and leak detection systems will also be installed to aid in the identification of leaks from the pipeline.

- The proposed pre-treatment facility is a large structure with additional risks of leakage of both mine waters and/or chemicals used in its treatment.

The Angus Place pit top where the water softening plant is proposed to be located has been used in the past for the operation of temporary water treatment facilities. These facilities were successfully operated with no environmental incidents occurring. The Angus Place pit top has a comprehensive water management system in place to capture and manage any leaks that may occur and has a Pollution incident Response Management Plan to guide the response to any pollution incident that may occur. The risk of leaks is considered remote. An ongoing inspection and maintenance program would ensure any leaks are detected and repaired in a timely manner to ensure any impacts would be minimised. Any impacts from leaks would be considered to be negligible.

- The proposal, which involves sending relatively dilute mine waters to Mount Piper Power Station's Brine Concentration facility will consume significantly more energy to evaporate water than using the existing (and more efficient) Springvale WTF.

The energy to treat the small volumes of water (up to 2.6 ML/day) from Angus Place utilising the spare capacity within the existing treatment facilities at the MPPS is considered to be negligible. The proposal does not propose evaporation of water.

- The remote location of the proposed pre-treatment facility creates a high safety risk for the remote workers and technical monitoring of plant performance in such areas carries an increased risk of erroneous dosing and loss of containment.

Angus Place Colliery operates in accordance with a Health and Safety Management System developed in accordance with the Work Health and Safety Act and Regulations. The content of the Health and Safety Management System is detailed in *Workplace Health and Safety (Mines and Petroleum) Regulation 2014* Part 2 Managing risks.

Should the proposed modification application be approved, a review of the existing Health and Safety Management System will be undertaken and updated where relevant to take into consideration the additional activities proposed to be undertaken at the Angus Place pit top. The Health and Safety Management System will be reviewed and updated prior to the commencement of operations associated with the water softening plant. Centennial considers any risks can be adequately identified and managed.

- In relation to sludge production at the pre-treatment facility, there is an additional risk that a sludge leak could block the transfer pipes making the pre-treatment scheme inoperable.

The construction and operation of a water softening plant will be dependent on the results of further testing and feasibility studies. If a water softening plant is determined to be an effective and feasible treatment process for hardness in the Angus Place mine water, detailed designs will be developed that reduce any risks to a level as low as reasonably practicable. With regard to business, legal and reputation risks, appropriate control measures will be implemented consistent with good management practice. Centennial considers any risk from sludge leak or blockage can be adequately identified and managed.

- Additional trucking operations daily to and from the proposed pre-treatment site will be necessary to transport, amongst other things, waste (sludge) generated from the process.

Impacts from construction and operational traffic as a result of the proposed modification were addressed in Section 6.4 of the Modification Report. The assessment concluded that number of vehicles required for construction and operation of the water softening plant and Angus Place water transfer system are not expected to impact upon the capacity, efficiency or safety of the local, sub-regional and

regional road network and that the road network has adequate capacity to accommodate predicted vehicle movements.

3.2.2. Community Individual

One community objection to the proposed modification was received. A summary of the issues raised in the objection and a response to the issues is provided below.

- The proposed modification fosters the continued long-term operation of MPPS, facilitating ongoing greenhouse gas (GHG) emissions through the combustion of carbon-based substances and is contradiction to the Paris Climate Agreement.

The proposed modification facilitates the extraction, treatment and reuse of water from the underground mining operations and is required to avoid the flooding of the Angus Place mine and sterilisation of coal reserves. The ongoing operations of the power station are independent of the proposed modification.

Regardless, Australia ratified the Paris Agreement in November 2016 reinforcing its commitment to action on climate change and further reductions to GHG emissions. The Paris Agreement builds upon the United Nations Framework Convention on Climate Change and aims to strengthen the global response to the threat of climate change. Under the Paris Agreement, Australia has committed to reduce its emissions by 26–28% below 2005 levels by 2030 (Australian Government 2015). This emissions reduction target builds upon the national 2020 target of reducing emissions by 5% below 2000 levels (Australian Government 2015). The target represents a 50–52% reduction in emissions per capita and a 64–65% reduction in the emissions intensity of the Australian economy between 2005 and 2030 (Australian Government 2015).

In addition to the ratification of the Paris Agreement, the Commonwealth and NSW governments have demonstrated their ongoing commitment to GHG emission reductions through the implementation of a suite of policies. These policies are already contributing to emission reductions and encouraging both technological innovation and further expansions to the country's clean energy sector. For example, the NSW Government's *Net Zero Plan* is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. As nominated within Stage 1 of this plan: "mining will continue to be an important part of the economy into the future and it is important that the State's action on climate change does not undermine those businesses and the jobs and communities they support" (NSW Government 2020).

Although a transition away from coal is underway, coal is still the basis of power generation within NSW. For the near future, coal within the Lithgow LGA and surrounds is required to power Mount Piper Power Station.

On a global scale, coal remains the largest source of fuel in the industrial energy mix (IEA 2020). In Asia, demand for electricity continues to grow and coal remains the largest source of generated electricity (IEA 2020). It is clear that there remains a market and a global need for the energy produced through the burning of fossil fuels (including coal) into the future, balanced with development of alternative energy sources so that national and global GHG emission reduction targets are able to be achieved in line with the Paris Agreement.

It will be the responsibility of signatories to the Paris Agreement to ensure that energy generation, investment and policy align to enable emission targets to be achieved. Thermal coal is used to generate electricity, which is the main source of energy for heating, cooling, lighting, mobility, communications and industry. Thermal coal enables the provision of goods and services that are an integral part of all our daily lives.

Even with advances in technology and the decreasing cost of renewable energy sources and evidence of a shift away from fossil fuels in many countries (including Australia), there is still a clear

need for coal as an energy source as part of the energy mix, and in the industrial sector, in particular in emerging economies around the world (including China, India, Indonesia and other counties in South-East Asia).

4. Environmental Management and Commitments

An updated list of management measures and commitments for the project is provided in Table 1 below. The additional management measures and commitments included as a result of the submissions received during the project are in red.

Table 1 - Summary of safeguards and mitigation measures

Stage	Issue	Mitigation measures
Construction	General	A Construction Environmental Management Plan (CEMP) will be prepared and implemented for this project.
Construction	Water	Erosion and sediment control plans will be prepared and implemented to manage run-off during installation of new water infrastructure including water softening plant and for any ground disturbance associated with installation of new sections of pipeline.
Construction	Hazard and Risk	Ensure that design of tanks, bunds and handling equipment for all chemicals complies with the relevant Australian Standard. Ensure that management of all chemicals used during construction complies with the relevant Australian Standard.
Construction	Hazard and Risk	The construction environmental management plan (CEMP) will be developed to manage construction-related risks of the enabling works.
Construction	Hazard and Risk	Safe work method statements will be developed to guide construction activities.
Construction	Hazard and Risk	The CEMP will include a review of the required DG quantities to be used and stored during construction to validate the SEPP 33 screening assessment.
Operation	Hazards and Risk	Safe work method statements will be developed to guide operational activities.
Operation	Hazard and Risk	Ensure that management of all chemicals used during operation complies with the relevant Australian Standard.
Pre-construction/ Construction	General	An amendment to the Angus Place Mining Operations Plan will be prepared and approved by the Resources Regulator prior to the works associated with Angus Place commencing.
Pre-construction/ Construction	Noise	Residences predicted or measured to exceed the construction noise management levels will be notified as to the timing and duration of the construction works and

Stage	Issue	Mitigation measures
		provided with a contact phone number for any complaints or concerns during the construction period.
Pre-construction/ Construction	Noise	Site inductions Inductions for the work crew will include the specific noise issues and mitigation measures required for the site. The induction will include: • All relevant project specific and standard noise mitigation measures • Relevant licence and approval conditions • Permissible hours of work • Location of any sensitive receivers that may exceed the construction noise management level • Construction employee parking areas • Designated loading/ unloading areas and procedures • Site opening/closing times (including deliveries) • Behavioural practices that minimise noise: Avoiding dropping materials from height and avoiding metal to metal contact on material.
Pre-construction/ Construction	Noise	Vehicles, plant and equipment will be regularly maintained and kept in good operating condition. Machines found to produce excessive noise will be removed from site or stood down until repairs or modifications can be made.
Pre-construction/ Construction	Traffic	In accordance with clause 138 of the Roads Act 1993, a Section 138 approval will be required to carry out the works over a public road being Brays Lane. The 138 application will be supported by a Temporary Road Closure Application Form and a Traffic Management Plan. These documents will be provided at least 4 weeks prior to the commencement of works over Brays Lane.
Construction	Noise	Plant will be turned off when not in use.
Construction	Biodiversity	Construction works to occur during standard construction hours (daylight) to minimise noise disturbance.
Construction	Biodiversity	Dust suppression and sediment transport will be managed throughout construction.
Construction	Biodiversity	Vehicles and plant equipment are to remain on existing roadways and tracks where practicable, a speed limit of 20 km/hr will apply during construction to ensure the risk of fauna strike is adequately managed.

Stage	Issue	Mitigation measures
Construction	Biodiversity	Disturbance or clearing of native vegetation, in particular Derived grasslands of the South Eastern Highlands Bioregion and South East Corner Bioregion – lower slopes and flats of Upper Cox's and Tuglow River catchments, will be limited to the total area and locations identified in this assessment.
Pre-construction and Construction	Heritage	An unexpected finds procedure will be developed and implemented as part of the Construction Environmental Management Plan (CEMP) and Centennials existing <i>Western Region Aboriginal Cultural Heritage Management Plan (ACHMP) 2017</i> , will be adopted and updated to include for this modification project.
Construction	Heritage	All relevant staff and contractors involved in construction of the project will be made aware of their statutory obligations for heritage under the <i>National Parks and Wildlife Act 1974</i> and the <i>Heritage Act 1977</i> , as part of the site induction process.
Construction	Heritage	An opportunity for Aboriginal parties to monitor trenching will be provided.
Pre-Operation	General	Should the proposed modification application be approved, a review of the existing Health and Safety Management System including the Emergency Control Plan and Hazardous Substances Management System will be undertaken and updated where relevant to take into consideration the additional activities proposed to be undertaken at the Angus Place pit top. The plans will be reviewed and updated prior to the commencement of operations associated with the water softening plant.
Operation	Waste	Sludge will be disposed of off site at an appropriately licenced facility.
Operation	Waste	Waste will be stored in an appropriately bunded tank. Trucks transporting waste off site will be loaded within an appropriately lined and bunded area.
Operation	Waste	An incident response procedure will be developed and implemented as part of the Construction Environmental Management Plan (CEMP), to appropriately manage any potential spills.
Operation	Water	Metering and leak detection systems will be installed in the Angus Place transfer system to aid in the identification of leaks from the pipeline.

Stage	Issue	Mitigation measures
Operation	Hazard and Risk	All chemicals, fuels and oils used on-site at Angus Place will be stored in accordance with the requirements of all relevant Australian Standards and the NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids.

5. Conclusion

Ten submissions were received during the public exhibition period of the Modification Report. Eight submissions provided comment on or recommendations in regard to the proposed modification with two community submissions received that were in objection to the proposed modification.

This Submissions Report provides a response to the comments, recommendations or issues raised in the submissions received.

As a result of the submissions received, the environmental management and commitments have been updated with additional commitments made where necessary.

The proposed modification has the potential to provide a sustainable long term solution for management of mine water at Angus Place Mine and maintain the overall objective of the Springvale WTF to achieve industrial reuse of mine water in the MPPS operations and achieve improved environmental outcomes for the Cocks River catchment. All issues raised are considered to be adequately managed or addressed and no changes to the project are proposed.