

IN THE WATER TRIBUNAL

IN THE APPEAL OF:

ENDANGERED WILDLIFE TRUST

FIRST APPELLANT

FEDERATION FOR A SUSTAINABLE ENVIRONMENT

SECOND APPELLANT

MPUMALANGA LANDBOU/AGRICULTURE

THIRD APPELLANT

AND

**DIRECTOR-GENERAL (ACTING),
DEPARTMENT OF WATER AND SANITATION**

FIRST RESPONDENT

ATHA-AFRICA VENTURES (PTY) LTD

SECOND RESPONDENT

NOTICE OF APPEAL IN TERMS OF SECTION 148(1) OF THE NATIONAL WATER ACT, 1998

(ACT NO. 36 OF 1998)

AS AMPLIFIED

1. Take notice that the Appellants intend appealing at a date, time and place determined by the Tribunal Officer against the decision of the First Respondent to issue a water-use licence to the Second Respondent for its proposed Yzermyn underground coal mine situated in the Magisterial District of Wakkerstroom in Mpumalanga Province.
2. The First and Second Appellants appoint the Centre for Environmental Rights as their representative in this matter.
3. The Third Appellant appoints Noltes Attorneys as its representative in the matter.
4. Although separately represented, the First to Third Appellants bring this appeal as a joint appeal.

5. The First and Second Appellants will accept service of all documents in the above matter at the offices of their representative at 2nd Floor, Springtime Studios, 1 Scott Road, Observatory 7925, Cape Town.
6. The Third Appellant will accept service of all documents in the above matter at its offices at 124 Alwyn van Zyl Street, Ermelo, 2350.
7. The **amplified** appeal is based on the following grounds:
 - 7.1. the failure of the (Acting) Director-General of the Department: Water and Sanitation ('the DG') to take into account the likely effects of the proposed water uses associated with the Yzermyn Underground Coal Mine ('the mine' or 'the colliery') on the water resource and on other water users as required in terms of section 27(1)(f) of the National Water Act 36 of 1998 ('the NWA'), and to give effect to the efficient and beneficial use of water in the public interest as required in terms of section 27(1)(c) of the NWA (**first ground of appeal (originally the first and second grounds of appeal)**);
 - 7.2. the failure of the DG to authorise two water uses associated with the closure of the mine, namely the discharging of water containing waste into a water resource (section 21(f) of the NWA), and disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g) of the NWA) (**new second ground of appeal**);
 - 7.3. the failure of the DG to apply the 'precautionary' environmental management principle in section 2(4)(a)(vii) of the National Environmental Management Act 107 of 1998 ('NEMA'), as required in terms of section 2(1) of NEMA (**third ground of appeal**);
 - 7.4. the granting of an exemption by the DG in terms of regulation 4(b) of Government Notice 704 in respect of water uses associated with the mine, as being unjustifiable (**fourth ground of appeal**);

- 7.5. the failure of the DG to consider the true socio-economic impact of the water uses, if authorised, as required in terms of section 27(1)(d) of the NWA (**fifth ground of appeal**);
- 7.6. the failure of the DG to give effect to the right to procedurally fair administrative action in terms of section 33 of the Constitution of the Republic of South Africa, 1996 and sections 3 and 4 of the Promotion of Administrative Justice Act, 2000 (**sixth ground of appeal**); and
- 7.7 the failure of the DG to take into account material and relevant information pertaining to the strategic importance of the water use (**new seventh ground of appeal**).
8. The grounds of appeal and expert evidence used in support of the appeal are set out below.

SIGNED AND DATED AT **PRETORIA** ON **15th** DAY OF **DECEMBER 2016**;

AS AMPLIFIED, SIGNED AND DATED AT CAPE TOWN AND PRETORIA, RESPECTIVELY, ON THIS 1ST DAY OF DECEMBER 2017.



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Ref: Robert Davel

TO: WATER TRIBUNAL, DEPARTMENT OF WATER AND SANITATION

Mr Robert Mabe, Registrar

Appeal no.: WT 03/17/MP

AND TO: DIRECTOR-GENERAL (ACTING), DEPARTMENT OF WATER AND SANITATION

Mr Sifiso Mkhize

WUL no.: 05/W51A/ACFGIJ/4726

File no.: 16/2/7/W51/Yzermyn

AND TO: ATHA AFRICA VENTURES (PTY) LTD

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AMPLIFIED GROUNDS OF APPEAL

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INTRODUCTION

1. This is an appeal to the Water Tribunal in terms of section 148(1)(f) of the National Water Act, 1998 ('the NWA') against the decision of the Director-General (Acting) ('DG') of the Department of Water and Sanitation ('DWS') on 7 July 2016 to issue a water-use licence ('WUL') (attached hereto as 'A') to Atha-Africa Ventures (Pty) Ltd ('Atha') under section 41 of the NWA for its proposed Yzermyn underground coal mine situated in the Magisterial District of Wakkerstroom in Mpumalanga Province.
2. The appeal against the issuing of the WUL is brought by the Appellants, who timeously lodged written objections against the application for the WUL as is required by section 148(1)(f) of the NWA (see the High Court case of *Escarpment Environment Protection Group and Another v Department of Water Affairs and Others*¹).
3. The appeal was brought timeously in that the reasons contemplated in section 148(3)(c) of the NWA ('WUL reasons') were received by the Appellants on 17 November 2016. The reasons are attached marked 'B'. The appeal was submitted on 15 December 2016. **This document contains the Appellants' appeal as amplified in terms of Rule 3(2) of the Water Tribunal Rules**².
4. The First Appellant is the Endangered Wildlife Trust, a non-profit organisation whose strategies include the identification of human-induced threats and affected species in order to halt or reverse species decline; and the development of innovative, economically viable alternatives to address harmful impacts to the benefit of people and biodiversity.

¹ *Escarpment Environment Protection Group and Another v Department of Water Affairs and Others, In Re; Escarpment Environment Protection Group and Another v Department of Water Affairs and Others, In Re; Escarpment Environment Protection Group and Another v Department of Water Affairs and Others* A666/11, 4333/12, 4334/12) [2013] ZAGPPHC 505 (20 November 2013)

² GN 926 in GG 28060 dated 23 September 2005

5. The Second Appellant is the Federation for a Sustainable Environment, a non-profit organisation whose aim is to ensure that mining in South Africa is environmentally sound, particularly in the context of South Africa's scarce water resources.
6. The Third Appellant is Mpumalanga Landbou/Agriculture, a non-profit federation of agricultural organisations in the Mpumalanga Province and a provincial affiliate of Agri SA. Mpumalanga Agriculture's objectives include the development of the agricultural industry in Mpumalanga and the conservation of soil and water resources within the province.
7. Each of the Appellants has juristic personality. They comprise registered non-profit environmental conservation organisations and an agricultural association. Their objectives include environmental conservation and advancing the rights of those who are most vulnerable to the effects of environmental degradation.
8. **Whereas the appeal was originally submitted on 15 December 2016 ('the original appeal'), the Appellants have decided to amplify the original appeal in terms of Rule 3(2) of the Water Tribunal Rules for the following reasons:**
 - 8.1. **Subsequent to completion of the *'IWULA, IWUL and Specialist Investigation Review of the Yzermyn Colliery Mpumalanga'* dated 18 November 2016 by GCS Water and Environmental Consultants (upon which the Appellants rely in the original appeal ('the original GCS review')), it transpired that the WUL was granted on the strength of a further specialist report which had not formed part of the original GCS review. The further specialist study is a revised version of the report by Scientific Aquatic Services CC ('SAS') entitled *'Wetland Ecological Assessment as Part of the Environmental Assessment and Authorisation Process for the Proposed Yzermyn Coal Mining Project near Dirkiesdorp, Mpumalanga Province'* dated June 2014, August 2014 ('the SAS 2014 assessment'). The revised version of the SAS 2014 assessment, which is dated May 2015 ('the SAS 2015 assessment'), only became**

available to CER on 8 September 2017 once the WUL record had been provided to it as part of the process leading up to this appeal. GCS was accordingly asked by CER to review the SAS 2015 assessment and to supplement the original GCS review as required. The Appellants wish to incorporate the findings of the revised GCS review in their appeal.

8.2. The Appellants have decided to merge the first ground of appeal with the second ground of appeal (which will become a new first ground of appeal), and to include most of the content of the original first ground of appeal under a new heading, 'Strategic importance of the water resources to be affected' (Part D2)).

8.3. The Appellants wish to raise a new second ground of appeal pertaining to the non-authorisation of a water treatment plant post-closure of the mine;

8.4. The Appellants wish to raise a new seventh ground of appeal pertaining to the failure of the DG to take into account factors relevant to the strategic importance of the water use to be authorised; and

8.5. The Appellants wish to add certain points of emphasis and elucidation to the existing grounds of appeal.

9. For the convenience of Atha and the Water Tribunal, substantive amendments to the original appeal are indicated in bold font.

PART A: THE PROPOSED YZERMYN UNDERGROUND COAL MINE IN OUTLINE

10. The Yzermyn underground coal mine would, if authorised, employ the conventional bord and pillar mining method, with an adit (a type of underground access-way) being sunk to access the underground coal seams. The conventional bord and pillar mining method involves the removal of large areas of coal while leaving *in place* 'pillars' of coal to hold up the roof of the underground mine. The project would involve the extraction, crushing, screening and stockpiling of coal

product, as well as the transportation of the coal product for sale. The estimated life of mine is 15 years.³

11. The extent of the underground workings and surface infrastructure is depicted in figure 3-2 (on page 48) of Atha's Integrated Water and Waste Management Plan⁴ ('IWWMP'). A copy of the relevant figure is attached marked 'C', with the underground workings depicted by a red border and the surface infrastructure labelled for ease of reference. **The SAS 2015 assessment contains an updated version of this figure which is attached marked 'C1'.⁵ The underground mining footprint will stretch over an area of about 1 200 ha.⁶**

12. The surface layout of the mine has been re-configured during the lifespan of the project, which has included the removal of an originally-intended coal washing plant and discard dump/residue stockpile from the project proposal. The final surface layout of the mine infrastructure (referred to as the 'Best Environmental Option') is reflected on Annexure C hereto and has a surface footprint of approximately 22.4 hectares. **A clearer depiction of the surface infrastructure footprint in relation to the surface area wetlands (also taken from the SAS 2015 assessment) is attached marked 'C2'.⁷ The surface area will cover 22.4 ha.⁸**

13. The proposed mining area is located in the quaternary catchment W51A of the Nkomati-Uсуту Water Management Region.⁹ The predominant land uses to date in the area are non-industrial, involving commercial and subsistence agriculture and eco-tourism, due to the area's unique biodiversity.

³ IWWMP pg 2

⁴ August 2015 (revision)

⁵ **Taken from the SAS 2015 assessment pg 57**

⁶ IWWMP pg 14

⁷ **Taken from the SAS 2015 assessment pg 87**

⁸ IWWMP pg 13

⁹ WUL reasons (Annexure B hereto) pg 2

PART B: ATHA'S GROUNDWATER AND WETLAND ASSESSMENTS

14. Atha commissioned two groundwater/geohydrological assessments as part of its environmental impact analyses of the proposed mine: a 'Specialist Study: Geohydrology Impact Assessment' by WSP Environmental (Pty) Ltd ('WSP') (Adam Smith) dated 3 September 2013 ('the WSP groundwater assessment'), which does not form part of the WUL application ('WULA') and is attached hereto marked 'D', and a groundwater assessment by Delta H dated August 2014 (Appendix H to the WULA) ('the Delta H groundwater assessment'). According to Atha, the Delta H groundwater assessment was commissioned on account of the revision of the surface infrastructure of the mine (the WSP groundwater assessment was based on the original surface layout).¹⁰
15. Atha's full faunal, floral, aquatic and wetland ecological assessment was conducted by Natural Scientific Services CC, producing a report dated September 2013 ('the NSS ecological assessment') (Appendices F8, F9, F10, F11, F12, F13, F14 and F15 to the WULA). In conducting its assessment, NSS relied on the findings of the WSP groundwater assessment. **It must be noted that the findings of the NSS assessment nevertheless remain relevant, because the cones of dewatering predicted by WSP are similar to those which were subsequently predicted by Delta H (as elaborated upon in paragraph 35 below).**
16. A further wetland ecological assessment was conducted by Scientific Aquatic Services CC ('SAS'), who produced a report entitled 'Wetland Ecological Assessment as part of the Environmental Assessment and Authorisation Process for the proposed Yzermine Coal Mining Project' dated June, August 2014 ('the SAS 2014 assessment') (Appendix F7 to the WULA). Both the NSS ecological assessment and the SAS 2014 assessment predated the determination of the 'Best Environmental Option' surface layout¹¹, in other words, they are based on an outdated surface

¹⁰ See paragraph 11 above and IWWMP pg 164

¹¹ See paragraph 11 above

layout. In conducting the 2014 assessment, SAS relied on the findings of the Delta H groundwater assessment.

17. After the determination of the 'Best Environmental Option' surface layout, SAS conducted a delineation of the wetlands situated in the surface footprint area, producing a wetland delineation letter dated 9 December 2014 ('the SAS wetland delineation letter') (Appendix F1 to the WULA). **It appears from the record of documents which were provided by DWS to CER on 8 September 2017, that the SAS wetland delineation may not have been taken into account in the granting of the WUL, and that it will also not be taken into account by the Water Tribunal on appeal because of certain formal shortcomings (see in this regard paragraph 1.3 of annexure 'D1' to this appeal). The substantive criticisms of this letter have however been left in the amplified appeal to illustrate the degree of inaccuracy of statements which were made by SAS in this letter.**
18. **In May 2015 SAS conducted a detailed assessment of the surface infrastructure wetlands and two other wetlands which are located within 500m of the surface infrastructure footprint and underground mining boundary resulting in the SAS 2015 assessment (SAS 2015 assessment Pgs. iii and 54). One of these wetlands (CVB5) is a National Freshwater Ecosystem Priority Area (NFEPA) wetland.**
19. **The SAS 2015 assessment largely repeats the findings of the SAS 2014 assessment, but includes in addition, the results of the wetlands delineation which SAS conducted in November 2014 of wetlands situated within the proposed surface infrastructure footprint (which SAS originally purported to include in the SAS delineation letter), and the results of the further assessment described in paragraph 18 above.**
20. **As is elaborated upon in the appropriate places below, the SAS 2015 assessment does not alter in any material respects the conclusions drawn in the original GCS review. The SAS 2015**

assessment does however provide further evidence of the fact that the proposed mine poses a substantial risk to sensitive and important water resources. In particular, the SAS 2015 assessment confirms that the NFEPA wetland, CVB5, which is located within 500m of the underground mining boundary (and which corresponds with the drawdown cones predicted by Delta H), falls within PES category B and EIS category A.

21. As will be elaborated upon in Part E.6 below, the fact that the SAS 2015 assessment was never placed before the public for comment lends further strength to the ground of appeal which is based on a lack of transparency and procedural fairness.

PART C: BACKGROUND CONTEXT

22. On 19 September 2014 the Director-General of the Department of Mineral Resources ('DMR') granted a coal mining right to Atha in terms of the Mineral and Petroleum Resources Development Act, 2002 ('MPRDA') in respect of the proposed Yzermyn underground coal mine. On 14 April 2015 the Minister of Mineral Resources withdrew the grant of the mining right and issued a fresh mining right to Atha. On 7 June 2016 the Chief Director of the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs granted environmental authorisation in terms of the National Environmental Management Act, 1998 ('NEMA') to Atha in respect of the Yzermyn mine. On 28 June 2016 the DMR approved Atha's environmental management programme in respect of the Yzermyn mine in terms of the MPRDA.
23. The First and Second Appellants are part of a coalition of eight community and civil society organisations, comprising (in addition to the Appellants) EarthLife Africa Johannesburg, BirdLife South Africa, the Mining and Environmental Justice Community Network of South Africa, groundWork, the Association for Water and Rural Development and the Bench Marks Foundation, who are challenging the lawfulness of these authorisations and approvals. The coalition has instituted proceedings in the High Court for the judicial review of the grant of the mining right on

the basis that such grant is unlawful. The coalition has also appealed the grant of the environmental authorisation on the basis that such grant is unlawful. The coalition has furthermore appealed the approval of Atha's environmental management programme on the basis that said approval is unlawful. All of these proceedings are presently in progress and have not been determined. **On 27 November 2017, CER was informed that the appeal against the grant of the environmental authorisation has been rejected.**

24. Pursuant to the above-mentioned legal challenges, the coalition commissioned three scientific reviews of the specialist environmental impact assessments commissioned by Atha in respect of the Yzermyn project, as well as Atha's Environmental Impact Assessment Report ('EIAR'), environmental authorisation, WULA and WUL, as follows:

24.1. *'Review of Environmental Impact Assessment Report & Environmental Management Programme, and Environmental Authorisation, for Yzermyn underground coal project'* dated 17 August 2016 by Susie Brownlie, which is attached hereto marked 'E' ('the Brownlie review');

24.2. *'Review of the groundwater documentation related to the proposed Yzermyn Colliery'* dated August 2016 by Ingrid Dennis, which is attached hereto marked 'F' ('the Dennis review');
and

24.3. *'IWULA, IWUL and Specialist Investigation Review of the Yzermyn Colliery Mpumalanga'* dated 18 November 2016 by GCS Water and Environmental Consultants, which is attached hereto marked 'G' ('the original GCS review'). **As explained above, GCS conducted a revised review in December 2017 which can be taken to have replaced the original GCS review. A copy of the revised GCS review has been attached as annexure 'G' and replaces the original GCS review.**

25. These reviews form an integral part of this appeal.

PART D: THE WATER-USE LICENCE

26. On 7 July 2016 the DG issued a WUL to Atha authorising the following water uses on the farms Kromhoek 93 HT (comprising Kromhoek 93 HT: Remaining Extent ('RE') and Kromhoek 93 HT: Portion 1), Goedgevonden 95 HT, Yzermyn 96 HT: Portion 1, Zoetfontein 94 HT and Vaalbank 74 HT, in respect of the proposed Yzermyn underground coal mine:

26.1. taking water from a water resource (section 21(a) of the NWA), in particular the abstraction of groundwater from two specified supply wells (boreholes) on Kromhoek 93 HT: RE and Goedgevonden 95 HT;

26.2. impeding or diverting the flow of water in a watercourse (section 21(c) of the NWA) and altering the bed, banks, course or characteristics of a watercourse (section 21(i) of the NWA) pursuant to the construction and operation of the mine and associated infrastructure, including, amongst others:

26.2.1. the construction and operation of underground mining activities and voids on various wetland systems on Yzermyn 96 HT: Portion 1, Goedgevonden 95 HT, Kromhoek 93 HT and Zoetfontein 94 HT;

26.2.2. the partial destruction of a wetland system on Yzermyn 96 HT: Portion 1 pursuant to the construction and operation of a pollution control dam ('PCD') system;

26.2.3. the construction and operation of the following infrastructure within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1:

26.2.3.1. an adit;

26.2.3.2. the main workshop platform;

26.2.3.3. two coal stockpile slabs; and

- 26.2.3.4. an office block and parking area;
- 26.2.4. the construction and operation of various pipelines and clean- and dirty-water flow drains (drainage systems) through and/or within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1, Kromhoek 93 HT, Goedgevonden 95 HT and Vaalbank 74 HT;
- 26.2.5. the construction and operation of various berms (artificial ridges or embankments) and canals through and within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1; and
- 26.2.6. the construction and operation of two access roads through and/or within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1;
- 26.3. discharging waste or water containing waste into a water resource through a pipe, canal, sewer or other conduit (section 21(f) of the NWA) and disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g) of the NWA), including:
 - 26.3.1. discharging water containing waste (treated to a specified quality) into a wetland system on Yzermyn 96 HT: Portion 1;
 - 26.3.2. disposing and storing contaminated water in a PCD on a wetland system on Yzermyn 96 HT: Portion 1;
 - 26.3.3. the construction and operation of a sewage treatment plant on a wetland system on Yzermyn 96 HT: Portion 1;
 - 26.3.4. the construction and operation of a wastewater treatment plant within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1; and

- 26.3.5. the use of PCD-process water for dust suppression on roads within the mining area within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1; and
- 26.4. removing, discharging or disposing of water found underground (section 21(j) of the NWA), in particular pumping out groundwater flowing into the adit and underground workings situated on various wetland systems on Yzermyn 96 HT: Portion 1, Goedgevonden 95 HT, Kromhoek 93 HT and Zoetfontein 94 HT.
27. The WUL has been issued for a period of 15 years, with a discretion on the part of the DWS to review the WUL every two years.¹²
28. It is apparent from the WUL that the Environmental and Social Impact Assessment Report and Environmental and Social Management Programme for the Yzermyn Underground Coal Mine (January 2015) ('the EIAR'), compiled pursuant to Atha's application for environmental authorisation in terms of NEMA, was considered by the DG as part of the WULA.¹³

PART D2: STRATEGIC IMPORTANCE OF THE AFFECTED WATER RESOURCES

29. The footprint of the proposed mining area (surface infrastructure and underground operations) and the surrounding area are environmentally sensitive, vulnerable and important, from a regional and national perspective. The following key features are drawn from, amongst others, the NSS ecological assessment, the SAS 2014 assessment **and SAS 2015 assessment**:
- 29.1. the quality of the surface and groundwater in the area has been monitored and determined to be good (mostly potable quality) with very little anthropogenic impacts;¹⁴

¹² WUL (Annexure A hereto) para 4.1, pg 2

¹³ WUL (Annexure A hereto) para 1.2.1.8, pg 19

¹⁴ Delta H (August 2014) pg 9; IWWMP pg 3

- 29.2. the surface and underground areas of the proposed mine coincide with several wetlands (see Annexure P hereto);¹⁵
- 29.3. the wetlands **in the proposed underground mining area** are considered to have a Category A Present Ecological State ('PES'), meaning that they are natural and unmodified.¹⁶ The existing impacts on the wetlands **in the underground mining area** caused by, among other things, alien invasive species and cattle tracks are very limited and minor in extent;¹⁷
- 29.4. the wetlands **in the proposed surface infrastructure area (called S1 and S2)** are considered in the SAS 2015 assessment to have a Category C PES, meaning that they are moderately modified, but the natural habitat remains predominantly intact;¹⁸
- 29.5. the newly assessed wetlands located within 500 m of the surface and/or underground mining areas (which are visually depicted in Annexure S hereto (called S11 and CVB5)) are considered in the SAS 2015 assessment to have a Category B PES, meaning they are largely natural with a few modifications, a slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place;¹⁹
- 29.6. the wetlands **in the proposed underground mining area** have a 'VERY HIGH' Ecological Importance and Sensitivity ('EIS'), meaning that the wetlands are considered to be ecologically important and sensitive on a national or even an international level, the biodiversity of these wetlands is likely to be very sensitive to flow and habitat modifications

¹⁵ See also NSS pg 195

¹⁶ NSS pg 196; SAS 2015 assessment pg 65

¹⁷ NSS pgs 196-199. **These findings are not contradicted by the SAS 2015 assessment which was aimed solely at investigating the surface infrastructure wetlands (and the two wetlands within 500m of the surface and underground areas) in greater detail**

¹⁸ SAS 2015 assessment pgs 65 and 25

¹⁹ SAS 2015 assessment pgs 65 and 25

and the wetlands play a major role in moderating the quantity and quality of water of major rivers;²⁰

29.7. the wetlands in the proposed surface infrastructure area (S1 and S2) are considered in the SAS 2015 assessment to have a 'MODERATE' EIS, meaning that they are considered to be ecologically important and sensitive on a provincial or local scale, and their biodiversity is not usually sensitive to flow and habitat modifications;²¹

29.8. the newly assessed wetlands located within 500m of the surface and/or underground mining areas (S11 and CVB5) are considered in the SAS 2015 assessment to have a 'HIGH' and 'VERY HIGH' EIS respectively, meaning that S11 is considered to be ecologically important and sensitive and its biodiversity may be sensitive to flow and habitat modifications; and the EIS of CVB5 is as described in paragraph 29.6 above;²²

29.9. the wetlands in the proposed underground mining area provide 'HIGH' eco-services in respect of the maintenance of biodiversity, erosion control, groundwater discharges, surface flow attenuation, and tourism and recreation²³ (or 'MODERATELY HIGH' eco-services overall according to the SAS 2015 assessment²⁴);

29.10. there are several springs within the proposed underground mining area;²⁵

29.11. the proposed mine is situated in a Department of Water Affairs ('DWA') and Department of Environmental Affairs ('DEA') designated National Freshwater Ecosystem Priority Area

²⁰ NSS pgs 199 and 100; **SAS 2015 assessment pgs 80 and 26**

²¹ **SAS 2015 assessment pgs 80 and 26**

²² **SAS 2015 assessment pgs 80 and 25**

²³ NSS pg 200

²⁴ **SAS 2015 assessment pgs 71 and 23** read with SAS 2014 assessment Annexure B pg 99

²⁵ NSS pg 195. Although it appears from the IWWMP that the underground area to be mined is slightly smaller than the target area depicted in the NSS ecological assessment (NSS pg), there is a very large overlap between the two, and at least four of the springs would still fall within the underground mining area (compare IWWMP pg 14 with NSS ecological assessment (NSS pg 195))

('FEPA')²⁶ river catchment: numerous headwater and mountain streams flow from the proposed mining area into rivers that drain into the Assegaai river, a B ecological category (i.e. largely natural) FEPA river.²⁷ **(For a visual depiction of the underground and surface areas in the NFEPA Atlas (which was prepared by Vanessa Stone, Biodiversity Stewardship Co-ordinator at the World Wide Fund for Nature: South Africa ('WWF-SA')), see annexure 'H' attached).**

29.12. Furthermore there are six wetland FEPAs (of A/B ecological category, i.e. natural or largely natural) in close proximity to the proposed mine (some within 1 km of the underground mining area)²⁸. **One of these falls within 500m of the underground mining boundary²⁹ (this is the wetland labelled CVB5 by SAS in the SAS 2015 assessment);**

29.13. the proposed mine is situated in the Enkangala Drakensberg Strategic Water Source Area, as determined by the South African National Biodiversity Institute ('SANBI') and WWF-SA as part of the DWA and DEA National Freshwater Ecosystem Project. The Strategic Water Source Areas are the 8% of South Africa's land area that provide 50% of our surface water run-off;³⁰

29.14. the proposed mining site is situated at the headwaters of the Vaal and the **Usuthu Rivers**;³¹

29.15. the underground area to be mined falls within the Mabola Protected Environment which was declared as such on 22 January 2014 in terms of the National Environmental

²⁶ NSS pgs 209 and 210; **SAS 2015 assessment pg 40**

²⁷ This refers to a system of classification developed by several organisations working together with organs of state including the DEA and DWA. The NFEPA project resulted in several guidelines one of which is that mining in any form should not be permitted in wetland FEPAs or within 1 km of a wetland/riverine FEPA buffer. The significance of the classification of an area as a FEPA is that it acquires the status of an ecosystem which the national sphere of government has recognised formally warrants special conservation (see for instance Notice No. 83 in Government Gazette 37302 dated 7 February 2014)

²⁸ NSS pgs 22 and 209

²⁹ **SAS 2015 assessment pg 40**

³⁰ See http://awsassets.wwf.org.za/downloads/wwf_sa_watersource_area10_lo.pdf (pg 46)

³¹ See http://awsassets.wwf.org.za/downloads/wwf_sa_watersource_area10_lo.pdf (pg 46); EIAR pg 173

Management: Protected Areas Act, 2003,³² and furthermore the motivation for, and purpose of declaring the Mabola Protected Environment included protecting this environmentally sensitive, unique area which has irreplaceable biodiversity, against coal mining;³³ **(A visual depiction of the Mabola Protected Environment in relation to the proposed mine (which was prepared by Vanessa Stone) is attached marked 'H2')**

29.16. the underground and surface areas of the proposed mine fall within the Wakkerstroom/Luneberg Grasslands which are classified as '*Endangered*' in terms of the National Environmental Management: Biodiversity Act, 2004,³⁴ **(For a visual depiction, see annexure 'H3' (which was prepared by Vanessa Stone)).**

29.17. the entire surface and underground areas of the proposed mine fall within an area identified by the DEA in the Mining and Biodiversity Guideline, 2013³⁵ as having the '*Highest Importance for Biodiversity*' and as being at the '*Highest Risk*' from mining – meaning that the area is viewed '*as necessary to ensure the protection of biodiversity, environmental sustainability, and human well-being*';³⁶

29.18. the surface infrastructure of the proposed mine falls largely within an area designated in the Mpumalanga Biodiversity Sector Plan 2013 ('the MBSP') as being an '*Optimal Critical Biodiversity Area*', while the underground workings of the mine fall largely within an area designated in the MBSP as being an '*Irreplaceable Critical Biodiversity Area*';³⁷ **(After the**

³² EIAR pg 43. Notice No. 20, *Mpumalanga Provincial Gazette* No. 2251, dated 22 January 2014. The project area also borders the Kwamandhlangampisi Protected Environment to the east

³³ The surface infrastructure of the mine will be situated on Yzermyn 96 HT: Portion 1, which is outside of and adjacent to the Mabola Protected Environment

³⁴ NSS pgs 204 and 208

³⁵ The official citation of this document is the '*Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute. 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria.*' It is voluminous and is therefore not attached but it may be found on the DEA website

³⁶ NSS pgs 211 and 212

³⁷ NSS pg 215 **and 216**

Mabola Protected Environment was declared, the surface infrastructure of the mine was depicted in the MBPS as falling within a 'Protected Area buffer' – see annexure 'W' (which was also prepared by Vanessa Stone).

- 29.19. the proposed mine is situated in Rutherford & Westfall's (1994) Grassland Biome which has extremely high biodiversity, second only to the Fynbos Biome;³⁸
- 29.20. six floral species at a high risk of extinction in the wild were found by NSS in the study area, and 30 species which are listed as Protected Species under the Mpumalanga Conservation Act, 10 of 1998 have been found during surveys of the mining area;³⁹
- 29.21. twenty-one Conservation Important ('CI') mammals have been recorded previously in the proposed mining area, and eight CI mammal species, including one Endangered and five Near Threatened species, were found there by NSS;⁴⁰
- 29.22. eighteen CI bird species have been recorded in or near the proposed mining area, and NSS observed five CI species during surveys related to the project;⁴¹
- 29.23. several globally, nationally or provincially Near Threatened reptiles and frogs are also likely to occur at the site;⁴² and
- 29.24. the mine will fall within an Important Bird Area ('IBA') identified by BirdLife International, which is considered to be *'one of the most important IBAs in Africa and ...vital for the conservation of a number of locally- and globally-threatened bird species, as well as the conservation of other fauna and flora'*.⁴³

³⁸ NSS pg 22

³⁹ NSS pgs 53-58 and 64-65

⁴⁰ NSS pgs 95-99

⁴¹ NSS pgs 100-103

⁴² NSS pgs 104-106

⁴³ NSS pg 213

30. As explained in paragraph 29.13 above, the proposed mine is situated in the Enkangala Drakensberg Strategic Water Source Area, as determined by SANBI and WWF-SA as part of the DWA and DEA National Freshwater Ecosystem Project. The Strategic Water Source Areas are the 8% of South Africa's land area that provide 50% of our surface water run-off. WWF-SA explains this⁴⁴ to mean that *'water source areas (WSAs) provide a disproportionate amount of run-off to the rest of the catchment ... Downstream users and ecosystems are dependent on the healthy functioning of these areas to sustain good quality water supplies ... Disrupting water supply from these 16 strategic WSAs would effectively turn off the taps to our economy and seriously impact our food and water security'* (pg 14). WWF-SA further explains that *'water is provided to us by healthy and functioning ecosystems'* (pg 2) and *'the health of our rivers and wetlands is measured by the diversity and health of the species ['microbes, plants and animals'] we share these resources with'* (pg 10). With respect to the Enkangala Drakensberg Strategic Water Source Area, WWF-SA explains that *'this source area supplies water to South Africa's economic hub, Gauteng, and it is also an important source for the agricultural sector in the KwaZulu-Natal and Free State provinces'* (pg 46).

PART E: GROUNDS OF APPEAL

E.1 The failure to take into account the factors described in sections 27(1)(c) and 27(1)(f) of the NWA (the first ground of appeal)⁴⁵

31. The DG, in granting the WUL, failed to take into account the likely effect of the proposed water uses on the water resource and on other water users as required in terms of section 27(1)(f) of the NWA. The DG's decision also failed to give effect to the efficient and beneficial use of water in the public interest as required in terms of section 27(1)(c) of the NWA.

⁴⁴ See http://awsassets.wwf.org.za/downloads/wwf_sa_watersource_area10_lo.pdf

⁴⁵ As pointed out in paragraph 8.2 above, this ground of appeal comprised the first and second grounds of appeal in the original appeal

E.1.1 Information in the WULA about the risks and consequences of the dewatering of aquifers

32. Both the Delta H groundwater assessment and the WSP groundwater assessment conceptualise the following three aquifer systems underlying the mining (surface and underground) footprint: localised perched aquifer systems, a shallow weathered Karoo aquifer system and a deep fractured Karoo aquifer system.⁴⁶ The perched aquifer systems are conceptualised as localised shallow-lying aquifers, which are directly recharged by rainfall and formed by the presence of low-permeability layers of clay, silt or rock, which confine the groundwater to shallow, lateral flow. The shallow aquifer is conceptualised as varying in depth between 5 to 20 metres below ground level and as being hydraulically connected to surface drainages and directly recharged by rainfall. The shallow aquifer is underlain by a deep aquifer of larger areal extent and long term yield.⁴⁷
33. The WSP and Delta H groundwater assessments conceptualise the presence of an aquitard⁴⁸ in the form of a semi-permeable dolerite sill between the shallow and deep aquifers.⁴⁹ According to Delta H the presence of this dolerite sill means that there is limited groundwater flow (leakage) from the shallow aquifer into the deep aquifer.⁵⁰ Any leakage would occur through structural discontinuities (e.g. fault planes or fracture zones) in the dolerite sill; however in its conceptual groundwater model Delta H assumes that the dolerite sill is ‘continuous and un-fractured’.⁵¹ As explained below, the hydraulic connectivity of the shallow and deep aquifers is highly significant to the severity of the environmental impacts of the proposed colliery.

⁴⁶ Delta H paras 4.1 and 4.2, pgs 12 and 13; WSP para 4.1, pg 10

⁴⁷ Delta H pg 15

⁴⁸ Aquitards are “*compacted layers of clay, silt or rock that retard water flow underground; that is, they act as a barrier for groundwater. Aquitards separate aquifers and partially disconnect the flow of water underground.*” (http://www.groundwater.com.au/media/W1siZiIsIjIwMTMvMDEvMTcvMjFfMDNfMjlfNzg0X1VuZGVyc3RhbmRpbmdfYXF1aXRhcmRzX2FuZF9hcXVpY2x1ZGVzX0ZJTkFMLnBkZiJdXQ/Understanding+aquitards+and+aquicludes_FINAL.pdf)

⁴⁹ Delta H paras 4.1 and 4.2, pgs 12 and 13; WSP paras 4.1 and 4.2, pgs 10 and 11

⁵⁰ Delta H para 8.1.1, pg 49: ‘The assigned low hydraulic conductivity of the dolerite sill overlying the proposed underground coal mine limits the vertical infiltration of water and hence the mine inflows.’

⁵¹ Delta H para 8.1.1, pg 49 and also pg 45: ‘The low permeability of the dolerite intrusions and assumed closed faults limit flow across these structures.’

34. Atha intends to mine (underground) in the deep aquifer. This digging out of the deep aquifer would create an inflow of groundwater into the underground mine workings. During the construction and operational phases of the mine, the groundwater (inflow) would be pumped out of the underground workings (to enable operations). After the cessation of operations, the inflow would be allowed to occur and, over time, the mine void would fill up/flood **(the environmental impacts of this will be specifically and separately dealt with in section E.1.1.1 below)**.
35. Both the Delta H and the WSP groundwater assessments estimated the quantity of groundwater inflows into the underground mine workings and the groundwater impacts associated with the inflows coupled with the pumping out. According to Delta H and WSP, the groundwater inflow and pumping will result in reduced groundwater levels in (also called the 'dewatering' of) the aquifers above and in the vicinity of the workings.⁵² Delta H predicts a maximum drawdown of 9 metres in the shallow aquifer and 50 metres in the deep aquifer,⁵³ while WSP predicts a maximum drawdown of 10 metres in the shallow aquifer and 55 metres in the deep aquifer.⁵⁴ Both Delta H⁵⁵ and WSP generated diagrams of the simulated dewatering (also called 'cones of depression' or 'cones of dewatering') of the shallow and deep aquifers, which are attached marked '11' and '12' respectively. These diagrams show that cones of dewatering in both the shallow and deep aquifers would extend for several kilometres away from the mine. The cones of dewatering generated by Delta H and WSP are comparable.⁵⁶

⁵² Delta H para 8.2.1, pg 51; WSP para 5.2.1.2, pg 15

⁵³ Delta H figure 8.2, pg 52 and figure 8.3, pg 53

⁵⁴ WSP figures 11 to 14, pgs 38 to 41

⁵⁵ The varied tones of green shading on the diagrams depict the simulated cones of dewatering in metres, the underground mining footprint is depicted as a grid of black lines, and the springs are indicated by red dots

⁵⁶ See the Dennis review (Annexure F hereto) at pg 7 and the GCS review (Annexure G hereto) at pg 29

E.1.1.1 Consequences of dewatering of the aquifers

36. The NSS ecological assessment assessed (in detail) the consequent impacts of the dewatering of the aquifers on the wetlands in the surface and underground mining areas⁵⁷ on the basis of WSP's simulated cones of depression and reported the following:

36.1. *'This lowering in groundwater level will have a **negative impact** on all wetlands fed by the shallow aquifer and the springs within the cone of depression. These springs are one of the main sources of water for the wetlands in the area, supplying water during the drier winter months when the wetlands are not fed by rainfall. As the source of water supplying the wetlands is unknown, and the fact that the groundwater levels will be lowered in the shallow and deeper aquifers, one must assume that the wetlands within the cone of depression will be impacted upon and may possibly dry out.'⁵⁸ [own emphasis]*

36.2. *'The decrease in water input to the wetlands within the study area and surrounds, and the resultant reduction in flow, and potential drying up of wetlands will have a HIGH significance on Biodiversity as a minimum of 40% of the underground mining area and surface infrastructure footprint area constitutes wetland habitat. The impact will also extend into and beyond the greater mine lease area.'⁵⁹ ⁶⁰ [own emphasis]*

36.3. *'The loss or deterioration of the wetlands will extend beyond the study area and will extend into the wetland FEPAs within the mine lease area and the wetland FEPAs and Wetland Clusters in the immediate surrounds ... These systems are also the start of the catchment*

⁵⁷ Note that although the NSS ecological assessment was based on an outdated layout of the mine surface infrastructure (i.e. it was composed prior to the determination of the 'Best Environmental Option'), the 'study area' of the assessment includes the current surface and underground mine footprint (see NSS figure 3-8, pg 195 in comparison to Annexure C hereto)

⁵⁸ NSS pgs 243 and 246

⁵⁹ See a diagrammatic depiction of the greater mine lease area in the NSS ecological assessment figure 2-1, pg 3

⁶⁰ NSS pgs 243 and 246

*that feeds the Assegaai River FEPA, and a decline in water input will, therefore, result in a decrease in flow of this river system.*⁶¹ [own emphasis]

36.4. *'Approximately 40% [of the vegetation communities identified] within the mine lease area are moisture dependent. ... If the dewatering activities have a major effect on the wetland systems identified, these vegetation communities and the potential CI species found within these habitats will be affected and may change in structure in the long term.'*⁶²

36.5. *'Due to the HIGH and long-term (if not irreversible) status of this impact in an area far exceeding the study area, the project should be a NO GO.'*⁶³ [own emphasis] NSS records this impact as having a 'HIGH' significance (NSS's highest significance rating) both without mitigation and with mitigation (in other words, NSS regards mitigation as being impossible).⁶⁴

37. With particular reference to the effect of mining on FEPA wetlands within 1 km of the underground mining area, the NSS ecological assessment recorded that *'...the greatest concern regarding the FEPA's is the potential impact of the mine on the water resources as a result of underground water reduction due to de-watering activities and groundwater contamination due to sulphate seepage from the mine workings... (WSP, 2013). Both the cone of depression and the [WSP] groundwater contamination plume extend to the wetland FEPA's in the near vicinity'* [own emphasis]. **The revised GCS review confirms that the newly assessed CVB5 does in fact coincide with the Delta H predicted cones of dewatering and that it is very likely to be negatively affected by dewatering of the shallow and deep aquifers**⁶⁵. It must be emphasised that the entire mine area (and surrounds) is a River FEPA and associated sub-quaternary catchment, meaning that it contributes

⁶¹ NSS pg 246

⁶² NSS pg 251

⁶³ NSS pg 253

⁶⁴ NSS para 4.2, pg 242

⁶⁵ **Revised GCS review pg 12**

to national biodiversity goals and the sustainable use of water resources.⁶⁶ As regards Wetland FEPA's, these are wetlands with special features of conservation importance (e.g. Ramsar wetland status, extensive intact peat wetlands, presence of rare plants and animals) and are identified on the basis of expert knowledge and available spatial data on the occurrence of threatened frogs and wetland-dependent birds.

38. The NSS ecological assessment concluded that the Yzermyn project *'is fatally flawed, and should be a NO GO in terms of Biodiversity. This is largely because of the impact of the proposed underground mining on the supply of water to the surface water resources (due to the de-watering activities) and the potential groundwater contamination. These aspects will have a significant impact on aquatic and wetland ecosystem functioning and biodiversity in a far greater area than the underground mining area. These and other aspects of the mining project are in strong conflict with international, national and provincial legislation, policies and guidelines.'*⁶⁷[own emphasis]
39. The SAS 2015 assessment also identified as an impact on 'wetland hydrological function' during the operational phase: *'[d]ewatering of wetland habitat downgradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns'* and *'[[f]ormation of groundwater cone of dewatering, leading to reduced recharge of wetland resources'*⁶⁸, with 'HIGH' impacts on the study-area wetlands both unmitigated and with mitigation⁶⁹. This finding was based on the Delta H groundwater assessment, which as noted above, contained similar cones of dewatering to those of WSP.
40. Nevertheless, referring to the Delta H groundwater assessment, Atha's IWWMP provides the following statement regarding groundwater impacts:

⁶⁶ See an extract from the NFEPA Atlas which is attached marked 'H1'

⁶⁷ NSS pg 269

⁶⁸ SAS 2015 assessment pg 98

⁶⁹ SAS 2015 assessment pgs 99 and 100

*'The groundwater study indicates that two aquifer systems exist in the area: the shallow aquifer in the weathered zone and a deeper fractured Karoo aquifer on fracture zones. The link between these two aquifers is limited to intrusions and faults with a low hydraulic connectivity. The cone of water drawdown for the shallow aquifer is predicted to be about 8 m at its worst area of impact, due to mine dewatering and could potentially have a limited impact on the wetlands in the mine target area. The drawdown in the deeper aquifer is predicted to be more pronounced due the mining excavation into these rock formations.'*⁷⁰ [own emphasis]

41. This statement appears to be based on an assumption by Delta H of a continuous, un-fractured dolerite sill between the shallow and deep aquifers. **Two points must however be made in this regard. The first is that the cones of dewatering predicted by Delta H (which both wetland specialists predicted could have far-reaching impacts on the wetlands within the cone of dewatering) were predicted despite the assumed presence of the dolerite sill. In other words, the likely impacts associated with the cones of dewatering are not predicted to be less if a dolerite sill is present. Second, the assumption is in any event, as Delta H itself acknowledges, just that – it is not something which has been established:**

41.1. Delta H did not conduct any site-specific tests of the hydraulic conductivity (capacity to transmit water) of the dolerite sill and therefore, as Delta H itself admits,⁷¹ the conceptualisation of a continuous, un-fractured dolerite sill (and limited hydraulic connectivity between the aquifers) is merely an assumption. Rather, Delta H used its groundwater model to generate a 'calibrated' hydraulic conductivity value for the dolerite sill, and accepted this value because it falls within 'literature ranges'.⁷² The **revised** GCS review records that the failure by Atha and Delta H to assess the hydrogeological

⁷⁰ IWWMP pg 3

⁷¹ Delta H para 8.1.1, pg 49

⁷² Delta H pg 45

characteristics of the dolerite sill means that the anticipated dewatering impact could not have been – and has not been – established sufficiently.⁷³

41.2. WSP also based its conceptualisation of the hydraulic conductivity of the dolerite sill on an assumption ‘based on similar experience’⁷⁴; however conceptualises greater connectivity between the shallow and deep aquifers.⁷⁵

41.3. Delta H itself records that it was not able to verify its groundwater model and considers the model to be of ‘low confidence’ due to, amongst other things, the lack of data in respect of the hydraulic conductivities of ‘faults and contact zones to dolerite dykes or sills’.⁷⁶ The Australian groundwater modelling guidelines (Barnett et al, 2012)⁷⁷ state that a low confidence (also referred to as a ‘Class 1’) model ‘*has relatively low confidence associated with any predictions and is therefore best suited for managing low-value resources (i.e. few groundwater users with few or low-value groundwater dependent ecosystems) for assessing impacts of low-risk developments or when the modelling objectives are relatively modest*’.⁷⁸ The **revised** GCS review comments that based on the results of Atha’s specialist studies, as well as various statements in Atha’s IWWMP and EIAR, ‘*it is evident that the area of and surrounding the proposed mining activity is a moderate to high value groundwater-dependant ecosystem. In light of this, a Class 3 model with a high level of confidence is required before a decision may be taken which will affect the resource*’.⁷⁹

41.4. In an attempt to address the uncertainty associated with the assumption of a continuous, un-fractured dolerite sill, Delta H conducted a sensitivity analysis on its groundwater model

⁷³ **Revised** GCS review (Annexure G hereto) pgs 16 and 29 to 30

⁷⁴ WSP para 4.2, pg 11

⁷⁵ WSP para 4.2, pg 11; para 5.2.1.2, pg 15

⁷⁶ Delta H para 7.1, pg 47 and para 8.7, pg 69

⁷⁷ Which were referenced by Delta H

⁷⁸ **Revised** GCS review (Annexure G hereto) pgs 24 to 25

⁷⁹ **Revised** GCS review (Annexure G hereto) pg 25

by varying the hydraulic conductivity of the dolerite sill. The results of this sensitivity analysis are that the anticipated groundwater inflows into the underground mine workings are *'highly sensitive to larger than expected conductivity values of the dolerite sill ... Should the dolerite sill ... be more permeable (e.g. fractured or weathered) than assumed, mine inflows are expected to increase substantially'*.⁸⁰ In other words, Delta H found that the dewatering of the shallow aquifer could in fact be substantially greater than predicted if the hydraulic conductivity of the dolerite sill is greater than assumed.

41.5. As explained in paragraph 36.1 above, the NSS ecological assessment recorded that the source of water supplying the wetlands is unknown, in other words it is unknown whether the water source of the wetlands is the shallow aquifer, the deep aquifer and/or the localised perched aquifer systems referred to in paragraph 32 above. Accordingly, NSS concluded that it must be assumed that the wetlands within the cones of depression of the shallow and deep aquifers would be impacted upon and may possibly dry out.

42. The IWWMP therefore contains two critically important statements which are factually incorrect, and also inconsistent with what the specialist reports themselves say:

42.1. It is incorrect that the link between the two aquifers is limited to intrusions and faults with a low hydraulic connectivity – the existence of an essentially impermeable dolerite sill which extends across the entire underground mining area is, as explained in the revised GCS report, an assumption which would need to be verified before the model could be relied upon. The existence of such an impermeable sill is also highly unlikely⁸¹;

42.2. It is incorrect that the cones of dewatering could potentially have a limited impact only on the wetlands in the mine target area – the cones of dewatering could, as is expressly

⁸⁰ Delta H para 8.1.1, pgs 49-50

⁸¹ Revised GCS review pg 30

acknowledged by Delta H in the context of the sensitivity analysis described in paragraph 41.4 above, have severe impacts on wetlands in the underground mining area. The impacts were also predicted by both NSS and the SAS 2015 assessment, as being likely to spread beyond the underground mining area.

E.1.1.2 Proposed mitigation measures

43. In Atha's 'Table 5-7: Identified risks and mitigation measures associated with each water use' submitted as part of its WULA, Atha identifies, amongst others, the following impacts pertaining to the underground mining activities and voids associated with the construction and mining (operational) phases of the proposed colliery,⁸² coupled with the following mitigation measures:⁸³

Impacts	Mitigation measures
'Cone of groundwater draw down could affect wetlands' 'Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources'	'Grout excessive inflows' 'Cover drilling to detect potential zones of high inflow' 'Pre-grout zones of potential excessive inflow'

44. Atha's proposed mitigation measures of grouting and pre-grouting any excessive (and potential excessive) inflows must be considered in light of GCS's comments as regards this method.⁸⁴ GCS makes two points in this regard. The first is that grouting has not been assessed by any of Atha's groundwater specialists and it may have its own impacts which have not been assessed. The

⁸² See paragraph 26.2.1 above

⁸³ Table 5-7 pgs 61, 69, 70, 71 and 72

⁸⁴ Revised GCS review (Annexure G hereto) pg 56

second is that although it is possible that grouting may reduce the anticipated inflows into the underground workings and therefore also reduce the anticipated drawdowns, this was not assessed or simulated by Delta H and it is therefore simply not known whether this proposed measure will reduce the dewatering impacts.

45. **GCS also points out that grouting is very seldom used in coal mines due to safety risks arising from uncontrolled water inrushes. In addition, grouting is a large operational expense and it is usually too expensive to grout the whole of the underground workings. Grouting can lead to the build-up of pore pressures with consequent underground rock stability issues and result in sudden inrushes which can lead to an unsafe mining environment.⁸⁵**
46. **Cover drilling, which means drilling from surface to detect potential zones of high inflow, is a predictive measure rather than a mitigation measure. Cover drilling is usually undertaken ahead of mining developments to prevent uncontrolled discharge into the mine workings. Cover drilling is not a mitigation measure. If cover drilling and grouting is undertaken it is usually used in the development roadways or adits and not along mining panels.⁸⁶**
47. **In any event, neither of these have been included as express conditions of the IWUL.**

E.1.1.3 Conclusion under this head

48. In explaining his understanding of the project description in the WUL reasons (Annexure B hereto), the DG repeats the abovementioned statement in Atha's IWWMP (see paragraph 37 above), namely:

'The groundwater study indicates that two aquifer systems exist in the area: the shallow aquifer in the weathered zone and a deeper fractured Karoo aquifer on fracture zones. The link between

⁸⁵ **Revised** GCS review (Annexure G hereto) pg 56

⁸⁶ **Revised** GCS review (Annexure G hereto) pg 56

these two aquifers is limited to intrusions and faults with a low hydraulic connectivity. The cone of water drawdown for the shallow aquifer is predicted to be about 8 m at its worst area of impact, due to mine dewatering and could potentially have a limited impact on the wetlands in the mine target area. The drawdown in the deeper aquifer is predicted to be more pronounced due the mining excavation into these rock formations.’⁸⁷ [own emphasis]

49. It is clear that the WUL was therefore granted on the basis of inaccurate and incomplete information.
50. Furthermore, if one considers the following condition of the WUL, it is evident that the DG failed to sufficiently comprehend the anticipated dewatering impacts of the proposed colliery. The WUL stipulates the condition that *‘the activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The Licensee must ensure that the overall magnitude and frequency of flow in the watercourse(s) does not decrease, other than for natural evaporative losses and authorised attenuation volumes’* (WUL para 2.4.2, pg 26).
51. This is wholly out of touch with the findings of the NSS ecological assessment described above (see paragraph 36 above) that the dewatering will result in a decrease in water input into, and a reduction in flow in the wetlands within the study area and surrounds (including the nearby FEPA wetlands), and consequently a decrease in flow in the Assegai River FEPA. Importantly, NSS found these impacts to have ‘HIGH’ significance (NSS’s highest significance rating) both without mitigation and with mitigation.
52. From all of the above it is evident that the DG failed to take into account the likely effect of the proposed water uses to be authorised on the water resource and on other water users as required in terms of section 27(1)(f) of the NWA. The DG’s decision also failed to give effect to the efficient

⁸⁷ WUL reasons (Annexure B hereto) pg 6

and beneficial use of water in the public interest as required in terms of section 27(1)(c) of the NWA.

E.1.2 Information in the WULA about the risks and consequences of the decant of contaminated groundwater and AMD

53. As explained above, after the cessation of the proposed mining operations, the inflow of groundwater into the underground mine workings would be allowed to occur and, over time, the mine voids would fill up/flood.

54. The Delta H groundwater assessment indicates that *'it will take around 45 years for the mine voids ... to be completely flooded once active dewatering [pumping out] is stopped. Thereafter, decant from the underground mine voids via the adit and/or unsealed exploration boreholes in the vicinity are [highly]⁸⁸ likely to occur.'⁸⁹ Delta H also assessed the acid production and neutralisation potential of coal samples from a neighbouring mine and found that the majority of the coal samples were potentially acid generating.⁹⁰ AMD is a process associated with the closure of coal mines when the mine voids fill with groundwater and contaminants exposed during the mining process pass into that water, which may then 'decant' to the surface.*

55. **The SAS 2015 assessment reports that: *'The potential for post-closure decant of water from the underground mine void via the adit and/or unsealed exploration boreholes (Delta H, 2014) is of particular concern, as this will have a long term effect on surface water quality of not only on the wetlands within the study area, but also on aquatic resources within the greater catchment with special mention of the Assegaai River. Should it be considered economically feasible to treat the decant water post-closure until water quality stabilizes, which could take many decades, to pre-mining water quality standards in such a way as to support the post closure land use, which***

⁸⁸ Delta H para 8.6.2, pg 69

⁸⁹ Delta H pg 68

⁹⁰ Delta H pg 29

*is envisaged to be protected wilderness, the project would be considered feasible, although the impacts on the wetland resources would remain high.*⁹¹

56. There are two aspects of this statement which bear emphasis. The first is that the SAS 2015 assessment concluded that the project would be considered feasible only if it were to be considered economically feasible to treat decant water post-closure until water quality stabilises, which could take many decades. The second is that, even then, the impacts on wetland resources would remain high.

57. The NSS ecological assessment reports that:⁹²

57.1. *'The current groundwater and surface quality within the region of the study area is good ... Based on the predicted groundwater plume, and the surface water resources, the receiving environment for any surface or groundwater contamination is the Assegaai River. This river is a FEPA river. The NFEPA guidelines state that water quality must support keeping wetland FEPAs in good condition (equivalent to an A or B ecological category) for those currently in a good condition ...'*⁹³ (Note that the Assegaai River is classified as a B ecological category FEPA river i.e. it is currently in a good condition.⁹⁴)

57.2. *'AMD represents the most severe impact of coal mining on water resources. ... The elevated location of the mine will lead to drainage of contaminated water away from the mine. Since*

⁹¹ SAS 2015 assessment pgs 105-106

⁹² It is also worth noting that the authors of the NSS ecological assessment were concerned enough about the Yzermyn project to take the unusual step of registering as an interested and affected party in order to provide further input to Atha, and the further input which NSS did provide on 27 October 2014 was in unequivocal terms. Amongst other things, NSS (having now reviewed the Delta H groundwater assessment) said that the impact of the post closure decant of the mine alone could not justify the short-term economic gains of the mine

⁹³ NSS pg 260

⁹⁴ SAS 2015 assessment para 3.1.2, pg 40

the ... mine will be located in the headwaters of the Assegai River ... it will threaten more than one water resource and thus users ... in the lower catchment'.⁹⁵

57.3. Contamination of groundwater will impact on surface water quality downstream. *'This contamination will impact on the PES of the wetlands and the eco-services the wetland site can provide, the main one of which is the maintenance of Biodiversity.'⁹⁶*

57.4. *'Severe deterioration in [water quality] can lead to a dramatic decrease in aquatic biota and ceased aquatic ecosystem functionality.'⁹⁷*

57.5. *'Impacts of ... contamination on faunal species can include aspects such as a decline in general health, reduction in fecundity rates and birth defects.'⁹⁸*

57.6. The anticipated impact of decant of contaminated groundwater and the resultant impacts on surface water quality, wetlands, aquatic ecology and biodiversity is of 'HIGH' significance (NSS's highest significance rating) both without mitigation and with mitigation (in other words, NSS regards mitigation of this impact as being impossible).⁹⁹

58. With apparent disregard of the scientific evidence detailed above, Atha's EIA asserts that *'the scientific evidence indicates no risk on the [water] quality during the 15 year life of mine with limited risk post closure that can effectively be mitigated'.¹⁰⁰*

59. In Atha's 'Table 5-7: Identified risks and mitigation measures associated with each water use' submitted as part of its WULA, Atha identifies, amongst others, the following impact pertaining to

⁹⁵ NSS pg 255

⁹⁶ NSS pg 255

⁹⁷ NSS pg 256

⁹⁸ NSS pg 259

⁹⁹ NSS pg 254

¹⁰⁰ EIA pg 7

the underground mining activities and voids associated with the post-mining phase of the proposed colliery,¹⁰¹ coupled with the following mitigation measures:¹⁰²

Impacts	Mitigation measures
'Cone of groundwater draw down recovers'	'Treat and release decant water from underground workings.'

60. Atha's IWWMP states that, *'It is anticipated that water containing contaminants will be generated; therefore, a water treatment plant will be required for the mine. The water treatment plant may be contracted to a third party and constructed with capacity to treat excess water to discharge quality. It is anticipated that the water treatment plant will also be required to be operational following mine closure in order to treat decant from the mine. It is proposed that a modular water treatment plant be installed during the operational phase to meet the requirements of the mine. ...'*¹⁰³

61. Atha's EIAR provides further that, *'It is recommended that the treated decant emanating from the treatment plant must be discharged to the adjacent hillslope seepage wetlands making use of a spigot which then drains into a sand filter along the edge of the hillslope seepage wetland ... This mitigation method will impact on wetlands (positively and negatively).'*¹⁰⁴

¹⁰¹ See paragraph 26.2.1 above

¹⁰² Table 5-7 pgs 61, 69, 70, 71 and 72

¹⁰³ IWWMP pg 20

¹⁰⁴ EIAR pg viii

62. Commenting on the Delta H groundwater assessment, as well as the above statements in Atha's IWWMP and EIAR, the **revised** GCS review found that despite the fact that Delta H, the IWWMP and the EIAR all record that decant is expected:¹⁰⁵

62.1. Delta H failed to simulate the anticipated contaminant plume from the mine workings. The contaminant plume is likely to migrate down-gradient in the shallow aquifer from the location of the underground mining. As is evident from the Delta H groundwater assessment, the post-closure mine water quality, and accordingly the contaminant plume, is likely to be characteristic of AMD. In the absence of a simulated contaminant plume, it is not possible to identify the water users, wetlands and areas most likely to be affected by groundwater contamination.¹⁰⁶

62.2. Delta H failed to assess the hydrogeological characteristics of the dolerite sill which it conceptualised to be present between the shallow and deep aquifers,¹⁰⁷ accordingly the migration of potential contaminant plumes from the underground mine workings could not have been – and has not been – established sufficiently.¹⁰⁸ According to GCS, a sill with a higher hydraulic conductivity than that used in the Delta H groundwater assessment could result in higher decant volumes.¹⁰⁹

62.3. Delta H failed to utilise geochemical modelling and failed to conduct a site-specific assessment to determine the anticipated post-closure decant water qualities and quantities. Accordingly this information – which is necessary for the conceptual design of the water treatment plant – is not available.¹¹⁰

¹⁰⁵ **Revised** GCS review (Annexure G hereto) pg 33

¹⁰⁶ **Revised** GCS review (Annexure G hereto) pg 28

¹⁰⁷ See paragraph 41.1 above

¹⁰⁸ **Revised** GCS review (Annexure G hereto) pg 28

¹⁰⁹ **Revised** GCS review (Annexure G hereto) pg 21

¹¹⁰ **Revised** GCS review (Annexure G hereto) pgs 26 and 31

62.4. The concept design of the water treatment plant (as described in Atha's IWWMP¹¹¹) has not been reviewed by any environmental specialists. The design of the water treatment plant should have been reviewed and finalised pre-mining in order to determine whether the mine is financially viable (the water treatment plant and decant management system are usually large expenses, which could influence the financial viability of the mine project). This information should have been before the DG in order to make a decision on the WULA, particularly considering condition 14.1 of the WUL (pg 48) which states that: *'The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme'*.¹¹²

62.5. The mitigation measure of discharging treated water into the wetlands may be plausible but has not been assessed by any environmental specialists and it is unknown what the environmental consequences of the impact will be (positive or negative).¹¹³

63. There are therefore major gaps in information as regards the likely extent and direction of groundwater contamination; likely decant volumes; post-closure decant water qualities; the possible effect of a post-closure water treatment plant on the financial viability of the mine; the likely effectiveness of the water treatment plant as a mitigation measure; and the likely impacts of discharging treated water into the wetlands.

64. The revised GCS review points out further that the water treatment plant which is required post-closure would, in all likelihood, be a different one to the one required for the operation phase. That is because it would only come on line once water begins to decant from the mine post-closure, which Delta H predicts will take 45 years.¹¹⁴

¹¹¹ IWWMP pg 20

¹¹² **Revised** GCS review (Annexure G hereto) pg 26

¹¹³ **Revised** GCS review (Annexure G hereto) pg 29

¹¹⁴ **Revised GCS review** (Annexure G hereto) pg 31

65. On account of the absence of any proper assessment of the risks posed by AMD, **and the gaps in information described above**, the statement in Atha's IWWMP that, '*very little direct impact on surface water is expected from the mining operation ... All water management infrastructure will be in place to stop polluted water from reaching any surface water resource*' is unsubstantiated.¹¹⁵
66. GCS advises that '*were AMD taken into account, the water quality-related risks and mitigation measures would change. Accordingly, the existing water quantity-related and water-quality risks and mitigation methods are potentially inaccurate and inappropriate.*'¹¹⁶
67. From all of the above it is evident that, on account of the inadequate and inaccurate information in Atha's WULA about the risks and consequences pertaining to the decant of contaminated groundwater and AMD, the DG failed to take into account the likely effect of the proposed water uses to be authorised on the water resource and on other water users as required in terms of section 27(1)(f) of the NWA. The DG's decision also failed to give effect to the efficient and beneficial use of water in the public interest as required in terms of section 27(1)(c) of the NWA.
68. The DG's failure to sufficiently consider the risks and consequences pertaining to the decant of contaminated groundwater and AMD is particularly evident if one has reference to the following conditions of the WUL:
- 68.1. In respect of riparian and in-stream habitat (vegetation and morphology), the WUL stipulates the conditions that '*existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations...*' (para 2.5.5, pg 27) and '*the current level of diversity of biotopes and communities of animals, plants and micro-organisms must be maintained*' (WUL para 2.6.3, pg 30).

¹¹⁵ Revised GCS review (Annexure G hereto) pg 52

¹¹⁶ Revised GCS review (Annexure G hereto) pgs 63 to 64

68.2. In respect of rehabilitation and management, the WUL stipulates the condition that *'the rehabilitation of all wetlands on site as well as wetlands that were destroyed during mining must be reinstated as follows: The integrity (PES) score of any Category A and Category B wetland must not drop below 20% from the baseline. Prior to the end of Life of Mine, the condition of those wetlands must be brought back to baseline condition'* (WUL para 3.3, pg 30).

68.3. The WUL stipulates the condition that *'The Licensee must ensure that the wetlands must not be polluted or destroyed because of the activities occurring within the Yzermyn Underground Coal Mine site'* (WUL para 12.7, pg 47).

69. These conditions are wholly out of touch with the findings of **the SAS 2015 assessment** and the NSS ecological assessment (see paragraphs 55 to 57 above) that the post-closure decant of contaminated water and AMD from the underground mine voids will have a long term negative effect on the surface water quality of the wetlands within the study area and aquatic resources within the greater catchment (including the Assegaai River FEPA), and consequently a negative impact on the PES of the wetlands (which, **in the case of those in the underground mining area**, presently have a Category A PES¹¹⁷) and on aquatic and terrestrial biodiversity. Importantly, NSS found these impacts to have 'HIGH' significance (NSS's highest significance rating) both without mitigation and with mitigation.

E.1.3 Inadequate and inaccurate information in the WULA about cumulative impacts

70. The Environmental Impact Assessment Regulations¹¹⁸ under NEMA define cumulative impact as *'the past, current and reasonably foreseeable future impact of an activity ... that in itself may not*

¹¹⁷ See paragraph 29.3 above

¹¹⁸ GN. R. 982 of GG. 38282 dated 4 December 2014

be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities'.

71. Atha's IWWMP states that, '[t]he cumulative impacts of the proposed development (underground mining and surface infrastructure), current agricultural and tourism, and future mining activities have been assessed. Although the proposed project will impact on most of the environmental parameters the cumulative impact of the mine and other activities is not considered to be significant. This can mainly be attributed to the low level of impact that the tourism and scattered agricultural activities have on the environment, as well as the limited disturbance of the proposed new underground coal mine when all mitigation measures are effectively implemented.'¹¹⁹ [own emphasis]

72. This broad statement that '*the cumulative impact of the mine and other activities is not considered to be significant*' is unsubstantiated and inaccurate, and in fact contradicts information in Atha's IWWMP and EIAR, as well as the specialist assessments commissioned by Atha:

72.1. The IWWMP and EIAR fail to take the Loskop Coal Mine into consideration in assessing cumulative impacts, although this mine is 2km east of the proposed Yzermyn project and falls in the Mabola Protected Environment.¹²⁰ According to Brownlie, '[t]his omission is serious and negates any conclusions drawn about the severity of cumulative impacts on biodiversity and water resources'.¹²¹

72.2. Atha's IWWMP quotes the following findings of the NSS ecological assessment regarding cumulative impacts: there are currently numerous applications for mining within the greater southern Mpumalanga study region and, if a significant portion of these are approved, the potential cumulative impacts of anthropogenic land use in the region would

¹¹⁹ IWWMP pg 4

¹²⁰ Curiously, this information is provided in the EIAR pg 95

¹²¹ Brownlie review (Annexure E hereto) pg 9

include *'reduction and deterioration of regional groundwater', 'deterioration and loss of wetland habitat, species, ecosystem functioning and services'* and *'reduction in the richness and abundance of floral and faunal species'*.¹²²

72.3. The WSP groundwater assessment, Delta H groundwater assessment and **SAS 2015 assessment** did not assess cumulative impacts. The surface water assessment commissioned by Atha, which was conducted by WSP and is Annexure E1 to the WULA ('WSP surface water assessment') briefly assessed cumulative impacts and asserted that *'the cumulative impacts with regards to water quality and quantity are expected to be limited'*.¹²³ This assertion was quoted in Atha's EIAR.¹²⁴ However WSP's brief analysis, and consequently its assertion of limited cumulative impacts with regards to water quality and quantity, is flawed for the following reasons:

72.3.1. WSP did not assess any cumulative impacts associated with other mining activity, including the Loskop Coal Mine, and only took into account the proposed Yzermyn project and urban and agricultural activities.¹²⁵

72.3.2. The WSP surface water assessment was conducted on the basis of inaccurate and outdated assumptions regarding the dewatering¹²⁶ and decant¹²⁷ impacts of the proposed colliery.

73. From all of the above it is evident that, on account of a material gap in information in Atha's WULA about cumulative impacts, the DG failed to take into account the likely effect of the proposed water uses to be authorised on the water resource and on other water users as required in terms

¹²² IWWMP pg 214, NSS pg 267

¹²³ WSP surface water assessment pg 30

¹²⁴ EIAR pg 298

¹²⁵ Brownlie review (Annexure E hereto) pg 9 and WSP surface water assessment para 10.4, pg 29

¹²⁶ See section E.1.1 above versus WSP surface water assessment para 7.1.2, pg 8

¹²⁷ See section E.1.2 above versus WSP surface water assessment para 7.1.2, pg 8

of section 27(1)(f) of the NWA. The DG's decision also failed to give effect to the efficient and beneficial use of water in the public interest as required in terms of section 27(1)(c) of the NWA.

E.1.4 Inadequate information in the WULA about impacts on downstream water users

74. The DG failed to consider the likely effects of the water uses to be authorised on other water users as required in terms of section 27(1)(f) of the NWA, because of a fundamental lack of information about the anticipated impacts of the proposed colliery on downstream water users.

75. EcoPartners CC ('EcoPartners'), one of Atha's environmental assessment practitioners, prepared the Downstream Water Usage report¹²⁸ for the proposed colliery (annexure G to the WULA), despite lacking the necessary expertise and experience of a specialist in this area. The Brownlie review makes the following observations, amongst others, in respect of the Downstream Water Usage report:¹²⁹

75.1. the report is '*unacceptable*' – '*it lacks rigour and a systematic analysis*' and '*makes a number of vague and wholly inadequate and inconclusive statements*';

75.2. '*it gives information on the present ecological state of the affected river systems, and on potential risks of pollution and flow changes, without quantifying the predicted effects on economic activities*';

75.3. '*impacts on springs, boreholes, floods and droughts are not assessed*'; and

75.4. '*the study focuses only on surface water resources, ignoring the potential influence of groundwater recharge (the process whereby water moves from the surface to underground) affecting water users*'.

¹²⁸ Dated August 2014

¹²⁹ Brownlie review (Annexure E hereto) pgs 4 and 5

76. The inadequacy of the Downstream Water Usage report is particularly concerning given the findings of Atha's environmental specialists (the Delta H groundwater assessment, the WSP groundwater assessment, the NSS ecological assessment and **the SAS 2015 assessment**) that there are likely to be significant environmental impacts well beyond the mining area (see paragraphs 35 to 39, and 55 and 57 above). The assessment of downstream water users in Atha's IWWMP is based entirely on the inadequate Downstream Water Usage report.¹³⁰

77. It is evident from the WUL¹³¹ and the WUL reasons¹³² that the Downstream Water Usage report was relied upon by the DG in deciding whether to grant the WUL. However, given the inadequacy of the Downstream Water Usage report, the DG could not have, and accordingly failed to, consider the likely effects of the water uses to be authorised on other water users as required in terms of section 27(1)(f) of the NWA.

E.2 The failure to authorise a Water Treatment Plant post-closure (second ground)

78. **Both the SAS 2015 assessment (paragraph 55) and the IWWMP (paragraph 60 above) say that a water treatment plant will be required post-closure in order to treat decant emanating from the mine. Indeed Atha proposes as the mitigation measure as regards AMD, a water treatment plant post-closure (see paragraph 59 above).**

79. **The WUL however only authorises a water treatment plant for the operational phase of the project. This is clear from the fact that the anticipated volume to be discharged from the water treatment plant is 8 861m³/a.¹³³ This is the amount which it is anticipated will be discharged**

¹³⁰ IWWMP pgs 76 to 77 and 226 to 233

¹³¹ WUL (Annexure A hereto) para 1.2.1.4, pg 19

¹³² WUL reasons (Annexure B hereto) 2.1.4, pg 5

¹³³ WUL pgs 34 and 36

during the operational phase based on an Integrated Water Balance Simulation Model by SimX Consulting.¹³⁴

80. Two of the clearly anticipated water uses associated with the proposed mine have therefore not been authorised, namely the discharging of water containing waste into a water resource (section 21(f) of the NWA), and disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g) of the NWA).
81. There is furthermore no information before the Water Tribunal as regards the impacts of these water uses. As pointed out in the revised GCS review, the information contained in the IWWMP and its specialist studies as regards the likely quality and quantity of water to be treated during the operational phase is itself entirely deficient.¹³⁵
82. The Appellants submit that their appeal should be upheld on this ground alone.

E.3 The failure to apply the ‘precautionary’ environmental management principle of NEMA (third ground of appeal)

83. Section 2(4)(a)(vii) of NEMA provides that sustainable development requires the consideration of all relevant factors including that ‘*a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions*’ (the so-called ‘precautionary principle’) [own emphasis]. In terms of section 2(1) of NEMA, NEMA’s national environmental management principles, including the precautionary principle, apply throughout South Africa to the actions of all organs of state that may significantly affect the environment and:-

¹³⁴ See the IWWMP pgs 152-156, in particular pg 156

¹³⁵ Revised GCS review pg 27

- 83.1. serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of, amongst others, the NWA; and
- 83.2. serve as principles by reference to which a conciliator appointed under, amongst others, the NWA must make recommendations.
84. The precautionary principle is significant to the decision to issue a WUL to Atha in respect of the proposed colliery due to the fundamental deficiencies in the specialist studies which form the backbone of Atha's WULA.
85. An understanding of the groundwater impacts of the proposed colliery is the keystone of any meaningful assessment of the surface water, wetland and biodiversity-related impacts of the proposed colliery. This is because the most significant impacts of the proposed colliery are, and are related to, the dewatering of the groundwater aquifers below and in the vicinity of the proposed mining area and the decant of contaminated groundwater water and AMD from the underground mine workings. The Delta H groundwater assessment is Atha's most recent and sophisticated groundwater study. However, as explained extensively in the **revised** GCS review, the results (predictions) of the Delta H groundwater model are of a low confidence for the following reasons:
- 85.1. Delta H itself admits that its model is low confidence because it is based on dry-season groundwater information only, and accordingly does not account for the seasonal variability of water levels and attendant impacts;¹³⁶
- 85.2. Delta H failed to sufficiently establish the hydraulic conductivity of the dolerite sill, and relied on an assumption of a continuous, un-fractured dolerite sill (and limited hydraulic connectivity between the shallow and deep aquifers) in generating results regarding

¹³⁶ Delta H report section 1.3, pg 2; section 6.3.1, pg 38; section 6.5, pg 42

dewatering of the aquifers and decant of contaminated water. Delta H relied on this assumption of a continuous, un-fractured dolerite sill despite its own sensitivity analysis revealing that anticipated groundwater inflows into the underground mine workings increase substantially with a more hydraulically conductive dolerite sill (see paragraphs 41.1 to 41.4 above). Furthermore, according to **the revised GCS review**, a sill with higher hydraulic conductivity than that used in the Delta H groundwater assessment could result in higher decant volumes;¹³⁷

85.3. Delta H failed to assess the cumulative drawdown impact of the dewatering of the aquifers due to the pumping out of groundwater from the underground mine workings as well as the abstraction of groundwater from two specified boreholes (which abstraction has been authorised as part of the WUL – see paragraph 26.1 above);¹³⁸

85.4. Delta H failed to simulate the anticipated contaminant plume from the underground mine workings (see paragraph 62.1 above);¹³⁹ and

85.5. Delta H failed to determine the anticipated post-closure qualities and quantities of groundwater decant from the underground mine workings (see paragraph 62.1 above).

86. As explained in paragraph 41.3 above, the Australian groundwater modelling guidelines (Barnett et al, 2012)¹⁴⁰ state that a low confidence (also referred to as a ‘Class 1’) model *‘has relatively low confidence associated with any predictions and is therefore best suited for managing low-value resources (i.e. few groundwater users with few or low-value groundwater dependent ecosystems)*

¹³⁷ **Revised** GCS review (Annexure G hereto) pg 21

¹³⁸ **Revised** GCS review (Annexure G hereto) section pg 18

¹³⁹ See also the Dennis review (Annexure F hereto) pg 28

¹⁴⁰ Which were referenced by Delta H

*for assessing impacts of low-risk developments or when the modelling objectives are relatively modest’.*¹⁴¹

87. The **revised** GCS review comments that, based on the results of Atha’s specialist studies, as well as various statements in Atha’s IWWMP and EIAR, *‘it is evident that the area of and surrounding the proposed mining activity is a moderate to high value groundwater-dependant ecosystem. In light of this, a Class 3 model with a high level of confidence is required before a decision may be taken which will affect the resource’.*¹⁴²

88. GCS states unequivocally that, due to the low confidence of the Delta H groundwater model, it *‘should not be used in its current state for any decision-making’.*¹⁴³

89. The deficiencies in the Delta H groundwater assessment represent a fundamental limitation in the current knowledge of the environmental impacts of the proposed colliery. This limitation in current knowledge extends beyond limitations in knowledge about the groundwater impacts of the proposed colliery, to limitations in current knowledge about the surface water, wetland and biodiversity-related impacts.¹⁴⁴ Furthermore, the current knowledge of the groundwater, surface water, wetland and biodiversity-related impacts of the proposed colliery – which is based on a **limited** understanding of the groundwater impacts of the proposed colliery¹⁴⁵ – indicates a high likelihood that the proposed colliery would have significant environmental impacts on an

¹⁴¹ **Revised** GCS review (Annexure G hereto) pg 25

¹⁴² **Revised** GCS review (Annexure G hereto) pg 25

¹⁴³ **Revised** GCS review (Annexure G hereto) pg 25

¹⁴⁴ The Delta H groundwater assessment, NSS ecological assessment and **SAS 2015 assessment**, are unequivocal in their findings that the groundwater dewatering and decant impacts are likely to have attendant impacts on surface water, wetlands and biodiversity – see paragraphs 36 to 39, 55 and 57 above

¹⁴⁵ This is primarily due to Delta H’s assumption of a continuous, un-fractured dolerite sill - see paragraphs 41.1 to 41.4 and 62.2 above

environmentally sensitive, vulnerable and important area,¹⁴⁶ well beyond the footprint of the proposed mining area.¹⁴⁷

90. It is evident from the WUL reasons that the DG (and the Environment and Recreation Section of the DWS), also regarded the current information in the WULA to be inadequate insofar as it recommended the following conditions be included in the WUL:

90.1. *'The old information of the studies and the application forms must be updated as per the presentation and inputs provided'; and*

90.2. *'A 2-3 page written motivation must be provided that the ecological risks and impacts posed to the characteristics (surface flow, interflow, groundwater flow, water quality, geomorphology, habitat and biota) of the watercourses involved are minimal and that the mine will have no negative impacts on the Mabolo sic Protected Area' (para 3.2.1, pgs 41 and 42).*

91. On the basis of the current knowledge of the groundwater, surface water, wetland and biodiversity-related impacts of the proposed colliery *'a risk-averse and cautious approach ... which takes into account the limits of current knowledge about the consequences of decisions and actions'*, within the meaning of the precautionary principle, undoubtedly requires that Atha be denied a WUL in respect of the proposed colliery.

92. Accordingly, it is evident that the DG failed to consider the precautionary principle in deciding to issue the WUL. Furthermore, it was wholly inappropriate for the Environment and Recreation Section of the DWS to recommend that the obvious deficiencies in current knowledge of the environmental impacts of the proposed colliery be addressed by, amongst others, the aforesaid

¹⁴⁶ See paragraph 29 above

¹⁴⁷ See paragraphs 35 to 39, and 55 and 57 above

'2-3 page written motivation' to be provided to the DWS after the issue of the WUL. It was inappropriate to issue the WUL in the face of such deficiencies.

E.4 The grant of exemption in terms of Government Notice 704 was unjustifiable (fourth ground of appeal)

93. In terms of the WUL, Atha was granted an exemption from the requirement in regulation 4(b) of Government Notice 704 being the '*Regulations on use of Water for Mining and Related Activities aimed at the Protection of Water Resources*' made in terms of the NWA ('the NWA Regulations').¹⁴⁸ The requirement in regulation 4(b) is that no person in control of a mine may carry on any underground mining within a horizontal distance of 100 metres from any watercourse or estuary (regulation 4(b)). The exemption, **which was granted in terms of regulation 3 of the NWA Regulations**, was necessary in order for Atha to conduct underground mining below the wetlands falling within the underground mining and surface infrastructure areas.¹⁴⁹

94. The Appellants contend that the DG's decision to grant this exemption to Atha was unjustifiable. In making this submission, the Appellants are not suggesting that to succeed on appeal they have to meet the same standard as they would in a judicial review application in order to have the impugned decision set aside. On the contrary, this matter constitutes an appeal and the Water Tribunal is entitled to consider the entire matter afresh and replace the decision of the DG with its own decision.

95. Atha proposed the following mitigation measures in motivation for the grant of the exemption:¹⁵⁰

95.1. *'The mine will monitor the wetlands as well as the groundwater in the area';*

¹⁴⁸ GG 20119, 4 June 1999

¹⁴⁹ IWWMP pgs 224 and 225

¹⁵⁰ IWWMP pg 225

95.2. *'Any significant water ingress into the underground workings will be reduced by grouting and the groundwater model will be updated as new information becomes available';*

95.3. *'All impacted wetlands will be rehabilitated after mine closure';* and

95.4. *'As a contingency, the mine will discharge treated (clean) mine water into effected (sic) wetlands, should the undermined wetlands experience reduced functionality due to proven mining impacts.'*

96. Atha's proposed mitigation measure of reducing any significant water ingress by grouting must be considered in light of GCS's comments as regards this method. As pointed out above, GCS makes three points in this regard. The first is that grouting has not been assessed by any of Atha's groundwater specialists. The second is that although it is possible that grouting may reduce the anticipated inflows into the underground workings and therefore also reduce the anticipated drawdowns, this was not simulated in the Delta H groundwater assessment and it is therefore simply not known whether this proposed measure will reduce the dewatering impacts. **The third is that grouting is very seldom used in coal mines due to safety risks arising from uncontrolled water intrushes. Grouting can lead to the build-up of pore pressures with consequent underground rock stability issues and result in sudden intrushes which can lead to an unsafe mining environment. If grouting is undertaken it is usually used in the development roadways or adits and not along mining panels.**¹⁵¹

97. GCS comments further that the mitigation measure of discharging treated water into the wetlands may be plausible, but that it has not been assessed by any environmental specialists and the environmental consequences of the proposed mitigation measure are entirely unknown.¹⁵²

¹⁵¹ Revised GCS review (Annexure G hereto) pg 56

¹⁵² Revised GCS review (Annexure G hereto) pg 34

98. **Crucially, the economic feasibility of treating post-closure decant for several decades (which is what the SAS 2015 assessment envisaged as being required) has not been established.**

99. **Furthermore the proposed mitigation of treating post-closure decant is itself a water use which has not been authorised.**

100. In respect of the bald statement by Atha that *'all impacted wetlands will be rehabilitated after mine closure'*, attention is drawn to the following information in the environmental assessments commissioned by Atha which reveals that meaningful rehabilitation is likely not possible:

100.1. the wetlands in the **proposed underground mining area** have a 'VERY HIGH' Ecological Importance and Sensitivity ('EIS'), meaning, among other things, that the biodiversity of these wetlands is likely to be very sensitive to flow and habitat modifications;¹⁵³

100.2. NSS considered that the Yzermyn project *'is fatally flawed, and should be NO GO in terms of Biodiversity ... largely because of the impact of the proposed underground mining on the supply of water to the surface water resources (due to the de-watering activities) and the potential groundwater contamination. These aspects will have a significant impact on aquatic and wetland ecosystem functioning and biodiversity in a far greater area than the underground mining area'*;¹⁵⁴

100.3. *'both the cone of depression and the groundwater contamination plume extend to the wetland FEPA's in the near vicinity'* of the proposed colliery;¹⁵⁵

100.4. NSS's findings are that the anticipated impact of dewatering of the aquifers and the resultant impacts on wetlands, aquatic ecology and biodiversity is of 'HIGH' significance

¹⁵³ NSS pg 199; SAS pg 67

¹⁵⁴ NSS pg 269

¹⁵⁵ NSS pg 209 and see also revised GCS review pg 12

(NSS's highest significance rating) both without mitigation and with mitigation (in other words, NSS regards mitigation of this impact as being impossible);¹⁵⁶

100.5. NSS's findings are that the anticipated impact of decant of contaminated groundwater and the resultant impacts on surface water quality, wetlands, aquatic ecology and biodiversity is of 'HIGH' significance both without mitigation and with mitigation (in other words, NSS regards mitigation of this impact as being impossible)¹⁵⁷; and

100.6. **The SAS 2015 assessment confirmed that there would be '*[d]ewatering of wetland habitat downgradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns*' and '*[f]ormation of groundwater cone of dewatering, leading to reduced recharge of wetland resources*'¹⁵⁸. It rated these as having 'HIGH' impacts on the study-area wetlands both unmitigated and with mitigation¹⁵⁹.**

101. The decision to grant exemption was unjustifiable by reason of the fact that the DG had no way of knowing whether Atha's proposed mitigation measures are capable of fulfilment.

102. **The Appellants submit that there would need to be an assurance that the sustainable use of water resources will not be compromised before exemption in terms of regulation 3 will be granted. The purpose of the regulations would otherwise be defeated.**

¹⁵⁶ NSS pg 242

¹⁵⁷ NSS pg 254

¹⁵⁸ **SAS 2015 assessment pg 98**

¹⁵⁹ **SAS 2015 assessment pgs 99 and 100**

E.5 The failure to consider the socio-economic impact of the water uses, if authorised, as required in terms of section 27(1)(d) of the NWA (fifth ground of appeal)

103. Atha's IWWMP and EIAR failed to report objectively and fully on the possible effects of the proposed colliery on people living in the area, with the consequence that the DG was not in a position to consider the actual socio-economic impact of the water uses, if authorised, as required in terms of section 27(1)(d) of the NWA.

104. According to Atha the mine would generate 576 employment opportunities when fully operational.¹⁶⁰ The IWWMP states that *'these employees are anticipated to be sourced from the surrounding local communities as far as practicable'*¹⁶¹, which statement is repeated in the WUL reasons.¹⁶²

105. However, the socio-economic specialist study conducted by WSP¹⁶³ as part of the social and environmental impact assessment of the proposed colliery ('the Socio-Economic Study'), which does not form part of the WULA and is attached marked 'J', casts doubt on the likelihood of any substantial number of the mine's employees being sourced from the surrounding local communities:

105.1. As regards employment in the construction phase, the report provides that: *'[s]killed labour is likely to be sourced from outside the [Area of Direct Influence], either regionally or nationally. In addition, management level staff are likely to be sourced in India (Atha's current mining operations), and brought into manage local operations and transfer skills to local employees/trainees on an on-going basis.'*¹⁶⁴

¹⁶⁰ IWWMP pgs 237 and 238; EIAR pg 136 and 137

¹⁶¹ IWWMP pg 237

¹⁶² WUL reasons (Annexure B hereto) pg 49. Accordingly it is apparent that the DWS relied on this information in deciding to issue the WUL

¹⁶³ Dated 19 August 2013

¹⁶⁴ Socio-Economic Study (Annexure J hereto) pg 29

- 105.2. The Socio-Economic Study says further that *'[a]lthough there may be a small number of additional unskilled opportunities (e.g. security, community liaisons, general labourers and cleaners) that could arise, there is unlikely to be significant opportunities for the local population to be employed during the construction phase, and the opportunities are likely to be temporary.'*^{165 166}
- 105.3. In respect of the operational phase of the time, the Socio-Economic Study says that *'there are low skills levels within the [Area of Direct Influence] [a]nd therefore the local population may not meet the labour requirements of the mine ... A small number of opportunities may be sourced from the immediate area; however these are likely to be mainly unskilled, such as security and cleaning staff.'*¹⁶⁷
106. By way of contrast, the EIA reports that eco-tourism contributes materially to job-creation in the area and that if mitigation measures are not implemented, environmental impacts resulting from the proposed mine may degrade surrounding surface and groundwater sources resulting in a reduction of biodiversity in the area and a decline in eco-tourism.¹⁶⁸
107. The proposed mining area also supports agricultural employment opportunities. The farms on which the mine will be established are themselves currently used for the commercial grazing of livestock (sheep and cattle). Several subsistence farmers have also made their home on the proposed mining site, which has good to excellent grazing capacity.¹⁶⁹
108. There are approximately eight homesteads situated on the proposed mining site which are occupied by low-income families with between eight and thirty people living in each homestead.

¹⁶⁵ Socio-Economic Study (Annexure J hereto) pg 29

¹⁶⁶ In respect of paragraphs 105.1 and 105.1 above, the lack of creation of local employment opportunities during the construction phase is not communicated in the IWWMP

¹⁶⁷ Socio-Economic Study (Annexure J hereto) pgs 29 and 30. The lack of creation of local employment opportunities during the operational phase is also not communicated in the IWWMP

¹⁶⁸ EIA pg 97 (see also the Socio-Economic Study (Annexure J hereto) pg 20)

¹⁶⁹ EIA pgs 83 and 84

The households generally rely on limited income from a single family member who works on the host farm, as well as on social grants. This community *'is vulnerable from a livelihood perspective, as they do not have access to finances or other resources should their current income come to an end (i.e. farm work) or access to natural resources, such as water and grazing land, be prevented'*.¹⁷⁰ It is clear from the IWWMP¹⁷¹ and the WUL reasons¹⁷² that the surface infrastructure area will be surrounded by security wire fencing which is 2.1 metres high.

109. The IWWMP and EIAR do not assess with any precision what the likelihood of the loss of this livelihood is, or what the likelihood of loss of agricultural income and resources in the larger area may be should the mine have any adverse impact on the water sources used by commercial and subsistence farmers in the area.

110. The EIAR records that water is sourced by farmers in the area from springs (referred to locally as 'fontaine') which are used for both domestic and livestock watering purposes.¹⁷³ There are twenty-three such springs in the project area. The springs are also a water source for the wetlands.¹⁷⁴ According to the Delta H groundwater assessment and the NSS ecological assessment, the dewatering of the aquifers will have a negative impact on, among other things, the springs within the cone of depression of the mine, and some may dry up during the life of mine.¹⁷⁵

111. The Brownlie review contains a detailed analysis of how the socioeconomic impacts of the proposed project have been dealt with in the EIAR. Brownlie's assessment is that *'[t]he socioeconomic impacts of the proposed project are not addressed in a balanced and objective way, and fail to incorporate relevant findings of the socioeconomic specialist report The assessment*

¹⁷⁰ Socio-Economic Study (Annexure J hereto) pgs 17 and 18

¹⁷¹ IWWMP pg 16

¹⁷² WUL reasons (Annexure B hereto) pg 10

¹⁷³ EIAR pg 181 and 182

¹⁷⁴ NSS ecological assessment pg 243

¹⁷⁵ Delta H pg 53; NSS pg 243

*of these impacts, and conclusions drawn [in the EIAR], are thus highly questionable.*¹⁷⁶ Brownlie points out, among other things, that:

111.1. *'[T]he main livelihoods prior to mining – agriculture and tourism – may be significantly negatively affected; eco-tourism has created about 400 jobs in the Wakkerstroom region (4.13.7 of the EIAR, p. 97) and "The Wakkerstroom and surrounding conservation areas are significant townscapes with a strong future natural based tourist industry" (7.18.2, p. 242)';*

111.2. *'Impacts of mining on tourism to the wider area and associated economic factors, income generation and employment have not been adequately assessed. Numerous sections in the EIAR refer to the moderate to high potential for expansion of tourism and recreation in the affected area, as well as the diversity of natural resources and aesthetic attributes of the area that serve as the foundation for this sector to grow (e.g. 8.10.3.3, 8.16.3.5, 8.16.4.3, 8.16.4.5) ... (p. 466 of the EIAR)';*

111.3. *'The EIAR (8.16.4.5) notes that the return of the local economy to agriculture and tourism is likely to take up to 10 years (or longer depending on the degree of impact of the mine on the local physical environment) (p. 468)'; and*

111.4. *'The potential influx of labour and job seekers, with associated negative impacts (e.g. 8.16.3.4, p. 455; 8.16.4.2, p. 457-8; 8.16.4.3, pp. 462, 465, 466-468) is inadequately assessed: most communities and local municipalities expressed concern regarding the potential influx of job seekers and labour into the area, which could affect accessibility to social and basic services, specifically healthcare, housing, water and sanitation, sense of place and social conflict'.*

¹⁷⁶ Brownlie review (Annexure E hereto) pgs 16 and 17

112. The failure of the IWWMP and the EIAR to report objectively and fully on the possible effects of the proposed colliery on people living in the area has the consequence that the DG was not in a position to consider the socio-economic impact of the water uses, if authorised, as required in terms of section 27(1)(d) of the NWA.
113. The information which *is* contained in the specialist studies suggests furthermore that the greatest environmental impact of the mine is likely to be felt mainly by vulnerable and disadvantaged persons in the area, namely subsistence farmers and poor rural communities who depend on the natural soil and water resources in the area to sustain themselves.
114. If the WUL were to be upheld by the Water Tribunal it would be a decision which is in direct conflict with section 2(4)(c) of NEMA which provides that *'[e]nvironmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged people'*.¹⁷⁷ Whereas the negative impact of the project will be borne by poor communities in the area, the wealth of the natural resource removed from the ground will accrue predominantly to a foreign corporation and its shareholders.
115. Any such decision would also be in conflict with:
- 115.1. Section 2(4)(i) of NEMA which provides that *'[t]he social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment'*; and

¹⁷⁷ The NEMA national environmental management principles are applicable to the DG's decision to issue the WUL and this appeal to the Water Tribunal in terms of section 2(1) of NEMA – see paragraph 83 above

115.2. Section 2(4)(a)(viii) of NEMA which requires that negative impacts on the environment and on people's environmental rights be anticipated and prevented and only where they cannot be altogether prevented, minimised and remedied.

E.6 The failure to give effect to the right to procedurally fair administrative action in terms of section 33 of the Constitution and sections 3 and 4 of the Promotion of Administrative Justice Act, 2000 (sixth ground of appeal)

116. Atha conducted a public participation process for the WULA in terms of section 41(4) of the NWA from 19 June 2015 to 20 August 2015, during which time various WULA documents ('the public participation WULA documents') were made available for comment by Interested and/or Affected Parties ('I&APs'). The Centre for Environmental Rights ('CER') obtained the public participation WULA documents from Savannah Environmental (Pty) Ltd, the public participation consultant appointed by Atha in respect of the WULA, on 3 August 2015.

117. On 26 October 2015 the DWS addressed a letter to Atha requesting '*information ... either incomplete or missing*' from the WULA. This letter is attached marked 'K'. On 10 November 2015 Atha responded to the DWS's letter and submitted various additional WULA documents to the DWS. Atha's letter is attached marked 'L'.

118. On 13 July 2016 the CER submitted a request to the DWS in terms of the Promotion of Access to Information Act, 2000 ('PAIA') and the DWS's Promotion of Access to Information Manual for access to all documentation submitted to the DWS as part of the WULA after 3 August 2015. The CER obtained, amongst others, the DWS's 26 October 2015 letter (Annexure K hereto), Atha's 10 November 2015 letter (Annexure L hereto), and the additional WULA documents submitted to the DWS on 10 November 2015.

119. The additional WULA documents submitted on 10 November 2015 include, amongst others, the following documents which were not part of the public participation WULA documents:

119.1. A motivation letter by Atha *'relating to the logicality of not having to undertake a provincial road wetland survey and the irrelevance of a wetland offset requirement given the specific circumstances of the Yzermyn underground mining project'* (attached marked 'M');

119.2. Atha's final table stating *'Identified risks and mitigation measures associated with each water use'*(Table 5-7) (attached marked 'N'); and

119.3. Application forms for a new water use in terms of section 21(g) of the NWA (disposing of waste in a manner which may detrimentally impact on a water resource) in the form of using pollution control dam ('PCD')-process water for dust suppression on roads within the mining footprint within 500 metres of various wetland systems on Yzermyn 96 HT: Portion 1 (attached marked 'O'). This water use was subsequently authorised by the DWS in the WUL.

120. No additional public participation process was conducted in respect of the additional WULA documents submitted on 10 November 2015. Accordingly the DG made a decision on the WULA (to issue the WUL) without the additional WULA documents submitted on 10 November 2015 having been made available for comment to I&APs.

121. As appears further from paragraph 8.1 above, another important document, which was expressly taken into account by the DG in granting the WUL¹⁷⁸, was never submitted for comment to I&APs, namely the SAS 2015 assessment.

122. The revised GCS review identifies a third substantive document pertaining to surface water impacts which did not form part of any public participation process, and which the Appellants have never seen.¹⁷⁹

¹⁷⁸ See the several references to 'SAS, May 2015' in the WUL reasons

¹⁷⁹ **Revised GCS review pg 45**

123. The Promotion of Administrative Justice Act, 2000 ('PAJA'), in giving effect to the Constitutional right to procedurally fair administrative action¹⁸⁰, requires that '*[a]dministrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair*'¹⁸¹, and that the right to procedurally fair administrative action includes '*a reasonable opportunity to make representations*'¹⁸².
124. The failure by Atha to conduct a public participation process in respect of the additional WULA documents submitted on 10 November 2015 and **the SAS 2015 assessment** means that I&APs did not have a reasonable opportunity to make representations in respect of these documents and accordingly the WULA, as well as the WUL issued, fall foul of the procedural fairness requirements of the Constitution and PAJA and should be set aside as unjust administrative action.
125. **Apart from the SAS 2015 assessment and surface water report**, of particular concern is the additional authorised water use of using PCD-process water for dust suppression on roads within the mining footprint within 500 metres of various wetland systems. In respect of this water use Atha's IWWMP states that '*process water will consist of dirty water being used for dust suppression*'¹⁸³ and furthermore '*water not needed at potable standard will by-pass the water treatment plant and be used for dust suppression*'¹⁸⁴. The WUL specifies water quality ranges (in respect of various constituents) with which the PCD-process water utilised for dust suppression must comply.¹⁸⁵ However, the environmental assessments which form part of the WULA do not assess the environmental impacts of this use of the PCD-process water on local and regional water quality, the wetlands or biodiversity, amongst other things. It was inappropriate and unlawful for

¹⁸⁰ Section 33(1) of the Constitution of the Republic of South Africa, 1996

¹⁸¹ Section 3(1) of PAJA

¹⁸² Section 3(2)(b)(ii) of PAJA

¹⁸³ IWWMP pg 152

¹⁸⁴ IWWMP pg 154. This information is repeated in the WUL reasons (pg 30), accordingly it is apparent that the DWS relied on this information in deciding to issue the WUL

¹⁸⁵ WUL (Annexure A hereto) para 4.4, pgs 39 and 40

the DG to authorise this additional water use without proper analysis of its environmental impacts, and without public participation in respect of this water use.

E.7 The strategic importance of the water use to be authorised (section 27(1)(i) of the NWA)
(seventh ground of appeal)

126. As appears from the WUL reasons, part of the motivation for granting the WUL was that *'[C]oal is considered one of the most valued minerals in the world and is the largest source of energy, providing 27% of the global primary energy needs and generating 41% of the world's electricity ...South Africa possesses Africa's only significant coal reserves; over 70% of Africa's coal reserves are found in South Africa...'*¹⁸⁶
127. As appears below however, the mine would be one of the smaller mines in the area and the quality of coal to be mined is relatively poor.
128. South Africa's coal reserves are estimated at around 30 billion tonnes. At current rates of production, South Africa has reserves sufficient to satisfy its needs for more than a century¹⁸⁷.
129. Based on an estimated coal resource of 80.32 Mt¹⁸⁸, the proposed mine would contribute only 0.86% of South Africa's total coal reserves. In terms of estimated coal production, the mine aims to produce approximately 2.25 million tonnes of ore per year.
130. Mpumalanga contains the bulk of South Africa's marketable coal reserves¹⁸⁹. Approximately 81% of the total amount of coal produced in South Africa is mined in Mpumalanga¹⁹⁰. On average, however, existing coal mines in Mpumalanga have larger coal resources than what the

¹⁸⁶ WUL reasons pg 51

¹⁸⁷ This appears from a document entitled "Key Facts and Figures" on the Chamber of Mines' website.

¹⁸⁸ Environmental Authorisation pg 413:4b

¹⁸⁹ (62%) (approximately 18.6 billion tonnes) EIAR pg 89

¹⁹⁰ XMP Consulting 'Review of the South African Coal Mining Industry', 2013 attached marked 'P'

proposed mine has¹⁹¹. The coal resource targeted by the mine is therefore relatively marginal. In this regard see also the vast areas in the immediate vicinity of the proposed mine in respect of which mining applications were pending when NSS compiled its report¹⁹².

131. Atha also expects to export up to 67.4% of saleable coal product (1,234,032 tons) via Richards Bay Coal Terminal. The remaining 32.6% of the saleable coal is expected to be transported to supply Eskom power stations (597,840 tons)¹⁹³. This project proposes roughly the inverse of the national average of 7:3 split of local use to export and suggests that the project is not aimed at ensuring local energy security. (I pause here to point out that there is no evidence of any supply agreement with Eskom, or any negotiations underway.)

132. The quality of the coal to be mined by Atha is also relatively poor¹⁹⁴. The coal quality would thus be categorised as '*low grade bituminous coal*'.

133. Due to multiple constraints on the future production rate of coal mining in South Africa (coal and climate policy, environmental impacts and peak production) it is evident that priority should be given, in granting environmental authorisations, to coal projects that will produce high quality/grade coal. In this regard the Appellants note that:

133.1. Coal power generation accounts for over 70% of South Africa's total greenhouse gas emissions. Coal provides 81% of the power generated by state-owned power utility

¹⁹¹ For instance, Optimum Colliery, located mainly in the Mpumalanga province, has a coal resource of over 700 Mt. Other mines with large coal resource bases include Manungu (coal resource base of +460 Mt); Goedehoop Colliery (coal resource base of +310 Mt); and Goedgevoden Colliery (coal resource base of +221 Mt) (XMP Consulting *South African Coal Desktop Study*, 2014 pgs 11-25 (attached marked 'Q'). The proposed mine has, by way of contrast a gross *in situ* resource of only 80.32 Mt (EIAR p. 4) (not allowing for losses, which could significantly reduce the estimated coal resource). This accounts for only 0.43% of Mpumalanga's coal reserves (XMP Consulting *Review of the South African Coal Mining Industry*, 2013 pg 4)

¹⁹² NSS pg 784

¹⁹³ EIAR pg 4

¹⁹⁴ EIAR pgs 102-103. The calorific value ('CV') of the coal resource ranges between 23.92-24.22 MJ/kg, with an average CV of 24.09. Bituminous coal ranges from 24 to 35 MJ/kg.

Eskom. Eskom operates 16 power stations and is building two more to come on stream by 2021. In the year to end-March 2015 Eskom bought *122Mt of thermal coal*.

133.2. In 2008 South Africa committed to a 'peak, plateau and decline' ('PPD') emissions trajectory, which requires emissions to peak by 2020-2025, stabilise for up to ten years and then decline in absolute terms¹⁹⁵.

133.3. Thus, South Africa's climate change commitments, framed in the Intended Nationally Determined Contributions, 2005 requires an even sharper decline in coal production (and consumption) than anticipated declines in production due to natural limits of the resource (or peak production rates).

134. Finally under this head, Mpumalanga is 7 649 500 ha, making up only 6.5% of South Africa's land. The fact that 82% of South Africa's total coal production occurs in only 6.5% of its area highlights the intense concentration of coal production in the area. Excluding the Kruger National Park, a total of 472 707 ha or only 6.1% of the province is included within formal protected areas, as defined in NEMPAA. The Mabola Protected Environment is a relatively small area of approximately 8772 ha.

135. The proper application of the principle in section 2(4)(a)(v) of NEMA, namely that '*the use and exploitation of non-renewable natural resources is responsible and equitable...*' requires that careful consideration be given to these issues. Similarly section 27(1)(i) of the NWA requires that the strategic importance of the water use to be authorised must be assessed.

136. Since these issues did not form part of any specialist report or the IWWMP or EIAR, this represents a further material gap in the information which was placed before the decision-

¹⁹⁵ (LTMS, 2008) (Energy Research Centre 2007 Long Term Mitigation Scenarios: Technical Appendix, Department of Environment Affairs and Tourism, Pretoria, October 2007)

maker. This gap would need to be closed by the obtaining of appropriate specialist input before a final decision could be taken.

CONCLUSION

137. In the premises the Appellants request that the appeal be upheld.