**Social impacts of the Korean Posco Hume coal project on the Southern highlands NSW.**

**The term social impact can be vague and broad and somewhat inaccessible by definition however technically it means how an organization actions (The Hume coal project) affects the surrounding community (The Southern Highlands) .It involves the whole economy for profit sector and non-profit sector contributing to the improvement in the lives of people, both as individuals and as group communities .Such factors as**

**1 .Physical human security .2 Housing security .3 Food security .4 Water security. 5. Environmental security 6.Economic sustainability 7.Freedoms of speech, religions and beliefs 8. Government for all and Civil rights 9.Artistic expression 10.Education.**

**All these factors have been impacted by coal mining in our communities of Australia generating social and economic importance to the quality of life .The pattern of impacts have varied across communities depending on the size of the impact on communities and history.**

Australia has undergone 247 years of reconciliation with our indigenous peoples since the landing of Captain Cook in 1770 on the shores of botany bay NSW. The word Sorry was our Nations Mantra, a call from Prime Minister Rudd announcing in Martin place Sydney in 2009 .The Indigenous aboriginal peoples of Australia, The Penal settlers and convicts and The Free settlers through this history of time struggled with human might, determination, hard work and foresight to develop Australia into a social and economic culture unparrelled and unique in the modern world of 2017.

Through positive social and economic initiatives of great Australian men and women taking the necessary social and economic risks with the preservation and adherence of common law for all, they built the greatest economy in the history of Australia revered by other nations.

Our indigenous cultural heritage has its place in this nation building and without its preservation Australia would not enjoy the offerings of social freedom it offers to the world.

The southern highlands of NSW has been part of this nation building phenomenon moving further into the 21 century. Our precious Gandangara indeginous peoples are the spiritual guardians of the Southern Highlands and

their ancient ancestral heritage and beliefs belongs to them, the land and is shared by all Australians.

In 1802 the explorer Francis Barrallier met with the indeginous Gandangara People whilst his exploring party moved through the land southwest of the Sydney settlement. Governor Macquarie our fifth governor wanted an understanding with the Gandangara peoples, he wanted to know who they were and what involvement had they in any attacks against his troops who had been scouting the country, he was prepared for hostilities .However rather they presented themselves as wanting to receive troops and strangers as friends building huts for them to stay in when meeting and communicating, Barrallier noted this in his journals of 1803. In Mittagong in 1828 there was interaction between the Surveyor General Thomas Mitchell and the Gandaragara peoples. Mitchell was constructing and supervising the road to connect the southern highlands to Sydney it was the Gandaragara people who gave Mitchell advice on the land form and on direction the road should take they acted as guides to assist in the construction of the road, as only they and their ancestors knew the landscape and terrain which they had traversed for centuries .

The Gandaragara people believed in the animal people who lived in the dreamtime and were known as the Burringilling . They lived in the clouds and rains of the Southern Highlands they believed in the spirits of the dense pristine vegetation of the Southern highlands ,they believed in the ancient trees we have in the southern highlands and they most of all walked together with the pristine Waters of the Southern Highlands sacred in their beliefs and dream time .The Gandaragara people were the first builders of the southern highlands for the white settlers as they knew the value in preserving all that was given to them the pristine water for health , the Dense vegetation and wildlife for food ,the stone and timber for huts,tools and later in history, the modern road built by Mitchell .

The Hume coal project and the NSW Consent Authorities are inflicting on Gandaragara indeginous peoples and their acestorial beliefs a “social injustice on their history and Culture”. On balance they are denying the Gandaragara peoples their natural justice in the preservation of the land .The Hume coal mine project proposes to invade and rip apart their underground land with a 45 square kilometre coal mine .The coal mine will destroy a pristine water aquifer and destroy dense vegetation with toxin chemicals from coal waste.

This land is sacred and embedded into the beliefs of the indeginous Gandaragara people .The social impacts on the cultural beliefs of the Gandaragara Indeginous people will be harmed for all future Australian generations to come .The coal site can never be rehabilitated to its present pristine environmental natural presence there has been no coal mine in the state of NSW that has been successful in doing this.

The Gandaragara people were our first friends in building of the Southern highlands economy as roads were essential for economic development and the movement of people is shown in the history archives of Thomas Mitchell and Governor Macquarie (Fisher Library journals and archives of Governor macquarie UNSYD) .

A Korean Coal Multinational mining organization now hangs over our heads in the Southern highlands determining the outcome of our natural history ,our natural justice and our archived history, environment and legacy .Are we to leave to our children a legacy to learn the richness provided by the land area inhabited by the Gandaragara Peoples and our Historical builders of Mitchell and Governor Macquarie or are to leave a legacy of the toxic destruction of the pristine water aquifer and the surrounding landscape by a Korean Coal mine ?

The Consent Authorities must show social justice and natural justice to the Gandaragara cultural beliefs of this land and the historical Public interest of this land and not allow the proposed Hume Coal EIS to have any consent enforced until all social impacts for the Gandaragara people's culture and beliefs and current peoples of the southern highlands with their children are assessed taking into account all social and historical impacts.

**Hume coal Social Impact on water security, Water levels and use of water in the southern highlands.**

The Hume coal mine creates a Social injustice on the southern highlands communities and the people of Sydney, Canberra and Goulburn and any interstate from Melbourne Victoria, Queensland, South Australia and Western Australia, Northern territory and Tasmania.

Water is the most valuable asset of the Southern Highlands economy and social welfare of its people .Without clean pristine water the commercial, domestic or agricultural economy cannot survive and the human Social impacts will occur.

The southern highlands is home to many businesses driven by those people who developed and work within them .We have a vibrant tourist economy which encompasses hotels of international standard, 5 star accommodations and separate dwellings, B&B, Guest houses and Stays, farm stays these accommodation businesses depend on the clean available water to run their businesses as all services for the Public interest in accommodation and tourism require clean pristine water. There are over 1000 accommodation facilities in the southern highlands catering for tourists.

Weddings are also a substantial business in the SHL due to its natural environment they are advertised in most southern highlands publications .Wedding garden venues have to be of first class Green in appearance, photographers depend on this for their quality of photo productions. Therefore clean water is essential for vegetation and gardens and with no weddings or accommodation venues advertising in media publications will lessen with advertising revenues lost.

The proposed Hume coal EIS is miss leading the Public interest in saying that the accommodation business in SHL is very limited in the number of dwellings and will not be affected by the Hume Coal development. This is a misleading statement as there are much more accommodation dwellings for tourists visiting the SHL than what the EIS is saying .Also, they will not be housed by Hume coal workers as Hume Coal intends to place accommodation dwellings work camps on site for its workers .Does this not negate the theory in the EIS that Mining jobs will go to the local community within 45 minutes of the coal mine site if coal miners dwellings are to be erected on site to house miners and their families are they coming from overseas on temporary work visas ?

.Many retail shops and service industries run on the accommodation and wedding businesses if there is no clean water or if the perception of pristine water is damaged by toxic contamination of a coal mine then these business will incur economic and social losses and fold up .

Job security will be impacted and job losses will occur within these businesses far more than what the Hume coal project is saying they will provide .The following businesses in the SHL all depend on pristine water tourism , food outlets retuarants,hotels accommodation , arts crafts ,

**Social impacts on Housing security within the SHL community .**

There is an increasing demand for people to come and live in the southern highlands, housing statistics show (Domain, The real estate network, On the house and Real estate .com)that an increase in movement of people from Sydney and other capital cities in Australia is increasing by 4 to 5% each year to regional areas this is evident by the housing developments of New Berrima , Mittagong , Bowral and Moss vale and new houses being built on independent sites for more advanced home dwellers . The Federal and State governments are encouraging younger families to come to regional areas where housing presents itself as more affordable and services for the education of their children are more available this is evident by the large number of schools within the SHL .

The Southern highlands houses some of the most formable private and state schools in NSW .The demographics of the SHL is proportionate to most large Australian cities in social character it has a point at the top of the triangle and widens as we get to the base showing incomes , property ownership culture and diversity .

The economic development and the housing of new people moving to the southern highlands has been a thriving force in its development and now is threatened by the Hume Coal Mine as this movement is dependent on clean water. Should underground water become contaminated by toxic waste tailings of the coal mine over a 19 year period this will bring this economic development to a holt .People will not want to live near a coal mine with all its antiquated toxic impacts of the past as witnessed in the the Hunter Valley NSW and in Queensland in the Bowen Valley .The associated businesses for the Housing of people. For example, the realestate industry with finance houses , banks, retail shops, hardware , home goods, food outlets pharmacies , doctors,other professions of law, accountants and trades with social services of local government ,ambulance, firebridgrades ,police ,social carers , retirement villages will all feel the impacts of any water contamination.

If the realestate industry suffers as a result of contaminated water the loss in state taxes on the sale of property to the government will have a flow on affect costing the SHL economy and the state government .A bleak economic outcome for Government and the SHL.

Jobs will be lost as business will feel the effects of water loss and water contamination as production outcomes fall. Many dwellings in the southern highlands depend on underground and collected water supply from bores for

agriculture and water collectables of tanks , concrete or galvanised and these water containers receive water from roof tops all subject to air and rain quality this water is used in household and in businesses . If air quality is contaminated by coal ash and coal particulate from the Hume coal mine then water toxins upon roof tops will become evident in the water collectables for household and businesses .The same outcome will result from any connected water services as the water catchment location is vulnerable .

If bores become contaminated from underground slurry waste from coal mining then agriculture is impacted .The food chain via agricultural crops and the numerous eating outlets in the SHL will be impacted . Our diary and cattle production will be impacted .Job losses and household incomes for local workers will decline. The Bureau of statistics data Research shows that in the Hunter Valley regions of NSW that townships of Bulga, Singleton, Broke, Gloucester and others have been socially impacted from coal mining .Bulga faces its community leaving the township as socially and commercially it is declining due to the impacts of coal mining...

The industries of Viniculture in the Hunter Valley and Orange growing worth Billions of dollars to the state and federal government have had impacts with lessor production levels may be this is why we see oranges coming in from California USA. The flow on of Agricultural production decline affects associated industries of farm management services and farm machinery sales , farm machinery repairs , stock feed suppliers ,harvest and farm employees and farm trades .The chemical toxication of water from coal mining has socially impacted on the people communities of these townships.

The SHL needs to incorporate a level of procedural fairness with the consent authorities in its submissions to the DP&E to not have any statements made by the Public interest amended or corrected by the consent authority's or Hume Coal Project .The public interest must come first and foremost in any consent enforcement being given to the Hume coal project.

**Social impact on Education and Economic Sustainability .**

The SHL houses some of Australia's best private and state education establishments encompassing the local Communities children and children of Australia Regional and Capital cites .On balance the coal mining industry in Australia is significant in both scope and size and it's still growing at rate of 9 % per cent per year .Australia being a major exporter of coal does bring

significant financial benefits to the nation. However the Australian bureau of statistics estimates the value of coal mining exports was 170 billion dollars and represents 60 % of the value of exports to coal .Whilst the value of coal exported has increased its value has been directly aimed at fulfilling the enormous global demand to fuel industrialisation and urbanisation this however has come at a huge social cost to communities by supporting population growth as in the case of China we have witnessed incredible development in Asian cities.

Australia being the second destination behind Japan . At this same time the Australian Mining industry is facing decreasing productivity as a result of changing market conditions for the grading of bulk coal and pricing drops due to a coal glut ,this means that the extraction of coal coal is becoming more challenging and therefore still creating more toxic waste as in the the case of the proposed Hume Coal Project .Although we are in no danger of physically running out of the coal resource in Australia any time soon Consenting Authorities need to seriously address the fact that the continued production and declining resource quality creates technological , environmental and social challenges .

Coal companies that have been spending their revenues in regions where coal extraction has taken place have inevitably sent these revenues to major capital cities. Profits go outside Australia by foreign coal companies with taxes paid there rather than being spent on the local communities where revenues stay here this has been socially impacted .

Social communities in Moranbah Queensland have been vocal in their disagreement with coal mining in that it has expanded the quality of life within their region .A case study resource policy by Dr Galina Ivanovna and Professor John Rolfe from CQU. Have data statistics that support that the region has not had the social benefit, that EIS ‘s have stated .It was in fact it was the residents of the region that beared the costs of living alongside the coal mine and all social factors and Education was impacted on the community .

The Hume coal mine intends to create its own work camps for its workers this does nothing for the social cohesion of the region, in fact statistics from Professor John Rolfe suggest work camps separate the community .The only way to partially subsidise the SHL community for adverse social impacts is for the Posco Hume Project or the State government to compensate the local community regions with a percentage of royalty income remaining here in the

SHL similar to the Western Australian Governments royalties for Regions Agreement .Under such a scheme the state government ensures 25% of revenue to remain here in the SHL for the development of the local community infrastructure and community education services .

The Hume coal EIS does not address this issue and the federal and state governments are offering no procedural fairness to the SHL communities by incorporating such a scheme in any coal EIS being considered by the Consenting authorities .

It's only fair an d reasonable that if State and federal government can allow Procedural Fairness to a Korean Coal Multinational coming in to invade the SHL causing immense social impact on the community then the same offering should be made to the Public Interest we vote for our Government leaders . .Therefore No consent to the Hume coal EIS should be given until Procedural Fairness and Public Justice is administered to the community of the SHL.

Education needs to be subsidised by the Hume Coal project within the SHL as it is the foundation of the future innovators of coal mining technologies in Australia .The social impacts of the Hume coal projects encompasses the above points and in conjunction impacts on the education of children in SHL .

If the contamination of the water aquifer occurs ,the coal dust particulate occurs in our air quality and high levels of noise and vibrations as those which occurred for the communities experienced in the Bowen basin , The Hunter valley, Lightgow , and Moranbah this will have a similar social impact on the quality delivery of education within our schools and within our community services .

Education takes place in our schools , our Tafe colleges , our police force , our hospitals, our ambulance ,our fire and rural fire brigades our retirement villages , our general industries of hospitality , tourism , food and accommodation .All will be impacted by the Hume coal project .The primary school in Robertson is just 10 meters off the rail line that will carry 1,460 loads of 2,400 tons of coal by 2 loco motives one diesel the other electric with 60 tons 40 carriages 24/7 days a year the noise levels of coal filled carriages and empty carriages at this rate of frequency for our primary school children will be highly disruptive and after 6 years of vibration and high noise frequency on the education and health of our children social impact is inevitable . The adversities on their health and disruptive education of young children in their

developing years creates social issues of immense consequences for these children. Behaviour and health audio effects are highly probably let alone the coal dust particulate affecting the wheezing and asthmatic lung conditions of the children and of course what about the teaching staff wanting to deliver clear high quality education.

**The social impacts of mining technology .**

The demand for new technology in the coal mining industry is likely to stay high for the foreseeable future so finding new ways to mine coal in a more sustainable way becomes imperative to the social fabric of communities affected by coal mines .Achieving sustainable coal mining in the SHL needs to have an adaptive environmental sustainable methodology with broad societal acceptance.

The Hume coal project EIS has not been broadly accepted by the community of the SHL the reason for this is that firstly Hume coal EIS is inadequate in supporting the social fabric and economic fabric of the SHL. Hume coal reference to sustainable ground water quality and pristine water aquifer quality has used modelling techniques over the past 4 years to achieve data that suggests that ground water contains salts is basic and non-convincing their data is supported by no department of planning and environmental Hydrologist the reason for this I guess is that the department has not got a hydrologist on staff.

However independent studies done on ground water studies by independent consultants Pells and the university of Sydney clearly indicate that contamination of the land scape and the pristine water Aquifer and ground water is factual and scientifically supported by relevant scientific data .

Any salts occurring in the ground water are of a natural ecosystem biological formation.

The contamination of Coal Waste Tailings holding such chemicals of sulphuric acid ,lead, mercury , nickel ,tin,cadmium,arsenic,radioactive isotopes ,thorium ,strontium ,methylmercury , pyrites ,methane ,and vanadium used in the production of nuclear manufacture have evolved from the current technology of coal mining .

For Hume coal to suggest that the mining operations will make the ground water better in quality because when ground water is oxidised it creates a red

stain is very naïve and lacks a Corporate Citizenship denying the Public interest the true facts .

It's is a known scientific chemistry fact that any water containing iron when oxidation takes place will cause a red stain this is characteristic of the landscape of the SHL .The toxic chemicals noted above will not form a stain they will kill the pristine water aquifer, kill the ground water table and surface water and add salinity to the surface landscape this is what the Hume coal EIS should be addressing before any consent can be given to the proposed Hume coal project.

Hume coal has only a licence for 60 % of the water needed and its assumptions on usage will over do their licence requirements. 40 % of water still has to be found 12 gig litres are licenced ,however 4.8 gig litres has to come from somewhere .If they intend to pull this from deep bores or the ground water from pristine water aquifer the more water used the greater the waste tailings and water from feather coal tunnelling containing the above toxic chemicals goes into the water stored in the Nepean ground water system .

Hume coal makes assumptions on the replenishment of water from annual rainfall this is a trap assumption .The earth planet is getting hotter scientific data is real and in concrete , the seas are rising , and the president of the world's most powerful nation disavows climate science and has said in the past that climate change is a fake Chinese plot to steal American Jobs .

Climate change is an issue to be considered if rain falls do not meet EIS expectations where will the water come from , it is highly probable that less water means higher the contamination of the water aquifer in the SHL by the Hume Coal Project.

The Hume coal project EIS must return to evidence available and stop avoiding the obvious to themselves and the Public interest that they will not contaminate the water aquifer.

The current adoptive coal mining process is feather tunnelling this is being used as it is a more effient form of coal mining than open cut coal mining however it has its dangers for the social impact on the SHL community and the mine workers them selves .

This process uses more highly technological methodologies incorporating more machine power of tunnelling and computerisation of control than

manpower. Miners have been pulled from this process of feather tunnelling because it has many dangerous aspects to it should failures occur and death of miners result .The coring of coal by this technique can create land subsistence as it cores more efficiently taking 70 % of the underground coal out of a coal seam , this methodology requires more water supply than detailed in the EIS or any other type of coal mining as the coal cutting tungsten blades and conveyor systems have to be water cooled constantly 24/7 . Methane gases and sulphur gas are intense in this form of coal mining as more coal is extracted combustion from thermals of steel strikes can occur causing explosions that will have an immense social impact on the community of the SHL and the public interest .

The coal industry is like other industries feeling the effects of economic viability downward pricing on bulk coal and coal mine operating expenditure increasing make margins low for operators and is becoming more obsolete as we look for new renewables to power our energy and recycle our iron for further uses .Industrial labour is being replaced by Robots as in the case of feather coal mining using far less a mining work force this is good for Posco Hume Coal as salaries are not paid and are saved and not paid to local workers with less jobs required in the mine .

Computerisation will drive the Hume coal mine and full time work will lessen and replaced by part time work with robotic machinery the social mobility of the community is waning as a result.

Danny Pullicin .

20/05/2017

[redacted]

# Hume Coal Project - The Tailings and Chemical Waste Residual.

**Background**

The Proposed Hume Coal Project is estimated to produce 3,500,000 tons of excavated coal from its

Underground mine over an area of 45 sq. kilometres of underground tunnelling.

Under schedule 3 of the NSW Environmental Planning and Assessment Regulation act of 2016 The Hume Coal mine project it is known as a designated development. This development is a highly and extremely sensitive industrial development on the pristine natural landscape, it is a designated Development of the first degree.

It is within 100 metres of a pristine national park with native fauna and flora. It is within 40 to 100 metres of a pristine water catchment area and a pristine natural underground water aquifer .This water supply is for the use of the surrounding agricultural rural landscape and its people in surrounding towns and the villages ( Berrima,Exeter,Sutton forest ,Moss Vale, Bowral Bundanoon,Burrawang.Fitzroy falls,Belmore falls ,Medway,Penrose,Robertson,Canyonleigh ) and other town ships in the southern highlands it is the future Water supply for the Sydney Basin and Southern Illawarra districts to the NSW east coast .

**No 1. Species Impact Statement**

The Proposed Hume coal mine facilities and extraction using the feathering coal mining method threatens commercial and domestic livestock, natural wildlife species of wombats, kangaroos, wallabies, rock wallabies, possums, native reptiles and ecosystems of water fish life in our water catchment creeks, rivers and resoviours. The extraction of coal by feather coal mining will destroy the flora and ecological communities of their natural habitats. It is also within 100 metres of land reserved for National Park and declared a Wilderness with World Heritage Value confirmed under the state Government Wild life and National Park Act of 2012 .The National Park within the coal site is designated as pristine as it houses old growth forests with sensitive flora and fauna species.Adjoing National parks have extreme world heritage significance. The Morton National park and the Fitzroy Falls resoviours which will also suffer the industrial effects of the Hume coal project and are the lungs of the Sydney metropolitan area and the carbon sinks for the now and the future generations reducing the C02 carbon emissions giving us clean air quality .The National parks must be given absolutely major priority by the Consent Authorities and the Minister for land and environment.

The Current EIS produced by Hume does not comply with a comprehensive separate SIS “Species Impact Statement “in whole its content is not detailed showing modelling parameter impacts on threatened species , existing landscapes and vegetation over the duration of the Hume coal mine being 19 years .Salinity in Australia is a major environmental threat degrading soils in NSW and Northern Victoria .Salinity has been caused by a number of industries in Victoria across the Murray basin, a food growing area by land clearing and in NSW by open cut Coal Mining .

There are existing contaminated creeks, salinity in soils and rock leaching chemicals caused by the Centennial coal mine in Lithgow .The EPA find themselves in a difficult situation to rectify the environmental issues here as the lack of qualified personal and clean up facilities plague the department.

The Upper and Lower H unter coal developments have affected the Australian Hunter Valley wine growing industry, many wineries are wiping coal dust from the ir vine s. This industry is worth billions of dollars in GDP revenue to the Australia n government and the community .The town ships of Bulga and Broke in the lower hunter are all feeling the social and economic impact s of coal mining on the destruction of their to wns (save Bulga . org.au) tells all for township assistance . The Hume Coal project EIS has many assumptions and theories outlined in it on the effects o n the environment and people of the southern highlands and Sydney.

The sulphuric acidity and future sal inized soils as a result of undergroun d coal mining in the Southern H ighlands will have its impact , currently statistic s estimates on salinity by the EPA alone show that by 2050 17 million hectares will be classed as having high salinity potential .

Hig h soil salts and sulphuric soil salts have a dramatic effect on plant root zones , in both vegetation as well as agriculture livestock , pasture cro ps , natur al wetlands and surrounding aquifers and waterways .A slight increase in salts and sulphur acids de crease the ability of plants to absorb water through their roots systems via osmosis the cause of leaf burn and necrosis through increased levels of sodium , sulphur , and chloride this creates nutrient and ionic imbalances resulting in poor vegetation gro wth . Mother Nature has no defence mechanisms to deal with this poisonous situation inflicted on it by a coal industry for natural vegetation growth. Therefore the ultimate solution for Mother Nature is death for the surrounding vegetation.

Salinity and sulphuric acid soils can also have adverse effects on infrastructure and roads in our case the Old Hume Highway ,a Pedestrian Motor W ay which runs along the east side of the Hume coal mine project and of course the buildings structures of Med way, Berrima, Moss vale, Exeter , Sutton forest and further aide . If 186 square kilometres of ground water can be effected by the Hume coal project with 45 square kilometres of underground Feather coal tunnelling (supported by the Hume coal EIS and water ground studies ) this will affect all of southern highlands townships and the cities of Bowral, Goulburn, Canberra ,the Illawarra ,East C oast and Sydney city.

Underground pipes for water and sewerage, telecommunication cables , cables newly installed for the new NBN and electricity cables for street lighting and rail safety lightening at rail crossings and terminals will be corroded by the oxidation process.

If consent is given to the Hume coal project will the Consenting authorities, The EPA, The local Mem ber, The Local council members and The Minister for Planning and Environment consider the impact of “Cost to the government and the C ommunity ” should the rehabilitation of infrastructure and the envirmental derogations be necessary ? A huge environmental and economic risk which is based on many trap assum ptions within the Hume coal EIS?

A comprehensively mandatory SIS over and above the EIS with World’s Best P ractice supported by hydration statistics and biodiversity statistics is essential , as this designated development is going to impact on threatened species, human populations , eco logical communities, natural habitats, buildings and infrastructure.

**No2 . Threatening of the water by The Hume Coal Project of the existing Berrima Medway Aquifer, Pristine Falls of the Fitzroy and Belmore falls and the world heritage National Park s Belanglo Morton and surface water Catchment areas, Bobs creek Bundanoon creek, The Medway rivulet the Shoalhaven River, Wingarribbee River and associated creeks. Feathering tunnel mining.**

Hume coal is threatening to poison and lessen the water supply of the existing Water A quifer and the Fitzroy Falls water catchment area and all above named waterways , which is the future water

supply to the C ity of Sydney, T he southern Highlands, Canberra Goulburn and the Southern districts of the Illawarra to the NSW East C oast , all areas are east of the rail transport haulage line .The Fitzroy Falls and Belmore Falls are designated as pristine "Water F alls with World First and prestigious World Heritage Environmental value " within The Morton National park.

An amendment which was passed by the federal Parliament in June 2013 to the environmental Protection and biodiversity conservation Act 1999 (the EPBC Act) this amendment by Federal law puts in place the so called "Water trigger "which requires the impacts of the Proposed Hume coal project to be comprehensively assessed at a national level this must be adhered to within this assessment by the C onsenting Authorities, as it falls under confirmed legislation.

The amendment now permits The Federal Minister for Planning and Environment to deal with the water resource concerns as a standalone issue and set appropriate conditions on the acceptability on significant impacts on water resources by the Hum e coal Project . The Federal minster has the responsibility to protect the environment and the Public interest .The question here is what has the Federal Minister undertaken here on the Hume co al project and why is his statement not available to the public interest????

**FEATHER MINING**

Pristine water aquifers and underground water used in F eather Tail tunnelling of coal extraction reacts with concentrated sulfuric acid produced from washed coal tailings and excavated coal . The water used from the water aquife r to keep the coal excavation F eather tunnels damp is excessive and use more water than for conventional mine tunnelling .Feather tunnelling is referred to as a The New Method of Coal Excavation in "diagram" it looks like a Feather with a sharp straight b ack bone in the centre and 45 degree off shoot tunnels going out either side of the back bone just like a birds feather .The fundamental major reason to mine this way is to col lect 70 to 75 % of the coal available to be excavated in a coal seam as in oth er forms of coal excavation i.e. long wal l or open cut mining only 35 % maximum yields can be produced .

Excessive water use for the processing and hydraulic drilling of coal by Tungsten Carbide tip blades /cutters on coal excavators in feather mining is absolutely positively essential as if breakdowns occur disastrous consequences within the mine can occur therefore they must be kept cooler to resist wear and tear .Under the Feather tunnelling process more heat is generated and they require more water than conventional long tu nnel coal mining tungsten cutters. Therefore it logically follows that the more water used for the damping of Feather tunnels and the cooling of carbide tungsten cutters necessary within the feather coal tunnellin g process the more oxidation and sulphonation introducing carboxyl and sulphuric acid groups will collect within the tunnels , coal seam water and coal cavities of the mine.

The heat content in the F eather mine is greater than conventional mines , open cut o r long wall tunnelling using peer and beam support structures for roofing and side walls. When sulphuric acid is mixed at a temperature of 10 C or below to O c as in the case with the Hume Coal F eather mine tunnelling method , the temperature of the tailing s and water mix will rise and sulphur dioxide is produced in enormous quantities .The coal seams and tailings mixtures including detergents have an absorptive power above acceptable levels in this method of coal mining and cannot be measured or controlled accurately and requires several times its weight in water or solid liquid mass to obtain a constant fluid mixture necessary for any of diluting of the contaminated water tailings and water wash in the Feather tunnels .

The question here of course can this slurry of toxic fluid mixture which is at this stage contaminated with sulphuric acid S04 and other pois onous chemicals of lead ,mercury,nickel,tin cadmium ,arsenic, radioactive isotopes,ihorium and strontium ,methylmerc ury,pyrates ,methane and vanadium used in nuclear manufacture be maintained at a liquidity level during this 24/7 coal excavation process ???

To allow internal mechanical mechanism s of filtration pumps or dilution pumps to be in use with this contaminate d slurry is challenging due to the confined spaces within the Feather mining tunnel process this why Feather mining requires less manpower as there is less space , no man power no control and more machine power is required to extract coal than any other p rocess . The contaminated tailings slurry has little chance of dilution with Lime or lime stone if not in liquid flowing structure at all times 24 /7 so Lime or lime stone dilution or filtration is not the answer.

"It is a trap assumption theory "to suggest that lime dilution is the answer to dissolve heavy metals and acids, sulphur, nitrates, zinc , lead, methane, tin etc. . . . . The toxic poisons produced within the mine will form a "poisonous Gel "at a low er temperature s to the surface of the waste tailings placed under the sandstone membrane and pristine water aquifer "this is now in solid form ". Sitting under the Hawkesbury sandstone and pristine water aquifer it will seep into the bore water holes, ventilation holes and ducting, fuel ducting, electricity ducting, sewerage ducting and amenities ducting. It will absorb into the Hawkesbury sandstone with higher absorbsion rates of sulphuric acid with temperature accelerations.

Thermal geometric heat reduces oxygen levels underground and with heat forming its corrosive abilities will seep Sulphuric acid into the degra ded level of the water aquifer at 120 metres below the surface also causing seepage in surrounding ground and surface water .T he Pristine Aquifer will poison and fracturing o f the Hawkesbury Sandstone membrane and surface landscape will occur.

Lime dilution has no guarantees. Another tried theory assumption . There are many instances of mines where lime dilution has been practised still have devastating environmental consequences for the natural landscape and its peoples that cannot be reversed.

The Bulga mines of NSW, The Lithgow mines of NSW, The Queensland mines and Tasmanian mines .The mining institute of America and the National institute for occupational safety and health USA show statistics of the devastating effects of sulphuric acid leakage into water tables, ground water , rivers and natural landscape Green acid slur ry leaching from from Appalachian Mountains mines .In North America mines in the Joggings and port Morien, Nova Scotia suffered a similar fate. The People's Republic of China is by far the largest producer of coal in the world producing over 5.8 billion tons of coal in 2016 or 45% of all coal produced in the modern world an estimated 6 million peop le work in these Chinese mines with as many as 40,000 miners die in accidents each year many from poisonous toxicity of the mines.

Most Chinese mines are deep underground and do not produce the surface disruption of Strip or Feather mining. Feather mining is used for one main reason only , as it will extract more than 70% of the coal seam where open cut or deep tunnel mining collects as little as 35 %.Land subsidence , stone fracturing and leaching of Sulphuric acid and poisons have occurred , that is w hy Chi na does not reclaim huge hectares of land in the 1000's of hectares for its people or land park use .This is abandoned land which is unsuitable for agriculture or other human uses of life and inhospitable to indigenous wildlife .Chinese mines however experience severe surface subsidence negatively effecting farm land as it no longer drains with saturated heavy metals and sulphuric acid within it , they do however use some subsidence areas for aquaculture ponds but they have more than they need for this purpose . It would be beneficial to get the chemical analysis data on these ponds to

what contamination has resulted in the aqua food chain in these Chinese aqua ponds . However no such researc h has been presented.

The reclamation of subsided ground land in China is a significant national crisis in China according to the United Nations of World G overnments and the Chinese Peoples Republic. It is imperatively recognised by most world leaders and the newly appointed president of the United States that Coal mining for future Electricity needs , producing higher levels of world Co2 , with the coming of world climate changes , killing the landscape and peoples has a limited future for our next generati ons and new forms of sustainable energy must be worked on now .In China coal is mostly used for domestic consumption which is burned with little or no air pollution control mechanisms and contributes greatly to the visible smoke and severe air pollution in their cities , neighbourhoods ,rural villages and industrial areas . Using coal for fuel has no future for the generations to come and the Chinese People's Republic recognises this fact . China uses 70 % of its coal from coal mines for its energy.

The q uestion here ……. For our Consent Authorities and the Minister .Is Australia going down the same fate as the Chinese?????? Our land is the hottest continent on earth and driest on earth.

Agricultural land in the southern highlands is one of the most productive types of land in NSW /Australia and the World. The emerging viniculture and superb wineries at huge investment to their owners will be effected by the contamination of our soils and pristine water aquifer. Under the EPBC Water Act the Minister has the authority to not allow th is Hume Coal P roject to have consent . He must under all circumstances put the public interest ahead of this development on the basis of the above effects.

**No3 . The Hume Coal project will exceed their water licen ces depleting Aquifer water levels and Cities will be affected.**

The ground water study completed on 24th September 2013 by the Southern Highlands Groundwater Action Group, Pells Consulting and the University of NSW Department o f Environment and Civil Engin eering Water Research Laboratory drew conclusions that water licences for Hume coal will exceed their development . Consent limits and water holding licences will be extremely doubtful.

The Hume coal mine project is not just an extraction coal mine but a C hemi cal producing Industry .Landowner's bores will be drained to the level of the mine at 120 metres below the natural surface of the landscape. The study concludes that on completion of a 45 sq.km underground Feathering coal mine a drawdown of water will exceed 120 metres and this is outside the Hume Mine priva te landholding and leased area it is also outside the EIS draw down of 2 to 80 metres . The modelling also shown in the study clearly indicates the extent of the drawdown of water from the Aqui fer affecting the Wingecarribee river level and The Fitzroy falls water catchment area as the affected boundary models prove a decline in water levels conservativel y affecting an area of up to 186 square Kilometres . This will certain ly affect the future water supply of Sydney basin, The southern highlands ,Goulburn already short on water supply and the water supply for the city of Canberra .

**No4 Impact on Water bores, impact on business, impact on farm sustainability.**

There will be over 100 private bores on private land that will be affected by th e decline in water from the Aqui fer as a result of the water use in the Feather coal extraction . Hume Coal's Water

licences will exceed maximum limits causing furthe r decline in water levels and contamination of the ground water with surface land resulting in less to no water supply from existing private bores.

This in itself prese nts an enormous environmental and human problem. A high financial cost loss is very likely to fall on Government, landholders , inhabitants of towns hips and busin esses in the southern highlands . They will be forced to endure the hardships of less business , trade and Farm sustainability with the loss of water.

Crop growing , the gra zing of cattle, sheep and other lives tock breeds will be affected due to the contaminated water and loss of water in the ir private bores . The RIO Tinto mine in the hunter valley Bulga and the Mount Thorley Warkworth mines impacts the wine growers and orange industry of the areas changes hav e occurred here as government and communities can see the destruction of their land by coal mining and LPG mining .Gas licences in this area have been bought back and this should be a formable consideration for the consenting authorities " to buy back lice nces for the Hume coal project" .

The value of state stamp duty taxes on the resale of land to the government, the value of current existing business and agriculture producing taxes, the preservation of our fauna and flora and water resources for ourselves and future generations in the southern highlands and Sydney will far outweigh the value of the current Coal project. The aquafer provides this natural resource for human use lively hood and business a benefit and value for all, the Hume Coal Underground Feathering Coal M ine Project threatens it.

**No5 . Hume coal project will place toxic chronic poison tailings into the Aquifer.**

The tailings of washed coal contain chronic toxicity they include (poisoning) lead , mercury, nickel, tin, cadmium, sulphuric acid, arsenic , radioactive isotopes of thorium and strontium when mercury exposure is deposited within land base water microorganisms convert to a highly toxic form called methylmercury .W hen humans or animals eat these organisms in food chain the accumulated t oxins will interfere with human and animal reproductive growth and mental behaviour the toxins can be the cause of death.

Once tailings water is returned back to the below ground or the natural surface environment at a higher temperature ,the change in te mperature impacts on organisms by decreasing the oxygen supply therefore increasing the toxicity of the tailings causing further contamination of surface wate r and the underground water aqui fer .

Local townships in the Southern H ighlands will feel the abo ve effects of the water aquafer contamination in the loss of agricultural trade and production, loss in local business and the Loss of Human Health. The American NIOSH (national institute of safety and health) reports 25th may 2016 journal of occupational and environmental medicine on the impacts on human health of coal mining tailings on water, on coal workers and the outside general public. It provides substantive evidence based examples where human health has been impact ed and resulting deaths have occurred.

The NIOSHTIC reports on human health is a monumental concern in W estern Eur ope , China , USA Australia and New Zealand .Pneumoconiosis and Silicosis among underground bituminous coal miners and local public is very e vident , a great cost to the community and governments.

Reports and statistics are available and proven , showing fatal occupational lung disease in coal miners and surrounding inhabitants of townships and cities. O n April 5th 2010 an explosion of the upper Big B ranch Coal M ine in Southern West Virginia killed 29 employees , of the 24 victims left with sufficient lung tissue available for medical examination 71% were suffering from the presence and

profusion of coal macules, nodules, interstitial fibrosis, si licosis, mixed dust, heavy metals of mercury, sulphur, shale ash, coal ash containing all toxins mentioned, methane contamination and resulting pneumoconiosis.

Our communities are dependent on the pristine environment of the Southern H ighlands and the ben efits it provides for all who live and come here. The question of course is.

Can The Consenting A uthorities afford an explosion within the Hume Coal Feather mine where concen trates of Methane G as and Sulphuric Gas are at extreme higher levels than any other form of coal mining .Where mechanical coal washed wasted tailings with contaminated waste water of the dampened coal seams are to be buried underground within the coal Feathering cavities follow ing a 45 degree outward direction from the backbone seam for 45 square kilometres. Thermal geometric High Heat content Sulphuric acid, with other toxic flammable metals and methane gases with corrosion capabilities will collapse the cavities within the min e. The Hume Coal Projects suggests in the EIS that they will create 300 jobs however it is noted that in the Feathering Coal method of extracting coal from coal seams underground less man power on site is required and it is more dependent on machine tungst en blades drilling and computer hardware and software driven.

The question here of course is why is this so? Is it because Feather extraction of coal, which is of no new formula, has higher risk associated with it? More water usage therefore means more to xic slurry produced with more coal extraction 70% of a coal seam. Therefore logic suggests more flammable toxins and higher danger levels to the coal employees and the environment???

Tourism, Accommodation S tays, Food culture, W ineries, Crop and Livestoc k harvesting, T he famous Robertson potato , The S how Gardens, Hotels of international historical and local significance and standard , The Tourist facilities, the travelling public, The historical townships of Berrima 1863 ,Arts and Crafts, literature , e ntertainment , Schools , Hospitals, C lubs ,Retirement and local ly living residences and tourists from Sydney and surrounds and the World love the southern highlands and all req uire pristine natural water for survival.

**No 6 . The immense hindrance Issue confronting the Federal , State and Government s with the Proposed Hume C oal /Posco Project.**

The issue here i s that the underground Feather mining of coal cannot be sustained at a viable economic level of production for Hume Coal , should environmental negative consequences occur? The breaching of consent conditions by Hume Coal Posco in the destructive contamination of the water aqui fer an d surrounding national park landscape is a no win situation fo r the Federal, State and Local G overnment . Being the c onsent authorities the legal entanglements and cost s far outweigh the benefits.

An insurmountable amount of capital will be necessary for the clean -up, if it can be cleaned up.

To Bring the site back to a "Natural Original S tate " once Hume coal is gone, would not be possible with this Hume Coal mine as the sulphuric acid content in the tailings going into the mine are too large in quantity .Contamination of the aquafer will certainly breach consent conditions . Sulphuric bearing m inerals of pyrite s reacts with water forming sulphuric acid and elevated concentrations of this acid as in the Hume mine cannot be neutralized by acid mine drainage or Lime content to neutralise as the tailings are not in surface ponds. Therefore a breach of consent conditions for the mine is extremely highly likely .T he costs of rectification of the Water A qui fer leaves no assurance for the future water supply of Sy dney and the Southern H ighland T owns, its people and natural landscape.

Who will bear th is cost s of rectification should contamination of the Water aqui fer in conjunction with environmental damage to the flora and fauna within our national park s occur?

Will it be at the cost of The Federal Government, the State Government, the Local Government or Hume coal / Posco?

What are the guarantee's in the development consent conditions in the EIS and the SIS To the Environment? To t he peop le of the southern highlands? To Sydney water? To the Federal , State and The local government from Hume Coa l / Posco ?

Has an effective comprehensive and substantive SIS been completed showing impacts on people of the Southern highlands and natural species and parks in line with the Environmental Planning and Assessment act Section 5?

A "Species Impact Stateme nt". Should mandatorily guarantee that n o natural species of wildlife, flora, ecological species or humans will be impacted by this Hume C oal Project .

**No7 . Hume Coal project Statement: A Fact Stated by Hume coal in their EIS and Sulphuric acid contamination.**

Hume coal intends to extract 3,500,000 tons of coal per year from the ir underground coal mine.

Geology and C hemis try notes show that for every one ton of Coal M ass washed for export approximately 3% is wasted Tailings mass.

This solid mass feed ing into the T ailing cavities of the underground Feather ed mine is known as sulphuric acid when mixed with H2 0 or 02 it takes on an explosive gaseous condition and becomes a liquefied sulphuric Chemical . This is a highly corrosive m ineral acid , the molecular formula is H2SO4 with a molecular weight of 98.079g/moll . All toxic in chemical composition , polluting the natural water Aquifer, the natural landscape and will fracture and corrode the Hawkesbury Sandstone membrane below the water Aquifer.

As this acid becomes highly toxic and flammable with every ton extracted adding to the tailings, at a production level of 3,5 00,000 tons of coal per year there will a tailing mound mass of 105 ,000 tons of sulphuric acid produced per year and Over an 19 year period of the mine running this will amount to approx. 2,000,000 tons of sulphuric acid produced .As the Hume Coal EIS states "The tailings are not going to be collected and disposed of in tailing ponds at the surface of the coal mine site . They are going underground.

**No 8 The Hume coal Project needs a separate development application EIS and SIS for waste tail ings disposal going undergrou nd. What will be the impact of 2 ,000,000 tons of sulphuric acid on the water aquifer, the sandstone mem brane and surface landscape?**

There seems to be no development consent conditions for surface tailing ponds or underground tailing s disposal. T here are no evaporation statistics provided for surface tailing ponds or underground tailing cavities within the mine itself .There is no modelling data showing sulphuric toxin levels of poisonous material within the tailings and their impacts on the water aquifer. Lead,mercury,nickel,tin,cadium,arsenic,thorium,strontium,methylmercury,calcium sulphate Caso 3 Caso4 and Pyrites H2S04 and how the disposal of this mix of sulphuric acid tailings from the mine extraction is going to occur if it is going to occur . They are to be plac ed back in the underground mined Feather cavities where extraction of coal has take n place.

**No9 Hume Coal project Pillar and Beam Roof Top Coal Tunnelling.**

Coal Seam underground mining excavation works on a tunnel Pillar and Beam construction method it holds coal after extraction like a flat table top to the roof of the tunnel .These pillar and beam constructions after they are excavated and exhausted from residual coal, over and above the tunnel coal extraction process are then Collapsed over a distance of 45 sq. kilometres over the life of the mine. Peer and beam coal mining consists of coal deposits that are mined by cutting a network of rooms into the coal seams and pillars of coal are left behind to hold the roof from collapsing .However when collapsed This methodology creates geotechnical thermal forces within the mine with likely land subsidence and highly possible explosion due to the high gaseous toxicity from the top of the long wall tunnels still holding coal and gas .Should Feather tunnelling fail due to machine failure and computer systems failure this process is the only one left for Hume Coal to use and is highly probable should failures occur .

This is known to have failed clearance in a number of American and Australian coal mines ventilation gas drainage is not safe proof .The Tasmania n Mine in 2012 was an example .This collapsing of cavities subsequently will fracture the Hawkesbury sandstone membrane further ing the water aquifers ability to be engulfed by toxic sulphuric acid tailings at a much faster pace .A section of 4.5 sq. kilometres taken in the study by the SHCAG and the EL349 shows clearly that 20 mega litres of tailings contaminati on will flow each day into the water aqui fer should the Hawkesbury sandstone membrane become fractured this is for tunnel mining we can double this for coal feathering mining.

Over the life of the underground tunnelli ng of Coal the Sedimentary Hawkesbury sandstone which is porous and water aquifer will be swamped with Toxic tailings and they will increase by 10 times this amount , as the tunnelling is for 45 sq. kilometres . Feather tunnelling has all the same dangerous effects but it is increased a s the water usage is higher as the excavation of coal quantities is much higher than conventional mining at 70% extraction . This is all to be done with less hands on human control and human safety guidance in the underground mine .It is highly dependent of mechani cal machines working with computer and software systems working 24 /7 with no down time any mistakes or breakdowns will result in failures machin es are robotic . What are the consequences of Machines and computer systems failure ? if electricity blacks occur which are common in the Southern Highlands what backups do we have in the Hume mining project ? Has the consenting authorities considered the c onsequences it is not displayed in the EIS.

**No10. Can the Aquifer recover?**

The Aqui fer cannot recover from this toxic intensity alone. In response to the questions raised in the EIS of ground water recovery through natural rainfall and inflow of surface wa ter this is based on an assumed continuation of past rainfall and Aquifer recharge patterns .

" This is a trap Assumption".

The most recent information published by the I ntergovernmental Panel on Climate and Climate Change makes it clear that the validity o f such an assumption is improbable.

Recent observational data show s that relative to the worst case scenario model developed by the IPCC Climate change is occurring at a much faster rate and at a greater magnitude than anticipated.

The IPCC noted that the importantly significant upward increases in climate change rates coupled with an inherent uncertainty associated with limited temporal data elucidating the ground water extraction relationship with underground coal mining , directs the IPCC to consider und erground coal seam mining with "great precaution and intellectual caution " as its effects on the wa ter aqui fer cannot be recovered or reversed . This assessment also applies the Feather mining process in fact

more so as more water will be drawn down from the aquifer and ground water to suggest in the EIS that only 2 to 80 metres will be the drawn down is an assumption .

What are the consent author ities going to do if the draw down exceeds 80 meters? A t this level the land is DRY the existing Landholders bores are already at 120 meters below surface for water assurance, should the water draw down By Feather mining move down to this level the land is Drier and contamination is assured .

**No 11. The Consent Authority.**

The consent authority and Minister is obliged by the EPA act being the decision maker , to have regard to public interest Section 791(e) and to have regard to the principles of ecologica lly and sustainable water with all development s where these issue s arise .The decision maker must follow the relevant principles of section 791(E) . In the Case of the contaminati on of the water aqui fer with regard to Public in terest i.e. The Battle for Berrima, Shut the Gate, No coal Southern Highlands local Residential and General public support groups, local government support, Federal and State P olitical members support groups , Local business support, local infant school s and high schools support groups , Nanas for no coal Southern highlands protecting their Grand Children , Media support, and Environmental groups The Colon society, The Wilderness society, SHCAG members etc. "This Public Interest is a Priority and holds Privilege over any decision on Consent and is covered by law. Section 791(e)

Consideration must be given to the matters of public interest and the conservation of biological diversity and ecological integrity. This in essence means that the consenting authority is obliged to approach this matter with extreme legal caution, social conscious caution and make decisions for the preservation of the environment and the Public interest .There are no full scientific cer tainties or guarantees available , as in this case wit h the Hume Feathering Coal mining Project .

If the Hume coal project and the consenting authorities have certainty that Hume Coal will not do harm to the pristine water aquifer, will not do harm to the flora and fauna , will not do harm to The National par ks, will not do harm to the water catchment areas will not do harm to the health of our infants in schools and the peoples in our southern highlands villages and towns and Sydney water .Then the Consenting A uthority must avoid decisions where practicable, where serious irreversible damage to the environment or our people occur. This is our right in legislative law .

**No 12 Management of underground Tailings and waste.**

The seriousness of the mining tailings underground methodology is. Can the toxic tailings be managed with proper mining engineers and scientific manpower , mine employees and the necessary heavy equipment for the disposal of tailing toxic waste, adopting a safe work practice for the mine employees and local environment?

The environmental control s and transparencies are paramount and mandatory for such a designated development as the Hume coal project . The underground tailings must be available at all times for the appropriate environmental S tate officials and Local Council Officials to inspect the tailings on a 24/7 basis with scientific testing . Water contamination reports , hydrology reports on decreasing water levels, land subsidence reports, Environmental and Public inspection reports of public interest and safety is a appropriate in protecting the peoples and the environment of the S outhern Highlands.

The aqui fer lays to the top of the sedimentary porous Hawkesbury sandstone membrane with coal seams to the botto m of the sand stone membrane this membrane is to be dr illed or bored for the

collection and use of water in the Feather mining process the extraction cavities of the coal seams will then be filled with the toxic tailings produced from the washing of coal. 2,000,000 tons of toxic Gas and M ass liquid of Sulphu ric acid will be buried in an 19 year period . The bore holes and gas extraction holes in the Hawkesbury sandstone membrane are open and porous Steel or High tensile plastic PVC piping for bores ,ventilation ducts ,power ducts and corrode and splinter espec ially if subjected to high acid conditions the absorbsion of the corrosive sulphuric acid into the sandstone membrane will corrode the membrane and fracture d tailings will seep into the fractured sandstone membrane and the de clining water level of the pristine water aquifer each and every year .

Capillary action within the sandstone membrane and around bores channels and ducts moves upwards not downwards taking the corrosive sulphuric acid with it as it moves toward the Water Aquifer and then to the land surface it does no t dissolve , it remains constant within 45 sq. kilometres of land. Should the sandstone membrane fracture due to subsidence or explosion of gas, collapsing the tailing holding cavities as mentioned earlier . A catastrophic environmental imp act of the tailing waste on the Water aqui fer and environment will occur.

The life of the Aqui fer will highly likely and inherently be killed and poisoned before the 19 th year of operation . The water licences of the Hume coal mine have no guarantee of showing water quantities used each year , they will invariably like most other mines worldwide where (resource data is available ), will exceed their allowance's a decrease in the mass volume of water in the aquifer occurs increasing the contamination quantity of sulphuric poisoning.

This has the potential of leaving behind a devast ating environmental landscape a disaster for the existing Southern H ighland towns of Berrima, Exeter, Burrawang, Bowral, Robertson ,Fitzroy falls ,Sutton forest , Medway ,Bundano on ,Moss vale ,Canyonleigh,Goulburn ,Sydney water, Canberra and their inhabitants , a d isastrous environmental condition for the National Parks Wildlife Fauna and F lora . Local Businesses, landholders of agriculture and Sydney water will be affected more likely poisoned... No Water aqui fer can sustain such contamination and dilute in itself with 2 ,000,000 tons of sulphuric acid being placed within it. This has been proven and shown to be the case in USA coal mines .As th e Green S ulphuric Acid flows it contaminate s at much higher rate the remaining water in the aqui fer which is constantly decreasing in volume due to water used each day in the extraction of Feathering coal .With each year of variable unpredictable rain fa lls due to cli mate change the concentration and contamination of land has a much higher percentage to increase .There are num erous Australian,USA and Asian and Chinese Waste water Management disaster's that h ave occurred on the environment worldwide .

We must preserve our water for ourselves , our children and their Children .

Resource data is available.

Prepared by:

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[redacted]

7/05/2017

# Hume Coal Project - The Tailings and Chemical Waste Residual.

**Background**

The Proposed Hume Coal Project is estimated to produce 3,500,000 tons of excavated coal from its

Underground mine over an area of 45 sq. kilometres of underground tunnelling.

Under schedule 3 of the NSW Environmental Planning and Assessment Regulation act of 2016 The Hume Coal mine project it is known as a designated development. This development is a highly and extremely sensitive industrial development on the pristine natural landscape, it is a designated Development of the first degree.

It is within 100 metres of a pristine national park with native fauna and flora. It is within 40 to 100 metres of a pristine water catchment area and a pristine natural underground water aquifer .This water supply is for the use of the surrounding agricultural rural landscape and its people in surrounding towns and the villages ( Berrima,Exeter,Sutton forest ,Moss Vale, Bowral Bundanoon,Burrawang.Fitzroy falls,Belmore falls ,Medway,Penrose,Robertson,Canyonleigh ) and other town ships in the southern highlands it is the future Water supply for the Sydney Basin and Southern Illawarra districts to the NSW east coast .

**No 1. Species Impact Statement**

The Proposed Hume coal mine facilities and extraction using the feathering coal mining method threatens commercial and domestic livestock, natural wildlife species of wombats, kangaroos, wallabies, rock wallabies, possums, native reptiles and ecosystems of water fish life in our water catchment creeks, rivers and resoviours. The extraction of coal by feather coal mining will destroy the flora and ecological communities of their natural habitats. It is also within 100 metres of land reserved for National Park and declared a Wilderness with World Heritage Value confirmed under the state Government Wild life and National Park Act of 2012 .The National Park within the coal site is designated as pristine as it houses old growth forests with sensitive flora and fauna species.Adjoing National parks have extreme world heritage significance. The Morton National park and the Fitzroy Falls resoviours which will also suffer the industrial effects of the Hume coal project and are the lungs of the Sydney metropolitan area and the carbon sinks for the now and the future generations reducing the C02 carbon emissions giving us clean air quality .The National parks must be given absolutely major priority by the Consent Authorities and the Minister for land and environment.

The Current EIS produced by Hume does not comply with a comprehensive separate SIS “Species Impact Statement “in whole its content is not detailed showing modelling parameter impacts on threatened species , existing landscapes and vegetation over the duration of the Hume coal mine being 19 years .Salinity in Australia is a major environmental threat degrading soils in NSW and Northern Victoria .Salinity has been caused by a number of industries in Victoria across the Murray basin, a food growing area by land clearing and in NSW by open cut Coal Mining .

There are existing contaminated creeks, salinity in soils and rock leaching chemicals caused by the Centennial coal mine in Lithgow .The EPA find themselves in a difficult situation to rectify the environmental issues here as the lack of qualified personal and clean up facilities plague the department.

The Upper and Lower Hunter coal developments have affected the Australian Hunter Valley wine growing industry, many wineries are wiping coal dust from their vines. This industry is worth billions of dollars in GDP revenue to the Australian government and the community .The town ships of Bulga and Broke in the lower hunter are all feeling the social and economic impacts of coal mining on the destruction of their towns (save Bulga .org.au) tells all for township assistance .The Hume Coal project EIS has many assumptions and theories outlined in it on the effects on the environment and people of the southern highlands and Sydney.

The sulphuric acidity and future salinized soils as a result of underground coal mining in the Southern Highlands will have its impact, currently statistics estimates on salinity by the EPA alone show that by 2050 17 million hectares will be classed as having high salinity potential .

High soil salts and sulphuric soil salts have a dramatic effect on plant root zones , in both vegetation as well as agriculture livestock , pasture crops, natural wetlands and surrounding aquifers and waterways .A slight increase in salts and sulphur acids decrease the ability of plants to absorb water through their roots systems via osmosis the cause of leaf burn and necrosis through increased levels of sodium , sulphur , and chloride this creates nutrient and ionic imbalances resulting in poor vegetation growth . Mother Nature has no defence mechanisms to deal with this poisonous situation inflicted on it by a coal industry for natural vegetation growth. Therefore the ultimate solution for Mother Nature is death for the surrounding vegetation.

Salinity and sulphuric acid soils can also have adverse effects on infrastructure and roads in our case the Old Hume Highway ,a Pedestrian Motor Way which runs along the east side of the Hume coal mine project and of course the buildings structures of Medway, Berrima, Moss vale, Exeter , Sutton forest and further aide . If 186 square kilometres of ground water can be effected by the Hume coal project with 45 square kilometres of underground Feather coal tunnelling (supported by the Hume coal EIS and water ground studies ) this will affect all of southern highlands townships and the cities of Bowral, Goulburn, Canberra ,the Illawarra ,East Coast and Sydney city.

Underground pipes for water and sewerage, telecommunication cables, cables newly installed for the new NBN and electricity cables for street lighting and rail safety lightening at rail crossings and terminals will be corroded by the oxidation process.

If consent is given to the Hume coal project will the Consenting authorities, The EPA, The local Member, The Local council members and The Minister for Planning and Environment consider the impact of “Cost to the government and the Community” should the rehabilitation of infrastructure and the envirmental derogations be necessary ? A huge environmental and economic risk which is based on many trap assumptions within the Hume coal EIS?

A comprehensively mandatory SIS over and above the EIS with World’s Best Practice supported by hydration statistics and biodiversity statistics is essential, as this designated development is going to impact on threatened species, human populations, ecological communities, natural habitats, buildings and infrastructure.

**No2. Threatening of the water by The Hume Coal Project of the existing Berrima Medway Aquifer, Pristine Falls of the Fitzroy and Belmore falls and the world heritage National Parks Belanglo Morton and surface water Catchment areas, Bobs creek Bundanoon creek, The Medway rivulet the Shoalhaven River, Wingarribbee River and associated creeks. Feathering tunnel mining.**

Hume coal is threatening to poison and lessen the water supply of the existing Water Aquifer and the Fitzroy Falls water catchment area and all above named waterways ,which is the future water

supply to the City of Sydney, The southern Highlands, Canberra Goulburn and the Southern districts of the Illawarra to the NSW East Coast, all areas are east of the rail transport haulage line .The Fitzroy Falls and Belmore Falls are designated as pristine "Water Falls with World First and prestigious World Heritage Environmental value" within The Morton National park.

An amendment which was passed by the federal Parliament in June 2013 to the environmental Protection and biodiversity conservation Act 1999 (the EPBC Act) this amendment by Federal law puts in place the so called "Water trigger "which requires the impacts of the Proposed Hume coal project to be comprehensively assessed at a national level this must be adhered to within this assessment by the Consenting Authorities, as it falls under confirmed legislation.

The amendment now permits The Federal Minister for Planning and Environment to deal with the water resource concerns as a standalone issue and set appropriate conditions on the acceptability on significant impacts on water resources by the Hume coal Project. The Federal minster has the responsibility to protect the environment and the Public interest .The question here is what has the Federal Minister undertaken here on the Hume coal project and why is his statement not available to the public interest????

**FEATHER MINING**

Pristine water aquifers and underground water used in Feather Tail tunnelling of coal extraction reacts with concentrated sulfuric acid produced from washed coal tailings and excavated coal. The water used from the water aquifer to keep the coal excavation Feather tunnels damp is excessive and use more water than for conventional mine tunnelling .Feather tunnelling is referred to as a The New Method of Coal Excavation in "diagram" it looks like a Feather with a sharp straight back bone in the centre and 45 degree off shoot tunnels going out either side of the back bone just like a birds feather .The fundamental major reason to mine this way is to collect 70 to 75 % of the coal available to be excavated in a coal seam as in other forms of coal excavation i.e. long wall or open cut mining only 35 % maximum yields can be produced .

Excessive water use for the processing and hydraulic drilling of coal by Tungsten Carbide tip blades/cutters on coal excavators in feather mining is absolutely positively essential as if breakdowns occur disastrous consequences within the mine can occur therefore they must be kept cooler to resist wear and tear .Under the Feather tunnelling process more heat is generated and they require more water than conventional long tunnel coal mining tungsten cutters. Therefore it logically follows that the more water used for the damping of Feather tunnels and the cooling of carbide tungsten cutters necessary within the feather coal tunnelling process the more oxidation and sulphonation introducing carboxyl and sulphuric acid groups will collect within the tunnels ,coal seam water and coal cavities of the mine.

The heat content in the Feather mine is greater than conventional mines, open cut or long wall tunnelling using peer and beam support structures for roofing and side walls. When sulphuric acid is mixed at a temperature of 10 C or below to O c as in the case with the Hume Coal Feather mine tunnelling method, the temperature of the tailings and water mix will rise and sulphur dioxide is produced in enormous quantities .The coal seams and tailings mixtures including detergents have an absorptive power above acceptable levels in this method of coal mining and cannot be measured or controlled accurately and requires several times its weight in water or solid liquid mass to obtain a constant fluid mixture necessary for any of diluting of the contaminated water tailings and water wash in the Feather tunnels .

The question here of course can this slurry of toxic fluid mixture which is at this stage contaminated with sulphuric acid S04 and other poisonous chemicals of lead ,mercury,nickel,tin cadmium ,arsenic, radioactive isotopes,ihorium and strontium ,methylmercury,pyrates ,methane and vanadium used in nuclear manufacture be maintained at a liquidity level during this 24/7 coal excavation process ???

To allow internal mechanical mechanisms of filtration pumps or dilution pumps to be in use with this contaminated slurry is challenging due to the confined spaces within the Feather mining tunnel process this why Feather mining requires less manpower as there is less space , no man power no control and more machine power is required to extract coal than any other process .The contaminated tailings slurry has little chance of dilution with Lime or lime stone if not in liquid flowing structure at all times 24 /7 so Lime or lime stone dilution or filtration is not the answer.

"It is a trap assumption theory "to suggest that lime dilution is the answer to dissolve heavy metals and acids, sulphur, nitrates, zinc, lead, methane, tin etc. . . . . The toxic poisons produced within the mine will form a "poisonous Gel "at a lower temperatures to the surface of the waste tailings placed under the sandstone membrane and pristine water aquifer "this is now in solid form". Sitting under the Hawkesbury sandstone and pristine water aquifer it will seep into the bore water holes, ventilation holes and ducting, fuel ducting, electricity ducting, sewerage ducting and amenities ducting. It will absorb into the Hawkesbury sandstone with higher absorbsion rates of sulphuric acid with temperature accelerations.

Thermal geometric heat reduces oxygen levels underground and with heat forming its corrosive abilities will seep Sulphuric acid into the degraded level of the water aquifer at 120 metres below the surface also causing seepage in surrounding ground and surface water .The Pristine Aquifer will poison and fracturing of the Hawkesbury Sandstone membrane and surface landscape will occur.

Lime dilution has no guarantees. Another tried theory assumption .There are many instances of mines where lime dilution has been practised still have devastating environmental consequences for the natural landscape and its peoples that cannot be reversed.

The Bulga mines of NSW, The Lithgow mines of NSW, The Queensland mines and Tasmanian mines .The mining institute of America and the National institute for occupational safety and health USA show statistics of the devastating effects of sulphuric acid leakage into water tables, ground water, rivers and natural landscape Green acid slurry leaching from from Appalachian Mountains mines .In North America mines in the Joggings and port Morien, Nova Scotia suffered a similar fate. The People's Republic of China is by far the largest producer of coal in the world producing over 5.8 billion tons of coal in 2016 or 45% of all coal produced in the modern world an estimated 6 million people work in these Chinese mines with as many as 40,000 miners die in accidents each year many from poisonous toxicity of the mines.

Most Chinese mines are deep underground and do not produce the surface disruption of Strip or Feather mining. Feather mining is used for one main reason only ,as it will extract more than 70% of the coal seam where open cut or deep tunnel mining collects as little as 35 %.Land subsidence , stone fracturing and leaching of Sulphuric acid and poisons have occurred, that is why China does not reclaim huge hectares of land in the 1000's of hectares for its people or land park use .This is abandoned land which is unsuitable for agriculture or other human uses of life and inhospitable to indigenous wildlife .Chinese mines however experience severe surface subsidence negatively effecting farm land as it no longer drains with saturated heavy metals and sulphuric acid within it , they do however use some subsidence areas for aquaculture ponds but they have more than they need for this purpose .It would be beneficial to get the chemical analysis data on these ponds to

what contamination has resulted in the aqua food chain in these Chinese aqua ponds .However no such research has been presented.

The reclamation of subsided ground land in China is a significant national crisis in China according to the United Nations of World Governments and the Chinese Peoples Republic. It is imperatively recognised by most world leaders and the newly appointed president of the United States that Coal mining for future Electricity needs, producing higher levels of world Co2, with the coming of world climate changes, killing the landscape and peoples has a limited future for our next generations and new forms of sustainable energy must be worked on now .In China coal is mostly used for domestic consumption which is burned with little or no air pollution control mechanisms and contributes greatly to the visible smoke and severe air pollution in their cities , neighbourhoods ,rural villages and industrial areas. Using coal for fuel has no future for the generations to come and the Chinese People's Republic recognises this fact .China uses 70 % of its coal from coal mines for its energy.

The question here…….. For our Consent Authorities and the Minister .Is Australia going down the same fate as the Chinese?????? Our land is the hottest continent on earth and driest on earth.

Agricultural land in the southern highlands is one of the most productive types of land in NSW/Australia and the World. The emerging viniculture and superb wineries at huge investment to their owners will be effected by the contamination of our soils and pristine water aquifer. Under the EPBC Water Act the Minister has the authority to not allow this Hume Coal Project to have consent. He must under all circumstances put the public interest ahead of this development on the basis of the above effects.

**No3. The Hume Coal project will exceed their water licences depleting Aquifer water levels and Cities will be affected.**

The ground water study completed on 24th September 2013 by the Southern Highlands Groundwater Action Group, Pells Consulting and the University of NSW Department of Environment and Civil Engineering Water Research Laboratory drew conclusions that water licences for Hume coal will exceed their development. Consent limits and water holding licences will be extremely doubtful.

The Hume coal mine project is not just an extraction coal mine but a Chemical producing Industry .Landowner's bores will be drained to the level of the mine at 120 metres below the natural surface of the landscape. The study concludes that on completion of a 45 sq.km underground Feathering coal mine a drawdown of water will exceed 120 metres and this is outside the Hume Mine private landholding and leased area it is also outside the EIS draw down of 2 to 80 metres .The modelling also shown in the study clearly indicates the extent of the drawdown of water from the Aquifer affecting the Wingecarribee river level and The Fitzroy falls water catchment area as the affected boundary models prove a decline in water levels conservatively affecting an area of up to 186 square Kilometres .This will certainly affect the future water supply of Sydney basin, The southern highlands ,Goulburn already short on water supply and the water supply for the city of Canberra .

**No4 Impact on Water bores, impact on business, impact on farm sustainability.**

There will be over 100 private bores on private land that will be affected by the decline in water from the Aquifer as a result of the water use in the Feather coal extraction. Hume Coal's Water

licences will exceed maximum limits causing further decline in water levels and contamination of the ground water with surface land resulting in less to no water supply from existing private bores.

This in itself presents an enormous environmental and human problem. A high financial cost loss is very likely to fall on Government, landholders, inhabitants of townships and businesses in the southern highlands. They will be forced to endure the hardships of less business, trade and Farm sustainability with the loss of water.

Crop growing, the grazing of cattle, sheep and other livestock breeds will be affected due to the contaminated water and loss of water in their private bores .The RIO Tinto mine in the hunter valley Bulga and the Mount Thorley Warkworth mines impacts the wine growers and orange industry of the areas changes have occurred here as government and communities can see the destruction of their land by coal mining and LPG mining .Gas licences in this area have been bought back and this should be a formable consideration for the consenting authorities " to buy back licences for the Hume coal project" .

The value of state stamp duty taxes on the resale of land to the government, the value of current existing business and agriculture producing taxes, the preservation of our fauna and flora and water resources for ourselves and future generations in the southern highlands and Sydney will far outweigh the value of the current Coal project. The aquafer provides this natural resource for human use lively hood and business a benefit and value for all, the Hume Coal Underground Feathering Coal Mine Project threatens it.

**No5. Hume coal project will place toxic chronic poison tailings into the Aquifer.**

The tailings of washed coal contain chronic toxicity they include (poisoning) lead, mercury, nickel, tin, cadmium, sulphuric acid, arsenic, radioactive isotopes of thorium and strontium when mercury exposure is deposited within land base water microorganisms convert to a highly toxic form called methylmercury .When humans or animals eat these organisms in food chain the accumulated toxins will interfere with human and animal reproductive growth and mental behaviour the toxins can be the cause of death.

Once tailings water is returned back to the below ground or the natural surface environment at a higher temperature ,the change in temperature impacts on organisms by decreasing the oxygen supply therefore increasing the toxicity of the tailings causing further contamination of surface water and the underground water aquifer .

Local townships in the Southern Highlands will feel the above effects of the water aquafer contamination in the loss of agricultural trade and production, loss in local business and the Loss of Human Health. The American NIOSH (national institute of safety and health) reports 25th may 2016 journal of occupational and environmental medicine on the impacts on human health of coal mining tailings on water, on coal workers and the outside general public. It provides substantive evidence based examples where human health has been impacted and resulting deaths have occurred.

The NIOSHTIC reports on human health is a monumental concern in Western Europe , China , USA Australia and New Zealand .Pneumoconiosis and Silicosis among underground bituminous coal miners and local public is very evident, a great cost to the community and governments.

Reports and statistics are available and proven, showing fatal occupational lung disease in coal miners and surrounding inhabitants of townships and cities. On April 5th 2010 an explosion of the upper Big Branch Coal Mine in Southern West Virginia killed 29 employees, of the 24 victims left with sufficient lung tissue available for medical examination 71% were suffering from the presence and

profusion of coal macules, nodules, interstitial fibrosis, silicosis, mixed dust, heavy metals of mercury, sulphur, shale ash, coal ash containing all toxins mentioned, methane contamination and resulting pneumoconiosis.

Our communities are dependent on the pristine environment of the Southern Highlands and the benefits it provides for all who live and come here. The question of course is.

Can The Consenting Authorities afford an explosion within the Hume Coal Feather mine where concentrates of Methane Gas and Sulphuric Gas are at extreme higher levels than any other form of coal mining .Where mechanical coal washed wasted tailings with contaminated waste water of the dampened coal seams are to be buried underground within the coal Feathering cavities following a 45 degree outward direction from the backbone seam for 45 square kilometres. Thermal geometric High Heat content Sulphuric acid, with other toxic flammable metals and methane gases with corrosion capabilities will collapse the cavities within the mine. The Hume Coal Projects suggests in the EIS that they will create 300 jobs however it is noted that in the Feathering Coal method of extracting coal from coal seams underground less man power on site is required and it is more dependent on machine tungsten blades drilling and computer hardware and software driven.

The question here of course is why is this so? Is it because Feather extraction of coal, which is of no new formula, has higher risk associated with it? More water usage therefore means more toxic slurry produced with more coal extraction 70% of a coal seam. Therefore logic suggests more flammable toxins and higher danger levels to the coal employees and the environment???

Tourism, Accommodation Stays, Food culture, Wineries, Crop and Livestock harvesting, The famous Robertson potato ,The Show Gardens, Hotels of international historical and local significance and standard , The Tourist facilities, the travelling public, The historical townships of Berrima 1863 ,Arts and Crafts, literature, entertainment ,Schools ,Hospitals, Clubs ,Retirement and locally living residences and tourists from Sydney and surrounds and the World love the southern highlands and all require pristine natural water for survival.

**No 6 .The immense hindrance Issue confronting the Federal, State and Governments with the Proposed Hume Coal /Posco Project.**

The issue here is that the underground Feather mining of coal cannot be sustained at a viable economic level of production for Hume Coal, should environmental negative consequences occur? The breaching of consent conditions by Hume Coal Posco in the destructive contamination of the water aquifer and surrounding national park landscape is a no win situation for the Federal, State and Local Government. Being the consent authorities the legal entanglements and costs far outweigh the benefits.

An insurmountable amount of capital will be necessary for the clean-up, if it can be cleaned up.

To Bring the site back to a "Natural Original State " once Hume coal is gone, would not be possible with this Hume Coal mine as the sulphuric acid content in the tailings going into the mine are too large in quantity .Contamination of the aquafer will certainly breach consent conditions .Sulphuric bearing minerals of pyrites reacts with water forming sulphuric acid and elevated concentrations of this acid as in the Hume mine cannot be neutralized by acid mine drainage or Lime content to neutralise as the tailings are not in surface ponds. Therefore a breach of consent conditions for the mine is extremely highly likely .The costs of rectification of the Water Aquifer leaves no assurance for the future water supply of Sydney and the Southern Highland Towns, its people and natural landscape.

Who will bear this costs of rectification should contamination of the Water aquifer in conjunction with environmental damage to the flora and fauna within our national parks occur?

Will it be at the cost of The Federal Government, the State Government, the Local Government or Hume coal /Posco?

What are the guarantee's in the development consent conditions in the EIS and the SIS To the Environment? To the people of the southern highlands? To Sydney water? To the Federal, State and The local government from Hume Coal / Posco?

Has an effective comprehensive and substantive SIS been completed showing impacts on people of the Southern highlands and natural species and parks in line with the Environmental Planning and Assessment act Section 5?

A "Species Impact Statement". Should mandatorily guarantee that no natural species of wildlife, flora, ecological species or humans will be impacted by this Hume Coal Project.

**No7. Hume Coal project Statement: A Fact Stated by Hume coal in their EIS and Sulphuric acid contamination.**

Hume coal intends to extract 3,500,000 tons of coal per year from their underground coal mine.

Geology and Chemistry notes show that for every one ton of Coal Mass washed for export approximately 3% is wasted Tailings mass.

This solid mass feeding into the Tailing cavities of the underground Feathered mine is known as sulphuric acid when mixed with H20 or 02 it takes on an explosive gaseous condition and becomes a liquefied sulphuric Chemical. This is a highly corrosive mineral acid, the molecular formula is H2SO4 with a molecular weight of 98.079g/moll .All toxic in chemical composition, polluting the natural water Aquifer, the natural landscape and will fracture and corrode the Hawkesbury Sandstone membrane below the water Aquifer.

As this acid becomes highly toxic and flammable with every ton extracted adding to the tailings, at a production level of 3,500,000 tons of coal per year there will a tailing mound mass of 105,000 tons of sulphuric acid produced per year and Over an 19 year period of the mine running this will amount to approx. 2,000,000 tons of sulphuric acid produced .As the Hume Coal EIS states "The tailings are not going to be collected and disposed of in tailing ponds at the surface of the coal mine site. They are going underground.

**No 8 The Hume coal Project needs a separate development application EIS and SIS for waste tailings disposal going underground. What will be the impact of 2,000,000 tons of sulphuric acid on the water aquifer, the sandstone membrane and surface landscape?**

There seems to be no development consent conditions for surface tailing ponds or underground tailings disposal. There are no evaporation statistics provided for surface tailing ponds or underground tailing cavities within the mine itself .There is no modelling data showing sulphuric toxin levels of poisonous material within the tailings and their impacts on the water aquifer. Lead,mercury,nickel,tin,cadium,arsenic,thorium,strontium,methylmercury,calcium sulphate Caso3 Caso4 and Pyrites H2S04 and how the disposal of this mix of sulphuric acid tailings from the mine extraction is going to occur if it is going to occur .They are to be placed back in the underground mined Feather cavities where extraction of coal has taken place.

**No9 Hume Coal project Pillar and Beam Roof Top Coal Tunnelling.**

Coal Seam underground mining excavation works on a tunnel Pillar and Beam construction method it holds coal after extraction like a flat table top to the roof of the tunnel .These pillar and beam constructions after they are excavated and exhausted from residual coal, over and above the tunnel coal extraction process are then Collapsed over a distance of 45 sq. kilometres over the life of the mine. Peer and beam coal mining consists of coal deposits that are mined by cutting a network of rooms into the coal seams and pillars of coal are left behind to hold the roof from collapsing .However when collapsed This methodology creates geotechnical thermal forces within the mine with likely land subsidence and highly possible explosion due to the high gaseous toxicity from the top of the long wall tunnels still holding coal and gas .Should Feather tunnelling fail due to machine failure and computer systems failure this process is the only one left for Hume Coal to use and is highly probable should failures occur .

This is known to have failed clearance in a number of American and Australian coal mines ventilation gas drainage is not safe proof .The Tasmanian Mine in 2012 was an example .This collapsing of cavities subsequently will fracture the Hawkesbury sandstone membrane furthering the water aquifers ability to be engulfed by toxic sulphuric acid tailings at a much faster pace .A section of 4.5 sq. kilometres taken in the study by the SHCAG and the EL349 shows clearly that 20 mega litres of tailings contamination will flow each day into the water aquifer should the Hawkesbury sandstone membrane become fractured this is for tunnel mining we can double this for coal feathering mining.

Over the life of the underground tunnelling of Coal the Sedimentary Hawkesbury sandstone which is porous and water aquifer will be swamped with Toxic tailings and they will increase by 10 times this amount, as the tunnelling is for 45 sq. kilometres .Feather tunnelling has all the same dangerous effects but it is increased as the water usage is higher as the excavation of coal quantities is much higher than conventional mining at 70% extraction .This is all to be done with less hands on human control and human safety guidance in the underground mine .It is highly dependent of mechanical machines working with computer and software systems working 24 /7 with no down time any mistakes or breakdowns will result in failures machines are robotic .What are the consequences of Machines and computer systems failure ? if electricity blacks occur which are common in the Southern Highlands what backups do we have in the Hume mining project ? Has the consenting authorities considered the consequences it is not displayed in the EIS.

**No10. Can the Aquifer recover?**

The Aquifer cannot recover from this toxic intensity alone. In response to the questions raised in the EIS of ground water recovery through natural rainfall and inflow of surface water this is based on an assumed continuation of past rainfall and Aquifer recharge patterns.

" This is a trap Assumption".

The most recent information published by the Intergovernmental Panel on Climate and Climate Change makes it clear that the validity of such an assumption is improbable.

Recent observational data shows that relative to the worst case scenario model developed by the IPCC Climate change is occurring at a much faster rate and at a greater magnitude than anticipated.

The IPCC noted that the importantly significant upward increases in climate change rates coupled with an inherent uncertainty associated with limited temporal data elucidating the ground water extraction relationship with underground coal mining ,directs the IPCC to consider underground coal seam mining with "great precaution and intellectual caution" as its effects on the water aquifer cannot be recovered or reversed .This assessment also applies the Feather mining process in fact

more so as more water will be drawn down from the aquifer and ground water to suggest in the EIS that only 2 to 80 metres will be the drawn down is an assumption .

What are the consent authorities going to do if the draw down exceeds 80 meters? At this level the land is DRY the existing Landholders bores are already at 120 meters below surface for water assurance, should the water draw down By Feather mining move down to this level the land is Drier and contamination is assured .

**No 11. The Consent Authority.**

The consent authority and Minister is obliged by the EPA act being the decision maker, to have regard to public interest Section 791(e) and to have regard to the principles of ecologically and sustainable water with all developments where these issues arise .The decision maker must follow the relevant principles of section 791(E). In the Case of the contamination of the water aquifer with regard to Public interest i.e. The Battle for Berrima, Shut the Gate, No coal Southern Highlands local Residential and General public support groups, local government support, Federal and State Political members support groups , Local business support, local infant schools and high schools support groups , Nanas for no coal Southern highlands protecting their Grand Children , Media support, and Environmental groups The Colon society, The Wilderness society, SHCAG members etc. "This Public Interest is a Priority and holds Privilege over any decision on Consent and is covered by law. Section 791(e)

Consideration must be given to the matters of public interest and the conservation of biological diversity and ecological integrity. This in essence means that the consenting authority is obliged to approach this matter with extreme legal caution, social conscious caution and make decisions for the preservation of the environment and the Public interest .There are no full scientific certainties or guarantees available, as in this case with the Hume Feathering Coal mining Project .

If the Hume coal project and the consenting authorities have certainty that Hume Coal will not do harm to the pristine water aquifer, will not do harm to the flora and fauna, will not do harm to The National parks, will not do harm to the water catchment areas will not do harm to the health of our infants in schools and the peoples in our southern highlands villages and towns and Sydney water .Then the Consenting Authority must avoid decisions where practicable, where serious irreversible damage to the environment or our people occur. This is our right in legislative law .

**No 12 Management of underground Tailings and waste.**

The seriousness of the mining tailings underground methodology is. Can the toxic tailings be managed with proper mining engineers and scientific manpower, mine employees and the necessary heavy equipment for the disposal of tailing toxic waste, adopting a safe work practice for the mine employees and local environment?

The environmental controls and transparencies are paramount and mandatory for such a designated development as the Hume coal project. The underground tailings must be available at all times for the appropriate environmental State officials and Local Council Officials to inspect the tailings on a 24/7 basis with scientific testing .Water contamination reports, hydrology reports on decreasing water levels, land subsidence reports, Environmental and Public inspection reports of public interest and safety is a appropriate in protecting the peoples and the environment of the Southern Highlands.

The aquifer lays to the top of the sedimentary porous Hawkesbury sandstone membrane with coal seams to the bottom of the sand stone membrane this membrane is to be drilled or bored for the

collection and use of water in the Feather mining process the extraction cavities of the coal seams will then be filled with the toxic tailings produced from the washing of coal. 2,000,000 tons of toxic Gas and Mass liquid of Sulphuric acid will be buried in an 19 year period .The bore holes and gas extraction holes in the Hawkesbury sandstone membrane are open and porous Steel or High tensile plastic PVC piping for bores ,ventilation ducts ,power ducts and corrode and splinter especially if subjected to high acid conditions the absorbsion of the corrosive sulphuric acid into the sandstone membrane will corrode the membrane and fractured tailings will seep into the fractured sandstone membrane and the declining water level of the pristine water aquifer each and every year .

Capillary action within the sandstone membrane and around bores channels and ducts moves upwards not downwards taking the corrosive sulphuric acid with it as it moves toward the Water Aquifer and then to the land surface it does not dissolve, it remains constant within 45 sq. kilometres of land. Should the sandstone membrane fracture due to subsidence or explosion of gas, collapsing the tailing holding cavities as mentioned earlier. A catastrophic environmental impact of the tailing waste on the Water aquifer and environment will occur.

The life of the Aquifer will highly likely and inherently be killed and poisoned before the 19 th year of operation .The water licences of the Hume coal mine have no guarantee of showing water quantities used each year, they will invariably like most other mines worldwide where (resource data is available), will exceed their allowance's a decrease in the mass volume of water in the aquifer occurs increasing the contamination quantity of sulphuric poisoning.

This has the potential of leaving behind a devastating environmental landscape a disaster for the existing Southern Highland towns of Berrima, Exeter, Burrawang, Bowral, Robertson ,Fitzroy falls ,Sutton forest , Medway ,Bundanoon ,Moss vale ,Canyonleigh,Goulburn ,Sydney water, Canberra and their inhabitants , a disastrous environmental condition for the National Parks Wildlife Fauna and Flora . Local Businesses, landholders of agriculture and Sydney water will be affected more likely poisoned...No Water aquifer can sustain such contamination and dilute in itself with 2,000,000 tons of sulphuric acid being placed within it. This has been proven and shown to be the case in USA coal mines .As the Green Sulphuric Acid flows it contaminates at much higher rate the remaining water in the aquifer which is constantly decreasing in volume due to water used each day in the extraction of Feathering coal .With each year of variable unpredictable rain falls due to climate change the concentration and contamination of land has a much higher percentage to increase .There are numerous Australian,USA and Asian and Chinese Waste water Management disaster's that have occurred on the environment worldwide .

We must preserve our water for ourselves , our children and their Children .

Resource data is available.

Prepared by:

Danny Pullicin.

[redacted]

7/05/2017

,Posco Hume Coal movements on existing Moss vale Unanderra rail line.

Posco intends to move 3.5million tons of coal along the existing Moss Vale Unanderra rail line to the Port Kembla on the east coast of NSW.

The rail line opened on 20 the August 1932 it has a length of 70 kilometres and another 10 kilometres currently under an EIS for consent of development application this will added to the rail line and the coal facilities site with a rail loop for loading arrivals and departures of rail coal movements.

## No1 QA Quality Assurance Australian and International World Standard and Current Berrima rail loop EIS.

Over the past 85 years of rail transportation operational freight on the rail line, it has been susceptible to falling rocks, rock boulders, heavy snow sleet, high windy wet weather, rail line track had vertical movements of up to 600 cm up and down on the rail line causing locomotive derailments pulling the rail line apart when rail accidents occurred.

The fair maintenance schedules were due to insuffient System Safety Accident Investigation procedures and application techniques SSAI applied under the code of the Australian Standards QA AS 5022:2016. One example of this fair maintenance schedule is that the rail line still uses in some sections timber sleepers with some sleepers shredding and with original 1932 couplings still in place .High Rail Haulage heavy weight and frequency have increased over these 85 years and will run 24/7 should the proposed Posco Hume Coal Project be approved by the consenting authorities. The current narrow 1067mm gauge of the rail line would be better upgraded to a broad gauge at 1267mm for such heavy frequent haulage of coal freight, adding further stability and safety to the freight, freight drivers and rail line.

Posco Hume coal are intending to freight large loads of coal carriages ( 60 tons 50 carriages in number ) in conjunction with the existing moving freight loads coming from the Boral Cement works, Ingham's and Omya in Berrima, this has potentially a high safety risk, as a consequence of the frequent heavy Coal haulage .

The current EIS for the rail loop to be constructed is not comprehensive in detail and incomplete as the Preliminary Environmental Assessment (PEA) only covers the environmental impacts of the mining related works such as the primary processing plants, facilities for storage and loading to transport coal. It does not cover the whole rail transportation line from departure at the Berrima loading facility to the unloading destination at Port Kembla.

## No 2 The Consenting Authorities and Public interest.

Mr David Kitto Director of Major Projects and Mining Assessment, Department of Land and Environment, The Right Honourable Clady Berjiklian Premier NSW, Gabrielle Upton, Minister for the Environment NSW, Andrew Constance Minister for Transport and Infrastructure NSW and our local Member Pru Godward NSW, must ensure in their evaluation processes that The Public Safety is the first essential requirement before any consent can be given to The Posco coal rail EIS. The complete rail line from the Berrima Rail loop to Port Kembla must be of World Class Safety Standard. To declare the project should be declared a "State Significant Development" (SSD)for the purposes of the EP&A Act and that the Development Consent will be sourced from the Planning Assessment Commission as a delegate for the Minister for planning and environment is no final reason or

understanding to give this EIS consent via this process .The EIS is limited and only takes into account a small part of the rail line that Hume coal is going to use .If Posco Hume Coal proposes to use 70 kilometres of rail for hauling 3.5 million tons of coal then it is only reasonable for the Public interest and the rail engineering authorities that the full 70 kilometres of rail should be evaluated within an EIS .This rail line was built in 1932 and has structural and infrastructure deficiencies .To rail the heavy haulage of Hume coal on a 24/7 basis , including the Boral cement works haulage, the Ingham's haulage and Omya haulage will only increase with time . As production increases meet market demand then rail upgrades are necessary.

So ensuring a Quality Assurance (QA) and World Standard Safety regulations can be achieved with a complete EIS (Environmental Impact Study) on the impacts over the whole Rail line and SIS (Species impact Study) on the impacts on threatened species, ecological habitats, and the people of the Southern highlands, the people of the south Illawarra and the people of East Coast to Port Kembla. **How many species of Australian marsupials will be killed with the blinding lights at night from the Posco Hume Coal Freight trains?? Our highways now are killing great numbers of our wombats and wild life at night startled by lights, how many more will be killed by Hume Coal Freight trains???** The right Honourable National Minister for the Environment and Planning Mr Josh Freedenberg should ensure a completed EIS on the Rail line is done before any consent is given to the Proposed Posco Hume coal rail line.

It is however an honour to acknowledge our early rail road builders from Charles Hoskins steel making industry of steel for the rail line in 1926 at Port Kembla to the present day of Rail track builders their work has lasted nearly a century.

## No 3 Single headed rail Signal flashing lighting, at railway/highway crossings, terminals and stations.

The freight rail line has single headed signal lighting for the control of moving freight haulage trains with 2,400 tons of coal or more travelling at 80 klms per hour coming into a slowing or stopping position .Rail Freight drivers have acknowledged that safety regulations are the most important aspects of all rail freight undertaken and the Unanderra line still has single headed Signal Red Lighting.

The question here for Posco Hume Coal and the authorities, is this lighting infrastructure for drivers approaching road crossings and arriving into Terminals of World Class standard on safety regulation? On pedestrian traffic crossings there are twin headed red light signals flashing approaching the rail crossings over highways however there are "No warning lights" on approaches, just stop lights, there are no "Word Descriptive light signals" as those on our highways .There are no "Rail guard staff "to monitor the safety of rail freight approach and pedestrian vehicle traffic to highway rail crossings.

Rail freight train signal lighting on our highways in many instances along the junction of Illawarra highways and Hoddle street Robertson and the Sheep Wash Road Avoca crossing the red lights are camofloughed by vegetation and on terminal approaches for drivers some red lights are camofloughed by overhanging electricity lines and vegetation .At the rail crossing in Old Kangaloon road Robertson there are absolutely no lights for the approaching rail freight trains. How are train drivers expected to navigate this rail line with Rail safety regulation? There are No red light signals for stopping motor vehicles or agricultural vehicles, in fact no lighting at all.

**How does the EIS of the Berrima rail loop and the department of planning authorities intend to address such an inadequate situation for Train haulage drivers and the public interest???**

This is of "Extreme high risk to the existing residences of Old Kangaloon Road" that have to cross the rail line each day a number of times and an Extreme great risk to children going to and arriving from school ": This infrastructure is inadequate and poor for the frequent extremely heavy haulage of Coal by the Posco Hume coal project.

A haulage train with 50 coal carriages at 60 tons each carriage a diesel locomotive and an electric locomotive and carriage weighting and hauling 2,400 tons of coal presents a "Public Safety Risk Consequence "awaiting to happen should the necessary infrastructure not be put in place .The Risk assessment on infrastructure and facilities needs to be Part of the Hume Coal Rail EIS with appropriate parameters for signalling infrastructure at all levels of Rail haulage.

Another Public risk assessment has been identified on the pedestrian public pathway at the Hoddle Street and the Illawarra highway Robertson a pathway used by local residences, visitors, horseback riders, dog walkers and school children in the village of Robertson. There is no signal lighting or word safety signage, no fences, no barriers to protect school children going to and coming from school or to protect the general public.

**The question here for Posco Coal and the Consenting Authorities is how do they intend school children and the general public to navigate 2,920 rail crossings per year on this pedestrian pathway that goes across the rail haulage line?**

No consent authority can give consent To the Posco Hume coal project proposed EIS without a more comprehensive completed EIS showing the impacts of the rail haulage on the general public using pathways and rail crossings, the process has to maintain consistency with the safety and wellbeing of the public interest and safety of school children.

## No 4 Time loss on business, social services and the general Public interest.

To move 3.5 million tons of coal per year the rail crossings will experience an unprecedented amount of Coal haulage rail traffic .Effectively there will be 2,920 rail crossings per year or 8 crossings per day 24/7 days per week day in day out for the Hume Coal Project add to that the Boral Cement works, the Ingham's and Omya freight movements .So the impact of these rail movements will ensure the rail line and rail crossings will come under a condition of "Rail freight stress for the Drivers " and "Rail freight stress for the Public at rail crossings "

Single signal lightening at stations, ports, Coal departures, arrival stations and terminals and Twin lighting at the rail highway intersection of road crossings and no lighting signals on pedestrian rail crossings need to be assessed in the EIS i.e. Sheep Wash Road Avoca which is the Main road artery to The Illawarra highway, The Old Hume Highway, Moss Vale, Wollongong Goulburn and the M7 expressway via Bowral to Sydney. The Hoddle Street and Illawarra highway rail crossing in Robertson a major highway to Moss vale south and to the East Coast the tourist centre of the south, along the Jamberoo escarpment and there are other examples of where safety issues Risks are of a grave concern. Time allocations show that there will be approx. 30 minutes or more for diesel and electric locomotives hauling 50 steel carriages of loaded coal to pass from approaching rail line to crossing highways ,and pedestrian rail paths once the crossing is completed by the haulage train the time accumulation and spent labour time becomes excessive .The crossings and the major highway arteries will be halted and stopped for approximately 62 days per year or 1,460 hours per year or

approx. 4 to 5 hours a day by Hume Coal only, and add to this the extra rail haulage of freight time needed by Boral ,Ingham's and Omya .It is highly probable that, to keep time table schedules for these industries that the " speed of Train freight haulages will increase to an unsafe level " making the Hume coal project at a higher risk to the Public interest of safety .

**The question here for the Consenting Authorities, The Federal, State and Local governments, is how can the disruption and time lost impacting the community be compensated for?**

The social services of the community will face lost time and disruption , Ambulance ,Rural fire service with volunteer fire fighters, the fire brigade Social carers, School children arrivals to school and departures from school , Police ,Police highway patrol , Essential services of Telecommunications and Electricity ,Post and Waste collections Local and Interstate business, trades and agricultural farmers timetables , Passenger vehicles, buses and timetables and truck freight time tables, many people commute to the City of Sydney , Canberra , Goulburn for work **.Who will compensate these hard working people for the loss in their time already impacted by distance and no fast train to Sydney or Canberra ?.**If a business or member of the general public needs to make multiple rail crossing each day this will have an adverse impact on the cost of their time. The loss of time on business schedules and delays for the general public results in an economic loss for the surrounding villages and townships of the southern Highlands.

**No 5 Rail line Safety and accidents on the Moss vale Unanderra line, rail infrastructure deficiencies and Posco Hume coals make good policy. Single headed rail lighting.**

The peoples of the southern highlands, tourists, visitors and children need to be safe from such high Hume Coal freight rail traffic from Berrima to Port Kembla. Agricultural Wire fences on the rail line are inadequate , Old worn lose agricultural wire is still present ,the rail line is easily accessible by school children and the general public ,they require to be changed and repaired and in many places have wide open gaps far inexcess .This presents a Safety risk for School Children and the Public interest .The EIS must address the fencing issue of the rail line in the townships of the southern highlands .Agriculture wire fences were not made to protect rail lines and rail stations and terminals with the heavy movement of coal freight rather they were put there to protect livestock in their paddocks .**Will the Posco Hume Coal EIS address the deficiencies and safety issues on the fencing infrastructure of the rail line from Berrima to Port Kembla travelling through and within surrounding villages of the southern highlands ? Will Posco Hume Coal have a make Good Policy and have a Corporate Citizen Social Responsibility incorporated into their EIS to cover the cost of safety rail signals and the repair of rail barriers and fences?**

Rail single head lighting signals are partly obscured with vegetation on highways and by overhead rail powerlines .The accident on the 31st of August 2015 at the level crossing on the pacific Highway and Nolan street Unanderra was an example .The B9162 derailment when a single headed red light was missed and passed by the locomotive driver in Unanderra on the 28th July 2004 .The locomotive driver was fully aware of his controls and mental faculties and was not in any blame for the accident . Here again a single headed light caused a signal error .The rail accident April 23rd 2017 where a freight train lost its ability to brake as it hurled towards Unanderra was another derailment event that proved single headed lighting is insufficient and dangerous method of lighting for safe regulatory rail transport to continue across road intersections giving ample warning to all pedestrian traffic on road and foot and rail haulage locomotive drivers.

**The question that the Consenting Authorities for the rail transportation of the Korean Posco Hume coal project need to consider, is the current Highway rail crossing with single and twin signal headed lighting sufficiently safe for Public pedestrian traffic on highways and within out southern highlands townships ?** Many of these rail crossings are within close proximity to local businesses, residential housing ,agricultural farms engaging registered tractors and farm implements, doctors surgeries ,pharmacies, police and ambulance ,health carers ,general public and of course our precious infants in primary and secondary high schools students .

The Hume Coal Rail EIS must consider and take into account all impacts of the above for the Safety of the public interest before any consent can be given.

## No 5 the Unanderra rail line deficiencies, 1932, 1 in 35 steep gradient, safety, accidents and Environmental concerns.

It is well known by the consent authorities and the general Public that the Unanderra rail line was never designed for heavy haulage traffic of coal by diesel and electric locomotives. The line was built in 1932 and was an integrated rail line for the movement of single load carriages to the East Coast from the Highlands. The Unanderra rail line climbs up the Illawarra escarpment to the summit tank encountering some 25 kilometres of a 1 in 35 steep gradient .Parts of the rail line remain unfinished as unfinished stanchions' are evident as part of the proposed complete electrification of the rail line . Most coal haulage trains run with two locomotives one diesel locomotive and the other electric locomotives each have their benefits when hauling heavy long loads however all is fine for driver's safety regulations and the haulage of coal cargo when both diesel and electric locomotives are in operation.

The two locomotives diesel and electric have more rail stability balance ratios, more horsepower for acceleration and slowing and more braking power over all more conscious control of the locomotives by the driver .When the locomotive with haulage hit un electrified rail line especially on a decent of 1 to 35 gradient then the complete weight of the locomotives, the steel carriages and coal tonnage depends on one diesel locomotive. If any braking issues occur as in the case of the de Railment of Pacific Nationals service B9162 on 28th July 2004 missing a red flashing signal at 80klms per hour and the Freight Corp haulage train of a 40 wagon freight train losing its ability to brake on April 23rd 2017 as it hurled towards Unanderra uncontrolled incorporating the issue of ineffective un safe single signal lighting for the Drivers.

Secondary brake cocks were not used in either accident as they were not fitted to the locomotives which secondary drivers could have used in emergency situations .Freight Corp locomotives do not incorporate emergency braking cocks or vigilance control buttons activating a slow down or immediate stop position .This shows clearly that the Moss ale Unanderra line has severe speed weight ratio restrictions and possible locomotive haulage issues for train drivers to contend with .The train Drivers investigated in these incidents were all cleared from any wrong procedural actions as their driver training followed all the safety rules .

A rail crossing accident occurred on the 31st of August 2015 where a passenger vehicle and train haulage locomotive collided on the Princess highway and Nolan street crossing .This is indicative with the high frequency and speed of the locomotives at rail crossings that effective adequate safety signals of World Class Standard and manned rail guards are a necessary and a priority for the safety of the public interest.

The Australian transport safety Bureau (ATSB) have to be included in the process of evaluating the Moss vale Unanderra line to Port Kembla within the Posco Hume Coal Rail EIS as all of the above

accidents have a high probability of reoccurring with over 3,000 heavy rail haulage locomotives per year .

Should such consequences happen again as the above accidents, the increased rail traffic of the Posco Hume Coal will have consequences on Public Safety, the Social Services of the southern highlands community, the public interest and the Minister for Department of Rail .Such consequences will have enormous economic/cost impacts on local services, Government and enormous impacts on the Hume Coal Project reducing transit times. Rail transportation is the most efficient environmentally sound method of coal transportation if Best World Standard infrastructure and Electrified rail is used it should be the safest and have the World's Best Practice.

The Posco Hume Coal rail EIS has to take this World's Best Practice into account .The rail line on the Unanderra line where the gradient is 1 in 35 steep in decent, where speed weight load ratios on the locomotives exist, the non-electrification of sectional rail and the drivers abilities to control locomotives under extreme conditions needs further clarification in the EIS. A water catchment area of Sydney lays to the eastern side of the Unanderra line and the escarpment houses the World heritage Pristine Morton national Park which houses an abundance of flora and fauna a rail incident or disaster with coal haulage would impact a sensitive environmental area therefore an (SIS) is needed.

**What guarantees has the General Public, The federal, state and local government have from the Hume Coal project that a make good policy is in place for clean up? If it can be cleaned up, should environmental consequences occur damaging our flora and fauna?**

The Australian System of Safety Accident investigation (SSAI) has applied techniques under the quality assurance standard AS5022:2001 to enforce the safety of the structure of rail line and integrity of operations of locomotive operators and Coal industry using locomotives for haulage of coal to their destinations to comply with all legal regulatory requirements.

**Have the consenting authorities shown this compliance above has been met By Hume Coal in the proposed EIS in its current form?**

**No 6 The Robertson Village and all villages and Town ships of the Southern Highlands, Noise levels of haulage rail traffic, Impact's on the community, Buildings ,school children education and coal dust particulate** .

Not only has the Robertson rail crossing at Illawarra Highway and Hoddle street going to be impacted for 5 hours per day of halting vehicle traffic but the village itself will feel enormous impacts of the 3,000 rail movements thru the township . The rail line is not protected from the general public it is not safe with open large areas exposed to the rail line and awaiting for an accident to occur .The pedestrian pathway for the general public to cross, is unsafe with no signage lighting or rail guards to assist public crossing the rail.

There are no fences to reduce noise levels and vibrations of the 3,000 rail movements per year the village will be encompassed by rail noise.

The Robertson primary school which houses our infants will be subjected to immense higher than normal noise levels for education to proceed (Danny Pullicin BA (UNSW) (Dip ED) UNSYD.) This will disrupt the quality of the teaching staff giving their lessons and will interrupt the teaching staff from delivering quality education. The school has currently medical issues with children for their concern and control of the teaching staff. These school infants range from ages of 5 to 12 years old. These

are the developing and most formative learning years of our school infant's lives and The Korean Hume Coal Rail trains will impact on the ability for these children to lean and develop.

The rail noise and vibrations are within 10 meters from the school boundary. This distance is not sufficient to make the school safe for its school infants .Hearing disabilities with children are highly probable and common under normal conditions and with exposure to high frequency rail noise the crisis will accelerate a result with children exposed to high noise levels for 6 years of their formative early education. As a past teacher who has worked within the education system this is unfair environmental noise polluting circumstance for these children to be exposed too.

**Will the Federal, State Government, Local Government or Posco Hume coal guarantee the school children and parents that no hearing health concern for the children will occur as a result of the high noise levels created by the haulage rail movements within 10 meters of the primary school and will the governments or Posco Coal compensate parents on costs in the event that action has to be taken?**

The Federal and State Minister with the Premier Clady's Berjiklian needs to have involvement in the Hume Coal EIS to prevent any consent being given to the proposed Hume coal rail EIS that will bring harm to our children . The impact on these infants is not a tolerable situation for the people of the Southern Highlands or the peoples of Sydney.

The EIS for Hume coal has a responsibility to address this concern and the Government has a responsibly to protect its school infants from harm's way. The loaded coal locomotives and carriages make high noise levels when loaded and on the return trip back to Berrima when they are empty container vacuum vessels making higher levels of noise that will certainly impact on the hearing of school infants.

The rail line is also unsafely fenced, being within 10 meters of the school. Infant school children can have access to the rail line thru fence gaps .The Hume coal rail EIS must address the impacts of high noise pollution and poor fencing, inadequate lighting infrastructure on rail and road rail crossing safety, for the community township of Robertson and other villages in the southern highlands. The infant primary school is the responsibility of the State Education Minister the Federal Education Minister and the premier Clady's Berjiklian NSW.

**Where are the addresses or statements from the ministers or the Premier over the effect of high noise levels on the Robertson primary school children**?

Noise and vibration is also affecting and impacting on the residential and business buildings on the west side of the rail line. Dilapidation reports on buildings can show the impact of the current rail movements on buildings. Vibration cracks and subsidence of building is occurring. **What provisions have been made with Government or Posco home Coal to compensate children and their parents should school infants receive impacts on their hearing from this noise pollution levels and Vibration levels of The Hume Coal rail haulage movements? Who will compensate the residential and business building owners should impacts occur to their buildings and land from rail vibrations?**

**No8 Coal Dust particulate from coal haulage by Hume Coal .Coal ash and chemical content and its effects on villages of the southern highlands , its peoples and school children .**

Coal dust particulate is a polluting poison which will impact on the Robertson infant primary school and the Robertson community and surrounding villages of the southern highlands .It must be dealt within the proposed Hume coal rail EIS .It will impact on all 10 eating houses in Robertson and other

southern highland villages. There is a high probability that food will become contaminated with coal dust coal ash. Coal dust contains the following chemicals manganese, sulphates, cadmium, chorium.lead'poisions pyrites, methylmercury ,isotopes of chronic toxicity which will react with microorganisms in the food chain and local vegetation that will accumulate over time within the eco system and the human food chain and is proven to create respiratory diseases, interfere with reproduction growth, affect mental behaviour and can be the cause of death .Rail carriages that are not covered, or rail carriages that are covered are still the cause of coal dust contaminants. Once coal is unloaded out of coal carriages the dust is exposed in the carriages themselves and free to move inside or outside .More Co2 in the air and polluting coal contaminants which are chemically toxic will create health conditions for the community with their children. **What compensation has been placed by Government or By Posco Hume coal to compensate any infant who falls ill as a result of coal Dust contaminate being found in their bodies resulting in poor health ?** The risk assessment on Public health has not been addressed in the Hume Coal rail EIS and the consenting authorities under the EPA act 2016 have an obligation to the public interest to ensure that all consenting decisions are met with caution and researched with evidence based data and that any decision process is always subject to clarification by the public interest.

Therefore On Public health the consenting authorities must ensure that all measures have been taken before any consenting approval is made and must take as privilege the public interest of the southern highlands peoples , the City of Sydney and of course our children .

Statement By
Danny Pullicin 14/05/2017

**Social impacts of the Korean Posco Hume coal project on the Southern highlands NSW.**

**The term social impact can be vague and broad and somewhat inaccessible by definition however technically it means how an organization actions (The Hume coal project) affects the surrounding community (The Southern Highlands) .It involves the whole economy for profit sector and non-profit sector contributing to the improvement in the lives of people, both as individuals and as group communities .Such factors as**

**1 .Physical human security .2 Housing security .3 Food security .4 Water security. 5. Environmental security 6.Economic sustainability 7.Freedoms of speech, religions and beliefs 8. Government for all and Civil rights 9.Artistic expression 10.Education.**

**All these factors have been impacted by coal mining in our communities of Australia generating social and economic importance to the quality of life .The pattern of impacts have varied across communities depending on the size of the impact on communities and history.**

Australia has undergone 247 years of reconciliation with our indigenous peoples since the landing of Captain Cook in 1770 on the shores of botany bay NSW. The word Sorry was our Nations Mantra, a call from Prime Minister Rudd announcing in Martin place Sydney in 2009 .The Indigenous aboriginal peoples of Australia, The Penal settlers and convicts and The Free settlers through this history of time struggled with human might, determination, hard work and foresight to develop Australia into a social and economic culture unparrelled and unique in the modern world of 2017.

Through positive social and economic initiatives of great Australian men and women taking the necessary social and economic risks with the preservation and adherence of common law for all, they built the greatest economy in the history of Australia revered by other nations.

Our indigenous cultural heritage has its place in this nation building and without its preservation Australia would not enjoy the offerings of social freedom it offers to the world.

The southern highlands of NSW has been part of this nation building phenomenon moving further into the 21 century. Our precious Gandangara indeginous peoples are the spiritual guardians of the Southern Highlands and

their ancient ancestral heritage and beliefs belongs to them, the land and is shared by all Australians.

In 1802 the explorer Francis Barrallier met with the indeginous Gandangara People whilst his exploring party moved through the land southwest of the Sydney settlement. Governor Macquarie our fifth governor wanted an understanding with the Gandangara peoples, he wanted to know who they were and what involvement had they in any attacks against his troops who had been scouting the country, he was prepared for hostilities .However rather they presented themselves as wanting to receive troops and strangers as friends building huts for them to stay in when meeting and communicating, Barrallier noted this in his journals of 1803. In Mittagong in 1828 there was interaction between the Surveyor General Thomas Mitchell and the Gandaragara peoples. Mitchell was constructing and supervising the road to connect the southern highlands to Sydney it was the Gandaragara people who gave Mitchell advice on the land form and on direction the road should take they acted as guides to assist in the construction of the road, as only they and their ancestors knew the landscape and terrain which they had traversed for centuries .

The Gandaragara people believed in the animal people who lived in the dreamtime and were known as the Burringilling . They lived in the clouds and rains of the Southern Highlands they believed in the spirits of the dense pristine vegetation of the Southern highlands ,they believed in the ancient trees we have in the southern highlands and they most of all walked together with the pristine Waters of the Southern Highlands sacred in their beliefs and dream time .The Gandaragara people were the first builders of the southern highlands for the white settlers as they knew the value in preserving all that was given to them the pristine water for health , the Dense vegetation and wildlife for food ,the stone and timber for huts,tools and later in history, the modern road built by Mitchell .

The Hume coal project and the NSW Consent Authorities are inflicting on Gandaragara indeginous peoples and their acestorial beliefs a “social injustice on their history and Culture”. On balance they are denying the Gandaragara peoples their natural justice in the preservation of the land .The Hume coal mine project proposes to invade and rip apart their underground land with a 45 square kilometre coal mine .The coal mine will destroy a pristine water aquifer and destroy dense vegetation with toxin chemicals from coal waste.

This land is sacred and embedded into the beliefs of the indeginous Gandaragara people .The social impacts on the cultural beliefs of the Gandaragara Indeginous people will be harmed for all future Australian generations to come .The coal site can never be rehabilitated to its present pristine environmental natural presence there has been no coal mine in the state of NSW that has been successful in doing this.

The Gandaragara people were our first friends in building of the Southern highlands economy as roads were essential for economic development and the movement of people is shown in the history archives of Thomas Mitchell and Governor Macquarie (Fisher Library journals and archives of Governor macquarie UNSYD) .

A Korean Coal Multinational mining organization now hangs over our heads in the Southern highlands determining the outcome of our natural history ,our natural justice and our archived history, environment and legacy .Are we to leave to our children a legacy to learn the richness provided by the land area inhabited by the Gandaragara Peoples and our Historical builders of Mitchell and Governor Macquarie or are to leave a legacy of the toxic destruction of the pristine water aquifer and the surrounding landscape by a Korean Coal mine ?

The Consent Authorities must show social justice and natural justice to the Gandaragara cultural beliefs of this land and the historical Public interest of this land and not allow the proposed Hume Coal EIS to have any consent enforced until all social impacts for the Gandaragara people's culture and beliefs and current peoples of the southern highlands with their children are assessed taking into account all social and historical impacts.

**Hume coal Social Impact on water security, Water levels and use of water in the southern highlands.**

The Hume coal mine creates a Social injustice on the southern highlands communities and the people of Sydney, Canberra and Goulburn and any interstate from Melbourne Victoria, Queensland, South Australia and Western Australia, Northern territory and Tasmania.

Water is the most valuable asset of the Southern Highlands economy and social welfare of its people .Without clean pristine water the commercial, domestic or agricultural economy cannot survive and the human Social impacts will occur.

The southern highlands is home to many businesses driven by those people who developed and work within them .We have a vibrant tourist economy which encompasses hotels of international standard, 5 star accommodations and separate dwellings, B&B, Guest houses and Stays, farm stays these accommodation businesses depend on the clean available water to run their businesses as all services for the Public interest in accommodation and tourism require clean pristine water. There are over 1000 accommodation facilities in the southern highlands catering for tourists.

Weddings are also a substantial business in the SHL due to its natural environment they are advertised in most southern highlands publications .Wedding garden venues have to be of first class Green in appearance, photographers depend on this for their quality of photo productions. Therefore clean water is essential for vegetation and gardens and with no weddings or accommodation venues advertising in media publications will lessen with advertising revenues lost.

The proposed Hume coal EIS is miss leading the Public interest in saying that the accommodation business in SHL is very limited in the number of dwellings and will not be affected by the Hume Coal development. This is a misleading statement as there are much more accommodation dwellings for tourists visiting the SHL than what the EIS is saying .Also, they will not be housed by Hume coal workers as Hume Coal intends to place accommodation dwellings work camps on site for its workers .Does this not negate the theory in the EIS that Mining jobs will go to the local community within 45 minutes of the coal mine site if coal miners dwellings are to be erected on site to house miners and their families are they coming from overseas on temporary work visas ?

.Many retail shops and service industries run on the accommodation and wedding businesses if there is no clean water or if the perception of pristine water is damaged by toxic contamination of a coal mine then these business will incur economic and social losses and fold up .

Job security will be impacted and job losses will occur within these businesses far more than what the Hume coal project is saying they will provide .The following businesses in the SHL all depend on pristine water tourism , food outlets retuarants,hotels accommodation , arts crafts ,

**Social impacts on Housing security within the SHL community .**

There is an increasing demand for people to come and live in the southern highlands, housing statistics show (Domain, The real estate network, On the house and Real estate .com)that an increase in movement of people from Sydney and other capital cities in Australia is increasing by 4 to 5% each year to regional areas this is evident by the housing developments of New Berrima , Mittagong , Bowral and Moss vale and new houses being built on independent sites for more advanced home dwellers . The Federal and State governments are encouraging younger families to come to regional areas where housing presents itself as more affordable and services for the education of their children are more available this is evident by the large number of schools within the SHL .

The Southern highlands houses some of the most formable private and state schools in NSW .The demographics of the SHL is proportionate to most large Australian cities in social character it has a point at the top of the triangle and widens as we get to the base showing incomes , property ownership culture and diversity .

The economic development and the housing of new people moving to the southern highlands has been a thriving force in its development and now is threatened by the Hume Coal Mine as this movement is dependent on clean water. Should underground water become contaminated by toxic waste tailings of the coal mine over a 19 year period this will bring this economic development to a holt .People will not want to live near a coal mine with all its antiquated toxic impacts of the past as witnessed in the the Hunter Valley NSW and in Queensland in the Bowen Valley .The associated businesses for the Housing of people. For example, the realestate industry with finance houses , banks, retail shops, hardware , home goods, food outlets pharmacies , doctors,other professions of law, accountants and trades with social services of local government ,ambulance, firebridgrades ,police ,social carers , retirement villages will all feel the impacts of any water contamination.

If the realestate industry suffers as a result of contaminated water the loss in state taxes on the sale of property to the government will have a flow on affect costing the SHL economy and the state government .A bleak economic outcome for Government and the SHL.

Jobs will be lost as business will feel the effects of water loss and water contamination as production outcomes fall. Many dwellings in the southern highlands depend on underground and collected water supply from bores for

agriculture and water collectables of tanks , concrete or galvanised and these water containers receive water from roof tops all subject to air and rain quality this water is used in household and in businesses . If air quality is contaminated by coal ash and coal particulate from the Hume coal mine then water toxins upon roof tops will become evident in the water collectables for household and businesses .The same outcome will result from any connected water services as the water catchment location is vulnerable .

If bores become contaminated from underground slurry waste from coal mining then agriculture is impacted .The food chain via agricultural crops and the numerous eating outlets in the SHL will be impacted . Our diary and cattle production will be impacted .Job losses and household incomes for local workers will decline. The Bureau of statistics data Research shows that in the Hunter Valley regions of NSW that townships of Bulga, Singleton, Broke, Gloucester and others have been socially impacted from coal mining .Bulga faces its community leaving the township as socially and commercially it is declining due to the impacts of coal mining...

The industries of Viniculture in the Hunter Valley and Orange growing worth Billions of dollars to the state and federal government have had impacts with lessor production levels may be this is why we see oranges coming in from California USA. The flow on of Agricultural production decline affects associated industries of farm management services and farm machinery sales , farm machinery repairs , stock feed suppliers ,harvest and farm employees and farm trades .The chemical toxication of water from coal mining has socially impacted on the people communities of these townships.

The SHL needs to incorporate a level of procedural fairness with the consent authorities in its submissions to the DP&E to not have any statements made by the Public interest amended or corrected by the consent authority's or Hume Coal Project .The public interest must come first and foremost in any consent enforcement being given to the Hume coal project.

**Social impact on Education and Economic Sustainability .**

The SHL houses some of Australia's best private and state education establishments encompassing the local Communities children and children of Australia Regional and Capital cites .On balance the coal mining industry in Australia is significant in both scope and size and it's still growing at rate of 9 % per cent per year .Australia being a major exporter of coal does bring

significant financial benefits to the nation. However the Australian bureau of statistics estimates the value of coal mining exports was 170 billion dollars and represents 60 % of the value of exports to coal .Whilst the value of coal exported has increased its value has been directly aimed at fulfilling the enormous global demand to fuel industrialisation and urbanisation this however has come at a huge social cost to communities by supporting population growth as in the case of China we have witnessed incredible development in Asian cities.

Australia being the second destination behind Japan . At this same time the Australian Mining industry is facing decreasing productivity as a result of changing market conditions for the grading of bulk coal and pricing drops due to a coal glut ,this means that the extraction of coal coal is becoming more challenging and therefore still creating more toxic waste as in the the case of the proposed Hume Coal Project .Although we are in no danger of physically running out of the coal resource in Australia any time soon Consenting Authorities need to seriously address the fact that the continued production and declining resource quality creates technological , environmental and social challenges .

Coal companies that have been spending their revenues in regions where coal extraction has taken place have inevitably sent these revenues to major capital cities. Profits go outside Australia by foreign coal companies with taxes paid there rather than being spent on the local communities where revenues stay here this has been socially impacted .

Social communities in Moranbah Queensland have been vocal in their disagreement with coal mining in that it has expanded the quality of life within their region .A case study resource policy by Dr Galina Ivanovna and Professor John Rolfe from CQU. Have data statistics that support that the region has not had the social benefit, that EIS ‘s have stated .It was in fact it was the residents of the region that beared the costs of living alongside the coal mine and all social factors and Education was impacted on the community .

The Hume coal mine intends to create its own work camps for its workers this does nothing for the social cohesion of the region, in fact statistics from Professor John Rolfe suggest work camps separate the community .The only way to partially subsidise the SHL community for adverse social impacts is for the Posco Hume Project or the State government to compensate the local community regions with a percentage of royalty income remaining here in the

SHL similar to the Western Australian Governments royalties for Regions Agreement .Under such a scheme the state government ensures 25% of revenue to remain here in the SHL for the development of the local community infrastructure and community education services .

The Hume coal EIS does not address this issue and the federal and state governments are offering no procedural fairness to the SHL communities by incorporating such a scheme in any coal EIS being considered by the Consenting authorities .

It's only fair an d reasonable that if State and federal government can allow Procedural Fairness to a Korean Coal Multinational coming in to invade the SHL causing immense social impact on the community then the same offering should be made to the Public Interest we vote for our Government leaders . .Therefore No consent to the Hume coal EIS should be given until Procedural Fairness and Public Justice is administered to the community of the SHL.

Education needs to be subsidised by the Hume Coal project within the SHL as it is the foundation of the future innovators of coal mining technologies in Australia .The social impacts of the Hume coal projects encompasses the above points and in conjunction impacts on the education of children in SHL .

If the contamination of the water aquifer occurs ,the coal dust particulate occurs in our air quality and high levels of noise and vibrations as those which occurred for the communities experienced in the Bowen basin , The Hunter valley, Lightgow , and Moranbah this will have a similar social impact on the quality delivery of education within our schools and within our community services .

Education takes place in our schools , our Tafe colleges , our police force , our hospitals, our ambulance ,our fire and rural fire brigades our retirement villages , our general industries of hospitality , tourism , food and accommodation .All will be impacted by the Hume coal project .The primary school in Robertson is just 10 meters off the rail line that will carry 1,460 loads of 2,400 tons of coal by 2 loco motives one diesel the other electric with 60 tons 40 carriages 24/7 days a year the noise levels of coal filled carriages and empty carriages at this rate of frequency for our primary school children will be highly disruptive and after 6 years of vibration and high noise frequency on the education and health of our children social impact is inevitable . The adversities on their health and disruptive education of young children in their

developing years creates social issues of immense consequences for these children. Behaviour and health audio effects are highly probably let alone the coal dust particulate affecting the wheezing and asthmatic lung conditions of the children and of course what about the teaching staff wanting to deliver clear high quality education.

**The social impacts of mining technology .**

The demand for new technology in the coal mining industry is likely to stay high for the foreseeable future so finding new ways to mine coal in a more sustainable way becomes imperative to the social fabric of communities affected by coal mines .Achieving sustainable coal mining in the SHL needs to have an adaptive environmental sustainable methodology with broad societal acceptance.

The Hume coal project EIS has not been broadly accepted by the community of the SHL the reason for this is that firstly Hume coal EIS is inadequate in supporting the social fabric and economic fabric of the SHL. Hume coal reference to sustainable ground water quality and pristine water aquifer quality has used modelling techniques over the past 4 years to achieve data that suggests that ground water contains salts is basic and non-convincing their data is supported by no department of planning and environmental Hydrologist the reason for this I guess is that the department has not got a hydrologist on staff.

However independent studies done on ground water studies by independent consultants Pells and the university of Sydney clearly indicate that contamination of the land scape and the pristine water Aquifer and ground water is factual and scientifically supported by relevant scientific data .

Any salts occurring in the ground water are of a natural ecosystem biological formation.

The contamination of Coal Waste Tailings holding such chemicals of sulphuric acid ,lead, mercury , nickel ,tin,cadmium,arsenic,radioactive isotopes ,thorium ,strontium ,methylmercury ,pyrites ,methane ,and vanadium used in the production of nuclear manufacture have evolved from the current technology of coal mining .

For Hume coal to suggest that the mining operations will make the ground water better in quality because when ground water is oxidised it creates a red

stain is very naïve and lacks a Corporate Citizenship denying the Public interest the true facts .

It's is a known scientific chemistry fact that any water containing iron when oxidation takes place will cause a red stain this is characteristic of the landscape of the SHL .The toxic chemicals noted above will not form a stain they will kill the pristine water aquifer, kill the ground water table and surface water and add salinity to the surface landscape this is what the Hume coal EIS should be addressing before any consent can be given to the proposed Hume coal project.

Hume coal has only a licence for 60 % of the water needed and its assumptions on usage will over do their licence requirements. 40 % of water still has to be found 12 gig litres are licenced ,however 4.8 gig litres has to come from somewhere .If they intend to pull this from deep bores or the ground water from pristine water aquifer the more water used the greater the waste tailings and water from feather coal tunnelling containing the above toxic chemicals goes into the water stored in the Nepean ground water system .

Hume coal makes assumptions on the replenishment of water from annual rainfall this is a trap assumption .The earth planet is getting hotter scientific data is real and in concrete , the seas are rising , and the president of the world's most powerful nation disavows climate science and has said in the past that climate change is a fake Chinese plot to steal American Jobs .

Climate change is an issue to be considered if rain falls do not meet EIS expectations where will the water come from , it is highly probable that less water means higher the contamination of the water aquifer in the SHL by the Hume Coal Project.

The Hume coal project EIS must return to evidence available and stop avoiding the obvious to themselves and the Public interest that they will not contaminate the water aquifer.

The current adoptive coal mining process is feather tunnelling this is being used as it is a more effient form of coal mining than open cut coal mining however it has its dangers for the social impact on the SHL community and the mine workers them selves .

This process uses more highly technological methodologies incorporating more machine power of tunnelling and computerisation of control than

manpower. Miners have been pulled from this process of feather tunnelling because it has many dangerous aspects to it should failures occur and death of miners result .The coring of coal by this technique can create land subsistence as it cores more efficiently taking 70 % of the underground coal out of a coal seam , this methodology requires more water supply than detailed in the EIS or any other type of coal mining as the coal cutting tungsten blades and conveyor systems have to be water cooled constantly 24/7 . Methane gases and sulphur gas are intense in this form of coal mining as more coal is extracted combustion from thermals of steel strikes can occur causing explosions that will have an immense social impact on the community of the SHL and the public interest .

The coal industry is like other industries feeling the effects of economic viability downward pricing on bulk coal and coal mine operating expenditure increasing make margins low for operators and is becoming more obsolete as we look for new renewables to power our energy and recycle our iron for further uses .Industrial labour is being replaced by Robots as in the case of feather coal mining using far less a mining work force this is good for Posco Hume Coal as salaries are not paid and are saved and not paid to local workers with less jobs required in the mine .

Computerisation will drive the Hume coal mine and full time work will lessen and replaced by part time work with robotic machinery the social mobility of the community is waning as a result.

Danny Pullicin .

20/05/2017

[redacted]

## Aaron Brown

**From:** Wendy Pullicin [redacted]
**Sent:** Friday, 7 September 2018 7:18 AM
**To:** Danny Pullicin
**Subject:** The habitats of threatened species are shrinking, despite laws set up to protect them

http://www.abc.net.au/news/2018-09-07/habitats-of-threatened-species-shrinking-despite-federal-laws/10208406

Sent from my iPhone